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**1.551 json-schema-traverse 0.3.1**  
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**1.555 latest-version 3.1.0**  
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- 1.861 rabbitmq-c 0.11.0**
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- 1.903 sharutils 4.15.2**
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# 1.1 libjpeg 6b

## 1.1.1 Notifications :

This software is based in part on the work of the Independent JPEG Group.

## 1.1.2 Available under license :

The Independent JPEG Group's JPEG software

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README for release 6b of 27-Mar-1998

=====

This distribution contains the sixth public release of the Independent JPEG Group's free JPEG software. You are welcome to redistribute this software and to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

Serious users of this software (particularly those incorporating it into larger programs) should contact IJG at jpeg-info@uunet.uu.net to be added to our electronic mailing list. Mailing list members are notified of updates and have a chance to participate in technical discussions, etc.

This software is the work of Tom Lane, Philip Gladstone, Jim Boucher, Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Guido Vollbeding, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the official ISO JPEG standards committee.

## DOCUMENTATION

### ROADMAP

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This file contains the following sections:

OVERVIEW        General description of JPEG and the IJG software.  
LEGAL ISSUES    Copyright, lack of warranty, terms of distribution.  
REFERENCES     Where to learn more about JPEG.  
ARCHIVE LOCATIONS    Where to find newer versions of this software.  
RELATED SOFTWARE    Other stuff you should get.  
FILE FORMAT WARS    Software \*not\* to get.  
TO DO            Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.doc     How to configure and install the IJG software.  
usage.doc       Usage instructions for cjpeg, djpeg, jpegtran,  
                 rdjpgcom, and wrjpgcom.  
\*.1             Unix-style man pages for programs (same info as usage.doc).  
wizard.doc      Advanced usage instructions for JPEG wizards only.  
change.log      Version-to-version change highlights.

Programmer and internal  
documentation:

libjpeg.doc    How to use the JPEG library in your own programs.  
example.c      Sample code for calling the JPEG library.  
structure.doc   Overview of the JPEG library's internal structure.  
filelist.doc   Road map of IJG files.  
coderrules.doc Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

## OVERVIEW

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This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images.

JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet. For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

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The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

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## REFERENCES



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We

highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44. (Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at <ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz>. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US\$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2). This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead; it's much cheaper and includes a great deal of useful explanatory material.) In the USA, copies of the standard may be ordered from ANSI Sales at (212) 642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI doesn't take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging \$95 for Part 1 and \$47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS

10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department  
C-Cube Microsystems, Inc.  
1778 McCarthy Blvd.  
Milpitas, CA 95035  
phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at <ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz>. There is also a plain text version at <ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz>, but it is missing the figures.

The TIFF 6.0 file format specification can be obtained by FTP from <ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme

found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems. IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from <ftp://ftp.sgi.com> or from <ftp://ftp.uu.net/graphics/jpeg/>. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from <ftp://ftp.sgi.com/graphics/tiff/>.

#### ARCHIVE LOCATIONS

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The "official" archive site for this software is [ftp.uu.net](ftp://ftp.uu.net) (Internet address 192.48.96.9). The most recent released version can always be found there in directory [graphics/jpeg](ftp://ftp.uu.net/graphics/jpeg/). This particular version will be archived as <ftp://ftp.uu.net/graphics/jpeg/jpegsrc.v6b.tar.gz>. If you don't have direct Internet access, UUNET's archives are also available via UUCP; contact [help@uunet.uu.net](mailto:help@uunet.uu.net) for information on retrieving files that way.

Numerous Internet sites maintain copies of the UUNET files. However, only

ftp.uu.net is guaranteed to have the latest official version.

You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (<ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/>), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the ftp.uu.net release.

The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups comp.graphics.misc, news.answers, and other groups. It is available on the World Wide Web at <http://www.faqs.org/faqs/jpeg-faq/> and other news.answers archive sites, including the official news.answers archive at rtfm.mit.edu: <ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/>. If you don't have Web or FTP access, send e-mail to [mail-server@rtfm.mit.edu](mailto:mail-server@rtfm.mit.edu) with body  
send usenet/news.answers/jpeg-faq/part1  
send usenet/news.answers/jpeg-faq/part2

#### RELATED SOFTWARE

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Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.

If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making cjpeg/djpeg considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites, notably <ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/>. Unfortunately PBPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.

A different free JPEG implementation, written by the PVRG group at Stanford, is available from <ftp://havefun.stanford.edu/pub/jpeg/>. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)

## FILE FORMAT WARS

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Some JPEG programs produce files that are not compatible with our library. The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read.

(For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)

The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation. We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.

The upcoming JPEG Part 3 standard defines a file format called SPIFF. SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether

SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not. (In any case, our decoder will remain capable of reading JFIF indefinitely.)

Various proprietary file formats incorporating JPEG compression also exist. We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!

## TO DO

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The major thrust for v7 will probably be improvement of visual quality. The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.

In future versions, we are considering supporting some of the upcoming JPEG

Part 3 extensions --- principally, variable quantization and the SPIFF file format.

As always, speeding things up is of great interest.

Please send bug reports, offers of help, etc. to [jpeg-info@uunet.uu.net](mailto:jpeg-info@uunet.uu.net).

## 1.2 plexus-component-annotations 1.5.5

### 1.2.1 Available under license :

Apache License

Version 2.0, January 2004

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## 1.3 sed 4.2.2

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Version 3, 29 June 2007

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#### 1. Source Code.

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# 1.10 unzip 6.0

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FIRST NOTE:

This file contains some details about the copyright history of contributions to the UnZip project.

Additionally, it summarises some exceptions to the general BSD-like copyright found in LICENSE that covers our generic code and most of the system specific ports.

Please read LICENSE first to find out what is allowed to do with Info-ZIP's UnZip code.

-----

There are currently two explicit copyrights on portions of UnZip code (at least, of which Info-ZIP is aware):

Jim Luther's Mac OS File Manager interface code; and Christopher Evans' MacBinaryIII coding code (for the MacOS port).. These copyrights are discussed in more detail below.

All remaining code is now (starting with UnZip version 5.41) covered by the new Info-ZIP license. For details, please read the accompanying file LICENSE. The terms and conditions in this license supersede the copyright conditions of the contributions by Igor Mandrichenko (vms/vms.c), Greg Roelofs (zipinfo.c, new version of unshrink.c), Mike White (Windows DLL code in "windll/\*"), Steve P. Miller (Pocket UnZip GUI "wince/\*"), and Mark Adler (inflate/explode decompression core routines, previously put into the public domain). All these Info-ZIP contributors (or "primary" authors) have permitted us to replace their copyright notes by the Info-ZIP License.

Frequently Asked Questions regarding (re)distribution of Zip and UnZip

are near the end of this file.

There are no known patents on any of the code in UnZip. Unisys claims a patent on LZW encoding and on LZW decoding \_in an apparatus that performs LZW encoding\_, but the patent appears to exempt a stand-alone decoder (as in UnZip's unshrink.c). Unisys has publicly claimed otherwise, but the issue has never been tested in court. Since this point is unclear, unshrinking is not enabled by default. It is the responsibility of the user to make his or her peace with Unisys and its licensing requirements. (unshrink.c may be removed from future releases altogether.)

---

The original unzip source code has been extensively modified and almost entirely rewritten (changes include random zipfile access rather than sequential; replacement of unimplode() with explode(); replacement of old unshrink() with new (unrelated) unshrink(); replacement of output routines; addition of inflate(), wildcards, filename-mapping, text translation, ...; etc.). As far as we can tell, only the core code of the unreduce method remained substantially similar to Mr. Smith's original source. As of UnZip 5.42, the complete core code is now covered by the Info-ZIP Licence. Therefore, support for the reduce method has been removed.

The drop of the reduce method should only affect some test archives, reducing was never used in any publically distributed Zip program. For pathologic cases where support for reduced archive entries is needed, the unreduce code copyrighted by Samuel H. Smith is available as a separate distribution (the restricted copyright of this code is cited below in the "historical" section).

The following copyright applies to the Mac OS File Manager interface code (macos/source/macstuff.[ch]), distributed with UnZip 5.4 and later:

```
* MoreFiles
*
* A collection of File Manager and related routines
*
* by Jim Luther (Apple Macintosh Developer Technical Support Emeritus)
* with significant code contributions by Nitin Ganatra
* (Apple Macintosh Developer Technical Support Emeritus)
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*
```

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The following  
copyright applies to the Mac OS "macbin3" decoding code  
(extra field compatibility with ZipIt):

\* MacBinaryIII.h  
\*  
\* Copyright 1997 Christopher Evans (cevens@poppybank.com)  
\*  
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\* MacBinary III spec.  
\* -----  
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\* (available at ftp://ftp.lazerware.com/MacBinaryIII\_src\_C.sit  
\* homepage of Leonard Rosenthol leonardr@netcom.com)

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that this code is freely reusable until we are proved wrong...

-----

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The following copyright applies to the full-featured unreduce.c  
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Regarding the first stipulation, Mr. Smith was tracked down in southern California some years back [Samuel H. Smith, The Tool Shop; as of mid-May 1994, (213) 851-9969 (voice), (213) 887-2127(?) (subscription BBS), 71150.2731@compuserve.com]:

"He says that he thought that whoever contacted him understood that he has no objection to the Info-ZIP group's inclusion of his code. His primary concern is that it remain freely distributable, he said."

Despite the fact that our "normal" code has been entirely rewritten and by default no longer contains any of Mr. Smith's code, Info-ZIP remains indebted and grateful to him. We hope he finds our contributions as useful as we have his.

Note that the third and fourth stipulations still apply to any company that wishes to incorporate the unreduced code into its products; if you wish to do so, you must contact Mr. Smith directly regarding licensing.

-----

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-----

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- \* from Steve P. Miller.

-----

The remaining code was written by many people associated with the Info-ZIP group, with large contributions from (but not limited to): Greg Roelofs (overall program logic, ZipInfo, unshrink, filename mapping/portability, etc.), Mark Adler (inflate, explode, funzip), Kai Uwe Rommel (OS/2), John Bush and Paul Kienitz (Amiga), Antoine Verheijen (Macintosh), Hunter Goatley (more VMS), Mike White (Windows DLLs), Christian Spieler (overall logic, optimization, VMS, etc.) and others. See the file CONTRIBS in the source distribution for a much more complete list of contributors.

The decompression core code for the deflate method (inflate.[ch], explode.c) was originally written by Mark Adler who submitted it as public domain code.

-----

## 1.11 libusb-compat 0.1.5

### 1.11.1 Available under license :

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```

```
<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice
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## 1.12 plexus-sec-dispatcher 1.3

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## 1.13 findutils 4.6.0

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Version 3, 29 June 2007

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\*/

Found in path(s):

\* /opt/cola/permits/163216980\_1695314045.967893/0/plexus-cipher-1-7-sources-jar/org/sonatype/plexus/components/cipher/PBECipher.java

## 1.23 inetutils 1.9.4

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```
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## 1.29 libmnl 1.0.4

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```
/* _setjmp is implemented in setjmp.S */
```

```
/* setjmp is implemented in setjmp.S */
```

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# 1.41 v8 6.8.275.32

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The basic library functions are written in C and are freestanding. Also included in the distribution is a set of C++ wrapper functions.

## THE BASIC LIBRARY FUNCTIONS

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Written by: Philip Hazel  
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Email domain: cam.ac.uk

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## 1.42 urllib3 1.23

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  - \* HTTPS patch (which inspired HTTPSConnectionPool)
  
- \* erikcederstrand <<http://code.google.com/u/erikcederstrand/>>
  - \* NTLM-authenticated HTTPSConnectionPool
  - \* Basic-authenticated HTTPSConnectionPool (merged into make\_headers)
  
- \* niphlod <niphlod@gmail.com>
  - \* Client-verified SSL certificates for HTTPSConnectionPool
  - \* Response gzip and deflate encoding support
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- \* btoconnor <brian@btoconnor.net>
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- \* Thomas Weischuh <thomas@t-8ch.de>
  - \* Support for TLS SNI
  - \* API unification of ssl\_version/cert\_reqs
  - \* SSL fingerprint and alternative hostname verification
  - \* Bugfixes in testsuite

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- \* Optional SNI-support for Python 2 via PyOpenSSL.
  
- \* Marc Schlaich <marc.schlaich@gmail.com>
- \* Various bugfixes and test improvements.
  
- \* Bryce Boe <bbzbryce@gmail.com>
- \* Correct six.moves conflict
- \* Fixed pickle support of some exceptions
  
- \* Boris Figovsky <boris.figovsky@ravellosystems.com>
- \* Allowed to skip SSL hostname verification
  
- \* Cory Benfield
- <<http://lukasa.co.uk/about/>>
- \* Stream method for Response objects.
- \* Return native strings in header values.
- \* Generate 'Host' header when using proxies.
  
- \* Jason Robinson <jaywink@basshero.org>
- \* Add missing WrappedSocket.fileno method in PyOpenSSL
  
- \* Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
- \* Fixed a race condition
  
- \* Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
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- \* Stephen Holsapple <sholsapp@gmail.com>
- \* Added abstraction for granular control of request fields
  
- \* Martin von Gagern <Martin.vGagern@gmx.net>
- \* Support for non-ASCII header parameters
  
- \* Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
- \* Support for separate connect and request timeouts
  
- \* Peter Waller <p@pwaller.net>
- \* HTTPResponse.tell() for determining amount received over the wire
  
- \* Nipunn Koorapati <nipunn1313@gmail.com>
- \* Ignore default ports when comparing hosts for equality
  
- \* Danilo @dbrgn <<http://dbrgn.ch/>>
- \* Disabled TLS compression by default on Python 3.2+
- \* Disabled TLS compression in pyopenssl contrib module
- \* Configurable cipher suites in pyopenssl contrib module

- \* Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
  - \* Account retries on proxy errors
  
- \* Nicolas Delaby <nicolas.delaby@ezeep.com>
  - \* Use the platform-specific CA certificate locations
  
- \* Josh Schneier <https://github.com/jschneier>
  - \* HTTPHeaderDict and associated tests and docs
  - \* Bugfixes, docs, test coverage
  
- \* Tahia Khan <http://tahia.tk/>
  - \* Added Timeout examples in docs
  
- \* Arthur Grunseid <http://grunseid.com>
  - \* source\_address support and tests (with https://github.com/bui)
  
- \* Ian Cordasco <graffatcolmingov@gmail.com>
  - \* PEP8 Compliance and Linting
  - \* Add ability to pass socket options to an HTTP Connection
  
- \* Erik Tollerud <erik.tollerud@gmail.com>
  - \* Support for standard library io module.
  
- \* Krishna Prasad <kprasad.iitd@gmail.com>
  - \* Google App Engine documentation
  
- \* Aaron Meurer <asmeurer@gmail.com>
  - \* Added Url.url, which unparses a Url
  
- \* Evgeny Kapun <abacabadabacaba@gmail.com>
  - \* Bugfixes
  
- \* Benjamin Meyer <bm\_witness@yahoo.com>
  - \* Security Warning Documentation update for proper capture
  
- \* Shivan Sornarajah <github@sornars.com>
  - \* Support for using ConnectionPool and PoolManager as context managers.
  
- \* Alex Gaynor <alex.gaynor@gmail.com>
  - \* Updates to the default SSL configuration
  
- \* Tomas Tomecek <ttomecek@redhat.com>
  - \* Implemented generator for getting chunks from chunked responses.
  
- \* tlynn <https://github.com/tlynn>
  - \* Respect the warning preferences at import.
  
- \* David D. Riddle <ddriddle@illinois.edu>

- \* IPv6 bugfixes in testsuite
  
- \* Jon Wayne Parrott <jonwayne@google.com>
- \* App Engine environment tests.
  
- \* John Krauss <https://github.com/talos>
- \* Clues to debugging problems with `cryptography` dependency in docs
  
- \* Disassem <https://github.com/Disassem>
- \* Fix pool-default headers not applying for url-encoded requests like GET.
  
- \* James Atherfold <jlatherfold@hotmail.com>
- \* Bugfixes relating to cleanup of connections during errors.
  
- \* Christian Pedersen <https://github.com/chripede>
- \* IPv6 HTTPS proxy bugfix
  
- \* Jordan Moldow <https://github.com/jmoldow>
- \* Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
- \* Bugfix for ``ConnectionPool.urlopen(release\_conn=False)``.
- \* Creation of ``HTTPConnectionPool.ResponseCls``.
  
- \* Predrag Gruevski <https://github.com/obi1kenobi>
- \* Made cert digest comparison use a constant-time algorithm.
  
- \* Adam Talsma <https://github.com/a-tal>
- \* Bugfix to ca\_cert file paths.
  
- \* Evan Meagher <https://evanmeagher.net>
- \* Bugfix related to `memoryview` usage in PyOpenSSL adapter
  
- \* John Vandenberg <jayvdb@gmail.com>
- \* Python 2.6 fixes; pyflakes and pep8 compliance
  
- \* Andy Caldwell <andy.m.caldwell@googlemail.com>
- \* Bugfix related to reusing connections in indeterminate states.
  
- \* Ville Skytt <ville.skytta@iki.fi>
- \* Logging efficiency improvements, spelling fixes, Travis config.
  
- \* Shige Takeda <smtakeda@gmail.com>
- \* Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response
  
- \* Jesse Shapiro <jesse@jesseshapiro.net>
- \* Various character-encoding fixes/tweaks
- \* Disabling IPv6 DNS when IPv6 connections not supported

- \* David Foster <<http://dafoster.net/>>
- \* Ensure order of request and response headers are preserved.
  
- \* Jeremy Cline <[jeremy@jcline.org](mailto:jeremy@jcline.org)>
- \* Added connection pool keys by scheme
  
- \* Aviv Palivoda <[palaviv@gmail.com](mailto:palaviv@gmail.com)>
- \* History list to Retry object.
- \* HTTPResponse contains the last Retry object.
  
- \* Nate Prewitt <[nate.prewitt@gmail.com](mailto:nate.prewitt@gmail.com)>
- \* Ensure timeouts are not booleans and greater than zero.
- \* Fixed infinite loop in ``stream`` when amt=None.
- \* Added length\_remaining to determine remaining data to be read.
- \* Added enforce\_content\_length to raise exception when incorrect content-length received.
  
- \* Seth Michael Larson <[sethmichaellarson@protonmail.com](mailto:sethmichaellarson@protonmail.com)>
- \* Created selectors  
backport that supports PEP 475.
  
- \* Alexandre Dias <[alex.dias@smarkets.com](mailto:alex.dias@smarkets.com)>
- \* Don't retry on timeout if method not in whitelist
  
- \* Moinuddin Quadri <[moin18@gmail.com](mailto:moin18@gmail.com)>
- \* Lazily load idna package
  
- \* Tom White <[s6yg1ez3@mail2tor.com](mailto:s6yg1ez3@mail2tor.com)>
- \* Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.
  
- \* Tim Burke <[tim.burke@gmail.com](mailto:tim.burke@gmail.com)>
- \* Stop buffering entire deflate-encoded responses.
  
- \* Tuukka Mustonen <[tuukka.mustonen@gmail.com](mailto:tuukka.mustonen@gmail.com)>
- \* Add counter for status\_forcelist retries.
  
- \* Erik Rose <[erik@mozilla.com](mailto:erik@mozilla.com)>
- \* Bugfix to pyopenssl vendoring
  
- \* Wolfgang Richter <[wolfgang.richter@gmail.com](mailto:wolfgang.richter@gmail.com)>
- \* Bugfix related to loading full certificate chains with PyOpenSSL backend.
  
- \* Mike Miller <[github@mikeage.net](mailto:github@mikeage.net)>
- \* Logging improvements to include the HTTP(S) port when opening a new connection
  
- \* Ioannis Tziakos <[mail@itziakos.gr](mailto:mail@itziakos.gr)>
- \* Fix ``util.selectors.\_fileobj\_to\_fd`` to accept ``long``.
- \* Update appveyor tox setup to use the 64bit python.



- \* Akamai (through Jesse Shapiro) <jshapiro@akamai.com>
- \* Ongoing maintenance
  
- \* Dominique Leuenberger <dimstar@opensuse.org>
- \* Minor fixes in the test suite
  
- \* Will Bond <will@wbond.net>
- \* Add Python 2.6 support to ``contrib.securetransport``
  
- \* Aleksei Alekseev <alekseev.yeskela@gmail.com>
- \* using auth info for socks proxy
  
- \* Chris Wilcox <git@crwilcox.com>
- \* Improve contribution guide
- \* Add ``HTTPResponse.geturl`` method to provide ``urllib2.urlopen().geturl()`` behavior
  
- \* [Your name or handle] <[email or website]>
- \* [Brief summary of your changes]

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## 1.43 free-type 2.9.1

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2006-Jan-27

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#

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#

.gitignore

#

builds/unix/pkg.m4

#

docs/FTL.TXT

docs/GPLv2.TXT

#

include/freetype/internal/fthash.h

```
#
src/base/fthash.c
src/base/md5.c
src/base/md5.h
#
src/bdf/bdf.c
src/bdf/bdf.h
src/bdf/bdfdrivr.c
src/bdf/bdfdrivr.h
src/bdf/bdferror.h
src/bdf/bdflib.c
src/bdf/module.mk
src/bdf/README
src/bdf/rules.mk
#
src/pcf/module.mk
src/pcf/pcf.c
src/pcf/pcf.h
src/pcf/pcfdrivr.c
src/pcf/pcfdrivr.h
src/pcf/pcferror.h
src/pcf/pcfread.c
src/pcf/pcfread.h
src/pcf/pcfutil.c
src/pcf/pcfutil.h
src/pcf/README
src/pcf/rules.mk
#
src/gzip/adler32.c
src/gzip/infblock.c
src/gzip/infblock.h
src/gzip/infcodes.c
src/gzip/infcodes.h
src/gzip/inffixed.h
src/gzip/inflate.c
src/gzip/inftrees.c
src/gzip/inftrees.h
src/gzip/infutil.c
src/gzip/infutil.h
src/gzip/zconf.h
src/gzip/zlib.h
src/gzip/zutil.c
src/gzip/zutil.h
#
src/tools/apinames.c
src/tools/ftrandom/ftrandom.c
#
#
```

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- \* `configure.ac`, `Makefile.am`: The original versions were derived from the



ones in the XML Catalog Manager project, version 2.2.

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\* atf-c/ui.c: The format\_paragraph and format\_text functions were derived from the ones in the Monotone project, revision 3a0982da308228d796df35f98d787c5cff2bb5b6.

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\* atf-c++/detail/io.hpp, atf-c++/detail/io.cpp, atf-c++/detail/io\_test.cpp: These files were derived from the file\_handle, systembuf, pipe and pistream classes and tests found in the Boost.Process library.

Author: Julio Merino <jmmv84@gmail.com>

\* admin/check-style.sh, admin/check-style-common.awk, admin/check-style-cpp.awk, admin/check-style-shell.awk: These files, except the first one, were first implemented in the Buildtool project. They were later adapted to be part of Boost.Process and, during that process, the shell script was created.

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-->

<!-- Generate ISC copyright comments from Docbook copyright metadata. -->

```
<xsl:stylesheet version="1.0"
```

```
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
```

```
  xmlns:xi="http://www.w3.org/2001/XInclude"
```

```
  xmlns:db="http://docbook.org/ns/docbook">
```

```
  <xsl:template name="isc.copyright.format">
```

```
    <xsl:param name="text"/>
```

```
    <xsl:value-of select="$isc.copyright.leader"/>
```

```
    <xsl:value-of select="normalize-space(substring-before($text, '&#10;'))"/>
```

```
    <xsl:text>&#10;</xsl:text>
```

```
    <xsl:variable name="rest" select="substring-after($text, '&#10;')"/>
```

```
    <xsl:if test="translate($rest, '&#9;&#32;', '')">
```

```

    <xsl:call-template name="isc.copyright.format">
      <xsl:with-param name="text" select="$rest"/>
    </xsl:call-template>
  </xsl:if>
</xsl:template>

<xsl:variable name="isc.copyright.text">
  <xsl:text>
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  </xsl:text>
</xsl:variable>

<xsl:variable name="isc.copyright">
  <xsl:call-template name="isc.copyright.format">
    <xsl:with-param name="text">
      <xsl:for-each select="book/info/copyright | refentry/docinfo/copyright">
        <xsl:text>Copyright (C) </xsl:text>
        <xsl:call-template name="copyright.years">
          <xsl:with-param name="years" select="year"/>
        </xsl:call-template>
        <xsl:text> </xsl:text>
        <xsl:value-of select="holder"/>
        <xsl:value-of select="$isc.copyright.breakline"/>
        <xsl:text>&#10;</xsl:text>
      </xsl:for-each>
    <xsl:value-of
      select="$isc.copyright.text"/>
    </xsl:with-param>
  </xsl:call-template>
</xsl:variable>
</xsl:stylesheet>

```

<!--

- Local variables:  
- mode: sgml  
- End:

-->

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## 1.45 apache-http-server 2.4.39

## 1.46 patch 2.7.6

## 1.47 rsync 3.1.3

## 1.48 wireshark 2.6.8

## 1.49 cpio 2.12

### 1.49.1 Available under license :

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+++++

Dean Elsner wrote the original gas for vax. [more details?]

Jay Fenlason maintained gas for a while, adding support for gdb-specific debug information and the 68k series machines, most of the preprocessing pass, and extensive changes in messages.c, input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various enhancements and many bug fixes, including merging support for several processors, breaking gas up to handle multiple object file format backends (including heavy rewrite, testing, an integration of the coff and b.out backends), adding configuration including heavy testing and verification of cross assemblers and file splits and renaming,

converted gas to strictly ansi C including full prototypes, added support for m680[34]0 & cpu32, considerable work on i960 including a coff port (including considerable amounts of reverse engineering), a sparc opcode file rewrite, decstation, rs6000, and hp300hpux host ports, updated "know" assertions and made them work, much other reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan. Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of Buffalo University and Torbjorn Granlund of the Swedish Institute of Computer Science.

Keith

Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many bugs, including true tested cross-compilation support, and one bug in relaxation that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases



for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many small bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000 series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30 (tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error checking, updating the code, and improving the 16 bit support, using patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If you've contributed significant work and are not mentioned on this list, and want to be, let us know. Some of the history has been lost; we aren't intentionally leaving anyone out.

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Any

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The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

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However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

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be optional: if the application does not supply it, the square root function must still compute square roots.)

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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```
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<signature of Ty Coon>, 1 April 1990  
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The

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```
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```

```
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## 1.57 kerberos 1.16

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cmd/krb5/slave/kpropd\_rpc.c  
lib/gss\_mechs/mech\_krb5/et/kdb5\_err.c  
lib/gss\_mechs/mech\_spnego/mech/gssapiP\_spnego.h  
lib/gss\_mechs/mech\_spnego/mech/spnego\_mech.c  
lib/krb5/kadm5/kadm\_host\_srv\_names.c  
lib/krb5/kdb/kdb\_convert.c  
lib/krb5/kdb/kdb\_hdr.h  
lib/krb5/kdb/kdb\_log.c  
lib/krb5/kdb/kdb\_log.h  
lib/libgss/g\_accept\_sec\_context.c  
lib/libgss/g\_acquire\_cred.c  
lib/libgss/g\_canon\_name.c  
lib/libgss/g\_compare\_name.c  
lib/libgss/g\_context\_time.c  
lib/libgss/g\_delete\_sec\_context.c  
lib/libgss/g\_dsp\_name.c  
lib/libgss/g\_dsp\_status.c  
lib/libgss/g\_dup\_name.c  
lib/libgss/g\_exp\_sec\_context.c  
lib/libgss/g\_export\_name.c  
lib/libgss/g\_glue.c  
lib/libgss/g\_imp\_name.c  
lib/libgss/g\_imp\_sec\_context.c  
lib/libgss/g\_init\_sec\_context.c  
lib/libgss/g\_initialize.c  
lib/libgss/g\_inquire\_context.c  
lib/libgss/g\_inquire\_cred.c  
lib/libgss/g\_inquire\_names.c  
lib/libgss/g\_process\_context.c  
lib/libgss/g\_rel\_buffer.c  
lib/libgss/g\_rel\_cred.c  
lib/libgss/g\_rel\_name.c  
lib/libgss/g\_rel\_oid\_set.c  
lib/libgss/g\_seal.c  
lib/libgss/g\_sign.c  
lib/libgss/g\_store\_cred.c  
lib/libgss/g\_unseal.c  
lib/libgss/g\_userok.c  
lib/libgss/g\_utils.c

lib/libgss/g\_verify.c  
lib/libgss/gssd\_pname\_to\_uid.c  
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```
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"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
  <title>MIT Kerberos License information &#8212; MIT Kerberos Documentation</title>
  <link rel="stylesheet" href="_static/agogo.css" type="text/css" />
  <link rel="stylesheet" href="_static/pygments.css" type="text/css" />
  <link rel="stylesheet" href="_static/kerb.css" type="text/css" />
  <script type="text/javascript">
    var DOCUMENTATION_OPTIONS = {
      URL_ROOT: './',
      VERSION: '1.17',
      COLLAPSE_INDEX: false,
      FILE_SUFFIX: '.html',
      HAS_SOURCE: true,
      SOURCELINK_SUFFIX: '.txt'
```

```

    };
</script>
<script type="text/javascript" src="_static/jquery.js"></script>
<script type="text/javascript" src="_static/underscore.js"></script>
<script type="text/javascript"
src="_static/doctools.js"></script>
<link rel="author" title="About these documents" href="about.html" />
<link rel="index" title="Index" href="genindex.html" />
<link rel="search" title="Search" href="search.html" />
<link rel="copyright" title="Copyright" href="copyright.html" />
<link rel="next" title="Copyright" href="copyright.html" />
<link rel="prev" title="MIT Kerberos features" href="mitK5features.html" />
</head>
<body>
  <div class="header-wrapper">
    <div class="header">

      <h1><a href="index.html">MIT Kerberos Documentation</a></h1>

      <div class="rel">

        <a href="index.html" title="Full Table of Contents"
          accesskey="C">Contents</a> |
        <a href="mitK5features.html" title="MIT Kerberos features"
          accesskey="P">previous</a> |
        <a href="copyright.html" title="Copyright"
          accesskey="N">next</a> |
        <a href="genindex.html"
title="General Index"
          accesskey="I">index</a> |
        <a href="search.html" title="Enter search criteria"
          accesskey="S">Search</a> |
        <a href="mailto:krb5-bugs@mit.edu?subject=Documentation__MIT Kerberos License
information">feedback</a>
      </div>
    </div>
  </div>

  <div class="content-wrapper">
    <div class="content">
      <div class="document">

        <div class="documentwrapper">
          <div class="bodywrapper">
            <div class="body" role="main">

<div class="section" id="mit-kerberos-license-information">

```

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`gssapi_err_generic`  
`et`

`lib/gssapi/mechglue`  
`g_accept_sec_context`  
`c`

`lib/gssapi/mechglue`  
`g_acquire_cred`  
`c`

`lib/gssapi/mechglue`  
`g_canon_name`  
`c`

`lib/gssapi/mechglue`  
`g_compare_name`  
`c`

`lib/gssapi/mechglue`  
`g_context_time`  
`c`

`lib/gssapi/mechglue`  
`g_delete_sec_context`  
`c`

`lib/gssapi/mechglue`  
`g_dsp_name`  
`c`

`lib/gssapi/mechglue`  
`g_dsp_status`  
`c`

`lib/gssapi/mechglue`  
`g_dup_name`  
`c`

`lib/gssapi/mechglue`  
`g_exp_sec_context`  
`c`

`lib/gssapi`





```
class="n">kdb_log</span><span class="o">.</span><span class="n">c</span>
<span class="n">lib</span><span class="o"></span><span class="n">kdb</span><span class="o"></span><span class="n">kdb_log</span><span class="o">.</span><span class="n">h</span>
<span class="n">lib</span><span class="o"></span><span class="n">krb5</span><span class="o"></span><span class="n">error_tables</span><span class="o"></span><span class="n">kdb5_err</span><span class="o">.</span><span class="n">et</span>
<span class="n">kprop</span><span class="o"></span><span class="n">kpropd_rpc</span><span class="o">.</span><span class="n">c</span>
<span class="n">kprop</span><span class="o"></span><span class="n">kproplog</span><span class="o">.</span><span class="n">c</span>
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```
src/plugins/preauth/spake/edwards25519.c
```

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```
Documentation</a></li>
<li
class="toctree-l1"><a class="reference internal" href="resources.html">Resources</a></li>
</ul>
```

```
<br/>
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<h4>Search</h4>
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  <input type="text" name="q" size="18" />
  <input type="submit" value="Go" />
  <input type="hidden" name="check_keywords" value="yes" />
  <input type="hidden" name="area" value="default" />
</form>
</div>
<div class="clearer"></div>
</div>
</div>
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  <div class="footer" >
    <div class="right" ><i>Release: 1.17</i><br />
      &copy; <a href="copyright.html">Copyright</a> 1985-2019, MIT.
    </div>
    <div class="left">

      <a href="index.html" title="Full Table of Contents"
        >Contents</a> |
      <a href="mitK5features.html" title="MIT Kerberos features"
        >previous</a> |
      <a href="copyright.html" title="Copyright"
        >next</a> |
      <a href="genindex.html" title="General Index"
        >index</a> |
      <a href="search.html" title="Enter search criteria"
        >Search</a> |
      <a href="mailto:krb5-bugs@mit.edu?subject=Documentation__MIT Kerberos License
information">feedback</a>
    </div>
  </div>
</div>
```

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</body>
</html>
/* -*- mode: c; c-basic-offset: 4; indent-tabs-mode: nil -*- */
/*
```

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.. parsed-literal::

```
lib/gssapi/generic/gssapi_err_generic.et
lib/gssapi/mechglue/g_accept_sec_context.c
lib/gssapi/mechglue/g_acquire_cred.c
```

lib/gssapi/mechglue/g\_canon\_name.c  
lib/gssapi/mechglue/g\_compare\_name.c  
lib/gssapi/mechglue/g\_context\_time.c  
lib/gssapi/mechglue/g\_delete\_sec\_context.c  
lib/gssapi/mechglue/g\_dsp\_name.c  
lib/gssapi/mechglue/g\_dsp\_status.c  
lib/gssapi/mechglue/g\_dup\_name.c  
lib/gssapi/mechglue/g\_exp\_sec\_context.c  
lib/gssapi/mechglue/g\_export\_name.c  
lib/gssapi/mechglue/g\_glue.c  
lib/gssapi/mechglue/g\_imp\_name.c  
lib/gssapi/mechglue/g\_imp\_sec\_context.c  
lib/gssapi/mechglue/g\_init\_sec\_context.c  
lib/gssapi/mechglue/g\_initialize.c  
lib/gssapi/mechglue/g\_inquire\_context.c  
lib/gssapi/mechglue/g\_inquire\_cred.c  
lib/gssapi/mechglue/g\_inquire\_names.c  
lib/gssapi/mechglue/g\_process\_context.c  
lib/gssapi/mechglue/g\_rel\_buffer.c  
lib/gssapi/mechglue/g\_rel\_cred.c  
lib/gssapi/mechglue/g\_rel\_name.c  
lib/gssapi/mechglue/g\_rel\_oid\_set.c  
lib/gssapi/mechglue/g\_seal.c  
lib/gssapi/mechglue/g\_sign.c  
lib/gssapi/mechglue/g\_store\_cred.c  
lib/gssapi/mechglue/g\_unseal.c  
lib/gssapi/mechglue/g\_userok.c  
lib/gssapi/mechglue/g\_utils.c  
lib/gssapi/mechglue/g\_verify.c  
lib/gssapi/mechglue/gssd\_pname\_to\_uid.c  
lib/gssapi/mechglue/mglueP.h  
lib/gssapi/mechglue/oid\_ops.c  
lib/gssapi/spnego/gssapiP\_spnego.h  
lib/gssapi/spnego/spnego\_mech.c

and the initial implementation of incremental propagation, including the following new or changed files:

.. parsed-literal::

include/iprop\_hdr.h  
kadmin/server/ipropd\_svc.c  
lib/kdb/iprop.x  
lib/kdb/kdb\_convert.c  
lib/kdb/kdb\_log.c  
lib/kdb/kdb\_log.h  
lib/krb5/error\_tables/kdb5\_err.et  
kprop/kpropd\_rpc.c

kprop/kproplog.c

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```
*/  
/* -*- mode: c; c-basic-offset: 4; indent-tabs-mode: nil -*- */  
/*
```

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"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
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  <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
  <title>Copyright &#8212; MIT Kerberos Documentation</title>
  <link rel="stylesheet" href="_static/agogo.css" type="text/css" />
  <link rel="stylesheet" href="_static/pygments.css" type="text/css" />
  <link rel="stylesheet" href="_static/kerb.css" type="text/css" />
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      VERSION: '1.17',
      COLLAPSE_INDEX: false,
      FILE_SUFFIX: '.html',
      HAS_SOURCE: true,
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<script type="text/javascript" src="_static/doctools.js"></script>
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<link rel="next" title="How to build this documentation from the source" href="build_this.html" />
<link rel="prev" title="MIT Kerberos License information" href="mitK5license.html" />
</head>
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  <div class="header">

    <h1><a href="index.html">MIT Kerberos Documentation</a></h1>

    <div class="rel">

      <a href="index.html" title="Full Table of Contents"
        accesskey="C">Contents</a> |
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      <a href="build_this.html" title="How to build this documentation from the
source"
        accesskey="N">next</a> |
      <a href="genindex.html" title="General Index"
        accesskey="I">index</a> |
      <a href="search.html" title="Enter search criteria"
        accesskey="S">Search</a> |
      <a href="mailto:krb5-bugs@mit.edu?subject=Documentation__Copyright">feedback</a>
    </div>
  </div>
</div>

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  <div class="content">
    <div class="document">

      <div class="documentwrapper">
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          <div class="body" role="main">

            <div class="section" id="copyright">
              <h1>Copyright<a class="headerlink" href="#copyright" title="Permalink to this headline"></a></h1>
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</div>

</div>

</div>

</div>

<div class="sidebar">

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<br/>

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<input type="submit" value="Go" />

<input type="hidden" name="check\_keywords" value="yes" />

<input type="hidden" name="area" value="default" />

</form>

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</div>
</div>

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- lib/gssapi/generic/gssapi\_err\_generic.et
- lib/gssapi/mechglue/g\_accept\_sec\_context.c
- lib/gssapi/mechglue/g\_acquire\_cred.c
- lib/gssapi/mechglue/g\_canon\_name.c
- lib/gssapi/mechglue/g\_compare\_name.c
- lib/gssapi/mechglue/g\_context\_time.c
- lib/gssapi/mechglue/g\_delete\_sec\_context.c
- lib/gssapi/mechglue/g\_dsp\_name.c
- lib/gssapi/mechglue/g\_dsp\_status.c
- lib/gssapi/mechglue/g\_dup\_name.c
- lib/gssapi/mechglue/g\_exp\_sec\_context.c
- lib/gssapi/mechglue/g\_export\_name.c
- lib/gssapi/mechglue/g\_glue.c
- lib/gssapi/mechglue/g\_imp\_name.c
- lib/gssapi/mechglue/g\_imp\_sec\_context.c
- lib/gssapi/mechglue/g\_init\_sec\_context.c
- lib/gssapi/mechglue/g\_initialize.c
- lib/gssapi/mechglue/g\_inquire\_context.c
- lib/gssapi/mechglue/g\_inquire\_cred.c
- lib/gssapi/mechglue/g\_inquire\_names.c
- lib/gssapi/mechglue/g\_process\_context.c
- lib/gssapi/mechglue/g\_rel\_buffer.c
- lib/gssapi/mechglue/g\_rel\_cred.c
- lib/gssapi/mechglue/g\_rel\_name.c
- lib/gssapi/mechglue/g\_rel\_oid\_set.c
- lib/gssapi/mechglue/g\_seal.c
- lib/gssapi/mechglue/g\_sign.c
- lib/gssapi/mechglue/g\_store\_cred.c
- lib/gssapi/mechglue/g\_unseal.c
- lib/gssapi/mechglue/g\_userok.c
- lib/gssapi/mechglue/g\_utils.c

lib/gssapi/mechglue/g\_verify.c  
lib/gssapi/mechglue/gssd\_pname\_to\_uid.c  
lib/gssapi/mechglue/mglueP.h  
lib/gssapi/mechglue/oid\_ops.c  
lib/gssapi/spnego/gssapiP\_spnego.h  
lib/gssapi/spnego/spnego\_mech.c

and the initial implementation of incremental propagation,  
including  
the following new or changed files:

include/iprof\_hdr.h  
kadmin/server/iprofd\_svc.c  
lib/kdb/iprof.x  
lib/kdb/kdb\_convert.c  
lib/kdb/kdb\_log.c  
lib/kdb/kdb\_log.h  
lib/krb5/error\_tables/kdb5\_err.et  
kprop/kpropd\_rpc.c  
kprop/kproplog.c

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```
import os
```

```
import sys
```

```
import re
```

```
def warn(fname, ln, msg):
```

```
    print '%s: %d: %s' % (fname, ln + 1, msg)
```

```
def indicates_license(line):
```

```
    return 'Copyright' in line or 'COPYRIGHT' in line or 'License' in line
```

```
# Check a comment for boilerplate violations. Return true if the comment
```

```
# is a license statement.
```

```
def check_comment(comment, fname, ln, code_seen, nonlicense_seen):
```

```

text_seen = False
is_license = False
for line in comment:
    if not is_license and indicates_license(line):
        is_license = True
        if text_seen:
            warn(fname, ln, 'License begins after first
line of comment')
        elif code_seen:
            warn(fname, ln, 'License after code')
        elif nonlicense_seen:
            warn(fname, ln, 'License after non-license comments')
        break
    # DB2 licenses start with '/*-' and we don't want to change them.
    if line != " and line != '-':
        text_seen = True
return is_license

```

```

def check_file(lines, fname):
    # Skip emacs mode line if present.
    ln = 0
    if '-*- mode: c;' in lines[ln]:
        ln += 1

    # Check filename comment if present.
    m = re.match(r'^\* ([^ ]*)( - .*)? \*/', lines[ln])
    if m:
        if m.group(1) != fname:
            warn(fname, ln, 'Wrong filename in comment')
        ln += 1

    # Scan for license statements.
    in_comment = False
    code_seen = False
    nonlicense_seen = False
    for line in lines[ln:]:
        # Strip out whitespace and comments contained within a line.
        if not in_comment:
            line = re.sub(r'^\*.*?\*/',
", line)
            line = line.strip()

        if not in_comment and '/*' in line:
            (line, sep, comment_part) = line.partition('/*')
            comment = [comment_part.strip()]
            comment_starts_at = ln
            in_comment = True
        elif in_comment and '*/' not in line:

```

```

        comment.append(line.lstrip('*').rstrip())
    elif in_comment:
        (comment_part, sep, line) = line.partition('*/')
        comment.append(comment_part.strip())
        is_license = check_comment(comment, fname, comment_starts_at,
                                   code_seen, nonlicense_seen)
        nonlicense_seen = nonlicense_seen or not is_license
        in_comment = False
    elif line.strip() != "":
        code_seen = True

    ln += 1

for fname in sys.argv[1:]:
    if fname.startswith('./'):
        fname = fname[2:]
    f = open(fname)
    lines = f.readlines()
    f.close()
    check_file(lines, fname)
/* -*- mode: c; c-basic-offset: 4; indent-tabs-mode: nil -*- */
/*

```

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```

*/
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```

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@enumerate a

@item

The modified work must itself be a software library.

@item

You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

@item

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cause the whole of the work to be licensed at no  
charge to all third parties under the terms of this License.

@item

If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

@end enumerate

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

@item

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

@item

A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a ``work that uses the Library''. Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a ``work that uses the Library'' with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a ``work that uses the library''. The executable is therefore covered by this License.

Section 6 states terms for distribution of such executables.

When a ``work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise,  
if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

@item

As an exception to the Sections above, you may also combine or link a ``work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

@enumerate a

@item

Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable ``work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified

executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

@item

Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

@item

Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

@item

If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

@item

Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

@end enumerate

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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@item



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@enumerate a

@item

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@item

Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

@end enumerate

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@subheading END OF TERMS AND CONDITIONS

@page

@subheading How to Apply These Terms to Your New Libraries

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@smallexample

@var{one line to give the library's name and an idea of what it does.}

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@end

smallexample

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You should also get your employer (if you work as a programmer) or your school, if any, to sign a ``copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

@smallexample

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`Frob' (a library for tweaking knobs) written by James Random Hacker.

@var{signature of Ty Coon}, 1 April 1990

Ty Coon, President of Vice

@end smallexample

That's all there is to it!

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@center Version 2, June 1991

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@c hence no sectioning command or @node.

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@end enumerate

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@enumerate a

@item

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@item

Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

@item

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@end enumerate



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@iftex

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@end iftex

@ifinfo

@center

NO WARRANTY

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@end enumerate

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@end iftex

@ifinfo

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@end ifinfo

@page

@heading Appendix: How to Apply These Terms to Your New Programs

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To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the ``copyright" line and a pointer to where the full notice is found.

@smallexample

@var{one line to give the program's name  
and a brief idea of what it does.}

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@end smallexample

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

```
@smallexample
Gnomovision version
69, Copyright (C) @var{year} @var{name of author}
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
@end smallexample
```

The hypothetical commands `@samp{show w}` and `@samp{show c}` should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `@samp{show w}` and `@samp{show c}`; they could even be mouse-clicks or menu items---whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a ``copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

```
@example
Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.
```

```
@var{signature of Ty Coon}, 1 April 1989
Ty Coon, President of Vice
@end example
```

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- the libintl.jar Java library,
- the GNU.Gettext.dll C# library,
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- the \_programs\_ gettext, ngettext, envsubst,
- the documentation.

## 1.61 flex 2.6.0

### 1.61.1 Available under license :

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Metadata-Version: 1.1

Name: flex

Version: 2.6.0

Summary: Swagger Schema validation.

Home-page: <https://github.com/pipermerriam/flex>

Author: Piper Merriam

Author-email: [pipermerriam@gmail.com](mailto:pipermerriam@gmail.com)

License: BSD

Description: # FLEX

![Build Status](<https://travis-ci.org/pipermerriam/flex.png>)(<https://travis-ci.org/pipermerriam/flex>)  
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Validation tooling for [Swagger 2.0](https://github.com/wordnik/swagger-spec/blob/master/versions/2.0.md) specifications.

[Documentation on ReadTheDocs](http://flex-swagger.readthedocs.org/en/latest/)

## ## Features

- \* Validate swagger schemas.
- \* JSON Schema Validation
- \* Validation of request/response objects against schema.
- \* Command Line interface.

Keywords: rest swagger

Platform: UNKNOWN

Classifier: Development Status :: 2 - Pre-Alpha

Classifier: Intended Audience :: Developers

Classifier: License :: OSI Approved :: BSD License

Classifier: Natural Language :: English

Classifier: Programming Language :: Python :: 2

Classifier: Programming Language :: Python :: 2.7

Classifier: Programming Language :: Python :: 3

Classifier: Programming Language :: Python :: 3.3

Classifier: Programming Language :: Python :: 3.4

Found in path(s):

\* /opt/cola/permits/1000237027\_1651084378.9/0/flex-2-6-0-macosx-10-10-x86-64-tar-gz/Users/piper/python-environments/flex/lib/python2.7/site-packages/flex-2.6.0-py2.7.egg-info/PKG-INFO

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\* /opt/cola/permits/1000237027\_1651084378.9/0/flex-2-6-0-macosx-10-10-x86-64-tar-gz/Users/piper/python-environments/flex/lib/python2.7/site-packages/flex/compat/validate\_email.py

# 1.62 libdaemon 0.14

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Version 2.1, February 1999

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case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

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## 1.63 json-c 0.13.1

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/\*

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From strings/apr\_strnatcmp.c,  
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strings/apr\_snprintf.c:

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- \* cvt - IEEE floating point formatting routines.
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## 1.68 zeromq 4.2.3

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## 1.73 ncurses 6.1

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```
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Ty Coon, President of Vice
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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
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## 1.75 ipmi-tool 1.8.18

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## 1.76 libnettle6 3.4

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## 1.78 coreutils 8.30

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Version 3, 29 June 2007

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To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the program's name and a brief idea of what it does.>  
Copyright (C) <year> <name of author>

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Also add information on how to contact you by electronic and paper mail.

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The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

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## 1.82 libart 2.3.21

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[This is the first released version of the library GPL. It is  
numbered 2 because it goes with version 2 of the ordinary GPL.]

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freedom to share and change it. By contrast, the GNU General Public

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Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

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<signature of Ty Coon>, 1 April 1990  
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## 1.83 dnsmasq 2.79

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entire whole, and thus to each and every part regardless of who wrote it.

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c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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```
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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
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```
<one line to give the program's name and a brief idea of what it does.>  
Copyright (C) <year> <name of author>
```

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```
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under certain conditions; type `show c' for details.
```

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## 1.84 binutils 2.31.1

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Version 2, June 1991

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```

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```

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```
Yoyodyne, Inc., hereby disclaims all copyright interest in the program  
'Gnomovision' (which makes passes at compilers) written by James Hacker.
```

```
<signature of Ty Coon>, 1 April 1989  
Ty Coon, President of Vice
```

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(This file is under construction.) -\*- text -\*-

If you've contributed to gas and your name isn't listed here, it is not meant as a slight. I just don't know about it. Email me, nickc@redhat.com and I'll correct the situation.

This file will eventually be deleted: The general info will go into the documentation, and info on specific files will go into an AUTHORS file, as requested by the FSF.

+++++

Dean Elsner wrote the original gas for vax. [more details?]

Jay Fenlason maintained gas for a while, adding support for gdb-specific debug information and the 68k series machines, most of the preprocessing pass, and extensive changes in messages.c, input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various enhancements and many bug fixes, including merging support for several processors, breaking gas up to handle multiple object file format backends (including heavy rewrite, testing, an integration of the coff and b.out backends), adding configuration including heavy testing and verification of cross assemblers and file splits and renaming, converted gas to strictly ansi C including full prototypes, added support for m680[34]0 & cpu32, considerable work on i960 including a coff port (including considerable amounts of reverse engineering), a sparc opcode file rewrite, decstation, rs6000, and hp300hpux host ports, updated "know" assertions and made them work, much other reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan. Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of Buffalo University and Torbjorn Granlund of the Swedish Institute of Computer Science.

Keith

Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many bugs, including true tested cross-compilation support, and one bug in relaxation that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many

small  
bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000 series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30 (tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error checking, updating the code, and improving the 16 bit support, using patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If you've contributed significant work and are not mentioned on this list, and want to be, let us know. Some of the history has been lost; we aren't intentionally leaving anyone out.

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[This is the first released version of the library GPL. It is  
numbered 2 because it goes with version 2 of the ordinary GPL.]

Preamble

The licenses for most software are designed to take away your

freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Library General Public License, applies to some specially designated Free Software Foundation software, and to any other libraries whose authors decide to use it. You can use it for your libraries, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library, or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed

for everyone's  
free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because  
of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under

the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not.

Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials



specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

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#### END OF TERMS AND CONDITIONS

#### Appendix: How to Apply These Terms to Your New Libraries

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To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

```
<one line to give the library's name and a brief idea of what it does.>  
Copyright (C) <year>  
<name of author>
```

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Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary.

Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990

Ty Coon, President of Vice

That's all there is to it!

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Version 3, 29 June 2007

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### Preamble

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To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether

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Developers that use the GNU GPL protect your rights with two steps:

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For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand

ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS

### 0. Definitions.

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"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

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To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

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#### 1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major

Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

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You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is

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c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

#### 6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the

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d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

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jar/org/codehaus/plexus/classworlds/strategy/OsgiBundleStrategy.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
```



```
jar/org/codehaus/classworlds/ClassWorldReverseAdapter.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/classworlds/ClassWorldAdapter.java
*
/opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/classworlds/DefaultClassRealm.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
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/opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/strategy/Strategy.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/strategy/StrategyFactory.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/launcher/ConfigurationParser.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/UrlUtils.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/realm/Entry.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/realm/NoSuchRealmException.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/ClassWorldListener.java
*
/opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/ClassWorldException.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/realm/ClassRealm.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/ClassWorld.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/launcher/Configurator.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/launcher/ConfigurationException.java
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/realm/DuplicateRealmException.java
No license file was found, but licenses were detected in source scan.
```

```
/*
```

```
* Copyright 2001-2006 Codehaus Foundation.
```

```
*
```

```
* Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except
* in compliance with the License. You may obtain a copy of the License at
```

```
*
```

```
* http://www.apache.org/licenses/LICENSE-2.0
```

```
*
```

```
* Unless required by applicable law or agreed to in writing, software distributed under the License
* is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either
express
```

```
* or implied. See the License for the specific language governing permissions and limitations under
* the License.
```

```
*/
```

```
Found in path(s):
```

```
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
jar/org/codehaus/plexus/classworlds/strategy/SelfFirstStrategy.java
```

```
* /opt/cola/permits/1002953546_1611163470.05/0/plexus-classworlds-2-4-sources-
```

# 1.86 make 4.2

## 1.86.1 Available under license :

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Version 2, June 1991

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[This is the first released version of the library GPL. It is numbered 2 because it goes with version 2 of the ordinary GPL.]

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This option is useful when you wish to copy part of the code of the

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<signature of Ty Coon>, 1 April 1990  
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Version 3, 29 June 2007

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The

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## 1.96 log-rotate 3.14.0

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## 1.98 pciutils 3.6.2

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+++++

Dean Elsner wrote the original gas for vax. [more details?]

Jay Fenlason maintained gas for a while, adding support for gdb-specific debug information and the 68k series machines, most of the preprocessing pass, and extensive changes in messages.c,

input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various enhancements and many bug fixes, including merging support for several processors, breaking gas up to handle multiple object file format backends (including heavy rewrite, testing, an integration of the coff and b.out backends), adding configuration including heavy testing and verification of cross assemblers and file splits and renaming, converted gas to strictly ansi C including full prototypes, added support for m680[34]0 & cpu32, considerable work on i960 including a coff port (including considerable amounts of reverse engineering), a sparc opcode file rewrite, decstation, rs6000, and hp300hpux host ports, updated "know" assertions and made them work, much other reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan. Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of Buffalo University and Torbjorn Granlund of the Swedish Institute of Computer Science.

Keith

Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many

bugs, including true tested cross-compilation support, and one bug in relaxation

that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many small bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000 series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30 (tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error checking, updating the code, and improving the 16 bit support, using patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If you've contributed significant work and are not mentioned on this list, and want to be, let us know. Some of the history has been lost;



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code. If you link a program with the library, you must provide complete object files to the recipients so that they can relink them with the library, after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

Our method of protecting your rights has two steps: (1) copyright the library, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the library.

Also, for each distributor's protection, we want to make certain that everyone understands that there is no warranty for this free library. If the library is modified by someone else and passed on, we want its recipients to know that what they have is not the original version, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that companies distributing free software will individually obtain patent licenses, thus in effect transforming the program into proprietary software. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the



users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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0. This License Agreement applies to any software library which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Library General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not

covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must

be optional: if the application does not supply it, the square

root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition,

mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by

this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

d) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the

Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

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#### END OF TERMS AND CONDITIONS

##### Appendix: How to Apply These Terms to Your New Libraries

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To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the



"copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>  
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Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary.

Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

That's all there is to it!

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Version 3, 29 June 2007

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To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps:

(1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand

ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

## TERMS AND CONDITIONS

### 0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

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To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices"

to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

#### 1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The

"System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

## 2. Basic Permissions.

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keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

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You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

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- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This requirement modifies the requirement in section 4 to "keep intact all notices".
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users

beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

#### 6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

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```
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```

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```
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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

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## 1.104 iputils s20180629

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```
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`Gnomovision' (which makes passes at compilers) written by James Hacker.

<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

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# 1.105 iconv 2.28

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Version 3, 29 June 2007

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## 1.106 tcl 8.6.8

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## 1.110 python-chardet 3.0.4

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```
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```
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## Constant-time SSSE3 AES core implementation.  
## version 0.1  
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## 1.116 protobuf 3.6.1

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\* Small patch to handle trailing slashes in --proto\_path flag.

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\* Small optimizations to Python serialization.

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\* VI syntax highlighting tweaks.

\* Fix compiler to not make output executable.

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\* Heuristic detection of sub-messages when printing unknown fields in text format.

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\* Added @Override annotation to generated Java code where appropriate.

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\* Tru64 support.

Monty Taylor <monty.taylor@gmail.com>

\* Solaris 10 + Sun Studio fixes.

Alek Storm <alek.storm@gmail.com>

\* Slicing support for repeated scalar fields for the Python API.

Oleg Smolsky <oleg.smolsky@gmail.com>

\* MS Visual Studio error format option.

\* Detect unordered\_map in stl\_hash.m4.

Brian Olson <brianolson@google.com>

\* gzip/zlib I/O support.

Michael Poole <mdpoole@troilus.org>

\* Fixed warnings about generated constructors not explicitly initializing all fields (only present with certain compiler settings).

\* Added generation of field number constants.

Wink Saville <wink@google.com>

\* Fixed initialization ordering problem in logging code.

Will Pierce <willp@nuclei.com>

\* Small patch improving performance of in Python serialization.

Alexandre Vassalotti <alexandre@peadrop.com>

\* Emacs mode for Protocol Buffers (editors/protobuf-mode.el).

Scott Stafford <scott.stafford@gmail.com>

\* Added Swap(), SwapElements(), and RemoveLast() to Reflection interface.

Alexander Melnikov <alm@sibmail.ru>

\* HPUX support.

Oliver Jowett <oliver.jowett@gmail.com>

\* Detect whether zlib is new enough in configure script.

\* Fixes for Solaris 10 32/64-bit confusion.

Evan Jones <evanj@mit.edu>

\* Optimize Java serialization code when writing a small message to a stream.

\* Optimize Java serialization of strings so that UTF-8 encoding happens only once per string per serialization call.

\* Clean up some Java warnings.

\* Fix bug with permanent callbacks that delete themselves when run.

Michael Kucharski <m.kucharski@gmail.com>

\* Added CodedInputStream.getTotalBytesRead().

Kacper Kowalik <xarthisius.kk@gmail.com>

\* Fixed m4/acx\_pthread.m4 problem for some Linux distributions.

William Orr <will@worrbase.com>

\* Fixed detection of sched\_yield on Solaris.

\* Added atomicops for Solaris

Andrew Paprocki <andrew@ishiboo.com>

\* Fixed minor IBM xLC compiler build issues

\* Added atomicops for AIX (POWER)

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# 1.118 acpid 2.0.30

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## 1.119 elfutils 0.175

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## 1.120 cronie 1.5.2

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## 1.121 audit 2.8.4

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## 1.122 rrdtool 1.7.0

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\$Id\$

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. The file `src/libs/snprintf/snprintf.c', written by Mark Martinec <[mark.martinec@ijs.si](mailto:mark.martinec@ijs.si)>.

Please look into `snprintf.c` for the copyright message.

The complete `snprintf` package together with documentation is available from

<http://www.ijs.si/software/snprintf/> .

. The ``grn'` preprocessor, written by Barry Roitblat <barry@rentonww.com> and David Slattengren <slatteng@Xinet.COM>. These files have been part of the original Berkeley ditroff distribution, without AT&T code, and are in the public domain.

The original package can be found at  
<http://ftp.cs.wisc.edu/pub/misc/grn.tar.Z>

src/preproc/grn/gprint.h  
src/preproc/grn/hdb.cpp  
src/preproc/grn/hgraph.cpp  
src/preproc/grn/hpoint.cpp  
src/preproc/grn/main.cpp

. The ``gxditview'` output device. It is based on X11's ``xditview'` program and thus has the X license.

src/devices/xditview/DESC.in  
src/devices/xditview/Dvi.c  
src/devices/xditview/Dvi.h  
src/devices/xditview/DviP.h  
src/devices/xditview/FontMap  
src/devices/xditview/GXditview.ad  
src/devices/xditview/Menu.h  
src/devices/xditview/ad2c  
src/devices/xditview/device.c  
src/devices/xditview/device.h  
src/devices/xditview/draw.c  
src/devices/xditview/font.c  
src/devices/xditview/gray1.bm  
src/devices/xditview/gray2.bm  
src/devices/xditview/gray3.bm  
src/devices/xditview/gray4.bm  
src/devices/xditview/gray5.bm  
src/devices/xditview/gray6.bm  
src/devices/xditview/gray7.bm  
src/devices/xditview/gray8.bm  
src/devices/xditview/gxditview.man  
src/devices/xditview/lex.c  
src/devices/xditview/page.c

src/devices/xditview/parse.c  
src/devices/xditview/xdit.bm  
src/devices/xditview/xdit\_mask.bm  
src/devices/xditview/xditview.c

src/include/DviChar.h  
src/include/XFontName.h

src/libs/libxutil/DviChar.c  
src/libs/libxutil/XFontName.c

## Macro Packages

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. The -mdoc macro set, using the BSD license.

tmac/doc.tmac  
tmac/doc-old.tmac  
tmac/doc-common  
tmac/doc-ditroff  
tmac/doc-nroff  
tmac/doc-syms  
tmac/groff\_mdoc.man

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tmac/e.tmac  
tmac/groff\_me.man  
doc/meintro.me  
doc/meintro\_fr.me  
doc/meref.me

## Hyphenation Patterns

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. The file `tmac/hyphen.us' is identical to the file `hyphen.tex', part of the TeX system written by Donald E. Knuth; the master file can be found at

<ftp://labrea.stanford.edu/pub/tex/dist/lib/hyphen.tex>

.

It has been renamed for consistency, i.e., to make patterns available under the filenames `hyphen.<language>', e.g. `hyphen.de' or `hyphen.uk'.

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- . The file `tmac/hyphen.fr' contains the same patterns as the file `frhyph.tex' (for TeX), which can be found at

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- . The file `tmac/hyphen.sv' is identical to the file `svhyph.tex', which can be found at

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- . The files `tmac/hyphen.det' and `tmac/hyphen.den' contain the same patterns as the files `dehyphn.tex' and `dehypht.tex' (for TeX), which can be found at

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<http://dante.ctan.org/CTAN/language/hyphenation/dehypht.tex> .

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- . The file `tmac/hyphenex.det' is identical to the file `dehyphtex.tex', which can be found at

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- . The file `tmac/hyphen.cs' contains the same patterns as the file `czyphen.tex' (for TeX), which can be found in the archive

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## 1.127 boost 1.68.0

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This is an attempt to acknowledge early contributions to the garbage collector. Later contributions should instead be mentioned in README.changes.

## HISTORY -

Early versions of this collector were developed as a part of research projects supported in part by the National Science Foundation and the Defense Advance Research Projects Agency.

The garbage collector originated as part of the run-time system for the Russell programming language implementation. The first version of the garbage collector was written primarily by Al Demers. It was then refined and mostly rewritten, primarily by Hans-J. Boehm, at Cornell U., the University of Washington, Rice University (where it was first used for C and assembly code), Xerox PARC, SGI, and HP Labs. However, significant contributions have also been made by many others.

Some other contributors:

More recent contributors are mentioned in the modification history in README.changes. My apologies for any omissions.

The SPARC specific code was originally contributed by Mark Weiser.

The Encore Multimax modifications were supplied by Kevin Kenny (kenny@m.cs.uiuc.edu). The adaptation to the IBM PC/RT is largely due to Vernon Lee, on machines made available to Rice by IBM.

Much of the HP specific code and a number of good suggestions for improving the generic code are due to Walter Underwood.

Robert Brazile (brazile@diamond.bbn.com) originally supplied the ULTRIX code. Al Dosser (dosser@src.dec.com) and Regis Cridlig (Regis.Cridlig@cl.cam.ac.uk) subsequently provided updates and information on variation between ULTRIX systems. Parag Patel (parag@netcom.com) supplied the A/UX code.

Jesper Peterson(jep@mtiame.mtia.oz.au), Michel Schinz, and Martin Tauchmann (martintauchmann@bigfoot.com) supplied the Amiga port.



Thomas Funke (thf@zelator.in-berlin.de(?)) and  
Brian D. Carlstrom (bdc@clark.lcs.mit.edu) supplied the NeXT ports.  
Douglas Steel (doug@wg.icl.co.uk) provided ICL DRS6000 code.  
Bill Janssen (janssen@parc.xerox.com) supplied  
the SunOS dynamic loader  
specific code. Manuel Serrano (serrano@cornas.inria.fr) supplied linux and  
Sony News specific code. Al Dosser provided Alpha/OSF/1 code. He and  
Dave Detlefs (detlefs@src.dec.com) also provided several generic bug fixes.  
Alistair G. Crooks (agc@uts.amdahl.com) supplied the NetBSD and 386BSD ports.  
Jeffrey Hsu (hsu@soda.berkeley.edu) provided the FreeBSD port.  
Brent Benson (brent@jade.ssd.csd.harris.com) ported the collector to  
a Motorola 88K processor running CX/UX (Harris NightHawk).  
Ari Huttunen (Ari.Huttunen@hut.fi) generalized the OS/2 port to  
nonIBM development environments (a nontrivial task).  
Patrick Beard (beard@cs.ucdavis.edu) provided the initial MacOS port.  
David Chase, then at Olivetti Research, suggested several improvements.  
Scott Schwartz (schwartz@groucho.cse.psu.edu) supplied some of the  
code to save and print call stacks for leak detection on a SPARC.  
Jesse Hull and John Ellis supplied the C++ interface code.  
Zhong Shao performed much of the  
experimentation that led to the  
current typed allocation facility. (His dynamic type inference code hasn't  
made it into the released version of the collector, yet.)  
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```
<?xml version="1.0" encoding="UTF-8"?>
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"http://www.boost.org/tools/boostbook/dtd/boostbook.dtd">
<article id="copyright_test" last-revision="DEBUG MODE Date: 2000/12/20 12:00:00 $"
xmlns:xi="http://www.w3.org/2001/XInclude">
  <title>Copyright Test</title>
  <articleinfo>
    <copyright>
      <year>1963</year> <year>1964</year> <year>1965</year> <holder>Jane Doe</holder>
    </copyright>
    <copyright>
      <year>2018</year> <holder>Joe Blow, John Coe</holder>
    </copyright>
    <copyright>
      <year>1977</year> <year>1985</year> <holder>Someone else</holder>
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  </articleinfo>
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```

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////

[#mpl]



# MPL Support, <boost/mp11/mpl.hpp>

:toc:

:toc-title:

:idprefix:

The header `<boost/mp11/mpl.hpp>`, when included, defines the necessary support infrastructure for `mp_list` and `std::tuple` to be valid link:../../../../libs/mpl[MPL] sequences.

NOTE: `mpl.hpp` is not included by `<boost/mp11.hpp>`.

## 1.128 libidn 1.35

### 1.128.1 Available under license :

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Version 3, 29 June 2007

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```
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## 1.138 dosfs-tools 4.1

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# 1.140 http-signature 1.2.0

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Any executables

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I would like to thank the following people (in alphabetical order):

- Seth Arnold, for contributing to the documentation.
- Daniel Black, (former) maintainer of the Gentoo GNU/Linux BeeCrypt package.
- Jan-Rudolph Bhrmann, for helping me get started on the 64-bit multi-precision integer library.
- Luca Filipozzi, (former) maintainer/packager of BeeCrypt for Debian GNU/Linux.
- Jeff Johnson, the guy behind RedHat's Package Manager, who has inspired and contributed to many of the changes for version 3.0.0. He also provided the new hash functions for version 4.2.0. 73 de Bob.
- Anibal Monsalve Salazar, (current) maintainer/packager of BeeCrypt for Debian GNU/Linux.
- Jon Sturgeon, bug hunter extraordinaire.

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- AMD, for donating a copy of "AMD x86-64 Architecture Programmer's Manual".
- ARM Ltd, for donating a copy of "ARM Architecture Reference Manual".
- HP/Compaq, for their testdrive program, which gave me the opportunity to test and BeeCrypt on many new platforms.
- FSF France, for providing me with access to the GCC Compile Farm.
- SourceForge, for their excellent open source development platform.

Last but not least: thanks to everyone who provided bits of information, reported bugs, provided feedback, or works on including BeeCrypt in any other distros.

If I've missed anyone, it's due to oversight. Drop me a line and I'll rectify the situation as quickly as possible.

## 1.143 Im-sensors 3.4.0

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Original author of libsensors, sensors-detect, sensors and isadump.
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Dynamic chip feature detection (a.k.a. generic chip support) in libsensors and sensors.
- \* Mark M. Hoffman  
Many improvements to the libsensors configuration file scanner.
- \* Jean Delvare  
New libsensors API, and migration of sensors and sensord thereto.  
Many optimizations in libsensors and sensors.  
Configuration file converter.  
Rewrite of sensors-detect.  
Support for multiple configuration files in libsensors.

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c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product,

doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

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##### Interpretation of Sections 15 and 16.

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.



However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

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- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
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For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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Because of this blurred distinction,

using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

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and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

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These requirements

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## 1.149 dhcp 4.4.1

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\* `configure.ac`, `Makefile.am`: The original versions were derived from the ones in the XML Catalog Manager project, version 2.2.

Author: Julio Merino <jmmv@users.sourceforge.net>

\* `atf-c/ui.c`: The `format_paragraph` and `format_text` functions were derived from the ones in the Monotone project, revision 3a0982da308228d796df35f98d787c5cff2bb5b6.

Author: Julio Merino <jmmv@NetBSD.org>

\* `atf-c++/detail/io.hpp`, `atf-c++/detail/io.cpp`, `atf-c++/detail/io_test.cpp`: These files were derived from the `file_handle`, `systembuf`, `pipe` and `pistream` classes and tests found in the Boost.Process library.

Author: Julio Merino <jmmv84@gmail.com>

\* admin/check-style.sh,  
admin/check-style-common.awk,  
admin/check-style-cpp.awk, admin/check-style-shell.awk: These files,  
except the first one, were first implemented in the Buildtool project.  
They were later adapted to be part of Boost.Process and, during that  
process, the shell script was created.

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<!-- \$Id\$ -->

<!-- Generate ISC copyright comments from Docbook copyright metadata. -->

<xsl:stylesheet version="1.0"

xmlns:xsl="http://www.w3.org/1999/XSL/Transform"

xmlns:xi="http://www.w3.org/2001/XInclude"

xmlns:db="http://docbook.org/ns/docbook">

<xsl:template name="isc.copyright.format">

<xsl:param name="text"/>

<xsl:value-of select="\$isc.copyright.leader"/>

<xsl:value-of select="normalize-space(substring-before(\$text, '#10;'))"/>

<xsl:text>#10;</xsl:text>

<xsl:variable name="rest" select="substring-after(\$text, '#10;')"/>

<xsl:if test="translate(\$rest, '#9;#32;', '')">

<xsl:call-template name="isc.copyright.format">

<xsl:with-param

name="text" select="\$rest"/>

</xsl:call-template>

</xsl:if>

</xsl:template>

<xsl:variable name="isc.copyright.text">

<xsl:text>

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</xsl:text>

</xsl:variable>

<xsl:variable name="isc.copyright">

```
<xsl:call-template name="isc.copyright.format">
  <xsl:with-param name="text">
    <xsl:for-each select="book/info/copyright | refentry/docinfo/copyright">
      <xsl:text>Copyright (C) </xsl:text>
      <xsl:call-template name="copyright.years">
        <xsl:with-param name="years" select="year"/>
      </xsl:call-template>
      <xsl:text> </xsl:text>
      <xsl:value-of select="holder"/>
      <xsl:value-of select="$isc.copyright.breakline"/>
      <xsl:text>&#10;</xsl:text>
    </xsl:for-each>
    <xsl:value-of select="$isc.copyright.text"/>
  </xsl:with-param>
</xsl:call-template>
</xsl:variable>
</xsl:stylesheet>
```

<!--

- Local variables:

- mode: sgml

- End:

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## 1.152 libcap-ng 0.7.9

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```
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This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

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```
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`Gnomovision' (which makes passes at compilers) written by James Hacker.
```

<signature of Ty Coon>, 1 April 1989

Ty Coon, President of Vice

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# 1.153 icu 62.1

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```
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## BSD-specific setup (FreeBSD, OpenBSD, NetBSD, *BSD)
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## Commands to generate dependency files
GEN_DEPS.c= $(CC) -E -MM $(DEFS) $(CPPFLAGS)
GEN_DEPS.cc= $(CXX) -E -MM $(DEFS) $(CPPFLAGS)

## Flags for position independent code
SHAREDLIBCFLAGS = -fPIC
SHAREDLIBCXXFLAGS = -fPIC
SHAREDLIBCPPFLAGS = -DPIC

## Additional flags when building libraries and with threads
THREADSCPPFLAGS = -D_REENTRANT
LIBCPPFLAGS =

## Compiler switch to embed a runtime search path
LD_RPATH=
LD_RPATH_PRE= -Wl,-rpath,

## Compiler switch to embed a library name
LD_SONAME = -Wl,-soname -Wl,$(notdir $(MIDDLE_SO_TARGET))

## Shared library options
LD_SOOPTIONS= -Wl,-Bsymbolic

## Shared object suffix
SO = so

## Non-shared intermediate object suffix
STATIC_O = ao

## Compilation
rules
%. $(STATIC_O): $(srcdir)/%.c
$(COMPILE.c) $(STATICCPPFLAGS) $(STATICCFLAGS) -o $@ $<
%.o: $(srcdir)/%.c
```

```

$(COMPILE.c) $(DYNAMICCPPFLAGS) $(DYNAMICCFLAGS) -o $@ $<

%. $(STATIC_O): $(srcdir)/%.cpp
$(COMPILE.cc) $(STATICCPPFLAGS) $(STATICCXXFLAGS) -o $@ $<
%.o: $(srcdir)/%.cpp
$(COMPILE.cc) $(DYNAMICCPPFLAGS) $(DYNAMICCXXFLAGS) -o $@ $<

## Dependency rules
%.d: $(srcdir)/%.c
@echo "generating dependency information for $<"
@$(SHELL) -ec '$(GEN_DEPS.c) $< \
| sed "s^\($*\)\.o[ :]*\1.o $@ : /g\" > $@; \
[-s $@ ] || rm -f $@'

%.d: $(srcdir)/%.cpp
@echo "generating dependency information for $<"
@$(SHELL) -ec '$(GEN_DEPS.cc) $< \
| sed "s^\($*\)\.o[ :]*\1.o $@ : /g\" > $@; \
[-s $@ ] || rm -f $@'

## Versioned libraries rules

%. $(SO).$(SO_TARGET_VERSION_MAJOR): %. $(SO).$(SO_TARGET_VERSION)
$(RM) $@ && ln -s ${<F} $@
%. $(SO): %. $(SO).$(SO_TARGET_VERSION_MAJOR)
$(RM) $@ && ln -s ${*F}. $(SO).$(SO_TARGET_VERSION) $@

## Bind internal references

# LDflags that pkgdata will use
BIR_LDFLAGS= -Wl,-Bsymbolic

# Dependencies [i.e. map files] for the final library
BIR_DEPS=

## Remove shared library 's'
STATIC_PREFIX_WHEN_USED =
STATIC_PREFIX =

## End BSD-specific setup

```

## 1.154 sisu-guava 0.9.9

## 1.154.1 Available under license :

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## 1.155 avahi 0.7

### 1.155.1 Available under license :

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Version 2.1, February 1999

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When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked



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## 1.156 libcheck 0.12.0

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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## 1.159 libunwind 1.2

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Full  
text of gpl-2.0.txt:  
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The  
original code is FirewallControl.pas, released April 16, 2007.

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```

```
*
```

```
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```

```
*
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*
```

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David Gibson <david@gibson.dropbear.id.au>

(principal original author of dtc and libfdt)

2 November 2007

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## 1.167 libamplerate 0.1.9

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man2/access.2 man2/alarm.2 man2/alloc\_hugepages.2 man2/arch\_prctl.2

man2/arm\_fadvise.2 man2/arm\_fadvise64\_64.2 man2/arm\_sync\_file\_range.2

man2/bpf.2 man2/chdir.2 man2/chmod.2 man2/chown.2 man2/chown32.2

man2/chroot.2 man2/clock\_getres.2 man2/clock\_gettime.2

man2/clock\_nanosleep.2 man2/clock\_settime.2 man2/close.2

man2/copy\_file\_range.2 man2/creat.2 man2/delete\_module.2 man2/dup.2

man2/dup2.2 man2/dup3.2 man2/execve.2 man2/execveat.2 man2/exit.2

man2/exit\_group.2 man2/faccessat.2 man2/fadvise64.2

man2/fadvise64\_64.2 man2/fanotify\_init.2 man2/fanotify\_mark.2

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man2/fchown32.2 man2/fchownat.2 man2/fcntl.2

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man2/fstatat64.2 man2/fstatfs.2 man2/fstatfs64.2 man2/fstatvfs.2

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man2/get\_robust\_list.2 man2/getcontext.2 man2/getcpu.2 man2/getcwd.2

man2/getdents.2 man2/getdents64.2 man2/getdomainname.2

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## 1.173 cpp 8.2.0

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- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any

application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

### 3. You may opt to apply the terms of the ordinary GNU General Public

License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

### 4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding

machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse

engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is

normally

distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

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Ty Coon, President of Vice

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@ignore

@c Set file name and title for man page.

@setfilename gpl

@settitle GNU General Public License

@c man begin SEEALSO

gfdl(7), fsf-funding(7).

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The precise terms and conditions for copying, distribution and modification follow.

@heading TERMS AND CONDITIONS

@enumerate 0

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(if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

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You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

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The work must carry prominent notices stating that you modified it, and giving a relevant date.

@item

The work must carry prominent notices stating that it is released under this License and any conditions added under section 7. This

requirement modifies the requirement in section 4 to ``keep intact all notices".

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@item

Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

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Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written

offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

@item

Convey individual copies of the object code with a copy of the written offer

to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

@item

Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

@item

Convey the object

code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

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mach_override	lib/interception/mach_override

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## 1.174 libnl3 3.4.0

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Ty Coon, President of Vice

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## 1.175 cracklib 2.9.5

## 1.175.1 Available under license :

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Version 2.1, February 1999

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<one line to give the library's name and a brief idea of what it does.>

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<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

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-----

Discussion thread from mailing list archive, with approval from everyone actively involved or holding original licensing rights included.

[Cracklib-devel] cracklib license  
From: Mike Frysinger <vapier@ge...> - 2007-10-02 01:16

Attachments: Message as HTML  
looks like 2.8.11 is out and marked as "GPL-2" ... releasing libraries unde=  
r=20  
GPL-2 is not desirable at all ... this is why the LGPL-2.1 exists  
=2Dmike

Re: [Cracklib-devel] cracklib license  
From: Neulinger, Nathan <nneul@um...> - 2007-10-02 01:18  
I understand that, and you're welcome to bring it up with Alec directly and see if he wants to relicense his code as LGPL... but at this point, it was enough to just get it consistent and documented as to what it was released under. This wasn't actually a license change, just a clarification of the licensing that was already in place.=20

-- Nathan  
=20

-----  
Nathan Neulinger EMail: nneul@um...  
University of Missouri - Rolla Phone: (573) 341-6679  
UMR Information Technology Fax: (573) 341-4216

> -----Original Message-----  
> From: cracklib-devel-bounces@li...  
> [mailto:cracklib-devel-bounces@li...] On Behalf Of  
> Mike Frysinger  
> Sent: Monday, October 01, 2007 8:15 PM  
> To: cracklib-devel@li...  
> Subject: [Cracklib-devel] cracklib license  
>=20  
> looks like 2.8.11 is out and marked as "GPL-2" ... releasing  
> libraries under  
> GPL-2 is not desirable at all ... this is why the LGPL-2.1 exists  
> -mike

Re: [Cracklib-devel] cracklib license  
From: Mike Frysinger <vapier@ge...> - 2007-10-02 01:33

Attachments: Message as HTML  
On Monday 01 October 2007, Neulinger, Nathan

wrote:

> I understand that, and you're welcome to bring it up with Alec directly  
> and see if he wants to relicense his code as LGPL... but at this point,  
> it was enough to just get it consistent and documented as to what it was  
> released under. This wasn't actually a license change, just a  
> clarification of the licensing that was already in place.

the original license (before moving to sourceforge -- aka, 2.7) was not=20  
GPL-2 ... it was a modified artistic license ... i didnt notice the license=  
=20  
change until it was mentioned in the latest notes.

unlike the old license, GPL-2 prevents people from using cracklib unless th=  
eir=20  
applications are also GPL-2 which imo is just wrong. it isnt the place of =  
a=20  
library to dictact to application writes what license they should be using.=  
=20  
thus LGPL-2.1 enters to fill this void.  
=20Dmike

Re: [Cracklib-devel]  
cracklib license

From: Neulinger, Nathan <nneul@um...> - 2007-10-02 01:46  
Seems like the ideal thing here would be for you and the other distro  
maintainers to get together with Alec in a conversation and come to a  
decision as to what licensing scheme y'all want. I haven't really done

much other than cleaning up the packaging and patches and a small bit of additional code, so whatever licensing y'all come up with is fine by me.

-- Nathan

=20

-----  
Nathan Neulinger EMail: nneul@um...

University of Missouri - Rolla Phone: (573) 341-6679

UMR Information Technology Fax: (573) 341-4216

> -----Original Message-----

> From: cracklib-devel-bounces@li...

> [mailto:cracklib-devel-bounces@li...] On Behalf Of

> Mike Frysinger

> Sent: Monday, October 01, 2007 8:33 PM

> To: Neulinger, Nathan

> Cc: cracklib-devel@li...; Alec Muffett

> Subject: Re: [Cracklib-devel] cracklib license

>=20

> On Monday 01 October 2007, Neulinger, Nathan wrote:

> > I understand that, and you're welcome to bring it up with Alec

> directly

> > and see if he wants to relicense his code as LGPL... but at this

> point,

> > it was enough to just get it consistent and documented as to what

> it was

> > released under. This wasn't actually a license change, just a

> > clarification of the licensing that was already in place.

>=20

> the original license (before moving to sourceforge -- aka, 2.7) was

> not

> GPL-2 ... it was a modified artistic license ... i didnt notice the

> license

> change until it was mentioned in the latest notes.

>=20

> unlike the old license, GPL-2 prevents people from using cracklib

> unless their

> applications are also GPL-2 which imo is just wrong. it isnt the

> place of a

> library

to dictact to application writes what license they should

> be using.

> thus LGPL-2.1 enters to fill this void.

> -mike

Re: [Cracklib-devel] cracklib license

From: Alec Muffett <alecm@cr...> - 2007-10-02 08:57

> Seems like the ideal thing here would be for you and the other distro  
> maintainers to get together with Alec in a conversation and come to a  
> decision as to what licensing scheme y'all want. I haven't really done  
> much other than cleaning up the packaging and patches and a small  
> bit of  
> additional code, so whatever licensing y'all come up with is fine  
> by me.

I am sympathetic. Guys, what do you reckon?

What I am hearing so far is that LGPL makes sense, since it can be  
linked with any code, not just GPL...

-a

Re: [Cracklib-devel] cracklib license

From: Devin Reade <gdr@gn...> - 2007-10-02 15:04

I would like to see it under LGPL as well. I

think it is in everyone's

best interests to have as secure systems as possible, and I think tainting  
it via GPL will just make it less likely that the library gets used, and  
will not usually cause companies/developers to GPL the dependent code  
(where it is not already GPL).

I like GPL, I use it when I can, but I don't think that it's the correct  
license in this situation.

Devin

--

If it's sinful, it's more fun.

Re: [Cracklib-devel] cracklib license

From: Nalin Dahyabhai <nalin@re...> - 2008-01-28 16:32

On Tue, Oct 02, 2007 at 09:57:31AM +0100, Alec Muffett wrote:

>> Seems like the ideal thing here would be for you and the other distro  
>> maintainers to get together with Alec in a conversation and come to a  
>> decision as to what licensing scheme y'all want. I haven't really done  
>> much other than cleaning up the packaging and patches and a small  
>> bit of  
>> additional  
code, so whatever licensing y'all come up with is fine  
>> by me.

>

> I am sympathetic. Guys, what do you reckon?

>

> What I am hearing so far is that LGPL makes sense, since it can be

> linked with any code, not just GPL...

My apologies for not chiming in in anything resembling a reasonable timeframe.

I'd also suggest the LGPL, for the reason you noted above. Alternately, GPLv2 with the option of using the library under a later version of the GPL would permit applications which were released under version 3 of the GPL to use the library, too, which would be sufficient for the packages which are included in Fedora. FWIW, I'd personally lean toward LGPL.

In any case, I thank you both for working on sorting this out.

Cheers,

Nalin

Re: [Cracklib-devel] cracklib license

From: Mike Frysinger <vapier@ge...> - 2008-10-05 21:27

Attachments: Message as HTML

On Monday 28 January 2008, Nalin Dahyabhai wrote:

> On Tue, Oct 02, 2007 at 09:57:31AM +0100, Alec Muffett wrote:

>>> Seems like the ideal thing here would be for you and the other distro  
>>> maintainers to get together with Alec in a conversation and come to a  
>>> decision as to what licensing scheme y'all want. I haven't really done  
>>> much other than cleaning up the packaging and patches and a small  
>>> bit of  
>>> additional code, so whatever licensing y'all come up with is fine  
>>> by me.

>>

>> I am sympathetic. Guys, what do you reckon?

>>

>> What I am hearing so far is that LGPL makes sense, since it can be

>> linked with any code, not just GPL...

>

> My apologies for not chiming in in anything resembling a reasonable  
> timeframe.

>

> I'd also suggest the LGPL, for the reason you noted above. Alternately,

> GPLv2 with the option of using

the library under a later version of the

> GPL would permit applications which were released under version 3 of the

> GPL to use the library, too, which would be sufficient for the packages

> which are included in Fedora. FWIW, I'd personally lean toward LGPL.

>

> In any case, I thank you both for working on sorting this out.

looks like everyone is OK with LGPL-2.1 (GNU Lesser license), so can we make the change now ?

-mike

Re: [Cracklib-devel] cracklib license

From: Alec Muffett <alecm@cr...> - 2008-10-05 23:18

>> In any case, I thank you both for working on sorting this out.

>

> looks like everyone is OK with LGPL-2.1 (GNU Lesser license), so can we make  
> the change now ?

yes. go for it. thanks++

-a

Re: [Cracklib-devel] cracklib license

From: Mike Frysinger <vapier@ge...> - 2008-10-25 22:34

Attachments: Message as HTML

On Sunday 05 October

2008, Alec Muffett wrote:

> >> In any case, I thank you both for working on sorting this out.

> >

> > looks like everyone is OK with LGPL-2.1 (GNU Lesser license), so can we  
> > make the change now ?

>

> yes. go for it. thanks++

Nathan Neulinger is the only one who can actually make said change ...

-mike

-----  
BELOW IS ORIGINAL LICENSING DISCUSSION RE CHANGING TO GPL from Artistic.  
-----

CrackLib was originally licensed with a variant of the Artistic license. In the interests of wider acceptance and more modern licensing, it was switched with the original author's blessing to GPL v2.

This approval was carried out in email discussions in 2005, and has been reconfirmed as of 2007-10-01 with the following email from Alec Muffett.

The below email references nneul@umr.edu address, as that is the address that was used at the time. For any future emails regarding this, please use nneul@neulinger.org.

-----

From

alecm@crypticide.com Mon Oct 1 12:26:03 2007

Received: from umr-exproto2.cc.umr.edu ([131.151.0.192]) by UMR-CMAIL1.umr.edu with Microsoft SMTPSVC(6.0.3790.3959);

Mon, 1 Oct 2007 12:26:03 -0500

Received: from scansrv2.srv.mst.edu ([131.151.1.114]) by umr-exproto2.cc.umr.edu with Microsoft SMTPSVC(6.0.3790.3959);

Mon, 1 Oct 2007 12:26:02 -0500

Received: (qmail 8022 invoked from network); 1 Oct 2007 16:59:55 -0000

Received: from smtp1.srv.mst.edu (131.151.1.43)

by scanin-ipvs.cc.umr.edu with SMTP; 1 Oct 2007 16:59:55 -0000

Received: from spunkymail-mx8.g.dreamhost.com (mx1.spunky.mail.dreamhost.com [208.97.132.47])

by smtp1.srv.mst.edu (8.13.1/8.13.1) with ESMTP id 191Gxtpr020623

for <nneul@umr.edu>; Mon, 1 Oct 2007 11:59:55 -0500

Received: from rutherford.zen.co.uk (rutherford.zen.co.uk [212.23.3.142])

by spunkymail-mx8.g.dreamhost.com (Postfix) with ESMTP id 2C7734D311

for <nneul@neulinger.org>; Mon, 1 Oct 2007 09:59:50 -0700 (PDT)

Received: from

[82.68.43.14] (helo=[192.168.1.3])

by rutherford.zen.co.uk with esmtp (Exim 4.50)

id 1IcOcX-0004Qt-6L

for nneul@neulinger.org; Mon, 01 Oct 2007 16:59:49 +0000

Mime-Version: 1.0 (Apple Message framework v752.2)

In-Reply-To: <1b1b3fd80710010908k11dac0afp1f2dd471059ff9a4@mail.gmail.com>

References: <1190922867.3457.147.camel@localhost.localdomain>

<EC90713277D2BE41B7110CCD74E235CEF44F38@UMR-CMAIL1.umr.edu>

<1b1b3fd80710010908k11dac0afp1f2dd471059ff9a4@mail.gmail.com>

Content-Type: text/plain; charset=US-ASCII; delsp=yes; format=flowed

Message-Id: <117A1264-F6DC-4E25-B0DD-56FBFE6E9F@crypticide.com>

Content-Transfer-Encoding: 7bit

From: Alec Muffett <alecm@crypticide.com>

Subject: Re: cracklib license

Date: Mon, 1 Oct 2007 17:59:46 +0100

To: Nathan Neulinger <nneul@neulinger.org>

X-Mailer: Apple Mail (2.752.2)

X-Originating-Rutherford-IP: [82.68.43.14]

Return-Path: alecm@crypticide.com

X-OriginalArrivalTime: 01 Oct 2007 17:26:03.0008 (UTC) FILETIME=[2420C000:01C80450]

Status: RO

Content-Length:



585

Lines: 21

>  
> ----- Forwarded message -----  
> From: Neulinger, Nathan <nneul@umr.edu>  
> Date: Sep 27, 2007 2:58 PM  
> Subject: RE: cracklib license  
> To: alecm@crypto.dircon.co.uk  
>  
> Any chance you could write me a self-contained email stating clearly  
> that the license is being changed to GPL, so I could include that  
> email  
> in the repository and clean up the repository/tarballs? I have all the  
> original discussion, but something succinct and self contained  
> would be  
> ideal.

The license for my code in the Cracklib distribution is henceforth GPL.

Happy now? :-)

-a

## 1.176 rpcbind 0.2.4

### 1.176.1 Available under license :

No license file was found, but licenses were detected in source scan.

License: BSD

Found in path(s):

\* /opt/ws\_local/PERMITS\_SQL/1045960566\_1592319068.67/0/pld-linux-rpcbind-auto-th-rpcbind-0-2-4-1-0-g743aa28-tar-gz/pld-linux-rpcbind-743aa28/rpcbind.spec

## 1.177 newt 0.52.20

### 1.177.1 Available under license :

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Version 2, June 1991

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51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA  
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of this license document, but changing it is not allowed.

[This is the first released version of the library GPL. It is numbered 2 because it goes with version 2 of the ordinary GPL.]

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### When

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Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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to use the modified definitions.)

- b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
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<one line to give the library's name and a brief idea of what it does.>

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Also add information on how to contact you by electronic and paper mail.

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Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

That's all there is to it!

# 1.178 libidn 2.0.5

## 1.178.1 Available under license :

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Version 3, 29 June 2007

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# 1.181 libdevmapper 2.02.180

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## 1.182 mdadm 4.1

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# 1.183 pigz 2.4

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# 1.184 smartmontools 6.6

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  47. [51]Nick Sayer <mrapple@quack.kfu.com> SunOS streams modules
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  57. [61]Loganaden Velvindron <loganaden@gmail.com> Sandboxing (libseccomp) support
  58. [62]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver
  59. [63]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and validated HTML documents according to the HTML DTD
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 */
```

Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1078202330_1597270881.42/0/fis-components-lodayash-restparam-3-6-1-0-
g4b84b80-tar-gz/fis-components-lodayash.restparam-3692f6f/index.js
```

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Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1078202342_1597270964.99/0/fis-components-lodash-bindcallback-3-0-1-0-ga3774f0-tar-gz/fis-components-lodash._bindcallback-ef3539e/index.js
```

# 1.204 lodash-cacheindexof 3.0.2

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```

Found in path(s):

```
* /opt/ws_local/PERMITS_SQL/1078202442_1597270786.77/0/fis-components-lodash-getnative-3-9-1-0-g99a6587-tar-gz/fis-components-lodash._getnative-20042e8/index.js
```



# 1.206 Iodash-createcache 3.1.2

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```

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/\* nicstar.c v0.22 Jawaid Bazyar (bazyar@hypermall.com)

\* nicstar.c, M. Welsh (matt.welsh@cl.cam.ac.uk)

\*

\* Hacked October, 1997 by Jawaid Bazyar, Interlink Advertising Services Inc.

\* <http://www.hypermall.com/>

\* 10/1/97 - commented out CFG\_PHYIE bit - we don't care when the PHY

\* interrupts us (except possibly for removal/insertion of the cable?)

\* 10/4/97 - began heavy inline documentation of the code. Corrected typos

\* and spelling mistakes.

\* 10/5/97 - added code to handle PHY interrupts, disable PHY on

\* loss of link, and correctly re-enable PHY when link is

\* re-established. (put back CFG\_PHYIE)

\*

\* Modified to work with the IDT7721 nicstar -- AAL5 (tested) only.

\*

\* R. D. Rechenmacher <ron@fnal.gov>, Aug. 6, 1997

\*

\* Linux driver for the IDT77201 NICStAR PCI ATM controller.

\* PHY component is expected to be 155 Mbps S/UNI-Lite or IDT 77155;

\* see init\_nicstar() for PHY initialization to change this. This driver

\* expects the Linux ATM stack to support scatter-gather

lists

\* (skb->atm.iovnt != 0) for Rx skb's passed to vcc->push.

\*

\* Implementing minimal-copy of received data:

\* IDT always receives data into a small buffer, then large buffers

\* as needed. This means that data must always be copied to create

\* the linear buffer needed by most non-ATM protocol stacks (e.g. IP)

\* Fix is simple: make large buffers large enough to hold entire

\* SDU, and leave <small\_buffer\_data> bytes empty at the start. Then

\* copy small buffer contents to head of large buffer.

\* Trick is to avoid fragmenting Linux, due to need for a lot of large

\* buffers. This is done by 2 things:

\* 1) skb->destructor / skb->atm.recycle\_buffer

\* combined, allow nicstar\_free\_rx\_skb to be called to

\* recycle large data buffers  
\* 2) skb\_clone of received buffers  
\* See nicstar\_free\_rx\_skb and linearize\_buffer for implementation  
\* details.  
\*  
\*  
\*  
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\*  
\* M. Welsh, 6 July 1996  
\*  
\*  
\*/

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Upstream-Contact: Yann Collet <Cyan4973@github.com>

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# 1.212 cifs-utils 6.7

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# 1.213 python3-pexpect 4.6.0

## 1.213.1 Available under license :

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Upstream-Contact: Noah Spurrier <noah@noah.org>

Source: <http://pypi.python.org/pypi/pexpect/>

Files: \*

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## 1.214 python-setuptools 40.0.0

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## 1.215 pythonurllib 1.23

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# Contributions to the urllib3 project

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- \* Basic-authenticated HTTPSConnectionPool (merged into make\_headers)
  
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- \* Client-verified SSL certificates for HTTPSConnectionPool
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- \* Better unicode support for filepost using StringIO buffers
  
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- \* Support for explicitly closing pooled connections

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- \* Corrected multipart behavior for params
  
- \* Thomas Weischuh <thomas@t-8ch.de>
- \* Support for TLS SNI
- \* API unification of ssl\_version/cert\_reqs
- \* SSL fingerprint and alternative hostname verification
- \* Bugfixes in testsuite
  
- \* Sune Kirkeby <mig@ibofobi.dk>
- \* Optional SNI-support for Python 2 via PyOpenSSL.
  
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- \* Various bugfixes and test improvements.
  
- \* Bryce Boe <bbzbryce@gmail.com>
- \* Correct six.moves conflict
- \* Fixed pickle support of some exceptions
  
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- \* Allowed to skip SSL hostname verification
  
- \* Cory Benfield
- <<http://lukasa.co.uk/about/>>
- \* Stream method for Response objects.
- \* Return native strings in header values.
- \* Generate 'Host' header when using proxies.
  
- \* Jason Robinson <jaywink@basshero.org>
- \* Add missing WrappedSocket.fileno method in PyOpenSSL
  
- \* Audrius Butkevicius <audrius.butkevicius@elastichosts.com>
- \* Fixed a race condition
  
- \* Stanislav Vitkovskiy <stas.vitkovsky@gmail.com>
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- \* Stephen Holsapple <sholsapp@gmail.com>
- \* Added abstraction for granular control of request fields
  
- \* Martin von Gagern <Martin.vGagern@gmx.net>
- \* Support for non-ASCII header parameters
  
- \* Kevin Burke <kev@inburke.com> and Pavel Kirichenko <juanych@yandex-team.ru>
- \* Support for separate connect and request timeouts
  
- \* Peter Waller <p@pwaller.net>
- \* HTTPResponse.tell() for determining amount received over the wire

- \* Nipunn Koorapati <nipunn1313@gmail.com>
- \* Ignore default ports when comparing hosts for equality
  
- \* Danilo @dbrgn <<http://dbrgn.ch/>>
- \* Disabled TLS compression by default on Python 3.2+
- \* Disabled TLS compression in pyopenssl contrib module
- \* Configurable cipher suites in pyopenssl contrib module
  
- \* Roman Bogorodskiy <roman.bogorodskiy@ericsson.com>
- \* Account retries on proxy errors
  
- \* Nicolas Delaby <nicolas.delaby@ezeep.com>
- \* Use the platform-specific CA certificate locations
  
- \* Josh Schneier <<https://github.com/jschneier>>
- \* HTTPHeaderDict and associated tests and docs
- \* Bugfixes, docs, test coverage
  
- \* Tahia Khan <<http://tahia.tk/>>
- \* Added Timeout examples in docs
  
- \* Arthur Grunseid <<http://grunseid.com>>
- \* source\_address support and tests (with <https://github.com/bui>)
  
- \* Ian Cordasco <graffatcolmingov@gmail.com>
- \* PEP8 Compliance and Linting
- \* Add ability to pass socket options to an HTTP Connection
  
- \* Erik Tollerud <erik.tollerud@gmail.com>
- \* Support for standard library io module.
  
- \* Krishna Prasad <kprasad.iitd@gmail.com>
- \* Google App Engine documentation
  
- \* Aaron Meurer <asmeurer@gmail.com>
- \* Added Url.url, which unparses a Url
  
- \* Evgeny Kapun <abacabadabacaba@gmail.com>
- \* Bugfixes
  
- \* Benjamin Meyer <bm\_witness@yahoo.com>
- \* Security Warning Documentation update for proper capture
  
- \* Shivan Sornarajah <[github@sornars.com](mailto:github@sornars.com)>
- \* Support for using ConnectionPool and PoolManager as context managers.
  
- \* Alex Gaynor <alex.gaynor@gmail.com>

- \* Updates to the default SSL configuration
- \* Tomas Tomecek <ttomecek@redhat.com>
- \* Implemented generator for getting chunks from chunked responses.
- \* tlynn <https://github.com/tlynn>
- \* Respect the warning preferences at import.
- \* David D. Riddle <ddriddle@illinois.edu>
- \* IPv6 bugfixes in testsuite
- \* Jon Wayne Parrott <jonwayne@google.com>
- \* App Engine environment tests.
- \* John Krauss <https://github.com/talos>
- \* Clues to debugging problems with `cryptography` dependency in docs
- \* Disassem <https://github.com/Disassem>
- \* Fix pool-default headers not applying for url-encoded requests like GET.
- \* James Atherfold <jlatherfold@hotmail.com>
- \* Bugfixes relating to cleanup of connections during errors.
- \* Christian Pedersen <https://github.com/chripede>
- \* IPv6 HTTPS proxy bugfix
- \* Jordan Moldow <https://github.com/jmoldow>
- \* Fix low-level exceptions leaking from ``HTTPResponse.stream()``.
- \* Bugfix for ``ConnectionPool.urlopen(release\_conn=False)``.
- \* Creation of ``HTTPConnectionPool.ResponseCls``.
- \* Predrag Gruevski <https://github.com/obi1kenobi>
- \* Made cert digest comparison use a constant-time algorithm.
- \* Adam Talsma <https://github.com/a-tal>
- \* Bugfix to ca\_cert file paths.
- \* Evan Meagher <https://evanmeagher.net>
- \* Bugfix related to `memoryview` usage in PyOpenSSL adapter
- \* John Vandenberg <jayvdb@gmail.com>
- \* Python 2.6 fixes; pyflakes and pep8 compliance
- \* Andy Caldwell <andy.m.caldwell@googlemail.com>
- \* Bugfix related to reusing connections in indeterminate states.
- \* Ville Skytt <ville.skytta@iki.fi>

- \* Logging efficiency improvements, spelling fixes,  
Travis config.
- \* Shige Takeda <smtakeda@gmail.com>
  - \* Started Recipes documentation and added a recipe about handling concatenated gzip data in HTTP response
- \* Jesse Shapiro <jesse@jesseshapiro.net>
  - \* Various character-encoding fixes/tweaks
  - \* Disabling IPv6 DNS when IPv6 connections not supported
- \* David Foster <http://dafoster.net/>
  - \* Ensure order of request and response headers are preserved.
- \* Jeremy Cline <jeremy@jcline.org>
  - \* Added connection pool keys by scheme
- \* Aviv Palivoda <palaviv@gmail.com>
  - \* History list to Retry object.
  - \* HTTPResponse contains the last Retry object.
- \* Nate Prewitt <nate.prewitt@gmail.com>
  - \* Ensure timeouts are not booleans and greater than zero.
  - \* Fixed infinite loop in ``stream`` when amt=None.
  - \* Added length\_remaining to determine remaining data to be read.
  - \* Added enforce\_content\_length to raise exception when incorrect content-length received.
- \* Seth Michael Larson <sethmichaellarson@protonmail.com>
  - \* Created selectors  
backport that supports PEP 475.
- \* Alexandre Dias <alex.dias@smarkets.com>
  - \* Don't retry on timeout if method not in whitelist
- \* Moinuddin Quadri <moin18@gmail.com>
  - \* Lazily load idna package
- \* Tom White <s6yg1ez3@mail2tor.com>
  - \* Made SOCKS handler differentiate socks5h from socks5 and socks4a from socks4.
- \* Tim Burke <tim.burke@gmail.com>
  - \* Stop buffering entire deflate-encoded responses.
- \* Tuukka Mustonen <tuukka.mustonen@gmail.com>
  - \* Add counter for status\_forcelist retries.
- \* Erik Rose <erik@mozilla.com>
  - \* Bugfix to pyopenssl vendoring

- \* Wolfgang Richter <wolfgang.richter@gmail.com>
  - \* Bugfix related to loading full certificate chains with PyOpenSSL backend.
  
  - \* Mike Miller <github@mikeage.net>
  - \* Logging improvements to include the HTTP(S) port when opening a new connection
  
  - \* Ioannis Tziakos <mail@itziakos.gr>
  - \* Fix ``util.selectors.\_fileobj\_to\_fd`` to accept ``long``.
  - \* Update appveyor tox setup to use the 64bit python.
  
  - \* Akamai (through Jesse Shapiro) <jshapiro@akamai.com>
  - \* Ongoing maintenance
  
  - \* Dominique Leuenberger <dimstar@opensuse.org>
  - \* Minor fixes in the test suite
  
  - \* Will Bond <will@wbond.net>
  - \* Add Python 2.6 support to ``contrib.securetransport``
  
  - \* Aleksei Alekseev <alekseev.yeskela@gmail.com>
  - \* using auth info for socks proxy
  
  - \* Chris Wilcox <git@crwilcox.com>
  - \* Improve contribution guide
  - \* Add ``HTTPResponse.geturl`` method to provide ``urllib2.urlopen().geturl()`` behavior
  
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## 1.216 zulu-jre 1.8.0

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To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

```
<one line to give the program's name and a brief idea of what it does.>  
Copyright (C) 19yy <name of author>
```

```
This program is free software; you can redistribute it and/or modify  
it under the terms of the GNU General Public License as published by  
the Free Software Foundation; either version  
2 of the License, or  
(at your option) any later version.
```

```
This program is distributed in the hope that it will be useful,  
but WITHOUT ANY WARRANTY; without even the implied warranty of
```

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Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

```
Gnomovision version 69, Copyright (C) 19yy name of author
Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute it
under certain conditions; type `show c' for details.
```

The hypothetical commands

```
`show w' and `show c' should show the appropriate
parts of the General Public License. Of course, the commands you use may
be called something other than `show w' and `show c'; they could even be
mouse-clicks or menu items--whatever suits your program.
```

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

```
Yoyodyne, Inc., hereby disclaims all copyright interest in the program
`Gnomovision' (which makes passes at compilers) written by James Hacker.
```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Library General Public License instead of this License.

## 1.219 libjpeg 9c

### 1.219.1 Available under license :

No license file was found, but licenses were detected in source scan.

```
/*
* rdtarga.c
```

\*  
\* Copyright (C) 1991-1996, Thomas G. Lane.  
\* Modified 2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains routines to read input images in Targa format.  
\*  
\* These routines may need modification for non-Unix environments or  
\* specialized applications. As they stand, they assume input from  
\* an ordinary stdio stream. They further assume that reading begins  
\* at the start of the file; start\_input may need work if the  
\* user interface has already read some data (e.g., to determine that  
\* the file is indeed Targa format).  
\*  
\* Based on code contributed by Lee Daniel Crocker.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdtarga.c  
No license file was found, but licenses were detected in source scan.

#### IJG JPEG LIBRARY: FILE LIST

Copyright (C) 1994-2017, Thomas G. Lane, Guido Vollbeding.  
This file is part of the Independent JPEG Group's software.  
For conditions of distribution and use, see the accompanying README file.

Here is a road map to the files in the IJG JPEG distribution. The distribution includes the JPEG library proper, plus two application programs ("cjpeg" and "djpeg") which use the library to convert JPEG files to and from some other popular image formats. A third application "jpegtran" uses the library to do lossless conversion between different variants of JPEG. There are also two stand-alone applications, "rdjpgcom" and "wrjpgcom".

#### THE JPEG LIBRARY

=====

Include files:

jpeglib.h JPEG library's exported data and function declarations.  
jconfig.h Configuration declarations. Note: this file is not present in the distribution; it is generated during installation.  
jmorecfg.h Additional



configuration declarations; need not be changed

for a standard installation.

jerror.h Declares JPEG library's error and trace message codes.

jinclue.h Central include file used by all IJG .c files to reference system include files.

jpegint.h JPEG library's internal data structures.

jdct.h Private declarations for forward & reverse DCT subsystems.

jmemsys.h Private declarations for memory management subsystem.

jversion.h Version information.

Applications using the library should include jpeglib.h (which in turn includes jconfig.h and jmorecfg.h). Optionally, jerror.h may be included if the application needs to reference individual JPEG error codes. The other include files are intended for internal use and would not normally be included by an application program. (cjpeg/djpeg/etc do use jinclue.h, since its function is to improve portability of the whole IJG distribution. Most other applications will directly include the system include files they want, and hence won't need jinclue.h.)

C source code files:

These files contain most of the functions intended to be called directly by an application program:

jpegim.c Application program interface: core routines for compression.

jpegstd.c Application program interface: standard compression.

jdapim.c Application program interface: core routines for decompression.

jdapstd.c Application program interface: standard decompression.

jpegapi.c Application program interface routines common to compression and decompression.

jpegparam.c Compression parameter setting helper routines.

jpegtrans.c API and library routines for transcoding compression.

jdtrans.c API and library routines for transcoding decompression.

Compression side of the library:

jpeginit.c Initialization: determines which other modules to use.

jpegmaster.c Master control: setup and inter-pass sequencing logic.

jpegmain.c Main buffer controller (preprocessor => JPEG compressor).

jpegpre.c Preprocessor buffer controller.

jpegcoef.c Buffer controller for DCT coefficient buffer.

jpegcolor.c Color space conversion.

jpegsample.c Downsampling.

jpegdctmgr.c DCT manager (DCT implementation selection & control).

jpegfdctint.c Forward DCT using slow-but-accurate integer method.

jfdctfst.c Forward DCT using faster, less accurate integer method.  
jfdctflt.c Forward DCT using floating-point arithmetic.  
jchuff.c Huffman entropy coding.  
jcarith.c Arithmetic entropy coding.  
jcmarker.c JPEG marker writing.  
jdatadst.c Data destination managers for memory and stdio output.

Decompression side of the library:

jdmaster.c Master control: determines which other modules to use.  
jdinput.c Input controller: controls input processing modules.  
jdmainct.c Main buffer controller (JPEG decompressor => postprocessor).  
jdcoeftc.c Buffer controller for DCT coefficient buffer.  
jdpostct.c Postprocessor buffer controller.  
jdmarker.c JPEG marker reading.  
jd Huff.c Huffman entropy decoding.  
jdarith.c Arithmetic entropy decoding.  
jddctmgr.c IDCT manager (IDCT implementation selection & control).  
jidctint.c Inverse DCT using slow-but-accurate integer method.  
jidctfst.c Inverse DCT using faster, less accurate integer method.  
jidctflt.c Inverse DCT using floating-point arithmetic.  
jdsample.c Upsampling.  
jdcolor.c Color space conversion.  
jdmerge.c Merged upsampling/color conversion (faster, lower quality).  
jqant1.c One-pass color quantization using a fixed-spacing colormap.  
jqant2.c Two-pass color quantization using a custom-generated colormap.  
Also handles one-pass quantization to an externally given map.  
jdatasrc.c Data source managers for memory and stdio input.

Support files for both compression and decompression:

jaricom.c Tables for common use in arithmetic entropy encoding and decoding routines.  
jerror.c Standard error handling routines (application replaceable).  
jmemmgr.c System-independent (more or less) memory management code.  
jutils.c Miscellaneous utility routines.

jmemmgr.c relies on a system-dependent memory management module. The IJG distribution includes the following implementations of the system-dependent module:

jmemnobs.c "No backing store": assumes adequate virtual memory exists.  
jmemansi.c Makes temporary files with ANSI-standard routine tmpfile().  
jmemname.c Makes temporary files with program-generated file names.  
jmemdos.c Custom implementation for MS-DOS (16-bit environment only): can use extended and expanded memory as well as temp files.

jmemmac.c Custom implementation for Apple Macintosh.

Exactly one of the system-dependent modules should be configured into an installed JPEG library (see install.txt for hints about which one to use).

On unusual systems you may find it worthwhile to make a special system-dependent memory manager.

Non-C source code files:

jmemdosa.asm 80x86 assembly code support for jmemdos.c; used only in MS-DOS-specific configurations of the JPEG library.

## CJPEG/DJPEG/JPEGTRAN

=====

Include files:

cdjpeg.h Declarations shared by cjpeg/djpeg/jpegtran modules.

cderror.h Additional

error and trace message codes for cjpeg et al.

transupp.h Declarations for jpegtran support routines in transupp.c.

C source code files:

cjpeg.c Main program for cjpeg.

djpeg.c Main program for djpeg.

jpegtran.c Main program for jpegtran.

cdjpeg.c Utility routines used by all three programs.

rdcolmap.c Code to read a colormap file for djpeg's "-map" switch.

rdswitch.c Code to process some of cjpeg's more complex switches.

Also used by jpegtran.

transupp.c Support code for jpegtran: lossless image manipulations.

Image file reader modules for cjpeg:

rdbmp.c BMP file input.

rdgif.c GIF file input (now just a stub).

rdppm.c PPM/PGM file input.

rdrlc.c Utah RLE file input.

rdtarga.c Targa file input.

Image file writer modules for djpeg:

wrbmp.c BMP file output.

wrgif.c GIF file output (a mere shadow of its former self).

wrppm.c PPM/PGM file output.

wrrle.c Utah RLE file output.

wrtarga.c Targa file output.

## RDJPGCOM/WRJPGCOM

=====

C source

code files:

rdjpgcom.c Stand-alone rdjpgcom application.

wrjpgcom.c Stand-alone wrjpgcom application.

These programs do not depend on the IJG library. They do use jconfig.h and jinclude.h, only to improve portability.

## ADDITIONAL FILES

=====

Documentation (see README for a guide to the documentation files):

README Master documentation file.

\*.txt Other documentation files.

\*.1 Documentation in Unix man page format.

change.log Version-to-version change highlights.

example.c Sample code for calling JPEG library.

Configuration/installation files and programs (see install.txt for more info):

configure Unix shell script to perform automatic configuration.

configure.ac Source file for use with Autoconf to generate configure.

ltmain.sh Support scripts for configure (from GNU libtool).

config.guess

config.sub

depcomp

missing

ar-lib

compile

install-sh Install shell script for those Unix systems lacking one.

Makefile.in Makefile input for configure.

Makefile.am Source file

for use with Automake to generate Makefile.in.

ckconfig.c Program to generate jconfig.h on non-Unix systems.

jconfig.txt Template for making jconfig.h by hand.

mak\*.\* Sample makefiles for particular systems.

jconfig.\* Sample jconfig.h for particular systems.

libjpeg.map Script to generate shared library with versioned symbols.

libjpeg.pc.in libjpeg.pc pkg-config file input for configure.  
aclocal.m4 M4 macro definitions for use with Autoconf.

Test files (see install.txt for test procedure):

test\*.\* Source and comparison files for confidence test.

These are binary image files, NOT text files.

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/filelist.txt

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/\*

\* jfdctflt.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* Modified 2003-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains a floating-point implementation of the

\* forward DCT (Discrete Cosine Transform).

\*

\* This implementation should be more accurate than either of the integer

\* DCT implementations. However, it may not give the same results on all

\* machines because of differences in roundoff behavior. Speed will depend

\* on the hardware's floating point capacity.

\*

\* A 2-D DCT can be done by 1-D DCT on each row followed by 1-D DCT

\* on each column. Direct algorithms are also available, but they are

\* much more complex and seem not to be any faster when reduced to code.

\*

\* This implementation is based on Arai, Agui, and Nakajima's algorithm for

\* scaled

DCT. Their original paper (Trans. IEICE E-71(11):1095) is in

\* Japanese, but the algorithm is described in the Pennebaker & Mitchell

\* JPEG textbook (see REFERENCES section in file README). The following code

\* is based directly on figure 4-8 in P&M.

\* While an 8-point DCT cannot be done in less than 11 multiplies, it is

\* possible to arrange the computation so that many of the multiplies are

\* simple scalings of the final outputs. These multiplies can then be

\* folded into the multiplications or divisions by the JPEG quantization

\* table entries. The AA&N method leaves only 5 multiplies and 29 adds

\* to be done in the DCT itself.

\* The primary disadvantage of this method is that with a fixed-point

\* implementation, accuracy is lost due to imprecise representation of the

\* scaled quantization values. However, that problem does not arise if

\* we use floating point arithmetic.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jfdctflt.c  
No license file was found, but licenses were detected in source scan.

/\*

\* wrtarga.c

\*

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\* Modified 2015-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains routines to write output images in Targa format.

\*

\* These routines may need modification for non-Unix environments or

\* specialized applications. As they stand, they assume output to

\* an ordinary stdio stream.

\*

\* Based on code contributed by Lee Daniel Crocker.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/wrtarga.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jdmerge.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* Modified 2013-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains code for merged upsampling/color conversion.

\*

\* This file combines functions from jdsample.c and jdcolor.c;

\* read those files first to understand what's going on.

\*

\* When the chroma components are to be upsampled by simple replication

\* (ie, box filtering), we can save some work in color conversion by

\* calculating all the output pixels corresponding to a pair of chroma

\* samples at one time. In the conversion equations

\*  $R = Y + K1 * Cr$

\*  $G = Y + K2 * Cb + K3 * Cr$

\*  $B = Y + K4 * Cb$

\* only the Y term varies among the group of pixels corresponding to a pair

- \* of chroma samples, so the rest of the terms can be calculated just once.
- \* At typical sampling ratios, this eliminates half or three-quarters of the
- \* multiplications needed for color conversion.
- \*
- \* This file currently provides implementations for the following cases:
- \* YCC => RGB color conversion only (YCbCr or BG\_YCC).
- \* Sampling ratios of 2h1v or 2h2v.
- \* No scaling needed at upsample time.
- \* Corner-aligned (non-CCIR601) sampling alignment.
- \* Other special cases could be added, but in most applications these are
- \* the only common cases. (For uncommon cases we fall back on the more
- \* general code in jdsample.c and jdcolor.c.)
- \*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdmerge.c

No license file was found, but licenses were detected in source scan.

The Independent JPEG Group's JPEG software

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README for release 9c of 14-Jan-2018

=====

This distribution contains the ninth public release of the Independent JPEG Group's free JPEG software. You are welcome to redistribute this software and to use it for any purpose, subject to the conditions under LEGAL ISSUES, below.

This software is the work of Tom Lane, Guido Vollbeding, Philip Gladstone, Bill Allombert, Jim Boucher, Lee Crocker, Bob Friesenhahn, Ben Jackson, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the ISO/IEC JTC1/SC29/WG1 standards committee (previously known as JPEG, together with ITU-T SG16).

DOCUMENTATION ROADMAP

=====

This file contains the following sections:

OVERVIEW        General description of  
JPEG and the IJG software.

LEGAL ISSUES    Copyright, lack of warranty, terms of distribution.

REFERENCES     Where to learn more about JPEG.

ARCHIVE LOCATIONS    Where to find newer versions of this software.

ACKNOWLEDGMENTS Special thanks.  
FILE FORMAT WARS Software \*not\* to get.  
TO DO Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.txt How to configure and install the IJG software.  
usage.txt Usage instructions for cjpeg, djpeg, jpegtran,  
rdjpgcom, and wrjpgcom.  
\*.1 Unix-style man pages for programs (same info as usage.txt).  
wizard.txt Advanced usage instructions for JPEG wizards only.  
change.log Version-to-version change highlights.

Programmer and internal documentation:

libjpeg.txt How to use the JPEG library in your own programs.  
example.c Sample code for calling the JPEG library.  
structure.txt  
Overview of the JPEG library's internal structure.  
filelist.txt Road map of IJG files.  
coderrules.txt Coding style rules --- please read if you contribute code.

Please read at least the files install.txt and usage.txt. Some information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

## OVERVIEW

=====

This package contains C software to implement JPEG image encoding, decoding, and transcoding. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and grayscale images.

This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet.

We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.



In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application.

We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

We welcome the use of this software as a component of commercial products. No royalty is required, but we do ask for an acknowledgement in product documentation, as described under LEGAL ISSUES.

## LEGAL ISSUES

=====

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2. You can use this software for whatever you want. You don't have to pay us.
3. You may not pretend that you wrote this software. If you use it in a program, you must acknowledge somewhere in your documentation that you've used the IJG code.

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(2)

If only executable code is distributed, then the accompanying documentation must state that "this software is based in part on the work of the Independent JPEG Group".

(3) Permission for use of this software is granted only if the user accepts full responsibility for any undesirable consequences; the authors accept NO LIABILITY for damages of any kind.

These conditions apply to any software derived from or based on the IJG code, not just to the unmodified library. If you use our work, you ought to acknowledge us.

Permission is NOT granted for the use of any IJG author's name or company name in advertising or publicity relating to this software or products derived from it. This software may be referred to only as "the Independent JPEG Group's software".

We specifically permit and encourage the use of this software as the basis of commercial products, provided that all warranty or liability claims are assumed by the product vendor.

The Unix configuration script "configure" was produced with GNU Autoconf.

It is copyright by the Free Software Foundation but is freely distributable.

The same holds for its supporting scripts (config.guess, config.sub, ltmain.sh). Another support script, install-sh, is copyright by X Consortium but is also freely distributable.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent (now expired), GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

## REFERENCES

=====

We recommend reading one or more of these references before trying to

understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.

(Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PDF file containing a revised version of Wallace's article is available at <http://www.ijg.org/files/Wallace.JPEG.pdf>. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best currently available description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US\$59.95, 638 pp. The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2).

Although this is by far the most detailed and comprehensive exposition of JPEG publicly available, we point out that it is still missing an explanation of the most essential properties and algorithms of the underlying DCT technology.

If you think that you know about DCT-based JPEG after reading this book, then you are in delusion. The real fundamentals and corresponding potential of DCT-based JPEG are not publicly known so far, and that is the reason for all the mistaken developments taking place in the image coding domain.

The original JPEG standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

IJG JPEG 8 introduced an implementation of the JPEG SmartScale extension

which is specified in two documents: A contributed document at ITU and ISO with title "ITU-T JPEG-Plus Proposal for Extending ITU-T T.81 for Advanced Image Coding", April 2006, Geneva, Switzerland. The latest version of this document is Revision 3. And a contributed document ISO/IEC JTC1/SC29/WG1 N 5799 with title "Evolution of JPEG", June/July 2011, Berlin, Germany.

IJG JPEG 9 introduces a reversible color transform for improved lossless compression which is described in a contributed document ISO/IEC JTC1/SC29/WG1 N 6080 with title "JPEG 9 Lossless Coding", June/July 2012, Paris, France.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, version 2. JFIF version 1 has been adopted as Recommendation ITU-T T.871 (05/2011) : Information technology - Digital compression and coding of continuous-tone still images: JPEG File Interchange Format (JFIF). It is available as a free download in PDF file format from <http://www.itu.int/rec/T-REC-T.871>. A PDF file of the older JFIF document is available at <http://www.w3.org/Graphics/JPEG/jfif3.pdf>.

The TIFF 6.0 file format specification can be obtained by FTP from <ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz>. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems.

IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6). Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from <http://www.ijg.org/files/>. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design. Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note.

## ARCHIVE LOCATIONS

=====

The "official" archive site for this software is [www.ijg.org](http://www.ijg.org). The most recent released version can always be found there in directory "files". This particular version will be archived as <http://www.ijg.org/files/jpegsrc.v9c.tar.gz>, and in Windows-compatible "zip" archive format as <http://www.ijg.org/files/jpegsr9c.zip>.

The JPEG FAQ (Frequently Asked Questions) article is a source of some general information about JPEG.

It is available on the World Wide Web at <http://www.faqs.org/faqs/jpeg-faq/> and other news.answers archive sites, including the official news.answers archive at [rtfm.mit.edu](http://rtfm.mit.edu): <ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/>.

If you don't have Web or FTP access, send e-mail to mail-server@rtfm.mit.edu  
with body  
send usenet/news.answers/jpeg-faq/part1  
send usenet/news.answers/jpeg-faq/part2

## ACKNOWLEDGMENTS

=====

Thank to Juergen Bruder for providing me with a copy of the common DCT algorithm article, only to find out that I had come to the same result in a more direct and comprehensible way with a more generative approach.

Thank to Istvan Sebestyen and Joan L. Mitchell for inviting me to the ITU JPEG (Study Group 16) meeting in Geneva, Switzerland.

Thank to Thomas Wiegand and Gary Sullivan for inviting me to the Joint Video Team (MPEG & ITU) meeting in Geneva, Switzerland.

Thank to Thomas Richter and Daniel Lee for inviting me to the ISO/IEC JTC1/SC29/WG1 (previously known as JPEG, together with ITU-T SG16) meeting in Berlin, Germany.

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Thank to Lars Goehler, Andreas Heinecke, Sebastian Fuss, Yvonne Roebert, Andrej Werner, and Ulf-Dietrich Braumann for support and public relations.

## FILE FORMAT WARS

=====

The ISO/IEC JTC1/SC29/WG1 standards committee (previously known as JPEG, together with ITU-T SG16) currently promotes different formats containing the name "JPEG" which is misleading because these formats are incompatible with original DCT-based JPEG and are based on faulty technologies. IJG therefore does not and will not support such momentary mistakes (see REFERENCES).

There exist also distributions under the name "OpenJPEG" promoting such kind of formats which is misleading because they don't support original JPEG images.

We have no sympathy for the promotion of inferior formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, interoperable format standards for JPEG files.

Don't use an incompatible file format!

(In any case, our decoder will remain capable of reading existing JPEG image files indefinitely.)

The ISO committee pretends to be "responsible for the popular JPEG" in their public reports which is not true because they don't respond to actual requirements

for the maintenance of the original JPEG specification.

Furthermore, the ISO committee pretends to "ensure interoperability" with their standards which is not true because their "standards" support only application-specific and proprietary use cases and contain mathematically incorrect code.

There are currently different distributions in circulation containing the name "libjpeg" which is misleading because they don't have the features and are incompatible with formats supported by actual IJG libjpeg distributions. One of those fakes is released by members of the ISO committee and just uses the name of libjpeg for misdirection of people, similar to the abuse of the name JPEG as described above, while having nothing in common with actual IJG libjpeg distributions and containing mathematically incorrect code.

The other one claims to be a "derivative" or "fork" of the original libjpeg, but violates the license conditions as described under LEGAL ISSUES above and violates

basic C programming properties.

We have no sympathy for the release of misleading, incorrect and illegal distributions derived from obsolete code bases.

Don't use an obsolete code base!

According to the UCC (Uniform Commercial Code) law, IJG has the lawful and legal right to foreclose on certain standardization bodies and other institutions or corporations that knowingly perform substantial and systematic deceptive acts and practices, fraud, theft, and damaging of the value of the people of this planet without their knowing, willing and

intentional consent.

The titles, ownership, and rights of these institutions and all their assets are now duly secured and held in trust for the free people of this planet. People of the planet, on every country, may have a financial interest in the assets of these former principals, agents, and beneficiaries of the foreclosed institutions and corporations.

IJG asserts what is: that each man, woman, and child has unalienable value and rights granted

and deposited in them by the Creator and not any one of the people is subordinate to any artificial principality, corporate fiction or the special interest of another without their appropriate knowing, willing and intentional consent made by contract or accommodation agreement.

IJG expresses that which already was.

The people have already determined and demanded that public administration entities, national governments, and their supporting judicial systems must be fully transparent, accountable, and liable.

IJG has secured the value for all concerned free people of the planet.

A partial list of foreclosed institutions and corporations ("Hall of Shame") is currently prepared and will be published later.

TO DO

=====

Version 9 is the second release of a new generation JPEG standard to overcome the limitations of the original JPEG specification, and is the first true source reference JPEG codec.

More features are being prepared for coming releases...

Please send bug reports, offers of help, etc. to [jpeg-info@jpegclub.org](mailto:jpeg-info@jpegclub.org).

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/README

No license file was found, but licenses were detected in source scan.

/\*

\* wrjpgcom.c

\*

\* Copyright (C) 1994-1997, Thomas G. Lane.

\* Modified 2015-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains a very simple stand-alone application that inserts

\* user-supplied text as a COM (comment) marker in a JFIF file.

\* This may be useful as an example of the minimum logic needed to parse

\* JPEG markers.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/wrjpgcom.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdapimin.c

\*

\* Copyright (C) 1994-1998, Thomas G. Lane.

\* Modified 2009-2013 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains application interface code for the decompression half  
\* of the JPEG library. These are the "minimum" API routines that may be  
\* needed in either the normal full-decompression case or the  
\* transcoding-only case.

\*

\* Most of the routines intended to be called directly by an application  
\* are in this file or in jdapistd.c. But also see jcomapi.c for routines  
\* shared by compression and decompression, and jdtrans.c for the transcoding  
\* case.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdapimin.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdarith.c

\*

\* Developed 1997-2015 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains portable arithmetic entropy decoding routines for JPEG  
\* (implementing the ISO/IEC IS 10918-1 and CCITT Recommendation ITU-T T.81).

\*

\* Both sequential and progressive modes are supported in this single module.

\*

\* Suspension is not currently supported in this module.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdarith.c



No license file was found, but licenses were detected in source scan.

```
/*
 * jerror.h
 *
 * Copyright (C) 1994-1997, Thomas G. Lane.
 * Modified 1997-2012 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file defines the error and message codes for the JPEG library.
 * Edit this file to add new codes, or to translate the message strings to
 * some other language.
 * A set of error-reporting macros are defined too. Some applications using
 * the JPEG library may wish to include this file to get the error codes
 * and/or the macros.
 */
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jerror.h
No license file was found, but licenses were detected in source scan.
```

```
/*
 * rdrle.c
 *
 * Copyright (C) 1991-1996, Thomas G. Lane.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains routines to read input images in Utah RLE format.
 * The Utah Raster Toolkit library is required (version 3.1 or later).
 *
 * These routines may need modification for non-Unix environments or
 * specialized applications. As they stand, they assume input from
 * an ordinary stdio stream. They further assume that reading begins
 * at the start of the file; start_input may need work if the
 * user interface has already read some data (e.g., to determine that
 * the file is indeed RLE format).
 *
 * Based on code contributed by Mike Lijewski,
 * with updates from Robert Hutchinson.
 */
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdrle.c
No license file was found, but licenses were detected in source scan.
```

```
/*
```

```

* jfdctint.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modification developed 2003-2015 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a slow-but-accurate integer implementation of the
* forward DCT (Discrete Cosine Transform).
*
* A 2-D DCT can be done by 1-D DCT on each row followed by 1-D DCT
* on each column. Direct algorithms are also available, but they are
* much more complex and seem not to be any faster when reduced to code.
*
* This implementation is based on an algorithm described in
* C. Loeffler, A. Ligtenberg and G. Moschytz, "Practical Fast 1-D DCT
* Algorithms with 11 Multiplications", Proc. Int'l. Conf. on Acoustics,
* Speech, and Signal Processing 1989 (ICASSP '89), pp. 988-991.
* The primary algorithm described there uses 11 multiplies
* and 29 adds.
* We use their alternate method with 12 multiplies and 32 adds.
* The advantage of this method is that no data path contains more than one
* multiplication; this allows a very simple and accurate implementation in
* scaled fixed-point arithmetic, with a minimal number of shifts.
*
* We also provide FDCT routines with various input sample block sizes for
* direct resolution reduction or enlargement and for direct resolving the
* common 2x1 and 1x2 subsampling cases without additional resampling: NxN
* (N=1...16), 2NxN, and Nx2N (N=1...8) pixels for one 8x8 output DCT block.
*
* For N<8 we fill the remaining block coefficients with zero.
* For N>8 we apply a partial N-point FDCT on the input samples, computing
* just the lower 8 frequency coefficients and discarding the rest.
*
* We must scale the output coefficients of the N-point FDCT appropriately
* to the standard 8-point FDCT level by 8/N per 1-D pass. This scaling
* is folded into the constant multipliers
* (pass 2) and/or final/initial
* shifting.
*
* CAUTION: We rely on the FIX() macro except for the N=1,2,4,8 cases
* since there would be too many additional constants to pre-calculate.
*/

```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jfdctint.c
```

No license file was found, but licenses were detected in source scan.

```
/*
 * rdswitch.c
 *
 * Copyright (C) 1991-1996, Thomas G. Lane.
 * Modified 2003-2015 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains routines to process some of cjpeg's more complicated
 * command-line switches. Switches processed here are:
 * -qtables file Read quantization tables from text file
 * -scans file Read scan script from text file
 * -quality N[,N,...] Set quality ratings
 * -qslots N[,N,...] Set component quantization table selectors
 * -sample HxV[,HxV,...] Set component sampling factors
 */
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdswitch.c
```

No license file was found, but licenses were detected in source scan.

```
/*
 * jmemsys.h
 *
 * Copyright (C) 1992-1997, Thomas G. Lane.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This include file defines the interface between the system-independent
 * and system-dependent portions of the JPEG memory manager. No other
 * modules need include it. (The system-independent portion is jmemmgr.c;
 * there are several different versions of the system-dependent portion.)
 *
 * This file works as-is for the system-dependent memory managers supplied
 * in the IJG distribution. You may need to modify it if you write a
 * custom memory manager. If system-dependent changes are needed in
 * this file, the best method is to #ifdef them based on a configuration
 * symbol supplied in jconfig.h, as we have done with USE_MSDOS_MEMMGR
 * and USE_MAC_MEMMGR.
 */
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemsys.h
```

No license file was found, but licenses were detected in source scan.

```
/*
 * djpeg.c
 *
```

\* Copyright (C) 1991-1997, Thomas G. Lane.  
\* Modified 2009-2015 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains a command-line user interface for the JPEG decompressor.  
\* It should work on any system with Unix- or MS-DOS-style command lines.  
\*  
\* Two different command line styles are permitted, depending on the  
\* compile-time switch TWO\_FILE\_COMMANDLINE:  
\* djpeg [options] inputfile outputfile  
\* djpeg [options] [inputfile]  
\* In the second style, output is always to standard output, which you'd  
\* normally redirect to a file or pipe to some other program. Input is  
\* either from a named file or from standard input (typically redirected).  
\* The second style is convenient on Unix but is unhelpful on systems that  
\* don't support pipes. Also, you MUST use the  
\* first style if your system  
\* doesn't do binary I/O to stdin/stdout.  
\* To simplify script writing, the "-outfile" switch is provided. The syntax  
\* djpeg [options] -outfile outputfile inputfile  
\* works regardless of which command line style is used.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/djpeg.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jpeglib.h

\*

\* Copyright (C) 1991-1998, Thomas G. Lane.  
\* Modified 2002-2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file defines the application interface for the JPEG library.  
\* Most applications using the library need only include this file,  
\* and perhaps jerror.h if they want to know the exact error codes.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jpeglib.h  
No license file was found, but licenses were detected in source scan.

/\*

\* jarith.c

\*

\* Developed 1997-2013 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains portable arithmetic entropy encoding routines for JPEG  
\* (implementing the ISO/IEC IS 10918-1 and CCITT Recommendation ITU-T T.81).  
\*  
\* Both sequential and progressive modes are supported in this single module.  
\*  
\* Suspension is not currently supported in this module.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcarith.c  
No license file was found, but licenses were detected in source scan.

/\*  
\* jmorecfg.h  
\*  
\* Copyright (C) 1991-1997, Thomas G. Lane.  
\* Modified 1997-2013 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains additional configuration options that customize the  
\* JPEG software for special applications or support machine-dependent  
\* optimizations. Most users will not need to touch this file.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmorecfg.h  
No license file was found, but licenses were detected in source scan.

/\*  
\* wrtle.c  
\*  
\* Copyright (C) 1991-1996, Thomas G. Lane.  
\* Modified 2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains routines to write output images in RLE format.  
\* The Utah Raster Toolkit library is required (version 3.1 or later).  
\*  
\* These routines may need modification for non-Unix environments or  
\* specialized applications. As they stand, they assume output to  
\* an ordinary stdio stream.  
\*/

\* Based on code contributed by Mike Lijewski,  
\* with updates from Robert Hutchinson.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/wrrle.c

No license file was found, but licenses were detected in source scan.

/\*

\* jinclude.h

\*

\* Copyright (C) 1991-1994, Thomas G. Lane.

\* Modified 2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file exists to provide a single place to fix any problems with

\* including the wrong system include files. (Common problems are taken

\* care of by the standard jconfig symbols, but on really weird systems

\* you may have to edit this file.)

\*

\* NOTE: this file is NOT intended to be included by applications using the

\* JPEG library. Most applications need only include jpeglib.h.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jinclude.h

No license file was found, but licenses were detected in source scan.

/\*

\* jmemansi.c

\*

\* Copyright (C) 1992-1996, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file provides a simple generic implementation of the system-

\* dependent portion of the JPEG memory manager. This implementation

\* assumes that you have the ANSI-standard library routine tmpfile().

\* Also, the problem of determining the amount of memory available

\* is shoved onto the user.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemansi.c

No license file was found, but licenses were detected in source scan.

/\*

```
* jmemnobs.c
*
* Copyright (C) 1992-1996, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file provides a really simple implementation of the system-
* dependent portion of the JPEG memory manager. This implementation
* assumes that no backing-store files are needed: all required space
* can be obtained from malloc().
* This is very portable in the sense that it'll compile on almost anything,
* but you'd better have lots of main memory (or virtual memory) if you want
* to process big images.
* Note that the max_memory_to_use option is ignored by this implementation.
*/
```

Found in path(s):

```
*/opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemnobs.c
No license file was found, but licenses were detected in source scan.
```

```
/*
* jctrans.c
*
* Copyright (C) 1995-1998, Thomas G. Lane.
* Modified 2000-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains library routines for transcoding compression,
* that is, writing raw DCT coefficient arrays to an output JPEG file.
* The routines in jcapimin.c will also be needed by a transcoder.
*/
```

Found in path(s):

```
*/opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jctrans.c
No license file was found, but licenses were detected in source scan.
```

```
/*
* jcomapi.c
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains application interface routines that are used for both
* compression and decompression.
*/
```

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcomapi.c

No license file was found, but licenses were detected in source scan.

## IJG JPEG LIBRARY: CODING RULES

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This file is part of the Independent JPEG Group's software.

For conditions of distribution and use, see the accompanying README file.

Since numerous people will be contributing code and bug fixes, it's important to establish a common coding style. The goal of using similar coding styles is much more important than the details of just what that style is.

In general we follow the recommendations of "Recommended C Style and Coding Standards" revision 6.1 (Cannon et al. as modified by Spencer, Keppel and Brader). This document is available in the IJG FTP archive (see `jpeg/doc/cstyle.ms.tbl.Z`, or `cstyle.txt.Z` for those without `nroff/tbl`).

Block comments should be laid out thusly:

```
/*  
* Block comments in this style.  
*/
```

We indent statements in K&R style, e.g.,

```
if (test) {  
    then-part;  
} else {  
    else-part;  
}
```

with two spaces per indentation

level. (This indentation convention is

handled automatically by GNU Emacs and many other text editors.)

Multi-word names should be written in lower case with underscores, e.g., `multi_word_name` (not `multiWordName`). Preprocessor symbols and enum constants are similar but upper case (`MULTI_WORD_NAME`). Names should be unique within the first fifteen characters. (On some older systems, global names must be unique within six characters. We accommodate this without cluttering the source code by using macros to substitute shorter names.)

We use function prototypes everywhere; we rely on automatic source code transformation to feed prototype-less C compilers. Transformation is done by the simple and portable tool 'ansi2knr.c' (courtesy of Ghostscript).

ansi2knr is not very bright, so it imposes a format requirement on function declarations: the function name MUST BEGIN IN COLUMN 1. Thus all functions



should be written in the following style:

```
LOCAL(int *)
function_name (int a, char
*b)
{
    code...
}
```

Note that each function definition must begin with GLOBAL(type), LOCAL(type), or METHODDEF(type). These macros expand to "static type" or just "type" as appropriate. They provide a readable indication of the routine's usage and can readily be changed for special needs. (For instance, special linkage keywords can be inserted for use in Windows DLLs.)

```
ansi2knr does not transform method declarations (function pointers in
structs). We handle these with a macro JMETHOD, defined as
#ifdef HAVE_PROTOTYPES
#define JMETHOD(type,methodname,arglist) type (*methodname) arglist
#else
#define JMETHOD(type,methodname,arglist) type (*methodname) ()
#endif
```

which is used like this:

```
struct function_pointers {
    JMETHOD(void, init_entropy_encoder, (int somearg, jparms *jp));
    JMETHOD(void, term_entropy_encoder, (void));
};
```

Note the set of parentheses surrounding the parameter list.

A similar solution is used for forward and external function declarations (see the EXTERN and JPP macros).

If the code is to work on non-ANSI compilers, we cannot rely on a prototype declaration to coerce actual parameters into the right types. Therefore, use explicit casts on actual parameters whenever the actual parameter type is not identical to the formal parameter. Beware of implicit conversions to "int".

It seems there are some non-ANSI compilers in which the sizeof() operator is defined to return int, yet size\_t is defined as long. Needless to say, this is brain-damaged. Always use the SIZEOF() macro in place of sizeof(), so that the result is guaranteed to be of type size\_t.

The JPEG library is intended to be used within larger programs. Furthermore, we want it to be reentrant so that it can be used by applications that process multiple images concurrently. The following rules support these requirements:

1. Avoid direct use of file I/O, "malloc", error report printouts, etc; pass these through the common routines provided.
2. Minimize global namespace pollution. Functions should be declared static wherever possible. (Note that our method-based calling conventions help this a lot: in many modules only the initialization function will ever need to be called directly, so only that function need be externally visible.) All global function names should begin with "jpeg\_", and should have an abbreviated name (unique in the first six characters) substituted by macro when NEED\_SHORT\_EXTERNAL\_NAMES is set.
3. Don't use global variables; anything that must be used in another module should be in the common data structures.
4. Don't use static variables except for read-only constant tables. Variables that should be private to a module can be placed into private structures (see the system architecture document, structure.txt).
5. Source file names should begin with "j" for files that are part of the library proper; source files that are not part of the library, such as cjpeg.c and djpeg.c, do not begin with "j". Keep source file names to eight characters (plus ".c" or ".h", etc) to make life easy for MS-DOSers. Keep compression and decompression code in separate source files --- some applications may want only one half of the library.

Note: these rules (particularly #4) are not followed religiously in the modules that are used in cjpeg/djpeg but are not part of the JPEG library proper. Those modules are not really intended to be used in other applications.

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/coderules.txt

No license file was found, but licenses were detected in source scan.

```
/*
 * jcparam.c
 *
 * Copyright (C) 1991-1998, Thomas G. Lane.
 * Modified 2003-2013 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains optional default-setting code for the JPEG compressor.
 * Applications do not have to use this file, but those that don't use it
 * must know a lot more about the innards of the JPEG code.
 */
```

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcparam.c

No license file was found, but licenses were detected in source scan.

/\*

\* jcinit.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.

\* Modified 2003-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains initialization logic for the JPEG compressor.

\* This routine is in charge of selecting the modules to be executed and

\* making an initialization call to each one.

\*

\* Logically, this code belongs in jcmaster.c. It's split out because

\* linking this routine implies linking the entire compression library.

\* For a transcoding-only application, we want to be able to use jcmaster.c

\* without linking in the whole library.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcinit.c

No license file was found, but licenses were detected in source scan.

/\*

\* jversion.h

\*

\* Copyright (C) 1991-2018, Thomas G. Lane, Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains software version identification.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jversion.h

No license file was found, but licenses were detected in source scan.

/\*

\* jdinput.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.

\* Modified 2002-2013 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*  
\* This file contains input control logic for the JPEG decompressor.  
\* These routines are concerned with controlling the decompressor's input  
\* processing (marker reading and coefficient decoding). The actual input  
\* reading is done in jdmarker.c, jdhuft.c, and jdarith.c.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdinput.c

No license file was found, but licenses were detected in source scan.

/\*

\* jcsample.c

\*

\* Copyright (C) 1991-1996, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains downsampling routines.

\*

\* Downsampling input data is counted in "row groups". A row group

\* is defined to be max\_v\_samp\_factor pixel rows of each component,

\* from which the downsampler produces v\_samp\_factor sample rows.

\* A single row group is processed in each call to the downsampler module.

\*

\* The downsampler is responsible for edge-expansion of its output data

\* to fill an integral number of DCT blocks horizontally. The source buffer

\* may be modified if it is helpful for this purpose (the source buffer is

\* allocated wide enough to correspond to the desired output width).

\* The caller (the prep controller) is responsible for vertical padding.

\*

\* The downsampler may request

"context rows" by setting need\_context\_rows

\* during startup. In this case, the input arrays will contain at least

\* one row group's worth of pixels above and below the passed-in data;

\* the caller will create dummy rows at image top and bottom by replicating

\* the first or last real pixel row.

\*

\* An excellent reference for image resampling is

\* Digital Image Warping, George Wolberg, 1990.

\* Pub. by IEEE Computer Society Press, Los Alamitos, CA. ISBN 0-8186-8944-7.

\*

\* The downsampling algorithm used here is a simple average of the source

\* pixels covered by the output pixel. The hi-falutin sampling literature

\* refers to this as a "box filter". In general the characteristics of a box

\* filter are not very good, but for the specific cases we normally use (1:1

\* and 2:1 ratios) the box is equivalent to a "triangle filter" which is not

\* nearly so bad. If you intend to use other sampling ratios, you'd be well

\* advised to improve this code.  
\*  
\* A simple input-smoothing capability is provided. This is mainly intended  
\* for cleaning up color-dithered GIF input files (if you find it inadequate,  
\* we suggest using an external filtering program such as pnmconvol). When  
\* enabled, each input pixel P is replaced by a weighted sum of itself and its  
\* eight neighbors. P's weight is 1-8\*SF and each neighbor's weight is SF,  
\* where SF = (smoothing\_factor / 1024).  
\* Currently, smoothing is only supported for 2h2v sampling factors.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcsample.c  
No license file was found, but licenses were detected in source scan.

/\*  
\* cdjpeg.c  
\*  
\* Copyright (C) 1991-1997, Thomas G. Lane.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains common support routines used by the IJG application  
\* programs (cjpeg, djpeg, jpegtran).  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/cdjpeg.c  
No license file was found, but licenses were detected in source scan.

/\*  
\* jdatasrc.c  
\*  
\* Copyright (C) 1994-1996, Thomas G. Lane.  
\* Modified 2009-2015 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains decompression data source routines for the case of  
\* reading JPEG data from memory or from a file (or any stdio stream).  
\* While these routines are sufficient for most applications,  
\* some will want to use a different source manager.  
\* IMPORTANT: we assume that fread() will correctly transcribe an array of  
\* JOCTETs from 8-bit-wide elements on external storage. If char is wider  
\* than 8 bits on your machine, you may need to do some tweaking.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdatasrc.c

No license file was found, but licenses were detected in source scan.

/\*

\* jcapimin.c

\*

\* Copyright (C) 1994-1998, Thomas G. Lane.

\* Modified 2003-2010 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains application interface code for the compression half  
\* of the JPEG library. These are the "minimum" API routines that may be  
\* needed in either the normal full-compression case or the transcoding-only  
\* case.

\*

\* Most of the routines intended to be called directly by an application  
\* are in this file or in jcapistd.c. But also see jtparam.c for  
\* parameter-setup helper routines, jcomapi.c for routines shared by  
\* compression and decompression, and jctrans.c for the transcoding case.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcapimin.c

No license file was found, but licenses were detected in source scan.

/\*

\* jquant2.c

\*

\* Copyright (C) 1991-1996, Thomas G. Lane.

\* Modified 2011 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains 2-pass color quantization (color mapping) routines.  
\* These routines provide selection of a custom color map for an image,  
\* followed by mapping of the image to that color map, with optional  
\* Floyd-Steinberg dithering.

\* It is also possible to use just the second pass to map to an arbitrary  
\* externally-given color map.

\*

\* Note: ordered dithering is not supported, since there isn't any fast  
\* way to compute intercolor distances; it's unclear that ordered dither's  
\* fundamental assumptions even hold with an irregularly spaced color map.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jquant2.c

No license file was found, but licenses were detected in source scan.

/\*

\* rdjpgcom.c

\*

\* Copyright (C) 1994-1997, Thomas G. Lane.

\* Modified 2009 by Bill Allombert, Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains a very simple stand-alone application that displays

\* the text in COM (comment) markers in a JFIF file.

\* This may be useful as an example of the minimum logic needed to parse

\* JPEG markers.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdjpgcom.c

No license file was found, but licenses were detected in source scan.

/\*

\* rdgif.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains routines to read input images in GIF format.

\*

\*\*\*\*\*

\* NOTE: to avoid entanglements with Unisys' patent on LZW compression, \*

\* the ability to read GIF files has been removed from the IJG distribution. \*

\* Sorry about that. \*

\*\*\*\*\*

\*

\* We are required to state that

\* "The Graphics Interchange Format(c) is the Copyright property of

\* CompuServe Incorporated. GIF(sm) is a Service Mark property of

\* CompuServe Incorporated."

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdgif.c

No license file was found, but licenses were detected in source scan.

/\*

\* transupp.h

\*  
\* Copyright (C) 1997-2013, Thomas G. Lane, Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains declarations for image transformation routines and  
\* other utility code used by the jpegtran sample application. These are  
\* NOT part of the core JPEG library. But we keep these routines separate  
\* from jpegtran.c to ease the task of maintaining jpegtran-like programs  
\* that have other user interfaces.  
\*  
\* NOTE: all the routines declared here have very specific requirements  
\* about when they are to be executed during the reading and writing of the  
\* source and destination files. See the comments in transupp.c, or see  
\* jpegtran.c for an example of correct usage.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/transupp.h

No license file was found, but licenses were detected in source scan.

/\*

\* wrppm.c

\*

\* Copyright (C) 1991-1996, Thomas G. Lane.

\* Modified 2009-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains routines to write output images in PPM/PGM format.

\* The extended 2-byte-per-sample raw PPM/PGM formats are supported.

\* The PBMPLUS library is NOT required to compile this software

\* (but it is highly useful as a set of PPM image manipulation programs).

\*

\* These routines may need modification for non-Unix environments or

\* specialized applications. As they stand, they assume output to

\* an ordinary stdio stream.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/wrppm.c

No license file was found, but licenses were detected in source scan.

/\*

\* jutils.c

\*

\* Copyright (C) 1991-1996, Thomas G. Lane.

\* Modified 2009-2011 by Guido Vollbeding.



\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains tables and miscellaneous utility routines needed  
\* for both compression and decompression.  
\* Note we prefix all global names with "j" to minimize conflicts with  
\* a surrounding application.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jutils.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jcapistd.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.  
\* Modified 2013 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains application interface code for the compression half  
\* of the JPEG library. These are the "standard" API routines that are  
\* used in the normal full-compression case. They are not used by a  
\* transcoding-only application. Note that if an application links in  
\* jpeg\_start\_compress, it will end up linking in the entire compressor.  
\* We thus must separate this file from jcapimin.c to avoid linking the  
\* whole compression library into a transcoder.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcapistd.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jerror.c

\*

\* Copyright (C) 1991-1998, Thomas G. Lane.  
\* Modified 2012-2015 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains simple error-reporting and trace-message routines.  
\* These are suitable for Unix-like systems and others where writing to  
\* stderr is the right thing to do. Many applications will want to replace  
\* some or all of these routines.  
\*  
\* If you define USE\_WINDOWS\_MESSAGEBOX in jconfig.h or in the makefile,

\* you get a Windows-specific hack to display error messages in a dialog box.  
\* It ain't much, but it beats dropping error messages into the bit bucket,  
\* which is what happens to output to stderr under most Windows C compilers.  
\*  
\* These routines are used by both the compression and decompression code.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jerror.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jcrepct.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains the compression preprocessing controller.

\* This controller manages the color conversion, downsampling,

\* and edge expansion steps.

\*

\* Most of the complexity here is associated with buffering input rows

\* as required by the downsampler. See the comments at the head of

\* jcsample.c for the downsampler's needs.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcrepct.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jchuff.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.

\* Modified 2006-2013 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains Huffman entropy encoding routines.

\* Both sequential and progressive modes are supported in this single module.

\*

\* Much of the complexity here has to do with supporting output suspension.

\* If the data destination module demands suspension, we want to be able to

\* back up to the start of the current MCU. To do this, we copy state

\* variables into local working storage, and update them back to the

\* permanent JPEG objects only upon successful completion of an MCU.

\*

- \* We do not support output suspension for the progressive JPEG mode, since
- \* the library currently does not allow multiple-scan files to be written
- \* with output suspension.

\*/

Found

in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jchuff.c

No license file was found, but licenses were detected in source scan.

/\*

\* ckconfig.c

\*

\* Copyright (C) 1991-1994, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/ckconfig.c

No license file was found, but licenses were detected in source scan.

INSTALLATION INSTRUCTIONS for the Independent JPEG Group's JPEG software

Copyright (C) 1991-2017, Thomas G. Lane, Guido Vollbeding.

This file is part of the Independent JPEG Group's software.

For conditions of distribution and use, see the accompanying README file.

This file explains how to configure and install the IJG software. We have tried to make this software extremely portable and flexible, so that it can be adapted to almost any environment. The downside of this decision is that the installation process is complicated. We have provided shortcuts to simplify the task on common systems. But in any case, you will need at least a little familiarity with C programming and program build procedures for your system.

If you are only using this software as part of a larger program, the larger program's installation procedure may take care of configuring the IJG code.

For example, Ghostscript's installation script will configure the IJG code.

You don't need to read this file if you just want to compile Ghostscript.

If you are on a Unix machine, you may not need to read this file at all.

Try doing

./configure

make

make test

If that doesn't complain, do

make install  
(better do "make -n install" first to see if the makefile will put the files where you want them). Read further if you run into snags or want to customize the code for your system.

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-----

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Hints for specific systems

## BEFORE YOU START

=====

Before installing the software you must unpack the distributed source code. Since you are reading this file, you have probably already succeeded in this task. However, there is a potential for error if you needed to convert the files to the local standard text file format (for example, if you are on MS-DOS you may have converted LF end-of-line to CR/LF). You must apply such conversion to all the files EXCEPT those whose names begin with "test". The test files contain binary data; if you change them in any way then the self-test will give bad results.

Please check the last section of this file to see if there are hints for the specific machine or compiler you are using.

## CONFIGURING THE SOFTWARE

=====

To configure the IJG code for your system, you need to create two files:

- \* jconfig.h: contains values for system-dependent #define symbols.
- \* Makefile: controls the compilation process.

(On a non-Unix machine, you may create "project files" or some other substitute for a Makefile. jconfig.h is needed in any environment.)

We provide three different ways to generate these files:

- \* On a Unix system, you can just run the "configure" script.
- \* We provide sample jconfig files and makefiles for popular machines; if your machine matches one of the samples, just copy the right sample files to jconfig.h and Makefile.
- \* If all else fails, read the instructions below and make your own files.

Configuring the software using the automatic "configure" script

-----

If you are on a Unix machine, you can just type

```
./configure
```

and let the configure script construct appropriate configuration files.

If you're using "csh" on an old version of System V, you might need to type

```
sh configure
```

instead to prevent csh from trying to execute configure itself.

Expect configure to run for a few minutes, particularly on slower machines; it works by compiling a series of test programs.

Configure was created with GNU Autoconf and it follows the usual conventions for GNU configure scripts. It makes a few assumptions that you may want to override. You can do this by providing optional switches to configure:

\*

Configure will build both static and shared libraries, if possible.

If you want to build libjpeg only as a static library, say

```
./configure --disable-shared
```

If you want to build libjpeg only as a shared library, say

```
./configure --disable-static
```

Configure uses GNU libtool to take care of system-dependent shared library building methods.

\* Configure will use gcc (GNU C compiler) if it's available, otherwise cc.

To force a particular compiler to be selected, use the CC option, for example

```
./configure CC='cc'
```

The same method can be used to include any unusual compiler switches.

For example, on HP-UX you probably want to say

```
./configure CC='cc -Aa'
```

to get HP's compiler to run in ANSI mode.

\* The default CFLAGS setting is "-g" for non-gcc compilers, "-g -O2" for gcc.

You can override this by saying, for example,

```
./configure CFLAGS='-O2'
```

if you want to compile without debugging support.

\* Configure will set up the makefile so that "make install" will install files

into /usr/local/bin,  
/usr/local/man, etc. You can specify an installation  
prefix other than "/usr/local" by giving configure the option "--prefix=PATH".

\* If you don't have a lot of swap space, you may need to enable the IJG  
software's internal virtual memory mechanism. To do this, give the option  
"--enable-maxmem=N" where N is the default maxmemory limit in megabytes.  
This is discussed in more detail under "Selecting a memory manager", below.  
You probably don't need to worry about this on reasonably-sized Unix machines,  
unless you plan to process very large images.

Configure has some other features that are useful if you are cross-compiling  
or working in a network of multiple machine types; but if you need those  
features, you probably already know how to use them.

Configuring the software using one of the supplied jconfig and makefile files  
-----

If you have one of these systems, you can just use the provided configuration  
files:

Makefile jconfig

file System and/or compiler

makefile.manx jconfig.manx Amiga, Manx Aztec C  
makefile.sas jconfig.sas Amiga, SAS C  
makeproj.mac jconfig.mac Apple Macintosh, Metrowerks CodeWarrior  
mak\*jpeg.st jconfig.st Atari ST/STE/TT, Pure C or Turbo C  
makefile.bcc jconfig.bcc MS-DOS or OS/2, Borland C  
makefile.dj jconfig.dj MS-DOS, DJGPP (Delorie's port of GNU C)  
makefile.mc6 jconfig.mc6 MS-DOS, Microsoft C (16-bit only)  
makefile.wat jconfig.wat MS-DOS, OS/2, or Windows NT, Watcom C  
makefile.vc jconfig.vc Windows, MS Visual C++  
makefile.vs jconfig.vc Windows, MS Visual C++ 6 Developer Studio  
make\*.vc6  
makefile.vs jconfig.vc Windows, Visual Studio 2017 (v15)  
make\*.v15  
makefile.b32 jconfig.vc Windows, Borland C++ 32-bit (bcc32)  
makefile.mms jconfig.vms Digital VMS, with MMS software  
makefile.vms jconfig.vms Digital VMS, without MMS software

Copy the proper jconfig file to jconfig.h and the makefile to Makefile (or  
whatever your system uses as the standard makefile name). For  
more info see  
the appropriate system-specific hints section near the end of this file.

## Configuring the software by hand

-----

First, generate a `jconfig.h` file. If you are moderately familiar with C, the comments in `jconfig.txt` should be enough information to do this; just copy `jconfig.txt` to `jconfig.h` and edit it appropriately. Otherwise, you may prefer to use the `ckconfig.c` program. You will need to compile and execute `ckconfig.c` by hand --- we hope you know at least enough to do that. `ckconfig.c` may not compile the first try (in fact, the whole idea is for it to fail if anything is going to). If you get compile errors, fix them by editing `ckconfig.c` according to the directions given in `ckconfig.c`. Once you get it to run, it will write a suitable `jconfig.h` file, and will also print out some advice about which makefile to use.

You may also want to look at the canned `jconfig` files, if there is one for a system similar to yours.

Second, select a makefile

and copy it to `Makefile` (or whatever your system uses as the standard makefile name). The most generic makefiles we provide are

`makefile.ansi`: if your C compiler supports function prototypes

`makefile.unix`: if not.

(You have function prototypes if `ckconfig.c` put `"#define HAVE_PROTOTYPES"` in `jconfig.h`.) You may want to start from one of the other makefiles if there is one for a system similar to yours.

Look over the selected `Makefile` and adjust options as needed. In particular you may want to change the `CC` and `CFLAGS` definitions. For instance, if you are using `GCC`, set `CC=gcc`. If you had to use any compiler switches to get `ckconfig.c` to work, make sure the same switches are in `CFLAGS`.

If you are on a system that doesn't use makefiles, you'll need to set up project files (or whatever you do use) to compile all the source files and link them into executable files `cjpeg`, `djpeg`, `jpegtran`, `rdjpgcom`, and `wrjpgcom`. See the file lists in any of the makefiles to find out which files

go into

each program. Note that the provided makefiles all make a "library" file `libjpeg` first, but you don't have to do that if you don't want to; the file lists identify which source files are actually needed for compression, decompression, or both. As a last resort, you can make a batch script that just compiles everything and links it all together; `makefile.vms` is an example of this (it's for VMS systems that have no make-like utility).

Here are comments about some specific configuration decisions you'll need to make:

Command line style

-----  
These programs can use a Unix-like command line style which supports redirection and piping, like this:

```
cjpeg inputfile >outputfile  
cjpeg <inputfile >outputfile  
source program | cjpeg >outputfile
```

The simpler "two file" command line style is just

```
cjpeg inputfile outputfile
```

You may prefer the two-file style, particularly if you don't have pipes.

You MUST use two-file style on any system that doesn't cope well with binary data

fed through stdin/stdout; this is true for some MS-DOS compilers, for example. If you're not on a Unix system, it's safest to assume you need two-file style. (But if your compiler provides either the Posix-standard `fdopen()` library routine or a Microsoft-compatible `setmode()` routine, you can safely use the Unix command line style, by defining `USE_FDOPEN` or `USE_SETMODE` respectively.)

To use the two-file style, make `jconfig.h` say `#define TWO_FILE_COMMANDLINE`.

Selecting a memory manager

-----  
The IJG code is capable of working on images that are too big to fit in main memory; data is swapped out to temporary files as necessary. However, the code to do this is rather system-dependent. We provide five different memory managers:

\* `jmemansi.c` This version uses the ANSI-standard library routine `tmpfile()`, which not all non-ANSI systems have. On some systems `tmpfile()` may put the temporary file in a non-optimal location; if you don't like what it does, use `jmemname.c`.

\* `jmemname.c` This version creates named temporary files. For anything except a Unix machine, you'll need to configure the `select_file_name()` routine appropriately; see the comments near the head of `jmemname.c`. If you use this version, define `NEED_SIGNAL_CATCHER` in `jconfig.h` to make sure the temp files are removed if the program is aborted.

\* `jmemnobs.c` (That stands for No Backing Store :-).) This will compile on almost any system, but it assumes you have enough main memory or virtual memory to hold the biggest images you work with.

\* `jmemdos.c` This should be used with most 16-bit MS-DOS compilers.



See the system-specific notes about MS-DOS for more info.  
IMPORTANT: if you use this, define USE\_MSDOS\_MEMMGR in jconfig.h, and include the assembly file jmemdosa.asm in the programs. The supplied makefiles and jconfig files for 16-bit MS-DOS compilers already do both.

\* jmemmac.c Custom version for Apple Macintosh; see the system-specific notes for Macintosh for more info.

To use a particular memory manager, change the SYSDEPMEM variable in your makefile to equal the corresponding object file name (for example, jmemansi.o or jmemansi.obj for jmemansi.c).

If you have plenty of (real or virtual) main memory, just use jmemnobs.c. "Plenty" means about ten bytes for every pixel in the largest images you plan to process, so a lot of systems don't meet this criterion. If yours doesn't, try jmemansi.c first. If that doesn't compile, you'll have to use jmemname.c; be sure to adjust select\_file\_name() for local conditions. You may also need to change unlink() to remove() in close\_backing\_store().

Except with jmemnobs.c or jmemmac.c, you need to adjust the DEFAULT\_MAX\_MEM setting to a reasonable value for your system (either by adding a #define for DEFAULT\_MAX\_MEM to jconfig.h, or by adding a -D switch to the Makefile). This value limits the amount of data space the program will attempt to allocate. Code and static data space isn't counted, so the actual memory needs for cjpeg or djpeg are typically 100 to 150Kb more than the max-memory setting. Larger max-memory settings reduce the amount of I/O needed to process a large image, but too large a value can result in "insufficient memory" failures. On most Unix machines (and other systems with virtual memory), just set DEFAULT\_MAX\_MEM to several million and forget it. At the other end of the spectrum, for MS-DOS machines you probably can't go much above 300K to 400K. (On MS-DOS the value refers to conventional memory only. Extended/expanded memory is handled separately by jmemdos.c.)

## BUILDING THE SOFTWARE

=====

Now you should be able to compile the software. Just say "make" (or whatever's necessary to start the compilation). Have a cup of coffee.

Here are some things that could go wrong:

If your compiler complains about undefined structures, you should be able to shut it up by putting "#define INCOMPLETE\_TYPES\_BROKEN" in jconfig.h.

If

you have trouble with missing system include files or inclusion of the wrong ones, read `jinclue.h`. This shouldn't happen if you used `configure` or `ckconfig.c` to set up `jconfig.h`.

There are a fair number of routines that do not use all of their parameters; some compilers will issue warnings about this, which you can ignore. There are also a few configuration checks that may give "unreachable code" warnings. Any other warning deserves investigation.

If you don't have a `getenv()` library routine, define `NO_GETENV`.

Also see the system-specific hints, below.

## TESTING THE SOFTWARE

=====

As a quick test of functionality we've included a small sample image in several forms:

`testorig.jpg` Starting point for the djpeg tests.

`testing.ppm` The output of djpeg `testorig.jpg`

`testing.bmp` The output of djpeg `-bmp -colors 256 testorig.jpg`

`testing.jpg` The output of cjpeg `testing.ppm`

`testprog.jpg` Progressive-mode equivalent of `testorig.jpg`.

`testingp.jpg` The output of cjpeg `-progressive -optimize testing.ppm`

(The first- and second-generation `.jpg` files aren't identical since the default compression parameters are lossy.) If you can generate duplicates of the `testing*` files then you probably have working programs.

With most of the makefiles, "make test" will perform the necessary comparisons.

If you're using a makefile that doesn't provide the test option, run djpeg and cjpeg by hand and compare the output files to `testing*` with whatever binary file comparison tool you have. The files should be bit-for-bit identical.

If the programs complain "MAX\_ALLOC\_CHUNK is wrong, please fix", then you need to reduce `MAX_ALLOC_CHUNK` to a value that fits in type `size_t`. Try adding `#define MAX_ALLOC_CHUNK 65520L` to `jconfig.h`. A less likely configuration error is "ALIGN\_TYPE is wrong, please fix": defining `ALIGN_TYPE` as long should take care of that one.

If the cjpeg test run fails with "Missing Huffman code table entry", it's a good bet that you needed to define `RIGHT_SHIFT_IS_UNSIGNED`.

Go back to the configuration step and run `ckconfig.c`. (This is a good plan for any other test failure, too.)

If you are using Unix (one-file) command line style on a non-Unix system, it's a good idea to check that binary I/O through `stdin/stdout` actually works. You should get the same results from `"djpeg <testorig.jpg >out.ppm"` as from `"djpeg -outfile out.ppm testorig.jpg"`. Note that the makefiles all use the latter style and therefore do not exercise `stdin/stdout`! If this check fails, try recompiling with `USE_SETMODE` or `USE_FDOPEN` defined. If it still doesn't work, better use two-file style.

If you chose a memory manager other than `jmemnobs.c`, you should test that temporary-file usage works. Try `"djpeg -bmp -colors 256 -max 0 testorig.jpg"` and make sure its output matches `testing.bmp`. If you have any really large images handy, try compressing them with `-optimize` and/or decompressing with `-colors 256` to make sure your `DEFAULT_MAX_MEM` setting is not too large.

#### NOTE:

this is far from an exhaustive test of the JPEG software; some modules, such as 1-pass color quantization, are not exercised at all. It's just a quick test to give you some confidence that you haven't missed something major.

## INSTALLING THE SOFTWARE

=====

Once you're done with the above steps, you can install the software by copying the executable files (`cjpeg`, `djpeg`, `jpegtran`, `rdjpgcom`, and `wrjpgcom`) to wherever you normally install programs. On Unix systems, you'll also want to put the man pages (`cjpeg.1`, `djpeg.1`, `jpegtran.1`, `rdjpgcom.1`, `wrjpgcom.1`) in the man-page directory. The pre-fab makefiles don't support this step since there's such a wide variety of installation procedures on different systems.

If you generated a Makefile with the "configure" script, you can just say  
`make install`  
to install the programs and their man pages into the standard places. (You'll probably need to be root to do this.) We recommend first saying  
`make -n install`  
to see  
where configure thought the files should go. You may need to edit the Makefile, particularly if your system's conventions for man page filenames don't match what configure expects.

If you want to install the IJG library itself, for use in compiling other programs besides ours, then you need to put the four include files

jpeglib.h jerror.h jconfig.h jmorecfg.h  
into your include-file directory, and put the library file libjpeg.a  
(extension may vary depending on system) wherever library files go.  
If you generated a Makefile with "configure", it will do what it thinks  
is the right thing if you say  
make install-lib

## OPTIONAL STUFF

=====

### Progress monitor:

If you like, you can #define PROGRESS\_REPORT (in jconfig.h) to enable display  
of percent-done progress reports. The routine provided in cdjpeg.c merely  
prints percentages to stderr, but you can customize it to do something  
fancier.

### Utah RLE file format support:

We distribute the software with support for RLE image files  
(Utah Raster  
Toolkit format) disabled, because the RLE support won't compile without the  
Utah library. If you have URT version 3.1 or later, you can enable RLE  
support as follows:

1. #define RLE\_SUPPORTED in jconfig.h.
2. Add a -I option to CFLAGS in the Makefile for the directory  
containing the URT .h files (typically the "include"  
subdirectory of the URT distribution).
3. Add -L... -lrle to LDLIBS in the Makefile, where ... specifies  
the directory containing the URT "librle.a" file (typically the  
"lib" subdirectory of the URT distribution).

### Support for 9-bit to 12-bit deep pixel data:

The IJG code currently allows 8, 9, 10, 11, or 12 bits sample data precision.  
(For color, this means 8 to 12 bits per channel, of course.) If you need to  
work with deeper than 8-bit data, you can compile the IJG code for 9-bit to  
12-bit operation.

To do so:

1. In jmorecfg.h, define BITS\_IN\_JSAMPLE as 9, 10, 11, or 12 rather than 8.
2. In jconfig.h, undefine BMP\_SUPPORTED,  
RLE\_SUPPORTED, and TARGA\_SUPPORTED,  
because the code for those formats doesn't handle deeper than 8-bit data  
and won't even compile. (The PPM code does work, as explained below.  
The GIF code works too; it scales 8-bit GIF data to and from 12-bit  
depth automatically.)
3. Compile. Don't expect "make test" to pass, since the supplied test

files are for 8-bit data.

Currently, 9-bit to 12-bit support does not work on 16-bit-int machines.

Run-time selection and conversion of data precision are currently not supported and may be added later.

Exception: The transcoding part (jpegtran) supports all settings in a single instance, since it operates on the level of DCT coefficients and not sample values.

The PPM reader (rdppm.c) can read deeper than 8-bit data from either text-format or binary-format PPM and PGM files. Binary-format PPM/PGM files which have a maxval greater than 255 are assumed to use 2 bytes per sample, MSB first (big-endian order). As of early 1995, 2-byte binary format is not officially supported by the PBMPLUS library, but it is expected that a future release of PBMPLUS will support it. Note that the PPM reader will read files of any maxval regardless of the BITS\_IN\_JSAMPLE setting; incoming data is automatically rescaled to maxval=MAXJSAMPLE as appropriate for the cjpeg bit depth.

The PPM writer (wrppm.c) will normally write 2-byte binary PPM or PGM format, maxval=MAXJSAMPLE, when compiled with BITS\_IN\_JSAMPLE>8. Since this format is not yet widely supported, you can disable it by compiling wrppm.c with PPM\_NORAWWORD defined; then the data is scaled down to 8 bits to make a standard 1-byte/sample PPM or PGM file. (Yes, this means still another copy of djpeg to keep around. But hopefully you won't need it for very long. Poskanzer's supposed to get that new PBMPLUS release out Real Soon Now.)

Of course, if you are working with 9-bit to 12-bit data, you probably have it stored in some other, nonstandard format. In that case you'll probably want to write your own I/O modules to read and write your format.

Note:

The standard Huffman tables are only valid for 8-bit data precision. If you selected more than 8-bit data precision, cjpeg uses arithmetic coding by default. The Huffman encoder normally uses entropy optimization to compute usable tables for higher precision. Otherwise, you'll have to supply different default Huffman tables.

Removing code:

If you need to make a smaller version of the JPEG software, some optional functions can be removed at compile time. See the xxx\_SUPPORTED #defines in jconfig.h and jmorecfg.h. If at all possible, we recommend that you leave in decoder support for all valid JPEG files, to ensure that you can read anyone's output. Taking out support for image file formats that you don't use is the

most painless way to make the programs smaller. Another possibility is to remove some of the DCT methods: in particular, the "IFAST" method may not be enough faster than the others to be worth keeping on your machine. (If you do remove ISLOW or IFAST, be sure to redefine JDCT\_DEFAULT or JDCT\_FASTEST to a supported method, by adding a #define in jconfig.h.)

## OPTIMIZATION

=====

Unless you own a Cray, you'll probably be interested in making the JPEG software go as fast as possible. This section covers some machine-dependent optimizations you may want to try. We suggest that before trying any of this, you first get the basic installation to pass the self-test step. Repeat the self-test after any optimization to make sure that you haven't broken anything.

The integer DCT routines perform a lot of multiplications. These multiplications must yield 32-bit results, but none of their input values are more than 16 bits wide. On many machines, notably the 680x0 and 80x86 CPUs, a 16x16=>32 bit multiply instruction is faster than a full 32x32=>32 bit multiply. Unfortunately there is no portable way to specify such a multiplication in C, but some compilers can generate one when you use the right combination of casts. See the MULTIPLYxxx macro definitions in jdct.h. If your compiler makes "int" be 32 bits and "short" be 16 bits, defining SHORTxSHORT\_32 is fairly likely to work. When experimenting with alternate definitions, be sure to test not only whether the code still works (use the self-test), but also whether it is actually faster --- on some compilers, alternate definitions may compute the right answer, yet be slower than the default. Timing cjpeg on a large PGM (grayscale) input file is the best way to check this, as the DCT will be the largest fraction of the runtime in that mode. (Note: some of the distributed compiler-specific jconfig files already contain #define switches to select appropriate MULTIPLYxxx definitions.)

If your machine has sufficiently fast floating point hardware, you may find that the float DCT method is faster than the integer DCT methods, even after tweaking the integer multiply macros. In that case you may want to make the float DCT be the default method. (The only objection to this is that float DCT results may vary slightly across machines.) To do that, add "#define JDCT\_DEFAULT JDCT\_FLOAT" to jconfig.h. Even if you don't change the default, you should redefine JDCT\_FASTEST, which is the method selected by djpeg's -fast switch. Don't forget to update the documentation files (usage.txt and/or cjpeg.1, djpeg.1) to agree with what you've done.

If access to "short" arrays is slow on your machine, it may be a win to define type JCOEF as int rather than short. This will cost a good deal of memory though, particularly in some multi-pass modes, so don't do it unless you have memory to burn and short is REALLY slow.

If your compiler can compile function calls in-line, make sure the INLINE macro in jmorecfg.h is defined as the keyword that marks a function inline-able. Some compilers have a switch that tells the compiler to inline any function it thinks is profitable (e.g.,

-finline-functions for gcc).

Enabling such a switch is likely to make the compiled code bigger but faster.

In general, it's worth trying the maximum optimization level of your compiler, and experimenting with any optional optimizations such as loop unrolling. (Unfortunately, far too many compilers have optimizer bugs ... be prepared to back off if the code fails self-test.) If you do any experimentation along these lines, please report the optimal settings to jpeg-info@jpegclub.org so we can mention them in future releases. Be sure to specify your machine and compiler version.

#### HINTS FOR SPECIFIC SYSTEMS

=====

We welcome reports on changes needed for systems not mentioned here. Submit 'em to jpeg-info@jpegclub.org. Also, if configure or ckconfig.c is wrong about how to configure the JPEG software for your system, please let us know.

Acorn RISC OS:

(Thanks to Simon Middleton for these hints on compiling with Desktop C.)

After renaming the files according to Acorn conventions, take a copy of makefile.ansi, change all occurrences of 'libjpeg.a' to 'libjpeg.o' and change these definitions as indicated:

CFLAGS= -throwback -IC: -Wn

LDLIBS=C:o.Stubs

SYSDEPMEM=jmemansi.o

LN=Link

AR=LibFile -c -o

Also add a new line '.c.o; \$(cc) \$< \$(cflags) -c -o \$@'. Remove the lines '\$(RM) libjpeg.o' and '\$(AR2) libjpeg.o' and the 'jconfig.h' dependency section.

Copy jconfig.txt to jconfig.h. Edit jconfig.h to define TWO\_FILE\_COMMANDLINE

and CHAR\_IS\_UNSIGNED.

Run the makefile using !AMU not !Make. If you want to use the 'clean' and 'test' makefile entries then you will have to fiddle with the syntax a bit and rename the test files.

Amiga:

SAS C 6.50 reportedly is too buggy to compile the IJG code properly. A patch to update to 6.51 is available from SAS or AmiNet FTP sites.

The supplied config files are set up to use jmemname.c as the memory manager, with temporary files being created on the device named by "JPEGTMP:".

Atari ST/STE/TT:

Copy

the project files makcjpeg.st, makdjpeg.st, maktjpeg.st, and makljpeg.st to cjpeg.prj, djpeg.prj, jpegtran.prj, and libjpeg.prj respectively. The project files should work as-is with Pure C. For Turbo C, change library filenames "pc..." to "tc..." in each project file. Note that libjpeg.prj selects jmemansi.c as the recommended memory manager. You'll probably want to adjust the DEFAULT\_MAX\_MEM setting --- you want it to be a couple hundred K less than your normal free memory. Put "#define DEFAULT\_MAX\_MEM nnnn" into jconfig.h to do this.

To use the 68881/68882 coprocessor for the floating point DCT, add the compiler option "-8" to the project files and replace pcfltlb.lib with pc881lib.lib in cjpeg.prj and djpeg.prj. Or if you don't have a coprocessor, you may prefer to remove the float DCT code by undefining DCT\_FLOAT\_SUPPORTED in jmorecfg.h (since without a coprocessor, the float code will be too slow to be useful). In that case, you can delete pcfltlb.lib from the project files.

Note that you must make libjpeg.lib before making cjpeg.ttp, djpeg.ttp, or jpegtran.ttp. You'll have to perform the self-test by hand.

We haven't bothered to include project files for rdjpgcom and wrjpgcom. Those source files should just be compiled by themselves; they don't depend on the JPEG library. You can use the default.prj project file of the Pure C distribution to make the programs.

There is a bug in some older versions of the Turbo C library which causes the space used by temporary files created with "tmpfile()" not to be freed after



an abnormal program exit. If you check your disk afterwards, you will find cluster chains that are allocated but not used by a file. This should not happen in cjpeg/djpeg/jpegtran, since we enable a signal catcher to explicitly close temp files before exiting. But if you use the JPEG library with your own code, be sure to supply a signal catcher, or else use a different system-dependent memory manager.

Cray:

Should you be so fortunate

as to be running JPEG on a Cray YMP, there is a compiler bug in old versions of Cray's Standard C (prior to 3.1). If you still have an old compiler, you'll need to insert a line reading

```
"#pragma novector" just before the loop
```

```
for (i = 1; i <= (int) htbl->bits[l]; i++)
```

```
    huffsize[p++] = (char) l;
```

in fix\_huff\_tbl (in V5beta1, line 204 of jchuff.c and line 176 of jdchuff.c).

[This bug may or may not still occur with the current IJG code, but it's probably a dead issue anyway...]

HP-UX:

If you have HP-UX 7.05 or later with the "software development" C compiler, you should run the compiler in ANSI mode. If using the configure script, say

```
./configure CC='cc -Aa'
```

(or -Ae if you prefer). If configuring by hand, use makefile.ansi and add "-Aa" to the CFLAGS line in the makefile.

If you have a pre-7.05 system, or if you are using the non-ANSI C compiler delivered with a minimum HP-UX system, then you must use makefile.unix (and do NOT add -Aa); or just run configure without the CC option.

On HP 9000 series 800 machines, the HP C compiler is buggy in revisions prior to A.08.07. If you get complaints about "not a typedef name", you'll have to use makefile.unix, or run configure without the CC option.

Macintosh, generic comments:

The supplied user-interface files (cjpeg.c, djpeg.c, etc) are set up to provide a Unix-style command line interface. You can use this interface on the Mac by means of the ccommand() library routine provided by Metrowerks CodeWarrior or Think C. This is only appropriate for testing the library, however; to make a user-friendly equivalent of cjpeg/djpeg you'd really want

to develop a Mac-style user interface. There isn't a complete example available at the moment, but there are some helpful starting points:

1. Sam Bushell's free "To JPEG" applet provides drag-and-drop conversion to JPEG under System 7 and later. This only illustrates how to use the compression half of the library, but it does a very nice job of that part.

The

CodeWarrior source code is available from <http://www.pobox.com/~jsam>.

2. Jim Brunner prepared a Mac-style user interface for both compression and decompression. Unfortunately, it hasn't been updated since IJG v4, and the library's API has changed considerably since then. Still it may be of some help, particularly as a guide to compiling the IJG code under Think C. Jim's code is available from the Info-Mac archives, at [sumex-aim.stanford.edu](http://sumex-aim.stanford.edu) or mirrors thereof; see file `/info-mac/dev/src/jpeg-convert-c.hqx`.

`jmemmac.c` is the recommended memory manager back end for Macintosh. It uses `NewPtr/DisposePtr` instead of `malloc/free`, and has a Mac-specific implementation of `jpeg_mem_available()`. It also creates temporary files that follow Mac conventions. (That part of the code relies on System-7-or-later OS functions. See the comments in `jmemmac.c` if you need to run it on System 6.) NOTE that `USE_MAC_MEMMGR` must be defined in `jconfig.h` to use `jmemmac.c`.

You can also use `jmemnobs.c`, if

you don't care about handling images larger than available memory. If you use any memory manager back end other than `jmemmac.c`, we recommend replacing "malloc" and "free" by "NewPtr" and "DisposePtr", because Mac C libraries often have peculiar implementations of `malloc/free`. (For instance, `free()` may not return the freed space to the Mac Memory Manager. This is undesirable for the IJG code because `jmemmgr.c` already clumps space requests.)

Macintosh, Metrowerks CodeWarrior:

The Unix-command-line-style interface can be used by defining `USE_CCOMMAND`. You'll also need to define `TWO_FILE_COMMANDLINE` to avoid `stdin/stdout`. This means that when using the `cjpeg/djpeg` programs, you'll have to type the input and output file names in the "Arguments" text-edit box, rather than using the file radio buttons. (Perhaps `USE_FDOPEN` or `USE_SETMODE` would eliminate the problem, but I haven't heard from anyone who's tried it.)

On 680x0 Macs, Metrowerks defines type "double" as a 10-byte IEEE extended float.

`jmemmgr.c` won't like this: it wants `sizeof(ALIGN_TYPE)` to be a power of 2. Add `#define ALIGN_TYPE long` to `jconfig.h` to eliminate the complaint.

The supplied configuration file `jconfig.mac` can be used for your `jconfig.h`; it includes all the recommended symbol definitions. If you have AppleScript installed, you can run the supplied script `makeproj.mac` to create CodeWarrior

project files for the library and the testbed applications, then build the library and applications. (Thanks to Dan Sears and Don Agro for this nifty hack, which saves us from trying to maintain CodeWarrior project files as part of the IJG distribution...)

Macintosh, Think C:

The documentation in Jim Brunner's "JPEG Convert" source code (see above) includes detailed build instructions for Think C; it's probably somewhat out of date for the current release, but may be helpful.

If you want to build the minimal command line version, proceed as follows. You'll have to prepare project files for the programs; we don't include any in the distribution since they are not text files. Use the file lists in any of the supplied makefiles as a guide. Also add the ANSI and Unix C libraries in a separate segment. You may need to divide the JPEG files into more than one segment; we recommend dividing compression and decompression modules. Define `USE_CCOMMAND` in `jconfig.h` so that the `ccommand()` routine is called. You must also define `TWO_FILE_COMMANDLINE` because `stdin/stdout` don't handle binary data correctly.

On 680x0 Macs, Think C defines type "double" as a 12-byte IEEE extended float. `jmemmgr.c` won't like this: it wants `sizeof(ALIGN_TYPE)` to be a power of 2. Add `#define ALIGN_TYPE long` to `jconfig.h` to eliminate the complaint.

`jconfig.mac` should work as a `jconfig.h` configuration file for Think C, but the `makeproj.mac` AppleScript script is specific to CodeWarrior. Sorry.

MIPS R3000:

MIPS's `cc` version 1.31 has a rather nasty optimization bug. Don't use `-O` if you have that compiler version.

(Use `"cc -V"` to check the version.)

Note that the R3000 chip is found in workstations from DEC and others.

MS-DOS, generic comments for 16-bit compilers:

The IJG code is designed to work well in 80x86 "small" or "medium" memory models (i.e., data pointers are 16 bits unless explicitly declared "far"; code pointers can be either size). You may be able to use small model to compile `cjpeg` or `djpeg` by itself, but you will probably have to use medium model for any larger application. This won't make much difference in performance. You *will* take a noticeable performance hit if you use a large-data memory model, and you should avoid "huge" model if at all

possible. Be sure that `NEED_FAR_POINTERS` is defined in `jconfig.h` if you use a small-data memory model; be sure it is NOT defined if you use a large-data model. (The supplied makefiles and `jconfig` files for Borland and Microsoft C compile in medium model and define `NEED_FAR_POINTERS`.)

The DOS-specific memory manager, `jmemdos.c`, should be used if possible.

It needs some assembly-code routines which are in `jmemdosa.asm`; make sure your makefile assembles that file and includes it in the library. If you don't have a suitable assembler, you can get pre-assembled object files for `jmemdosa` by FTP from `ftp.uu.net:/graphics/jpeg/jdosaobj.zip`. (DOS-oriented distributions of the IJG source code often include these object files.)

When using `jmemdos.c`, `jconfig.h` must define `USE_MSDOS_MEMMGR` and must set `MAX_ALLOC_CHUNK` to less than 64K (65520L is a typical value). If your C library's far-heap `malloc()` can't allocate blocks that large, reduce `MAX_ALLOC_CHUNK` to whatever it can handle.

If you can't use `jmemdos.c` for some reason --- for example, because you don't have an assembler to assemble `jmemdosa.asm` --- you'll have to fall back to `jmemansi.c` or `jmemname.c`. You'll probably still need to set `MAX_ALLOC_CHUNK` in `jconfig.h`, because most DOS C libraries won't `malloc()` more than 64K at a time. **IMPORTANT:** if you use `jmemansi.c` or `jmemname.c`, you will have to compile in a large-data memory model in order to get the right `stdio` library. Too bad.

`wrjpgcom` needs to be compiled in large model, because it `malloc()`s a 64KB work area to hold the comment text. If your C library's `malloc` can't handle that, reduce `MAX_COM_LENGTH` as necessary in `wrjpgcom.c`.

Most MS-DOS compilers treat `stdin/stdout` as text files, so you must use two-file command line style. But if your compiler has either `fdopen()` or `setmode()`, you can use one-file style if you like. To do this, define `USE_SETMODE` or `USE_FDOPEN` so that `stdin/stdout` will be set to binary mode. (`USE_SETMODE` seems to work with more DOS compilers than `USE_FDOPEN`.) You should test that I/O through `stdin/stdout` produces the same results as I/O to explicitly named files... the "make test" procedures in the supplied makefiles do NOT use `stdin/stdout`.

MS-DOS, generic comments for 32-bit compilers:

None of the above comments about memory models apply if you are using a 32-bit flat-memory-space environment, such as DJGPP or Watcom C. (And you should use one if you have it, as performance will be much better than 8086-compatible code!) For flat-memory-space compilers, do NOT define

NEED\_FAR\_POINTERS, and do NOT use jmemdos.c. Use jmemnobs.c if the environment supplies adequate virtual memory, otherwise use jmemansi.c or jmemname.c.

You'll still need to be careful about binary I/O through stdin/stdout. See the last paragraph of the previous section.

MS-DOS, Borland C:

Be sure to convert all the source files to DOS text format (CR/LF newlines). Although Borland C will often work OK with unmodified Unix (LF newlines) source files, sometimes it will give bogus compile errors. "Illegal character '#'" is the most common such error. (This is true with Borland C 3.1, but perhaps is fixed in newer releases.)

If you want one-file command line style, just undefine TWO\_FILE\_COMMANDLINE. jconfig.bcc already includes #define USE\_SETMODE to make this work. (fdopen does not work correctly.)

MS-DOS, Microsoft C:

makefile.mc6 works with Microsoft C, DOS Visual C++, etc. It should only be used if you want to build a 16-bit (small or medium memory model) program.

If you want one-file command line style, just undefine TWO\_FILE\_COMMANDLINE. jconfig.mc6 already includes #define USE\_SETMODE to make this work. (fdopen does not work correctly.)

Note that this makefile assumes that the working copy of itself is called "makefile". If you want to call it something else, say "makefile.mak", be sure to adjust the dependency line that reads "\$(RFILE) : makefile". Otherwise the make will fail because it doesn't know how to create "makefile". Worse, some releases of Microsoft's make utilities give an incorrect error message in this situation.

Old versions of MS C fail with an "out of macro expansion space" error because they can't cope with the macro TRACEMS8 (defined in jerror.h). If this happens to you, the easiest solution is to change TRACEMS8 to expand to nothing. You'll lose the ability to dump out JPEG coefficient tables with djpeg -debug -debug, but at least you can compile.

Original MS C 6.0 is very buggy; it compiles incorrect code unless you turn off optimization entirely (remove -O from CFLAGS). 6.00A is better, but it still generates bad code if you enable loop optimizations (-Ol or -Ox).

MS C 8.0 crashes when compiling jquant1.c with optimization switch /Oo ... which is on by default. To work around this bug, compile that one file with /Oo-.

Microsoft Windows (all versions), generic comments:

Some Windows system include files define typedef boolean as "unsigned char". The IJG code also defines typedef boolean, but we make it an "enum" by default. This doesn't affect the IJG programs because we don't import those Windows include files. But if you use the JPEG library in your own program, and some of your program's files import one definition of boolean while some import the other, you can get all

sorts of mysterious problems. A good preventive step is to make the IJG library use "unsigned char" for boolean. To do that, add something like this to your jconfig.h file:

```
/* Define "boolean" as unsigned char, not enum, per Windows custom */
#ifndef __RPCNDR_H__ /* don't conflict if rpcndr.h already read */
typedef unsigned char boolean;
#endif
#ifndef FALSE /* in case these macros already exist */
#define FALSE 0 /* values of boolean */
#endif
#ifndef TRUE
#define TRUE 1
#endif
#define HAVE_BOOLEAN /* prevent jmorecfg.h from redefining it */
```

(This is already in jconfig.vc, by the way.)

winddef.h contains the declarations

```
#define far
#define FAR far
```

Since jmorecfg.h tries to define FAR as empty, you may get a compiler warning if you include both jpeglib.h and winddef.h (which windows.h includes). To suppress the warning, you can put "#ifndef FAR"/"#endif" around the line "#define FAR" in jmorecfg.h.

(Something like this is already in jmorecfg.h, by the way.)

When using

the library in a Windows application, you will almost certainly want to modify or replace the error handler module jerror.c, since our default error handler does a couple of inappropriate things:

1. it tries to write error and warning messages on stderr;
2. in event of a fatal error, it exits by calling exit().

A simple stopgap solution for problem 1 is to replace the line

```
fprintf(stderr, "%s\n", buffer);
```

(in `output_message` in `jerror.c`) with

```
MessageBox(GetActiveWindow(),buffer,"JPEG Error",MB_OK|MB_ICONERROR);
```

It's highly recommended that you at least do that much, since otherwise error messages will disappear into nowhere. (Beginning with IJG v6b, this code is already present in `jerror.c`; just define `USE_WINDOWS_MESSAGEBOX` in `jconfig.h` to enable it.)

The proper solution for problem 2 is to return control to your calling application after a library error. This can be done with the `setjmp/longjmp` technique discussed in `libjpeg.txt` and illustrated in `example.c`. (NOTE: some

older Windows C compilers provide versions of `setjmp/longjmp` that don't actually work under Windows. You may need to use the Windows system functions `Catch` and `Throw` instead.)

The recommended memory manager under Windows is `jmemnobs.c`; in other words, let Windows do any virtual memory management needed. You should NOT use `jmemdos.c` nor `jmemdosa.asm` under Windows.

For Windows 3.1, we recommend compiling in medium or large memory model; for newer Windows versions, use a 32-bit flat memory model. (See the MS-DOS sections above for more info about memory models.) In the 16-bit memory models only, you'll need to put

```
#define MAX_ALLOC_CHUNK 65520L /* Maximum request to malloc() */
```

into `jconfig.h` to limit allocation chunks to 64Kb. (Without that, you'd have to use huge memory model, which slows things down unnecessarily.)

`jmemnobs.c` works without modification in large or flat memory models, but to use medium model, you need to modify its `jpeg_get_large` and `jpeg_free_large` routines to

allocate far memory. In any case, you might like to replace its calls to `malloc` and `free` with direct calls on Windows memory allocation functions.

You may also want to modify `jdatasrc.c` and `jdatadst.c` to use Windows file operations rather than `fread/fwrite`. This is only necessary if your C compiler doesn't provide a competent implementation of C stdio functions.

You might want to tweak the `RGB_xxx` macros in `jmorecfg.h` so that the library will accept or deliver color pixels in BGR sample order, not RGB; BGR order is usually more convenient under Windows. Note that this change will break the sample applications `cjpeg/djpeg`, but the library itself works fine.

Many people want to convert the IJG library into a DLL. This is reasonably straightforward, but watch out for the following:

1. Don't try to compile as a DLL in small or medium memory model; use large model, or even better, 32-bit flat model. Many places in the IJG code

assume the address of a local variable is an ordinary  
(not FAR) pointer;  
that isn't true in a medium-model DLL.

2. Microsoft C cannot pass file pointers between applications and DLLs.  
(See Microsoft Knowledge Base, PSS ID Number Q50336.) So `jdatasrc.c` and  
`jdatadst.c` don't work if you open a file in your application and then pass  
the pointer to the DLL. One workaround is to make `jdatasrc.c/jdatadst.c`  
part of your main application rather than part of the DLL.

3. You'll probably need to modify the macros `GLOBAL()` and `EXTERN()` to  
attach suitable linkage keywords to the exported routine names. Similarly,  
you'll want to modify `METHODDEF()` and `JMETHOD()` to ensure function pointers  
are declared in a way that lets application routines be called back through  
the function pointers. These macros are in `jmorecfg.h`. Typical definitions  
for a 16-bit DLL are:

```
#define GLOBAL(type) type _far _pascal _loads _export
#define EXTERN(type) extern type _far _pascal _loads
#define METHODDEF(type) static type _far _pascal
#define JMETHOD(type,methodname,arglist)
\
type (_far _pascal *methodname) arglist
```

For a 32-bit DLL you may want something like

```
#define GLOBAL(type) __declspec(dllexport) type
#define EXTERN(type) extern __declspec(dllexport) type
```

Although not all the `GLOBAL` routines are actually intended to be called by  
the application, the performance cost of making them all DLL entry points is  
negligible.

The unmodified IJG library presents a very C-specific application interface,  
so the resulting DLL is only usable from C or C++ applications. There has  
been some talk of writing wrapper code that would present a simpler interface  
usable from other languages, such as Visual Basic. This is on our to-do list  
but hasn't been very high priority --- any volunteers out there?

Microsoft Windows, Borland C:

The provided `jconfig.bcc` should work OK in a 32-bit Windows environment,  
but you'll need to tweak it in a 16-bit environment (you'd need to define  
`NEED_FAR_POINTERS` and `MAX_ALLOC_CHUNK`). Beware that `makefile.bcc`  
will need  
alteration if you want to use it for Windows --- in particular, you should  
use `jmemnobs.c` not `jmemdos.c` under Windows.

Borland C++ 4.5 fails with an internal compiler error when trying to compile  
`jdmerge.c` in 32-bit mode. If enough people complain, perhaps Borland will fix  
it. In the meantime, the simplest known workaround is to add a redundant



definition of the variable `range_limit` in `h2v1_merged_upsample()`, at the head of the block that handles odd image width (about line 268 in `v6_jdmerge.c`):

```
/* If image width is odd, do the last output column separately */
if (cinfo->output_width & 1) {
    register JSAMPLE * range_limit = cinfo->sample_range_limit; /* ADD THIS */
    cb = GETJSAMPLE(*inptr1);
```

Pretty bizarre, especially since the very similar routine `h2v2_merged_upsample` doesn't trigger the bug.

Recent reports suggest that this bug does not occur with "bcc32a" (the Pentium-optimized version of the compiler).

Another report from a user of Borland C 4.5 was that incorrect code (leading to a color shift in processed images) was produced if any of the following optimization switch combinations were used:

- Ot -Og
- Ot -Op
- Ot -Om

So try backing off on optimization if you see such a problem. (Are there several different releases all numbered "4.5"??)

Microsoft Windows, Microsoft Visual C++:

`jconfig.vc` should work OK with any Microsoft compiler for a 32-bit memory model. `makefile.vc` is intended for command-line use. (If you are using the Developer Studio environment, you may prefer the `DevStudio` project files; see below.)

IJG JPEG 7 adds extern "C" to `jpeglib.h`. This avoids the need to put extern "C" { ... } around `#include "jpeglib.h"` in your C++ application. You can also force VC++ to treat the library as C++ code by renaming all the `*.c` files to `*.cpp` (and adjusting the makefile to match). In this case you also need to define the symbol `DONT_USE_EXTERN_C` in the configuration to prevent `jpeglib.h` from using extern "C".

Microsoft Windows,  
Microsoft Visual C++ 6 Developer Studio:

We include makefiles that should work as project files in Developer Studio 6.0 or later. There is a library makefile that builds the IJG library as a static Win32 library, and application makefiles that build the sample applications as Win32 console applications. (Even if you only want the library, we recommend building the applications so that you can run the self-test.)

To use:

1. Open the command prompt, change to the main directory and execute the command line  
`NMAKE /f makefile.vs setup-vc6`  
 This will move `jconfig.vc` to `jconfig.h` and makefiles to project files.  
 (Note that the renaming is critical!)
2. Open the workspace file `jpeg.dsw`, build the library project.  
 (If you are using Developer Studio more recent than 6.0, you'll probably get a message saying that the project files are being updated.)
3. Open the workspace file `apps.dsw`, build the application projects.
4. To perform the self-test, execute the command line  
`NMAKE /f makefile.vs test-build`
5. Move the application `.exe` files from ``app`\Release` to an appropriate location on your path.

Microsoft Windows, Visual Studio 2017 (v15):

We include makefiles that should work as project files in Visual Studio 2017 (v15) or later. There is a library makefile that builds the IJG library as a static Win32 library, and application makefiles that build the sample applications as Win32 console applications. (Even if you only want the library, we recommend building the applications so that you can run the self-test.)

To use:

1. Open the Developer Command Prompt, change to the main directory and execute the command line  
`NMAKE /f makefile.vs setup-v15`  
 This will move `jconfig.vc` to `jconfig.h` and makefiles to project files.  
 (Note that the renaming is critical!)
2. Open the solution file `jpeg.sln`, build the library project.
  - a) If you are using Visual Studio more recent than 2017 (v15), you'll probably get a message saying that the project files are being updated.
  - b) If necessary, open the project properties and adapt the Windows Target Platform Version in the Configuration Properties, General section; we support the latest version at the time of release.
3. Open the solution file `apps.sln`, build the application projects.
4. To perform the self-test, execute the command line  
`NMAKE /f makefile.vs test-build`
5. Move the application `.exe` files from ``app`\Release` to an appropriate location on your path.

OS/2, Borland C++:

Watch out for optimization bugs in older Borland compilers; you may need to back off the optimization switch settings. See the comments in `makefile.bcc`.

SGI:

On some SGI systems, you may need to set `"AR2= ar -ts"` in the Makefile.

If you are using `configure`, you can do this by saying

```
./configure RANLIB='ar -ts'
```

This change is not needed on all SGIs. Use it only if the make fails at the stage of linking the completed programs.

On the MIPS R4000 architecture (Indy, etc.), the compiler

option `"-mips2"`

reportedly speeds up the float DCT method substantially, enough to make it faster than the default `int` method (but still slower than the fast `int`

method). If you use `-mips2`, you may want to alter the default DCT method to

be float. To do this, put `"#define JDCT_DEFAULT JDCT_FLOAT"` in `jconfig.h`.

VMS:

On an Alpha/VMS system with MMS, be sure to use the `"/Marco=Alpha=1"` qualifier with MMS when building the JPEG package.

VAX/VMS v5.5-1 may have problems with the test step of the build procedure reporting differences when it compares the original and test images. If the error points to the last block of the files, it is most likely bogus and may be safely ignored. It seems to be because the files are `Stream_LF` and `Backup/Compare` has difficulty with the (presumably) null padded files. This problem was not observed on VAX/VMS v6.1 or AXP/VMS v6.1.

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/install.txt
```

No license file was found, but licenses were detected in source scan.

```
/*
```

```
* jcmarker.c
```

```
*
```

```
* Copyright (C) 1991-1998, Thomas G. Lane.
```

```
* Modified 2003-2013 by Guido Vollbeding.
```

```
* This file is part of the Independent JPEG Group's software.
```

```
* For conditions of distribution and use, see the accompanying README file.
```

```
*
```

```
* This file contains routines to write JPEG datastream markers.
```

```
*/
```

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcmarker.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdapistd.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* Modified 2002-2013 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains application interface code for the decompression half

\* of the JPEG library. These are the "standard" API routines that are

\* used in the normal full-decompression case. They are not used by a

\* transcoding-only application. Note that if an application links in

\* jpeg\_start\_decompress, it will end up linking in the entire decompressor.

\* We thus must separate this file from jdapimin.c to avoid linking the

\* whole decompression library into a transcoder.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdapistd.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdmaster.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.

\* Modified 2002-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains master control logic for the JPEG decompressor.

\* These routines are concerned with selecting the modules to be executed

\* and with determining the number of passes and the work to be done in each

\* pass.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdmaster.c

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/\*

\* jcmaint.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* Modified 2003-2012 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains the main buffer controller for compression.  
\* The main buffer lies between the pre-processor and the JPEG  
\* compressor proper; it holds downsampled data in the JPEG colorspace.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcmainct.c  
No license file was found, but licenses were detected in source scan.

/\*  
\* jpegint.h  
\*  
\* Copyright (C) 1991-1997, Thomas G. Lane.  
\* Modified 1997-2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file provides common declarations for the various JPEG modules.  
\* These declarations are considered internal to the JPEG library; most  
\* applications using the library shouldn't need to include this file.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jpegint.h  
No license file was found, but licenses were detected in source scan.

/\*  
\* rdbmp.c  
\*  
\* Copyright (C) 1994-1996, Thomas G. Lane.  
\* Modified 2009-2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains routines to read input images in Microsoft "BMP"  
\* format (MS Windows 3.x, OS/2 1.x, and OS/2 2.x flavors).  
\* Currently, only 8-, 24-, and 32-bit images are supported, not 1-bit or  
\* 4-bit (feeding such low-depth images into JPEG would be silly anyway).  
\* Also, we don't support RLE-compressed files.  
\*  
\* These routines may need modification for non-Unix environments or  
\* specialized applications. As they stand, they assume input from  
\* an ordinary stdio stream. They further assume that reading begins  
\* at the start of the file; start\_input may need work if the

\* user interface has already read some data (e.g., to determine that  
\* the file is  
indeed BMP format).  
\*  
\* This code contributed by James Arthur Boucher.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdbmp.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jidctflt.c

\*

\* Copyright (C) 1994-1998, Thomas G. Lane.

\* Modified 2010-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains a floating-point implementation of the

\* inverse DCT (Discrete Cosine Transform). In the IJG code, this routine

\* must also perform dequantization of the input coefficients.

\*

\* This implementation should be more accurate than either of the integer

\* IDCT implementations. However, it may not give the same results on all

\* machines because of differences in roundoff behavior. Speed will depend

\* on the hardware's floating point capacity.

\*

\* A 2-D IDCT can be done by 1-D IDCT on each column followed by 1-D IDCT

\* on each row (or vice versa, but it's more convenient to emit a row at

\* a time). Direct algorithms are also available, but they

are much more

\* complex and seem not to be any faster when reduced to code.

\*

\* This implementation is based on Arai, Agui, and Nakajima's algorithm for

\* scaled DCT. Their original paper (Trans. IEICE E-71(11):1095) is in

\* Japanese, but the algorithm is described in the Pennebaker & Mitchell

\* JPEG textbook (see REFERENCES section in file README). The following code

\* is based directly on figure 4-8 in P&M.

\* While an 8-point DCT cannot be done in less than 11 multiplies, it is

\* possible to arrange the computation so that many of the multiplies are

\* simple scalings of the final outputs. These multiplies can then be

\* folded into the multiplications or divisions by the JPEG quantization

\* table entries. The AA&N method leaves only 5 multiplies and 29 adds

\* to be done in the DCT itself.

\* The primary disadvantage of this method is that with a fixed-point

\* implementation, accuracy is lost due to imprecise representation of the

\* scaled quantization values. However,

that problem does not arise if  
\* we use floating point arithmetic.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jidctflt.c

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/\*

\* jmemname.c

\*

\* Copyright (C) 1992-1997, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file provides a generic implementation of the system-dependent

\* portion of the JPEG memory manager. This implementation assumes that

\* you must explicitly construct a name for each temp file.

\* Also, the problem of determining the amount of memory available

\* is shoved onto the user.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemname.c

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; For conditions of distribution and use, see the accompanying README file.

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemdosa.asm

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## IJG JPEG LIBRARY: SYSTEM ARCHITECTURE

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This file is part of the Independent JPEG Group's software.

For conditions of distribution and use, see the accompanying README file.

This file provides an overview of the architecture of the IJG JPEG software; that is, the functions of the various modules in the system and the interfaces between modules. For more precise details about any data structure or calling convention, see the include files and comments in the source code.

We assume that the reader is already somewhat familiar with the JPEG standard.

The README file includes references for learning about JPEG. The file

libjpeg.txt describes the library from the viewpoint of an application

programmer using the library; it's best to read that file before this one.

Also, the file coderules.txt describes the coding style conventions we use.

In this document, JPEG-specific terminology follows the JPEG standard:

A "component" means a color channel, e.g., Red or Luminance.

A "sample" is a single component value (i.e., one number in the image data).

A "coefficient" is a frequency coefficient (a DCT transform output number).

A "block" is an array of samples or coefficients.

An "MCU" (minimum coded unit) is an interleaved set of blocks of size determined by the sampling factors, or a single block in a noninterleaved scan.

We do not use the terms "pixel" and "sample" interchangeably. When we say pixel, we mean an element of the full-size image, while a sample is an element of the downsampled image. Thus the number of samples may vary across components while the number of pixels does not. (This terminology is not used rigorously throughout the code, but it is used in places where confusion would otherwise result.)

\*\*\* System features \*\*\*

The IJG distribution contains two parts:

- \* A subroutine library for JPEG compression and decompression.

- \* cjpeg/djpeg, two sample applications that use the library to transform JFIF JPEG files to and from several other image formats.

cjpeg/djpeg are of no great intellectual complexity: they merely add a simple command-line user interface and I/O routines for several uncompressed image formats. This document concentrates on the library itself.

We desire the library to be capable of supporting all JPEG baseline, extended sequential, and progressive DCT processes. The library does not support the hierarchical or lossless processes defined in the standard.

Within these limits, any set of compression parameters allowed by the JPEG spec should be readable for decompression. (We can be more restrictive about what formats we can generate.) Although the system design allows for all parameter values, some uncommon settings are not yet implemented and may never be; nonintegral sampling ratios are the prime example. Furthermore, we treat 8-bit vs. 12-bit data precision as a compile-time switch, not a run-time option, because most machines can store 8-bit pixels much more compactly than 12-bit.

By itself, the library handles only interchange JPEG datastreams --- in particular the widely used JFIF file format. The library can be used by surrounding code to process interchange or abbreviated JPEG datastreams that are embedded in more complex file formats. (For example, libtiff uses this library to implement JPEG compression within the TIFF file format.)



The library includes a substantial amount of code that is not covered by the JPEG standard but is necessary for typical applications of JPEG. These functions preprocess the image before JPEG compression or postprocess it after decompression. They include colorspace conversion, downsampling/upsampling, and color quantization. This code can be omitted if not needed.

A wide range of quality vs. speed tradeoffs are possible in JPEG processing, and even more so in decompression postprocessing. The decompression library provides multiple implementations that cover most of the useful tradeoffs, ranging from very-high-quality down to fast-preview operation. On the compression side we have generally not provided low-quality choices, since compression is normally less time-critical. It should be understood that the low-quality modes may not meet the JPEG standard's accuracy requirements; nonetheless, they are useful for viewers.

### \*\*\* Portability issues \*\*\*

Portability is an essential requirement for the library. The key portability issues that show up at the level of system architecture are:

1. Memory usage. We want the code to be able to run on PC-class machines with limited memory. Images should therefore be processed sequentially (in strips), to avoid holding the whole image in memory at once. Where a full-image buffer is necessary, we should be able to use either virtual memory or temporary files.
2. Near/far pointer distinction. To run efficiently on 80x86 machines, the code should distinguish "small" objects (kept in near data space) from "large" ones (kept in far data space). This is an annoying restriction, but fortunately it does not impact code quality for less brain-damaged machines, and the source code clutter turns out to be minimal with sufficient use of pointer typedefs.
3. Data precision. We assume that "char" is at least 8 bits, "short" and "int" at least 16, "long" at least 32. The code will work fine with larger data sizes, although memory may be used inefficiently in some cases. However, the JPEG compressed datastream must ultimately appear on external storage as a sequence of 8-bit bytes if it is to conform to the standard. This may pose a problem on machines where char is wider than 8 bits. The library represents compressed data as an array of values of typedef JOCTET. If no data type exactly 8 bits wide is available, custom data source and data destination modules must be written to unpack and pack the chosen JOCTET datatype into 8-bit

external representation.

### \*\*\* System overview \*\*\*

The compressor and decompressor are each divided into two main sections: the JPEG compressor or decompressor proper, and the preprocessing or postprocessing functions. The interface between these two sections is the image data that the official JPEG spec regards as its input or output: this data is in the colorspace to be used for compression, and it is downsampled to the sampling factors to be used. The preprocessing and postprocessing steps are responsible for converting a normal image representation to or from this form. (Those few applications that want to deal with YCbCr downsampled data can skip the preprocessing or postprocessing step.)

Looking more closely, the compressor library contains the following main elements:

#### Preprocessing:

- \* Color space conversion (e.g., RGB to YCbCr).
- \* Edge expansion and downsampling. Optionally, this step can do simple smoothing --- this is often helpful for low-quality source data.

#### JPEG proper:

- \* MCU assembly, DCT, quantization.
- \* Entropy coding (sequential or progressive, Huffman or arithmetic).

In addition to these modules we need overall control, marker generation, and support code (memory management & error handling). There is also a module responsible for physically writing the output data --- typically this is just an interface to `fwrite()`, but some applications may need to do something else with the data.

The decompressor library contains the following main elements:

#### JPEG proper:

- \* Entropy decoding (sequential or progressive, Huffman or arithmetic).
- \* Dequantization, inverse DCT, MCU disassembly.

#### Postprocessing:

- \* Upsampling. Optionally, this step may be able to do more general rescaling of the image.
- \* Color space conversion (e.g., YCbCr to RGB). This step may also provide gamma adjustment [ currently it does not ].
- \* Optional color quantization (e.g., reduction to 256 colors).
- \* Optional color precision reduction (e.g., 24-bit to 15-bit color).

[This feature is not currently implemented.]

We also need overall control, marker parsing, and a data source module. The support code (memory management & error handling) can be shared with the compression half of the library.

There may be several implementations of each of these elements, particularly in the decompressor, where a wide range of speed/quality tradeoffs is very useful. It must be understood that some of the best speedups involve merging adjacent steps in the pipeline. For example, upsampling, color space conversion, and color quantization might all be done at once when using a low-quality ordered-dither technique. The system architecture is designed to allow such merging where appropriate.

Note: it is convenient to regard edge expansion (padding to block boundaries) as a preprocessing/postprocessing function, even though the JPEG spec includes it in compression/decompression. We do this because downsampling/upsampling can be simplified a little if they work on padded data: it's not necessary to have special cases at the right and bottom edges. Therefore the interface buffer is always an integral number of blocks wide and high, and we expect compression preprocessing to pad the source data properly. Padding will occur only to the next block (block\_size-sample) boundary. In an interleaved-scan situation, additional dummy blocks may be used to fill out MCUs, but the MCU assembly and disassembly logic will create or discard these blocks internally. (This is advantageous for speed reasons, since we avoid DCTing the dummy blocks. It also permits a small reduction in file size, because the compressor can choose dummy block contents so as to minimize their size in compressed form. Finally, it makes the interface buffer specification independent of whether the file is actually interleaved or not.) Applications that wish to deal directly with the downsampled data must provide similar buffering and padding for odd-sized images.

\*\*\* Poor man's object-oriented programming \*\*\*

It should be clear by now that we have a lot of quasi-independent processing steps, many of which have several possible behaviors. To avoid cluttering the code with lots of switch statements, we use a simple form of object-style programming to separate out the different possibilities.

For example, two different color quantization algorithms could be implemented as two separate modules that present the same external interface; at runtime, the calling code will access the proper module indirectly through an "object".

We can get the limited features we need while staying within portable C. The basic tool is a function pointer. An "object" is just a struct containing one or more function pointer fields, each of which corresponds to

a method name in real object-oriented languages. During initialization we fill in the function pointers with references to whichever module we have determined

we need to use in this run. Then invocation of the module is done by indirecting through a function pointer; on most machines this is no more expensive than a switch statement, which would be the only other way of making the required run-time choice. The really significant benefit, of course, is keeping the source code clean and well structured.

We can also arrange to have private storage that varies between different implementations of the same kind of object. We do this by making all the module-specific object structs be separately allocated entities, which will be accessed via pointers in the master compression or decompression struct. The "public" fields or methods for a given kind of object are specified by a commonly known struct. But a module's initialization code can allocate a larger struct that contains the common struct as its first member, plus additional private fields. With appropriate pointer casting, the module's internal functions can access these private fields.

(For a simple example, see `jdatadst.c`, which implements the external interface specified by struct `jpeg_destination_mgr`, but adds extra fields.)

(Of course this would all be a lot easier if we were using C++, but we are not yet prepared to assume that everyone has a C++ compiler.)

An important benefit of this scheme is that it is easy to provide multiple versions of any method, each tuned to a particular case. While a lot of precalculation might be done to select an optimal implementation of a method, the cost per invocation is constant. For example, the upsampling step might have a "generic" method, plus one or more "hardwired" methods for the most popular sampling factors; the hardwired methods would be faster because they'd use straight-line code instead of for-loops. The cost to determine which method to use is paid only once, at startup, and the selection criteria are hidden from the callers of the method.

This plan differs a little bit from usual object-oriented structures, in that

only one instance of each object class will exist during execution. The reason for having the class structure is that on different runs we may create different instances (choose to execute different modules). You can think of the term "method" as denoting the common interface presented by a particular set of interchangeable functions, and "object" as denoting a group of related methods, or the total shared interface behavior of a group of modules.

\*\*\* Overall control structure \*\*\*

We previously mentioned the need for overall control logic in the compression

and decompression libraries. In IJG implementations prior to v5, overall control was mostly provided by "pipeline control" modules, which proved to be large, unwieldy, and hard to understand. To improve the situation, the control logic has been subdivided into multiple modules. The control modules consist of:

1. Master control for module selection and initialization. This has two responsibilities:

1A. Startup

initialization at the beginning of image processing.

The individual processing modules to be used in this run are selected and given initialization calls.

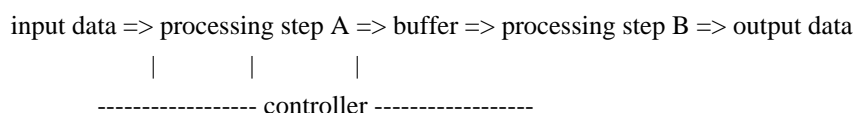
1B. Per-pass control. This determines how many passes will be performed and calls each active processing module to configure itself appropriately at the beginning of each pass. End-of-pass processing, where necessary, is also invoked from the master control module.

Method selection is partially distributed, in that a particular processing module may contain several possible implementations of a particular method, which it will select among when given its initialization call. The master control code need only be concerned with decisions that affect more than one module.

2. Data buffering control. A separate control module exists for each inter-processing-step data buffer. This module is responsible for invoking the processing steps that write or read that data buffer.

Each

buffer controller sees the world as follows:



The controller knows the dataflow requirements of steps A and B: how much data they want to accept in one chunk and how much they output in one chunk. Its function is to manage its buffer and call A and B at the proper times.

A data buffer control module may itself be viewed as a processing step by a higher-level control module; thus the control modules form a binary tree with elementary processing steps at the leaves of the tree.

The control modules are objects. A considerable amount of flexibility can be had by replacing implementations of a control module. For example:

\* Merging of adjacent steps in the pipeline is done by replacing a control module and its pair of processing-step modules with a single processing-

step module.

(Hence the possible merges are determined by the tree of control modules.)

\* In some processing modes, a given interstep buffer need only be a "strip" buffer large enough to accommodate the desired data chunk sizes. In other modes, a full-image buffer is needed and several passes are required. The control module determines which kind of buffer is used and manipulates virtual array buffers as needed. One or both processing steps may be unaware of the multi-pass behavior.

In theory, we might be able to make all of the data buffer controllers interchangeable and provide just one set of implementations for all. In practice, each one contains considerable special-case processing for its particular job. The buffer controller concept should be regarded as an overall system structuring principle, not as a complete description of the task performed by any one controller.

\*\*\* Compression object structure \*\*\*

Here is a sketch of the logical structure of the JPEG compression library:

```

                                |-- Colospace conversion
|-- Preprocessing controller --|
|                                |-- Downsampling
Main controller --|
|                                |-- Forward DCT, quantize
|-- Coefficient controller --|
                                |-- Entropy encoding
```

This sketch also describes the flow of control (subroutine calls) during typical image data processing. Each of the components shown in the diagram is an "object" which may have several different implementations available. One or more source code files contain the actual implementation(s) of each object.

The objects shown above are:

\* Main controller: buffer controller for the subsampled-data buffer, which holds the preprocessed input data. This controller invokes preprocessing to fill the subsampled-data buffer, and JPEG compression to empty it. There is usually no need for a full-image buffer here; a strip buffer is adequate.

\* Preprocessing controller: buffer controller for the downsampling input data buffer, which lies between colospace conversion and downsampling. Note that a unified conversion/downsampling module would probably replace this controller entirely.

\* Colorspace conversion: converts application image data into the desired JPEG color space; also changes the data from pixel-interleaved layout to separate component planes. Processes one pixel row at a time.

\* Downsampling: performs reduction of chroma components as required. Optionally may perform pixel-level smoothing as well. Processes a "row group" at a time, where a row group is defined as  $V_{max}$  pixel rows of each component before downsampling, and  $V_k$  sample rows afterwards (remember  $V_k$  differs across components). Some downsampling or smoothing algorithms may require context rows above and below the current row group; the preprocessing controller is responsible for supplying these rows via proper buffering. The downsampler is responsible for edge expansion at the right edge (i.e., extending each sample row to a multiple of `block_size` samples); but the preprocessing controller is responsible for vertical edge expansion (i.e., duplicating the bottom sample row as needed to make a multiple of `block_size` rows).

\* Coefficient controller: buffer controller for the DCT-coefficient data. This controller handles MCU assembly, including insertion of dummy DCT blocks when needed at the right or bottom edge. When performing Huffman-code optimization or emitting a multiscan JPEG file, this controller is responsible for buffering the full image. The equivalent of one fully interleaved MCU row of subsampled data is processed per call, even when the JPEG file is noninterleaved.

\* Forward DCT and quantization: Perform DCT, quantize, and emit coefficients. Works on one or more DCT blocks at a time. (Note: the coefficients are now emitted in normal array order, which the entropy encoder is expected to convert to zigzag order as necessary. Prior versions of the IJG code did the conversion to zigzag order within the quantization step.)

\* Entropy encoding: Perform Huffman or arithmetic entropy coding and emit the coded data to the data destination module. Works on one MCU per call. For progressive JPEG, the same DCT blocks are fed to the entropy coder during each pass, and the coder must emit the appropriate subset of coefficients.

In addition to the above objects, the compression library includes these objects:

\* Master control: determines the number of passes required, controls overall and per-pass initialization of the other modules.

\* Marker writing: generates JPEG markers (except for `RSTn`, which is emitted by the entropy encoder when needed).

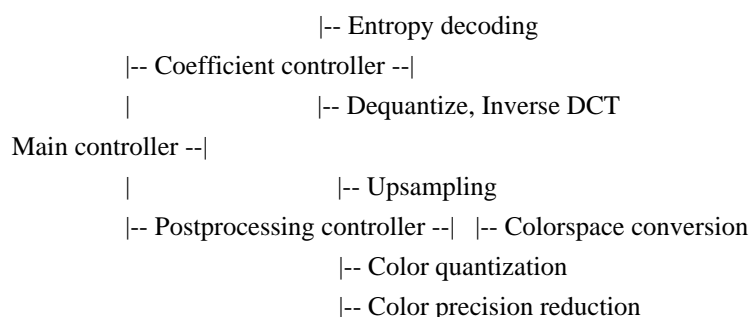
- \* Data destination manager: writes the output JPEG datastream to its final destination (e.g., a file). The destination manager supplied with the library knows how to write to a stdio stream or to a memory buffer; for other behaviors, the surrounding application may provide its own destination manager.
- \* Memory manager: allocates and releases memory, controls virtual arrays (with backing store management, where required).
- \* Error handler: performs formatting and output of error and trace messages; determines handling of nonfatal errors. The surrounding application may override some or all of this object's methods to change error handling.
- \* Progress monitor: supports output of "percent-done" progress reports. This object represents an optional callback to the surrounding application: if wanted, it must be supplied by the application.

The error handler, destination manager, and progress monitor objects are defined as separate objects in order to simplify application-specific customization of the JPEG library. A surrounding application may override individual methods or supply its own all-new implementation of one of these objects. The object interfaces for these objects are therefore treated as part of the application interface of the library, whereas the other objects are internal to the library.

The error handler and memory manager are shared by JPEG compression and decompression; the progress monitor, if used, may be shared as well.

\*\*\* Decompression object structure \*\*\*

Here is a sketch of the logical structure of the JPEG decompression library:



As before, this diagram also represents typical control flow. The objects shown are:



- \* Main controller: buffer controller for the subsampled-data buffer, which holds the output of JPEG decompression proper. This controller's primary task is to feed the postprocessing procedure. Some upsampling algorithms may require context rows above and below the current row group; when this is true, the main controller is responsible for managing its buffer so as to make context rows available. In the current design, the main buffer is always a strip buffer; a full-image buffer is never required.
  
- \* Coefficient controller: buffer controller for the DCT-coefficient data. This controller handles MCU disassembly, including deletion of any dummy DCT blocks at the right or bottom edge. When reading a multiscan JPEG file, this controller is responsible for buffering the full image. (Buffering DCT coefficients, rather than samples, is necessary to support progressive JPEG.) The equivalent of one fully interleaved MCU row of subsampled data is processed per call, even when the source JPEG file is noninterleaved.
  
- \* Entropy decoding: Read coded data from the data source module and perform Huffman or arithmetic entropy decoding. Works on one MCU per call. For progressive JPEG decoding, the coefficient controller supplies the prior coefficients of each MCU (initially all zeroes), which the entropy decoder modifies in each scan.
  
- \* Dequantization and inverse DCT: like it says. Note that the coefficients buffered by the coefficient controller have NOT been dequantized; we merge dequantization and inverse DCT into a single step for speed reasons. When scaled-down output is asked for, simplified DCT algorithms may be used that need fewer coefficients and emit fewer samples per DCT block, not the full 8x8. Works on one DCT block at a time.
  
- \* Postprocessing controller: buffer controller for the color quantization input buffer, when quantization is in use. (Without quantization, this controller just calls the upsampler.) For two-pass quantization, this controller is responsible for buffering the full-image data.
  
- \* Upsampling: restores chroma components to full size. (May support more general output rescaling, too. Note that if undersized DCT outputs have been emitted by the DCT module, this module must adjust so that properly sized outputs are created.) Works on one row group at a time. This module also calls the color conversion module, so its top level is effectively a buffer controller for the upsampling->color conversion buffer. However, in all but the highest-quality operating modes, upsampling and color conversion are likely to be merged into a single step.
  
- \* Colorspace conversion: convert from JPEG color space to output color space,

and change data layout from separate component planes to pixel-interleaved. Works on one pixel row at a time.

\* Color quantization: reduce the data to colormapped form, using either an externally specified colormap or an internally generated one. This module is not used for full-color output. Works on one pixel row at a time; may require two passes to generate a color map. Note that the output will always be a single component representing colormap indexes. In the current design, the output values are JSAMPLEs, so an 8-bit compilation cannot quantize to more than 256 colors. This is unlikely to be a problem in practice.

\* Color reduction: this module handles color precision reduction, e.g., generating 15-bit color (5 bits/primary) from JPEG's 24-bit output. Not quite clear yet how this should be handled... should we merge it with colorspace conversion???

Note that some high-speed operating modes might condense the entire postprocessing sequence to a single module (upsample, color convert, and quantize in one step).

In addition to the above objects, the decompression library includes these objects:

\* Master control: determines the number of passes required, controls overall and per-pass initialization of the other modules. This is subdivided into input and output control: `jdinput.c` controls only input-side processing, while `jdmaster.c` handles overall initialization and output-side control.

\* Marker reading: decodes JPEG markers (except for RSTn).

\* Data source manager: supplies the input JPEG datastream. The source manager supplied with the library knows how to read from a `stdio` stream or from a memory buffer; for other behaviors, the surrounding application may provide its own source manager.

\* Memory manager: same as for compression library.

\* Error handler: same as for compression library.

\* Progress monitor: same as for compression library.

As with compression, the data source manager, error handler, and progress monitor are candidates for replacement by a surrounding application.

\*\*\* Decompression input and output separation \*\*\*

To support efficient incremental display of progressive JPEG files, the decompressor is divided into two sections that can run independently:

1. Data input includes marker parsing, entropy decoding, and input into the coefficient controller's DCT coefficient buffer. Note that this processing is relatively cheap and fast.
2. Data output reads from the DCT coefficient buffer and performs the IDCT and all postprocessing steps.

For a progressive JPEG file, the data input processing is allowed to get arbitrarily far ahead of the data output processing. (This occurs only if the application calls `jpeg_consume_input()`; otherwise input and output run in lockstep, since the input section is called only when the output section needs more data.) In this way the application can avoid making extra display passes when data is arriving faster than the display pass can run. Furthermore, it is possible to abort an output pass without losing anything, since the coefficient buffer is read-only as far as the output section is concerned. See `libjpeg.txt` for more detail.

A full-image coefficient array is only created if the JPEG file has multiple scans (or if the application specifies buffered-image mode anyway). When reading a single-scan file, the coefficient controller normally creates only a one-MCU buffer, so input and output processing must run in lockstep in this case. `jpeg_consume_input()` is effectively a no-op in this situation.

The main impact of dividing the decompressor in this fashion is that we must be very careful with shared variables in the `cinfo` data structure. Each variable that can change during the course of decompression must be classified as belonging to data input or data output, and each section must look only at its own variables. For example, the data output section may not depend on any of the variables that describe the current scan in the JPEG file, because these may change as the data input section advances into a new scan.

The progress monitor is (somewhat arbitrarily) defined to treat input of the file as one pass when buffered-image mode is not used, and to ignore data input work completely when buffered-image mode is used. Note that the library has no reliable way to predict the number of passes when dealing with a progressive JPEG file, nor can it predict the number of output passes in buffered-image mode. So the work estimate is inherently bogus anyway.

No comparable division is currently made in the compression library, because

there isn't any real need for it.

\*\*\* Data formats \*\*\*

Arrays of pixel sample values use the following data structure:

```
typedef something JSAMPLE; a pixel component value, 0..MAXJSAMPLE
typedef JSAMPLE *JSAMPROW; ptr to a row of samples
typedef JSAMPROW *JSAMPARRAY; ptr to a list of rows
typedef JSAMPARRAY *JSAMPIMAGE; ptr to a list of color-component arrays
```

The basic element type JSAMPLE will typically be one of unsigned char, (signed) char, or short. Short will be used if samples wider than 8 bits are to be supported (this is a compile-time option). Otherwise, unsigned char is used if possible. If the compiler only supports signed chars, then it is necessary to mask off the value when reading. Thus, all reads of JSAMPLE values must be coded as "GETJSAMPLE(value)", where the macro will be defined as "((value) & 0xFF)" on signed-char machines and "((int) (value))" elsewhere.

With these conventions, JSAMPLE values can be assumed to be  $\geq 0$ . This helps simplify correct rounding during downsampling, etc. The JPEG standard's specification that sample values run from -128..127 is accommodated by subtracting 128 from the sample value in the DCT step. Similarly, during decompression the output of the IDCT step will be immediately shifted back to 0..255. (NB: different values are required when 12-bit samples are in use. The code is written in terms of MAXJSAMPLE and CENTERJSAMPLE, which will be defined as 255 and 128 respectively in an 8-bit implementation, and as 4095 and 2048 in a 12-bit implementation.)

We use a pointer per row, rather than a two-dimensional JSAMPLE array. This choice costs only a small amount of memory and has several benefits:

- \* Code using the data structure doesn't need to know the allocated width of the rows. This simplifies edge expansion/compression, since we can work in an array that's wider than the logical picture width.
- \* Indexing doesn't require multiplication; this is a performance win on many machines.
- \* Arrays with more than 64K total elements can be supported even on machines where malloc() cannot allocate chunks larger than 64K.
- \* The rows forming a component array may be allocated at different times without extra copying. This trick allows some speedups in smoothing steps that need access to the previous and next rows.

Note that each color component is stored in a separate array; we don't use the traditional layout in which the components of a pixel are stored together.

This simplifies coding of modules that work on

each component independently,  
because they don't need to know how many components there are. Furthermore,  
we can read or write each component to a temporary file independently, which  
is helpful when dealing with noninterleaved JPEG files.

In general, a specific sample value is accessed by code such as

```
GETJSAMPLE(image[colorcomponent][row][col])
```

where col is measured from the image left edge, but row is measured from the  
first sample row currently in memory. Either of the first two indexings can  
be precomputed by copying the relevant pointer.

Since most image-processing applications prefer to work on images in which  
the components of a pixel are stored together, the data passed to or from the  
surrounding application uses the traditional convention: a single pixel is  
represented by N consecutive JSAMPLE values, and an image row is an array of  
(# of color components)\*(image width) JSAMPLEs. One or more rows of data can  
be represented by a pointer of type JSAMPARRAY in this scheme.

This scheme is  
converted to component-wise storage inside the JPEG library. (Applications  
that want to skip JPEG preprocessing or postprocessing will have to contend  
with component-wise storage.)

Arrays of DCT-coefficient values use the following data structure:

```
typedef short JCOEF; a 16-bit signed integer  
typedef JCOEF JBLOCK[DCTSIZE2]; an 8x8 block of coefficients  
typedef JBLOCK *JBLOCKROW; ptr to one horizontal row of 8x8 blocks  
typedef JBLOCKROW *JBLOCKARRAY; ptr to a list of such rows  
typedef JBLOCKARRAY *JBLOCKIMAGE; ptr to a list of color component arrays
```

The underlying type is at least a 16-bit signed integer; while "short" is big  
enough on all machines of interest, on some machines it is preferable to use  
"int" for speed reasons, despite the storage cost. Coefficients are grouped  
into 8x8 blocks (but we always use #defines DCTSIZE and DCTSIZE2 rather than  
"8" and "64").

The contents of a coefficient block may be in either "natural" or zigzagged  
order,  
and may be true values or divided by the quantization coefficients,  
depending on where the block is in the processing pipeline. In the current  
library, coefficient blocks are kept in natural order everywhere; the entropy  
codecs zigzag or dezigzag the data as it is written or read. The blocks  
contain quantized coefficients everywhere outside the DCT/IDCT subsystems.  
(This latter decision may need to be revisited to support variable  
quantization a la JPEG Part 3.)

Notice that the allocation unit is now a row of 8x8 coefficient blocks, corresponding to block\_size rows of samples. Otherwise the structure is much the same as for samples, and for the same reasons.

On machines where malloc() can't handle a request bigger than 64Kb, this data structure limits us to rows of less than 512 JBLOCKS, or a picture width of 4000+ pixels. This seems an acceptable restriction.

On 80x86 machines, the bottom-level pointer types (JSAMPROW and JBLOCKROW) must be declared as "far" pointers, but the upper levels can be "near" (implying that the pointer lists are allocated in the DS segment). We use a #define symbol FAR, which expands to the "far" keyword when compiling on 80x86 machines and to nothing elsewhere.

\*\*\* Suspendable processing \*\*\*

In some applications it is desirable to use the JPEG library as an incremental, memory-to-memory filter. In this situation the data source or destination may be a limited-size buffer, and we can't rely on being able to empty or refill the buffer at arbitrary times. Instead the application would like to have control return from the library at buffer overflow/underrun, and then resume compression or decompression at a later time.

This scenario is supported for simple cases. (For anything more complex, we recommend that the application "bite the bullet" and develop real multitasking capability.) The libjpeg.txt file goes into more detail about the usage and limitations of this capability; here we address the implications for library structure.

The essence of the problem is that the entropy codec (coder or decoder) must be prepared to stop at arbitrary times. In turn, the controllers that call the entropy codec must be able to stop before having produced or consumed all the data that they normally would handle in one call. That part is reasonably straightforward: we make the controller call interfaces include "progress counters" which indicate the number of data chunks successfully processed, and we require callers to test the counter rather than just assume all of the data was processed.

Rather than trying to restart at an arbitrary point, the current Huffman codecs are designed to restart at the beginning of the current MCU after a suspension due to buffer overflow/underrun. At the start of each call, the codec's internal state is loaded from permanent storage (in the JPEG object structures) into local variables. On successful completion of the MCU, the permanent state is updated. (This copying is not very

expensive, and may even lead to \*improved\* performance if the local variables can be registerized.) If a suspension occurs, the codec simply returns without updating the state, thus effectively reverting to the start of the MCU. Note that this implies leaving some data unprocessed in the source/destination buffer (ie, the compressed partial MCU). The data source/destination module interfaces are specified so as to make this possible. This also implies that the data buffer must be large enough to hold a worst-case compressed MCU; a couple thousand bytes should be enough.

In a successive-approximation AC refinement scan, the progressive Huffman decoder has to be able to undo assignments of newly nonzero coefficients if it suspends before the MCU is complete, since decoding requires distinguishing previously-zero and previously-nonzero coefficients. This is a bit tedious but probably won't have much effect on performance. Other variants of Huffman decoding need not worry about this, since they will just store the same values again if forced to repeat the MCU.

This approach would probably not work for an arithmetic codec, since its modifiable state is quite large and couldn't be copied cheaply. Instead it would have to suspend and resume exactly at the point of the buffer end.

The JPEG marker reader is designed to cope with suspension at an arbitrary point. It does so by backing up to the start of the marker parameter segment, so the data buffer must be big enough to hold the largest marker of interest. Again, a couple KB should be adequate. (A special "skip" convention is used to bypass COM and APPn markers, so these can be larger than the buffer size without causing problems; otherwise a 64K buffer would be needed in the worst case.)

The JPEG marker writer currently does \*not\* cope with suspension. We feel that this is not necessary; it is much easier simply to require the application to ensure there is enough buffer space before starting. (An empty 2K buffer is more than sufficient for the header markers; and ensuring there are a dozen or two bytes available before calling jpeg\_finish\_compress() will suffice for the trailer.) This would not work for writing multi-scan JPEG files, but we simply do not intend to support that capability with suspension.

\*\*\* Memory manager services \*\*\*

The JPEG library's memory manager controls allocation and deallocation of memory, and it manages large "virtual" data arrays on machines where the operating system does not provide virtual memory. Note that the same memory manager serves both compression and decompression operations.

In all cases, allocated objects are tied to a particular compression or decompression master record, and they will be released when that master record is destroyed.

The memory manager does not provide explicit deallocation of objects. Instead, objects are created in "pools" of free storage, and a whole pool can be freed at once. This approach helps prevent storage-leak bugs, and it speeds up operations whenever malloc/free are slow (as they often are). The pools can be regarded as lifetime identifiers for objects. Two pools/lifetimes are defined:

- \* JPOOL\_PERMANENT lasts until master record is destroyed
- \* JPOOL\_IMAGE lasts until done with image (JPEG datastream)

Permanent lifetime is used for parameters and tables that should be carried across from one datastream to another; this includes all application-visible parameters. Image lifetime is used for everything else. (A third lifetime, JPOOL\_PASS = one processing pass, was originally planned. However it was dropped as not being worthwhile. The actual usage patterns are such that the peak memory usage would be about the same anyway; and having per-pass storage substantially complicates the virtual memory allocation rules --- see below.)

The memory manager deals with three kinds of object:

1. "Small" objects. Typically these require no more than 10K-20K total.
2. "Large" objects. These may require tens to hundreds of K depending on image size. Semantically they behave the same as small objects, but we distinguish them for two reasons:
  - \* On MS-DOS machines, large objects are referenced by FAR pointers, small objects by NEAR pointers.
  - \* Pool allocation heuristics may differ for large and small objects.Note that individual "large" objects cannot exceed the size allowed by type size\_t, which may be 64K or less on some machines.
3. "Virtual" objects. These are large 2-D arrays of JSAMPLEs or JBLOCKS (typically large enough for the entire image being processed). The memory manager provides stripwise access to these arrays. On machines without virtual memory, the rest of the array may be swapped out to a temporary file.

(Note: JSAMPARRAY and JBLOCKARRAY data structures are a combination of large objects for the data proper and small objects for the row pointers. For convenience and speed, the memory manager provides single routines to create these structures. Similarly, virtual arrays include a small control block and a JSAMPARRAY or JBLOCKARRAY working buffer, all created with one call.)

In the present implementation, virtual arrays are only permitted to have image lifespan. (Permanent lifespan would not be reasonable, and pass lifespan is



not very useful since a virtual array's raison d'etre is to store data for multiple passes through the image.) We also expect that only "small" objects will be given permanent lifespan, though this restriction is not required by the memory manager.

In a non-virtual-memory machine, some performance benefit can be gained by making the in-memory buffers for virtual arrays be as large as possible. (For small images, the buffers might fit entirely in memory, so blind swapping would be very wasteful.) The memory manager will adjust the height of the buffers to fit within a prespecified maximum memory usage. In order to do this in a reasonably optimal fashion, the manager needs to allocate all of the virtual arrays at once. Therefore, there isn't a one-step allocation routine for virtual arrays; instead, there is a "request" routine that simply allocates the control block, and a "realize" routine (called just once) that determines space allocation and creates all of the actual buffers. The realize routine must allow for space occupied by non-virtual large objects. (We don't bother to factor in the space needed for small objects, on the grounds that it isn't worth the trouble.)

To support all this, we establish the following protocol for doing business with the memory manager:

1. Modules must request virtual arrays (which may have only image lifespan) during the initial setup phase, i.e., in their `jinit_xxx` routines.
2. All "large" objects (including JSAMPARRAYs and JBLOCKARRAYs) must also be allocated during initial setup.
3. `realize_virt_arrays` will be called at the completion of initial setup.

The above conventions ensure that sufficient information is available for it to choose a good size for virtual array buffers.

Small objects of any lifespan may be allocated at any time. We expect that the total space used for small objects will be small enough to be negligible in the `realize_virt_arrays` computation.

In a virtual-memory machine, we simply pretend that the available space is infinite, thus causing `realize_virt_arrays` to decide that it can allocate all the virtual arrays as full-size in-memory buffers. The overhead of the virtual-array access protocol is very small when no swapping occurs.

A virtual array can be specified to be "pre-zeroed"; when this flag is set, never-yet-written sections of the array are set to zero before being made available to the caller. If this flag is not set, never-written sections of the array contain garbage. (This feature exists primarily because the equivalent logic would otherwise be needed in `jdcoefct.c` for progressive JPEG mode; we may as well make it available for possible other uses.)

The first write pass on a virtual array is required to occur in top-to-bottom

order; read passes, as well as any write passes after the first one, may access the array in any order. This restriction exists partly to simplify the virtual array control logic, and partly because some file systems may not support seeking beyond the current end-of-file in a temporary file. The main implication of this restriction is that rearrangement of rows (such as converting top-to-bottom data order to bottom-to-top) must be handled while reading data out of the virtual array, not while putting it in.

\*\*\* Memory manager internal structure \*\*\*

To isolate system dependencies as much as possible, we have broken the memory manager into two parts. There is a reasonably system-independent "front end" (jmemmgr.c) and a "back end" that contains only the code likely to change across systems. All of the memory management methods outlined above are implemented by the front end.

The back end provides the following routines for use by the front end (none of these routines are known to the rest of the JPEG code):

jpeg\_mem\_init, jpeg\_mem\_term system-dependent initialization/shutdown

jpeg\_get\_small, jpeg\_free\_small interface to malloc and free library routines (or their equivalents)

jpeg\_get\_large, jpeg\_free\_large interface to FAR malloc/free in MSDOS machines; else usually the same as jpeg\_get\_small/jpeg\_free\_small

jpeg\_mem\_available estimate available memory

jpeg\_open\_backing\_store create a backing-store object

read\_backing\_store, manipulate a backing-store object  
write\_backing\_store,  
close\_backing\_store

On some systems there will be more than one type of backing-store object (specifically, in MS-DOS a backing store file might be an area of extended memory as well as a disk file). jpeg\_open\_backing\_store is responsible for choosing how to implement a given object. The read/write/close routines are method pointers in the structure that describes a given object; this lets them be different for different object types.

It may be necessary to ensure that backing store objects are explicitly released upon abnormal program termination. For example, MS-DOS won't free extended memory by itself. To support this, we will expect the main program

or surrounding application to arrange to call `self_destruct` (typically via `jpeg_destroy`) upon abnormal termination. This may require a SIGINT signal handler or equivalent. We don't want to have the back end module install its own signal handler, because that would pre-empt the surrounding application's ability to control signal handling.

The IJG distribution includes several memory manager back end implementations. Usually the same back end should be suitable for all applications on a given system, but it is possible for an application to supply its own back end at need.

### \*\*\* Implications of DNL marker \*\*\*

Some JPEG files may use a DNL marker to postpone definition of the image height

(this would be useful for a fax-like scanner's output, for instance).

In these files the SOF marker claims the image height is 0, and you only find out the true image height at the end of the first scan.

We could read these files as follows:

1. Upon seeing zero image height, replace it by 65535 (the maximum allowed).
2. When the DNL is found, update the image height in the global image descriptor.

This implies that control modules must avoid making copies of the image height, and must re-test for termination after each MCU row. This would be easy enough to do.

In cases where image-size data structures are allocated, this approach will result in very inefficient use of virtual memory or much-larger-than-necessary temporary files. This seems acceptable for something that probably won't be a mainstream usage. People might have to forgo use of memory-hogging options (such as two-pass color quantization or noninterleaved JPEG files) if they want efficient conversion of such files.

(One could improve efficiency by demanding a user-supplied upper bound for the height, less than 65536; in most cases it could be much less.)

The standard also permits the SOF marker to overestimate the image height, with a DNL to give the true, smaller height at the end of the first scan.

This would solve the space problems if the overestimate wasn't too great. However, it implies that you don't even know whether DNL will be used.

This leads to a couple of very serious objections:

1. Testing for a DNL marker must occur in the inner loop of the decompressor's Huffman decoder; this implies a speed penalty whether the feature is used or not.
2. There is no way to hide the last-minute change in image height from an

application using the decoder. Thus *every* application using the IJG library would suffer a complexity penalty whether it cared about DNL or not.

We currently do not support DNL because of these problems.

A different approach is to insist that DNL-using files be preprocessed by a separate program that reads ahead to the DNL, then goes back and fixes the SOF marker. This is a much simpler solution and is probably far more efficient. Even if one wants piped input, buffering the first scan of the JPEG file needs a lot smaller temp file than is implied by the maximum-height method. For this approach we'd simply treat DNL as a no-op in the decompressor (at most, check that it matches the SOF image height).

We will not worry about making the compressor capable of outputting DNL. Something similar to the first scheme above could be applied if anyone ever wants to make that work.

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/structure.txt  
No license file was found, but licenses were detected in source scan.

## USING THE IJG JPEG LIBRARY

Copyright (C) 1994-2013, Thomas G. Lane, Guido Vollbeding.

This file is part of the Independent JPEG Group's software.

For conditions of distribution and use, see the accompanying README file.

This file describes how to use the IJG JPEG library within an application program. Read it if you want to write a program that uses the library.

The file `example.c` provides heavily commented skeleton code for calling the JPEG library. Also see `jpeglib.h` (the include file to be used by application programs) for full details about data structures and function parameter lists. The library source code, of course, is the ultimate reference.

Note that there have been *major* changes from the application interface presented by IJG version 4 and earlier versions. The old design had several inherent limitations, and it had accumulated a lot of cruft as we added features while trying to minimize application-interface changes. We have sacrificed backward compatibility in the version 5 rewrite, but we think the improvements justify this.

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You should read at least the overview and basic usage sections before trying to program with the library.

The sections on advanced features can be read if and when you need them.

## OVERVIEW

=====

Functions provided by the library

-----

The IJG JPEG library provides C code to read and write JPEG-compressed image files. The surrounding application program receives or supplies image data a scanline at a time, using a straightforward uncompressed image format. All details of color conversion and other preprocessing/postprocessing can be handled by the library.

The library includes a substantial amount of code that is not covered by the

JPEG standard but is necessary for typical applications of JPEG. These functions preprocess the image before JPEG compression or postprocess it after decompression. They include colorspace conversion, downsampling/upsampling, and color quantization. The application indirectly selects use of this code by specifying the format in which it wishes to supply or receive image data. For example, if colormapped output is requested, then the decompression library automatically invokes color quantization.

A wide range of quality vs. speed tradeoffs are possible in JPEG processing, and even more so in decompression postprocessing. The decompression library provides multiple implementations that cover most of the useful tradeoffs, ranging from very-high-quality down to fast-preview operation. On the compression side we have generally not provided low-quality choices, since compression is normally less time-critical. It should be understood that the low-quality modes may not meet the JPEG standard's accuracy requirements; nonetheless, they are useful for viewers.

A word about functions *\*not\** provided by the library. We handle a subset of the ISO JPEG standard; most baseline, extended-sequential, and progressive JPEG processes are supported. (Our subset includes all features now in common use.) Unsupported ISO options include:

- \* Hierarchical storage
- \* Lossless JPEG
- \* DNL marker
- \* Nonintegral subsampling ratios

We

support 8-bit to 12-bit data precision, but this is a compile-time choice rather than a run-time choice; hence it is difficult to use different precisions in a single application.

By itself, the library handles only interchange JPEG datastreams --- in particular the widely used JFIF file format. The library can be used by surrounding code to process interchange or abbreviated JPEG datastreams that are embedded in more complex file formats. (For example, this library is used by the free LIBTIFF library to support JPEG compression in TIFF.)

Outline of typical usage

-----

The rough outline of a JPEG compression operation is:

```
Allocate and initialize a JPEG compression object
Specify the destination for the compressed data (eg, a file)
Set parameters for compression, including image size & colorspace
jpeg_start_compress(...);
while (scan lines remain to be written)
```

```
jpeg_write_scanlines(...);
jpeg_finish_compress(...);
Release the JPEG compression
object
```

A JPEG compression object holds parameters and working state for the JPEG library. We make creation/destruction of the object separate from starting or finishing compression of an image; the same object can be re-used for a series of image compression operations. This makes it easy to re-use the same parameter settings for a sequence of images. Re-use of a JPEG object also has important implications for processing abbreviated JPEG datastreams, as discussed later.

The image data to be compressed is supplied to `jpeg_write_scanlines()` from in-memory buffers. If the application is doing file-to-file compression, reading image data from the source file is the application's responsibility. The library emits compressed data by calling a "data destination manager", which typically will write the data into a file; but the application can provide its own destination manager to do something else.

Similarly, the rough outline of a JPEG decompression operation is:

```
Allocate and initialize
a JPEG decompression object
Specify the source of the compressed data (eg, a file)
Call jpeg_read_header() to obtain image info
Set parameters for decompression
jpeg_start_decompress(...);
while (scan lines remain to be read)
    jpeg_read_scanlines(...);
jpeg_finish_decompress(...);
Release the JPEG decompression object
```

This is comparable to the compression outline except that reading the datastream header is a separate step. This is helpful because information about the image's size, colorspace, etc is available when the application selects decompression parameters. For example, the application can choose an output scaling ratio that will fit the image into the available screen size.

The decompression library obtains compressed data by calling a data source manager, which typically will read the data from a file; but other behaviors can be obtained with a custom source manager. Decompressed data is delivered into in-memory buffers passed to `jpeg_read_scanlines()`.

It is possible to abort an incomplete compression or decompression operation by calling `jpeg_abort()`; or, if you do not need to retain the JPEG object, simply release it by calling `jpeg_destroy()`.

JPEG compression and decompression objects are two separate struct types. However, they share some common fields, and certain routines such as `jpeg_destroy()` can work on either type of object.

The JPEG library has no static variables: all state is in the compression or decompression object. Therefore it is possible to process multiple compression and decompression operations concurrently, using multiple JPEG objects.

Both compression and decompression can be done in an incremental memory-to-memory fashion, if suitable source/destination managers are used. See the section on "I/O suspension" for more details.

## BASIC LIBRARY USAGE

=====

### Data formats

-----

Before diving into procedural details, it is helpful to understand the image data format that the JPEG library expects or returns.

The standard input image format is a rectangular array of pixels, with each pixel having the same number of "component" or "sample" values (color channels). You must specify how many components there are and the colorspace interpretation of the components. Most applications will use RGB data (three components per pixel) or grayscale data (one component per pixel). PLEASE NOTE THAT RGB DATA IS THREE SAMPLES PER PIXEL, GRAYSCALE ONLY ONE. A remarkable number of people manage to miss this, only to find that their programs don't work with grayscale JPEG files.

There is no provision for colormapped input. JPEG files are always full-color or full grayscale (or sometimes another colorspace such as CMYK). You can feed in a colormapped image by expanding it to full-color format. However JPEG often doesn't work very well with source data that has been colormapped, because of dithering noise. This is discussed in more detail in the JPEG FAQ and the other references mentioned in the README file.

Pixels are stored by scanlines, with each scanline running from left to right. The component values for each pixel are adjacent in the row; for example, R,G,B,R,G,B,R,G,B,... for 24-bit RGB color. Each scanline is an array of data type `JSAMPLE` --- which is typically "unsigned char", unless you've changed `jmreconf.h`. (You can also change the RGB pixel layout, say to B,G,R order, by modifying `jmreconf.h`. But see the restrictions listed in



that file before doing so.)

A 2-D array of pixels is formed by making a list of pointers to the starts of scanlines; so the scanlines need not be physically adjacent in memory. Even if you process just one scanline at a time, you must make a one-element pointer array to conform to this structure. Pointers to JSAMPLE rows are of type JSAMPROW, and the pointer to the pointer array is of type JSAMPARRAY.

The library accepts or supplies one or more complete scanlines per call. It is not possible to process part of a row at a time. Scanlines are always processed top-to-bottom. You can process an entire image in one call if you have it all in memory, but usually it's simplest to process one scanline at a time.

For best results, source data values should have the precision specified by BITS\_IN\_JSAMPLE (normally 8 bits). For instance, if you choose to compress data that's only 6 bits/channel, you should left-justify each value in a byte before passing it to the compressor. If you need to compress data that has more than 8 bits/channel, compile with BITS\_IN\_JSAMPLE = 9 to 12. (See "Library compile-time options", later.)

The data format returned by the decompressor is the same in all details, except that colormapped output is supported. (Again, a JPEG file is never colormapped. But you can ask the decompressor to perform on-the-fly color quantization to deliver colormapped output.) If you request colormapped output then the returned data array contains a single JSAMPLE per pixel; its value is an index into a color map. The color map is represented as a 2-D JSAMPARRAY in which each row holds the values of one color component, that is, colormap[i][j] is the value of the i'th color component for pixel value (map index) j. Note that since the colormap indexes are stored in JSAMPLEs, the maximum number of colors is limited by the size of JSAMPLE (ie, at most 256 colors for an 8-bit JPEG library).

#### Compression details

-----

Here we revisit the JPEG compression outline given in the overview.

1. Allocate and initialize a JPEG compression object.

A JPEG compression object is a "struct jpeg\_compress\_struct". (It also has a bunch of subsidiary structures which are allocated via malloc(), but the application doesn't control those directly.) This struct can be just a local variable in the calling routine, if a single routine is going to execute the

whole JPEG compression sequence. Otherwise it can be static or allocated from malloc().

You will also need a structure representing a JPEG error handler. The part of this that the library cares about is a "struct jpeg\_error\_mgr". If you are providing your own error handler, you'll typically want to embed the jpeg\_error\_mgr struct in a larger structure; this is discussed later under "Error handling". For now we'll assume you are just using the default error handler. The default error handler will print JPEG error/warning messages on stderr, and it will call exit() if a fatal error occurs.

You must initialize the error handler structure, store a pointer to it into the JPEG object's "err" field, and then call jpeg\_create\_compress() to initialize the rest of the JPEG object.

Typical code for this step, if you are using the default error handler, is

```
struct jpeg_compress_struct cinfo;
struct jpeg_error_mgr jerr;
...
cinfo.err = jpeg_std_error(&jerr);
jpeg_create_compress(&cinfo);
```

jpeg\_create\_compress allocates a small amount of memory, so it could fail if you are out of memory. In that case it will exit via the error handler; that's why the error handler must be initialized first.

## 2. Specify the destination for the compressed data (eg, a file).

As previously mentioned, the JPEG library delivers compressed data to a "data destination" module. The library includes one data destination module which knows how to write to a stdio stream. You can use your own destination module if you want to do something else, as discussed later.

If you use the standard destination module, you must open the target stdio stream beforehand. Typical code for this step looks like:

```
FILE * outfile;
...
if ((outfile = fopen(filename, "wb")) == NULL) {
    fprintf(stderr, "can't open %s\n", filename);
    exit(1);
}
jpeg_stdio_dest(&cinfo, outfile);
```

where the last line invokes the standard destination module.

WARNING: it is critical that the binary compressed data be delivered to the output file unchanged. On non-Unix systems the stdio library may perform newline translation or otherwise corrupt binary data. To suppress this behavior, you may need to use a "b" option to fopen (as shown above), or use setmode() or another routine to put the stdio stream in binary mode. See cjpeg.c and djpeg.c for code that has been found to work on many systems.

You can select the data destination after setting other parameters (step 3), if that's more convenient. You may not change the destination between calling jpeg\_start\_compress() and jpeg\_finish\_compress().

3. Set parameters for compression, including image size & colorspace.

You must supply information about the source image by setting the following fields in the JPEG object (cinfo structure):

image\_width Width of image, in pixels  
image\_height Height of image, in pixels  
input\_components Number of color channels (samples per pixel)  
in\_color\_space Color space of source image

The image dimensions are, hopefully, obvious. JPEG supports image dimensions of 1 to 64K pixels in either direction. The input color space is typically RGB or grayscale, and input\_components is 3 or 1 accordingly. (See "Special color spaces", later, for more info.) The in\_color\_space field must be assigned one of the J\_COLOR\_SPACE enum constants, typically JCS\_RGB or JCS\_GRAYSCALE.

JPEG has a large number of compression parameters that determine how the image is encoded. Most applications don't need or want to know about all these parameters. You can set all the parameters to reasonable defaults by calling jpeg\_set\_defaults(); then, if there are particular values you want to change, you can do so after that. The "Compression parameter selection" section tells about all the parameters.

You must set in\_color\_space correctly before calling jpeg\_set\_defaults(), because the defaults depend on the source image colorspace. However the other three source image parameters need not be valid until you call jpeg\_start\_compress(). There's no harm in calling jpeg\_set\_defaults() more than once, if that happens to be convenient.

Typical

code for a 24-bit RGB source image is

```
cinfo.image_width = Width; /* image width and height, in pixels */
cinfo.image_height = Height;
cinfo.input_components = 3; /* # of color components per pixel */
cinfo.in_color_space = JCS_RGB; /* colorspace of input image */

jpeg_set_defaults(&cinfo);
/* Make optional parameter settings here */
```

#### 4. jpeg\_start\_compress(...);

After you have established the data destination and set all the necessary source image info and other parameters, call `jpeg_start_compress()` to begin a compression cycle. This will initialize internal state, allocate working storage, and emit the first few bytes of the JPEG datastream header.

Typical code:

```
jpeg_start_compress(&cinfo, TRUE);
```

The "TRUE" parameter ensures that a complete JPEG interchange datastream will be written. This is appropriate in most cases. If you think you might want to use an abbreviated datastream, read the section on abbreviated datastreams, below.

Once you have called `jpeg_start_compress()`, you may not alter any JPEG parameters or other fields of the JPEG object until you have completed the compression cycle.

#### 5. while (scan lines remain to be written)

```
jpeg_write_scanlines(...);
```

Now write all the required image data by calling `jpeg_write_scanlines()` one or more times. You can pass one or more scanlines in each call, up to the total image height. In most applications it is convenient to pass just one or a few scanlines at a time. The expected format for the passed data is discussed under "Data formats", above.

Image data should be written in top-to-bottom scanline order. The JPEG spec contains some weasel wording about how top and bottom are application-defined terms (a curious interpretation of the English language...) but if you want your files to be compatible with everyone else's, you **WILL** use top-to-bottom order. If the source data must be read in bottom-to-top order, you can use the JPEG library's virtual array mechanism to invert the data efficiently.

## Examples

of this can be found in the sample application cjpeg.

The library maintains a count of the number of scanlines written so far in the `next_scanline` field of the JPEG object. Usually you can just use this variable as the loop counter, so that the loop test looks like `"while (cinfo.next_scanline < cinfo.image_height)"`.

Code for this step depends heavily on the way that you store the source data. `example.c` shows the following code for the case of a full-size 2-D source array containing 3-byte RGB pixels:

```
JSAMPROW row_pointer[1]; /* pointer to a single row */
int row_stride; /* physical row width in buffer */

row_stride = image_width * 3; /* JSAMPLEs per row in image_buffer */

while (cinfo.next_scanline < cinfo.image_height) {
    row_pointer[0] = & image_buffer[cinfo.next_scanline * row_stride];
    jpeg_write_scanlines(&cinfo, row_pointer, 1);
}
```

`jpeg_write_scanlines()` returns the number of scanlines actually written.

This will normally be equal to the number

passed in, so you can usually

ignore the return value. It is different in just two cases:

- \* If you try to write more scanlines than the declared image height, the additional scanlines are ignored.

- \* If you use a suspending data destination manager, output buffer overrun will cause the compressor to return before accepting all the passed lines.

This feature is discussed under "I/O suspension", below. The normal `stdio` destination manager will NOT cause this to happen.

In any case, the return value is the same as the change in the value of `next_scanline`.

## 6. `jpeg_finish_compress(...)`;

After all the image data has been written, call `jpeg_finish_compress()` to complete the compression cycle. This step is **ESSENTIAL** to ensure that the last bufferload of data is written to the data destination.

`jpeg_finish_compress()` also releases working memory associated with the JPEG object.

Typical code:

```
jpeg_finish_compress(&cinfo);
```

If using the stdio destination manager, don't forget to close the output stdio stream (if necessary) afterwards.

If you have requested a multi-pass operating mode, such as Huffman code optimization, `jpeg_finish_compress()` will perform the additional passes using data buffered by the first pass. In this case `jpeg_finish_compress()` may take quite a while to complete. With the default compression parameters, this will not happen.

It is an error to call `jpeg_finish_compress()` before writing the necessary total number of scanlines. If you wish to abort compression, call `jpeg_abort()` as discussed below.

After completing a compression cycle, you may dispose of the JPEG object as discussed next, or you may use it to compress another image. In that case return to step 2, 3, or 4 as appropriate. If you do not change the destination manager, the new datastream will be written to the same target. If you do not change any JPEG parameters, the new datastream will be written with the same parameters as before. Note that you can change the input image dimensions freely between cycles, but if you change the input colorspace, you should call `jpeg_set_defaults()` to adjust for the new colorspace; and then you'll need to repeat all of step 3.

#### 7. Release the JPEG compression object.

When you are done with a JPEG compression object, destroy it by calling `jpeg_destroy_compress()`. This will free all subsidiary memory (regardless of the previous state of the object). Or you can call `jpeg_destroy()`, which works for either compression or decompression objects --- this may be more convenient if you are sharing code between compression and decompression cases. (Actually, these routines are equivalent except for the declared type of the passed pointer. To avoid gripes from ANSI C compilers, `jpeg_destroy()` should be passed a `j_common_ptr`.)

If you allocated the `jpeg_compress_struct` structure from `malloc()`, freeing it is your responsibility --- `jpeg_destroy()` won't. Ditto for the error handler structure.

Typical code:

```
jpeg_destroy_compress(&cinfo);
```

#### 8.

Aborting.

If you decide to abort a compression cycle before finishing, you can clean up in either of two ways:

\* If you don't need the JPEG object any more, just call `jpeg_destroy_compress()` or `jpeg_destroy()` to release memory. This is legitimate at any point after calling `jpeg_create_compress()` --- in fact, it's safe even if `jpeg_create_compress()` fails.

\* If you want to re-use the JPEG object, call `jpeg_abort_compress()`, or call `jpeg_abort()` which works on both compression and decompression objects. This will return the object to an idle state, releasing any working memory. `jpeg_abort()` is allowed at any time after successful object creation.

Note that cleaning up the data destination, if required, is your responsibility; neither of these routines will call `term_destination()`. (See "Compressed data handling", below, for more about that.)

`jpeg_destroy()` and `jpeg_abort()` are the only safe calls to make on a JPEG object that has reported an error by calling `error_exit` (see "Error handling" for more info). The internal state of such an object is likely to be out of whack. Either of these two routines will return the object to a known state.

## Decompression details

-----

Here we revisit the JPEG decompression outline given in the overview.

### 1. Allocate and initialize a JPEG decompression object.

This is just like initialization for compression, as discussed above, except that the object is a "struct `jpeg_decompress_struct`" and you call `jpeg_create_decompress()`. Error handling is exactly the same.

Typical code:

```
struct jpeg_decompress_struct cinfo;
struct jpeg_error_mgr jerr;
...
cinfo.err = jpeg_std_error(&jerr);
jpeg_create_decompress(&cinfo);
```

(Both here and in the IJG code, we usually use variable name "cinfo" for both compression and decompression objects.)

2. Specify the source of the compressed data (eg, a file).

As previously mentioned, the JPEG library reads compressed data from a "data source" module. The library includes one data source module which knows how to read from a stdio stream. You can use your own source module if you want to do something else, as discussed later.

If you use the standard source module, you must open the source stdio stream beforehand. Typical code for this step looks like:

```
FILE * infile;
...
if ((infile = fopen(filename, "rb")) == NULL) {
    fprintf(stderr, "can't open %s\n", filename);
    exit(1);
}
jpeg_stdio_src(&cinfo, infile);
```

where the last line invokes the standard source module.

**WARNING:** it is critical that the binary compressed data be read unchanged. On non-Unix systems the stdio library may perform newline translation or otherwise corrupt binary data. To suppress this behavior, you may need to use a "b" option to fopen (as shown above), or use setmode() or another routine to put the stdio stream in binary mode. See cjpeg.c and djpeg.c for code that has been found to work on many systems.

You may not change the data source between calling jpeg\_read\_header() and jpeg\_finish\_decompress(). If you wish to read a series of JPEG images from a single source file, you should repeat the jpeg\_read\_header() to jpeg\_finish\_decompress() sequence without reinitializing either the JPEG object or the data source module; this prevents buffered input data from being discarded.

3. Call jpeg\_read\_header() to obtain image info.

Typical code for this step is just

```
jpeg_read_header(&cinfo, TRUE);
```

This will read the source datastream header markers, up to the beginning of the compressed data proper. On return, the image dimensions and other info have been stored in the JPEG object. The application may wish to consult this information before selecting decompression parameters.



More complex code is necessary if

\* A suspending data source is used --- in that case `jpeg_read_header()` may return before it has read all the header data. See "I/O suspension", below. The normal stdio source manager will NOT cause this to happen.

\* Abbreviated JPEG files are to be processed --- see the section on abbreviated datastreams. Standard applications that deal only in interchange JPEG files need not be concerned with this case either.

It is permissible to stop at this point if you just wanted to find out the image dimensions and other header info for a JPEG file. In that case, call `jpeg_destroy()` when you are done with the JPEG object, or call `jpeg_abort()` to return it to an idle state before selecting a new data source and reading another header.

#### 4. Set parameters for decompression.

`jpeg_read_header()` sets appropriate default decompression parameters based on the properties of the image (in particular, its colorspace). However, you may well want to alter these defaults before beginning the decompression. For example, the default is to produce full color output from a color file. If you want colormapped output you must ask for it. Other options allow the returned image to be scaled and allow various speed/quality tradeoffs to be selected. "Decompression parameter selection", below, gives details.

If the defaults are appropriate, nothing need be done at this step.

Note that all default values are set by each call to `jpeg_read_header()`. If you reuse a decompression object, you cannot expect your parameter settings to be preserved across cycles, as you can for compression. You must set desired parameter values each time.

#### 5. `jpeg_start_decompress(...)`;

Once the parameter values are satisfactory, call `jpeg_start_decompress()` to begin decompression. This will initialize internal state, allocate working memory, and prepare for returning data.

Typical code is just

```
jpeg_start_decompress(&cinfo);
```

If you have requested a multi-pass operating mode, such as 2-pass color quantization, `jpeg_start_decompress()` will do everything needed before data

output can begin. In this case `jpeg_start_decompress()` may take quite a while to complete. With a single-scan (non progressive) JPEG file and default decompression parameters, this will not happen; `jpeg_start_decompress()` will return quickly.

After this call, the final output image dimensions, including any requested scaling, are available in the JPEG object; so is the selected colormap, if colormapped output has been requested. Useful fields include

`output_width` image width and height, as scaled  
`output_height`  
`out_color_components` # of color components in `out_color_space`  
`output_components` # of color components returned per pixel  
`colormap` the selected colormap, if any  
`actual_number_of_colors` number of entries in colormap

`output_components` is 1 (a colormap index) when quantizing colors; otherwise it equals `out_color_components`. It is the number of JSAMPLE values that will be emitted per pixel in the output arrays.

Typically you will need to allocate data buffers to hold the incoming image. You will need `output_width * output_components` JSAMPLEs per scanline in your output buffer, and a total of `output_height` scanlines will be returned.

Note: if you are using the JPEG library's internal memory manager to allocate data buffers (as `djpeg` does), then the manager's protocol requires that you request large buffers \*before\* calling `jpeg_start_decompress()`. This is a little tricky since the `output_XXX` fields are not normally valid then. You can make them valid by calling `jpeg_calc_output_dimensions()` after setting the relevant parameters (scaling, output color space, and quantization flag).

6. while (scan lines remain to be read)  
`jpeg_read_scanlines(...);`

Now you can read the decompressed image data by calling `jpeg_read_scanlines()` one or more times. At each call, you pass in the maximum number of scanlines to be read (ie, the height of your working buffer); `jpeg_read_scanlines()` will return up to that many lines. The return value is the number of lines actually read. The format of the returned data is discussed under "Data formats", above. Don't forget that grayscale and color JPEGs will return different data formats!

Image data is returned in top-to-bottom scanline order. If you must write out the image in bottom-to-top order, you can use the JPEG library's virtual

array mechanism to invert the data efficiently. Examples of this can be found in the sample application djpeg.

The library maintains a count of the number of scanlines returned so far in the `output_scanline` field of the JPEG object. Usually you can just use this variable as the loop counter, so that the loop test looks like `"while (cinfo.output_scanline < cinfo.output_height)"`. (Note that the test should NOT be against `image_height`, unless you never use scaling. The `image_height` field is the height of the original unscaled image.) The return value always equals the change in the value of `output_scanline`.

If you don't use a suspending data source, it is safe to assume that `jpeg_read_scanlines()` reads at least one scanline per call, until the bottom of the image has been reached.

If you use a buffer larger than one scanline, it is NOT safe to assume that `jpeg_read_scanlines()` fills it. (The current implementation returns only a few scanlines per call, no matter how large a buffer you pass.) So you must always provide a loop that calls `jpeg_read_scanlines()` repeatedly until the whole image has been read.

#### 7. `jpeg_finish_decompress(...)`;

After all the image data has been read, call `jpeg_finish_decompress()` to complete the decompression cycle. This causes working memory associated with the JPEG object to be released.

Typical code:

```
jpeg_finish_decompress(&cinfo);
```

If using the stdio source manager, don't forget to close the source stdio stream if necessary.

It is an error to call `jpeg_finish_decompress()` before reading the correct total number of scanlines. If you wish to abort decompression, call `jpeg_abort()` as discussed below.

After completing a decompression cycle, you may dispose of the JPEG object as discussed next, or you may use it to decompress another image. In that case return to step 2 or 3 as appropriate. If you do not change the source manager, the next image will be read from the same source.

#### 8. Release the JPEG decompression object.

When you are done with a JPEG decompression object, destroy it by calling `jpeg_destroy_decompress()` or `jpeg_destroy()`. The previous discussion of destroying compression objects applies here too.

Typical code:

```
jpeg_destroy_decompress(&cinfo);
```

## 9. Aborting.

You can abort a decompression cycle by calling `jpeg_destroy_decompress()` or `jpeg_destroy()` if you don't need the JPEG object any more, or `jpeg_abort_decompress()` or `jpeg_abort()` if you want to reuse the object. The previous discussion of aborting compression cycles applies here too.

Mechanics of usage: include files, linking, etc

-----

Applications using the JPEG library should include the header file `jpeglib.h` to obtain declarations of data types and routines. Before including `jpeglib.h`, include system headers that define at least the typedefs `FILE` and `size_t`. On ANSI-conforming systems, including `<stdio.h>` is sufficient; on older Unix systems, you may need `<sys/types.h>` to define `size_t`.

If the application needs to refer to individual JPEG library error codes, also include `jerror.h` to define those symbols.

`jpeglib.h` indirectly includes the files `jconfig.h` and `jpeglib.h`. If you are installing the JPEG header files in a system directory, you will want to install all four files: `jpeglib.h`, `jerror.h`, `jconfig.h`, `jpeglib.h`.

The most convenient way to include the JPEG code into your executable program is to prepare a library file ("`libjpeg.a`", or a corresponding name on non-Unix machines) and reference it at your link step. If you use only half of the library (only compression or only decompression), only that much code will be included from the library, unless your linker is hopelessly brain-damaged. The supplied makefiles build `libjpeg.a` automatically (see `install.txt`).

While you can build the JPEG library as a shared library if the whim strikes you, we don't really recommend it. The trouble with shared libraries is that at some point you'll probably try to substitute a new version of the library without recompiling the calling applications. That generally doesn't work because the parameter struct declarations usually change with each new

version. In other words, the library's API is *\*not\** guaranteed binary compatible across versions; we only try to ensure source-code compatibility. (In hindsight, it might have been smarter to hide the parameter structs from applications and introduce a ton of access functions instead. Too late now, however.)

On some systems your application may need to set up a signal handler to ensure that temporary files are deleted if the program is interrupted. This is most critical if you are on MS-DOS and use the `jmemdos.c` memory manager back end; it will try to grab extended memory for temp files, and that space will NOT be freed automatically. See `cjpeg.c` or `djpeg.c` for an example signal handler.

It may be worth pointing out that the core JPEG library does not actually require the `stdio` library: only the default source/destination managers and error handler need it. You can use the library in a `stdio`-less environment if you replace those modules and use `jmemnobs.c` (or another memory manager of your own devising). More info about the minimum system library requirements may be found in `jinclude.h`.

## ADVANCED FEATURES

=====

### Compression parameter selection

-----

This section describes all the optional parameters you can set for JPEG compression, as well as the "helper" routines provided to assist in this task. Proper setting of some parameters requires detailed understanding of the JPEG standard; if you don't know what a parameter is for, it's best not to mess with it! See REFERENCES in the README file for pointers to more info about JPEG.

It's a good idea to call `jpeg_set_defaults()` first, even if you plan to set all the parameters; that way your code is more likely to work with future JPEG libraries that have additional parameters. For the same reason, we recommend you use a helper routine where one is provided, in preference to twiddling `cinfo` fields directly.

The helper routines are:

`jpeg_set_defaults (j_compress_ptr cinfo)`

This routine sets all JPEG parameters to reasonable defaults, using only the input image's color space (field `in_color_space`, which must already be set in `cinfo`). Many applications will only need to use this routine and perhaps `jpeg_set_quality()`.

`jpeg_set_colorspace (j_compress_ptr cinfo, J_COLOR_SPACE colorspace)`

Sets the JPEG file's colorspace (field `jpeg_color_space`) as specified, and sets other color-space-dependent parameters appropriately. See "Special color spaces", below, before using this. A large number of parameters, including all per-component parameters, are set by this routine; if you want to twiddle individual parameters you should call `jpeg_set_colorspace()` before rather than after.

`jpeg_default_colorspace (j_compress_ptr cinfo)`

Selects an appropriate JPEG colorspace based on `cinfo->in_color_space`, and calls `jpeg_set_colorspace()`. This is actually a subroutine of `jpeg_set_defaults()`. It's broken out in case you want to change just the colorspace-dependent JPEG parameters.

`jpeg_set_quality (j_compress_ptr cinfo, int quality, boolean force_baseline)`

Constructs JPEG quantization tables appropriate for the indicated quality setting. The quality value is expressed on the 0..100 scale recommended by IJG (cjpeg's "-quality" switch uses this routine). Note that the exact mapping from quality values to tables may change in future IJG releases as more is learned about DCT quantization. If the `force_baseline` parameter is TRUE, then the quantization table entries are constrained to the range 1..255 for full JPEG baseline compatibility.

In the current implementation, this only makes a difference for quality settings below 25, and it effectively prevents very small/low quality files from being generated. The IJG decoder is capable of reading the non-baseline files generated at low quality settings when `force_baseline` is FALSE, but other decoders may not be.

`jpeg_set_linear_quality (j_compress_ptr cinfo, int scale_factor, boolean force_baseline)`

Same as `jpeg_set_quality()` except that the generated tables are the sample tables given in the JPEG spec section K.1, multiplied by the specified scale factor (which is expressed as a percentage; thus `scale_factor = 100` reproduces the spec's tables). Note that larger scale factors give lower quality. This entry point is useful for conforming to the Adobe PostScript DCT conventions, but we do not recommend linear scaling as a user-visible quality scale otherwise. `force_baseline` again constrains the computed table entries to 1..255.

`int jpeg_quality_scaling`

(int quality)

Converts a value on the IJG-recommended quality scale to a linear scaling percentage. Note that this routine may change or go away in future releases --- IJG may choose to adopt a scaling method that can't be expressed as a simple scalar multiplier, in which case the

premise of this routine collapses. Caveat user.

`jpeg_default_qtables (j_compress_ptr cinfo, boolean force_baseline)`  
Set default quantization tables with linear `q_scale_factor[]` values  
(see below).

`jpeg_add_quant_table (j_compress_ptr cinfo, int which_tbl,  
const unsigned int *basic_table,  
int scale_factor, boolean force_baseline)`

Allows an arbitrary quantization table to be created. `which_tbl` indicates which table slot to fill. `basic_table` points to an array of 64 unsigned ints given in normal array order. These values are multiplied by `scale_factor/100` and then clamped to the range 1..65535 (or to 1..255 if `force_baseline` is TRUE).

CAUTION: prior to library version

6a, `jpeg_add_quant_table` expected

the basic table to be given in JPEG zigzag order. If you need to write code that works with either older or newer versions of this routine, you must check the library version number. Something like `"#if JPEG_LIB_VERSION >= 61"` is the right test.

`jpeg_simple_progression (j_compress_ptr cinfo)`

Generates a default scan script for writing a progressive-JPEG file.

This is the recommended method of creating a progressive file, unless you want to make a custom scan sequence. You must ensure that the JPEG color space is set correctly before calling this routine.

Compression parameters (`cinfo` fields) include:

`boolean arith_code`

If TRUE, use arithmetic coding.

If FALSE, use Huffman coding.

`int block_size`

Set DCT block size. All N from 1 to 16 are possible.

Default is 8 (baseline format).

Larger values produce higher compression,  
smaller values produce higher quality.

An exact DCT stage is possible with 1 or 2.

With the default quality

of 75 and default Luminance qtable

the DCT+Quantization stage is lossless for value 1.

Note that values other than 8 require a SmartScale capable decoder, introduced with IJG JPEG 8. Setting the `block_size` parameter for compression works with version 8c and later.

`J_DCT_METHOD dct_method`

Selects the algorithm used for the DCT step. Choices are:

JDCT\_ISLOW: slow but accurate integer algorithm

JDCT\_IFAST: faster, less accurate integer method

JDCT\_FLOAT: floating-point method

JDCT\_DEFAULT: default method (normally JDCT\_ISLOW)

JDCT\_FASTEST: fastest method (normally JDCT\_IFAST)

The FLOAT method is very slightly more accurate than the ISLOW method, but may give different results on different machines due to varying roundoff behavior. The integer methods should give the same results on all machines. On machines with sufficiently fast FP hardware, the floating-point method may also be the fastest. The IFAST method is considerably less accurate than the other two; its use is not

recommended if high quality is a concern. JDCT\_DEFAULT and JDCT\_FASTEST are macros configurable by each installation.

unsigned int scale\_num, scale\_denom

Scale the image by the fraction scale\_num/scale\_denom. Default is 1/1, or no scaling. Currently, the supported scaling ratios are M/N with all N from 1 to 16, where M is the destination DCT size, which is 8 by default (see block\_size parameter above).

(The library design allows for arbitrary scaling ratios but this is not likely to be implemented any time soon.)

J\_COLOR\_SPACE jpeg\_color\_space

int num\_components

The JPEG color space and corresponding number of components; see "Special color spaces", below, for more info. We recommend using jpeg\_set\_colorspace() if you want to change these.

J\_COLOR\_TRANSFORM color\_transform

Internal color transform identifier, writes LSE marker if nonzero (requires decoder with inverse color transform support, introduced with IJG JPEG 9).

Two values are currently possible:

JCT\_NONE and JCT\_SUBTRACT\_GREEN.

Set this value for lossless RGB application \*before\* calling jpeg\_set\_colorspace(), because entropy table assignment in jpeg\_set\_colorspace() depends on color\_transform.

boolean optimize\_coding

TRUE causes the compressor to compute optimal Huffman coding tables for the image. This requires an extra pass over the data and therefore costs a good deal of space and time. The default is FALSE, which tells the compressor to use the supplied or default Huffman tables. In most cases optimal tables save only a few percent of file size compared to the default tables. Note that when this is TRUE, you need not supply Huffman tables at all, and any you do



supply will be overwritten.

unsigned int restart\_interval

int restart\_in\_rows

To emit restart markers in the JPEG file, set one of these nonzero.

Set restart\_interval to specify the exact interval in MCU blocks.

Set restart\_in\_rows to specify the interval in MCU rows. (If restart\_in\_rows

is not 0, then restart\_interval is set after the

image width in MCUs is computed.) Defaults are zero (no restarts).

One restart marker per MCU row is often a good choice.

NOTE: the overhead of restart markers is higher in grayscale JPEG files than in color files, and MUCH higher in progressive JPEGs.

If you use restarts, you may want to use larger intervals in those cases.

const jpeg\_scan\_info \* scan\_info

int num\_scans

By default, scan\_info is NULL; this causes the compressor to write a single-scan sequential JPEG file. If not NULL, scan\_info points to

an array of scan definition records of length num\_scans. The

compressor will then write a JPEG file having one scan for each scan

definition record. This is used to generate noninterleaved or

progressive JPEG files. The library checks that the scan array

defines a valid JPEG scan sequence. (jpeg\_simple\_progression creates

a suitable scan definition array for progressive JPEG.) This is

discussed further under "Progressive

JPEG support".

boolean do\_fancy\_downsampling

If TRUE, use direct DCT scaling with DCT size > 8 for downsampling of chroma components.

If FALSE, use only DCT size <= 8 and simple separate downsampling.

Default is TRUE.

For better image stability in multiple generation compression cycles

it is preferable that this value matches the corresponding

do\_fancy\_upsampling value in decompression.

int smoothing\_factor

If non-zero, the input image is smoothed; the value should be 1 for

minimal smoothing to 100 for maximum smoothing. Consult jcsample.c

for details of the smoothing algorithm. The default is zero.

boolean write\_JFIF\_header

If TRUE, a JFIF APP0 marker is emitted. jpeg\_set\_defaults() and

jpeg\_set\_colorspace() set this TRUE if a JFIF-legal JPEG color space

(ie, YCbCr or grayscale) is selected, otherwise FALSE.

UINT8 JFIF\_major\_version

UINT8 JFIF\_minor\_version

The version number to be written into the JFIF marker.

jpeg\_set\_defaults() initializes the version to

1.01 (major=minor=1).

You should set it to 1.02 (major=1, minor=2) if you plan to write any JFIF 1.02 extension markers.

UINT8 density\_unit

UINT16 X\_density

UINT16 Y\_density

The resolution information to be written into the JFIF marker;

not used otherwise. density\_unit may be 0 for unknown,

1 for dots/inch, or 2 for dots/cm. The default values are 0,1,1

indicating square pixels of unknown size.

boolean write\_Adobe\_marker

If TRUE, an Adobe APP14 marker is emitted. jpeg\_set\_defaults() and jpeg\_set\_colorspace() set this TRUE if JPEG color space RGB, CMYK, or YCCK is selected, otherwise FALSE. It is generally a bad idea to set both write\_JFIF\_header and write\_Adobe\_marker. In fact, you probably shouldn't change the default settings at all --- the default behavior ensures that the JPEG file's color space can be recognized by the decoder.

JQUANT\_TBL \* quant\_tbl\_ptrs[NUM\_QUANT\_TBLS]

Pointers to coefficient quantization tables, one per table slot,

or NULL if no table is

defined for a slot. Usually these should

be set via one of the above helper routines; jpeg\_add\_quant\_table()

is general enough to define any quantization table. The other

routines will set up table slot 0 for luminance quality and table

slot 1 for chrominance.

int q\_scale\_factor[NUM\_QUANT\_TBLS]

Linear quantization scaling factors (percentage, initialized 100)

for use with jpeg\_default\_qtables().

See rdswitch.c and cjpeg.c for an example of usage.

Note that the q\_scale\_factor[] fields are the "linear" scales, so you have to convert from user-defined ratings via jpeg\_quality\_scaling().

Here is an example code which corresponds to cjpeg -quality 90,70:

```
jpeg_set_defaults(cinfo);
```

```
/* Set luminance quality 90. */
```

```
cinfo->q_scale_factor[0] = jpeg_quality_scaling(90);
```

```
/* Set chrominance quality 70. */
```

```
cinfo->q_scale_factor[1] = jpeg_quality_scaling(70);
```

```
jpeg_default_qtables(cinfo, force_baseline);
```

CAUTION: You must also set 1x1 subsampling for efficient separate color quality selection, since the default value used by library is 2x2:

```
cinfo->comp_info[0].v_samp_factor = 1;  
cinfo->comp_info[0].h_samp_factor = 1;
```

```
JHUFF_TBL * dc_huff_tbl_ptrs[NUM_HUFF_TBLS]
```

```
JHUFF_TBL * ac_huff_tbl_ptrs[NUM_HUFF_TBLS]
```

Pointers to Huffman coding tables, one per table slot, or NULL if no table is defined for a slot. Slots 0 and 1 are filled with the JPEG sample tables by `jpeg_set_defaults()`. If you need to allocate more table structures, `jpeg_alloc_huff_table()` may be used. Note that optimal Huffman tables can be computed for an image by setting `optimize_coding`, as discussed above; there's seldom any need to mess with providing your own Huffman tables.

The actual dimensions of the JPEG image that will be written to the file are given by the following fields. These are computed from the input image dimensions and the compression parameters by `jpeg_start_compress()`. You can also call `jpeg_calc_jpeg_dimensions()` to obtain the values that will result from

the current parameter settings. This can be useful if you are trying to pick a scaling ratio that will get close to a desired target size.

JDIMENSION `jpeg_width` Actual dimensions of output image.

JDIMENSION `jpeg_height`

Per-component parameters are stored in the struct `cinfo.comp_info[i]` for component number `i`. Note that components here refer to components of the JPEG color space, \*not\* the source image color space. A suitably large `comp_info[]` array is allocated by `jpeg_set_defaults()`; if you choose not to use that routine, it's up to you to allocate the array.

int `component_id`

The one-byte identifier code to be recorded in the JPEG file for this component. For the standard color spaces, we recommend you leave the default values alone.

int `h_samp_factor`

int `v_samp_factor`

Horizontal and vertical sampling factors for the component; must

be 1.4 according to the JPEG standard. Note that larger sampling factors indicate a higher-resolution component; many people find this behavior quite unintuitive. The default values are 2,2 for luminance components and 1,1 for chrominance components, except for grayscale where 1,1 is used.

int quant\_tbl\_no

Quantization table number for component. The default value is 0 for luminance components and 1 for chrominance components.

int dc\_tbl\_no

int ac\_tbl\_no

DC and AC entropy coding table numbers. The default values are 0 for luminance components and 1 for chrominance components.

int component\_index

Must equal the component's index in comp\_info[]. (Beginning in release v6, the compressor library will fill this in automatically; you don't have to.)

#### Decompression parameter selection

-----

Decompression parameter selection is somewhat simpler than compression parameter selection, since all of the JPEG internal parameters are recorded in the source file and need not be supplied by the application. (Unless you are working with abbreviated files, in which case see "Abbreviated datastreams", below.) Decompression parameters control the postprocessing done on the image to deliver it in a format suitable for the application's use. Many of the parameters control speed/quality tradeoffs, in which faster decompression may be obtained at the price of a poorer-quality image. The defaults select the highest quality (slowest) processing.

The following fields in the JPEG object are set by jpeg\_read\_header() and may be useful to the application in choosing decompression parameters:

JDIMENSION image\_width Width and height of image

JDIMENSION image\_height

int num\_components Number of color components

J\_COLOR\_SPACE jpeg\_color\_space Colorspace of image

boolean saw\_JFIF\_marker TRUE if a JFIF APP0 marker was seen

UINT8 JFIF\_major\_version Version information from JFIF marker

UINT8 JFIF\_minor\_version

UINT8 density\_unit Resolution data from JFIF marker

UINT16 X\_density

UINT16 Y\_density

boolean saw\_Adobe\_marker TRUE if an Adobe APP14 marker was seen

UINT8 Adobe\_transform Color transform code from Adobe marker

The JPEG color space, unfortunately, is something of a guess since the JPEG standard proper does not provide a way to record it. In practice most files adhere to the JFIF or Adobe conventions, and the decoder will recognize these correctly. See "Special color spaces", below, for more info.

The decompression parameters that determine the basic properties of the returned image are:

J\_COLOR\_SPACE out\_color\_space

Output color space. jpeg\_read\_header() sets an appropriate default based on jpeg\_color\_space; typically it will be RGB or grayscale.

The application can change this field to request output in a different colorspace. For example, set it to JCS\_GRAYSCALE to get grayscale output from a color file. (This is useful for previewing: grayscale output is faster than full color since the color components need not be processed.) Note that not all possible color space transforms are currently implemented; you may need to extend jdcolor.c if you want an unusual conversion.

unsigned int scale\_num, scale\_denom

Scale the image by the fraction scale\_num/scale\_denom. Currently, the supported scaling ratios are M/N with all M from 1 to 16, where N is the source DCT size, which is 8 for baseline JPEG. (The library design allows for arbitrary scaling ratios but this is not likely to be implemented any time soon.) The values are initialized by jpeg\_read\_header() with the source DCT size. For baseline JPEG this is 8/8. If you change only the scale\_num value while leaving the other unchanged, then this specifies the DCT scaled size to be applied on the given input. For baseline JPEG this is equivalent to M/8 scaling, since the source DCT size for baseline JPEG is 8. Smaller scaling ratios permit significantly faster decoding since fewer pixels need be processed and a simpler IDCT method can be used.

boolean quantize\_colors

If set TRUE, colormapped output will be delivered. Default is FALSE, meaning that full-color output will be delivered.

The next three parameters are relevant only if quantize\_colors is TRUE.

int desired\_number\_of\_colors

Maximum number of colors to use in generating a library-supplied color map (the actual number of colors is returned in a different field).

Default 256. Ignored when the application supplies its own color map.

boolean two\_pass\_quantize

If TRUE, an extra pass over the image is made to select a custom color map for the image. This usually looks a lot better than the one-size-fits-all colormap that is used otherwise. Default is TRUE. Ignored when the application supplies its own color map.

J\_DITHER\_MODE dither\_mode

Selects color dithering method. Supported values are:

JDITHER\_NONE no dithering: fast, very low quality

JDITHER\_ORDERED ordered dither: moderate speed and quality

JDITHER\_FS Floyd-Steinberg dither: slow, high quality

Default is JDITHER\_FS. (At present, ordered dither is implemented only in the

single-pass, standard-colormap case. If you ask for

ordered dither when two\_pass\_quantize is TRUE or when you supply an external color map, you'll get F-S dithering.)

When quantize\_colors is TRUE, the target color map is described by the next two fields. colormap is set to NULL by jpeg\_read\_header(). The application can supply a color map by setting colormap non-NULL and setting actual\_number\_of\_colors to the map size. Otherwise, jpeg\_start\_decompress() selects a suitable color map and sets these two fields itself.

[Implementation restriction: at present, an externally supplied colormap is only accepted for 3-component output color spaces.]

JSAMPARRAY colormap

The color map, represented as a 2-D pixel array of out\_color\_components rows and actual\_number\_of\_colors columns. Ignored if not quantizing.

CAUTION: if the JPEG library creates its own colormap, the storage pointed to by this field is released by jpeg\_finish\_decompress().

Copy the colormap somewhere else first, if you want to save it.

int actual\_number\_of\_colors

The number of colors in the color map.

Additional decompression parameters that the application may set include:

J\_DCT\_METHOD dct\_method

Selects the algorithm used for the DCT step. Choices are the same as described above for compression.

boolean do\_fancy\_upsampling

If TRUE, use direct DCT scaling with DCT size > 8 for upsampling of chroma components.

If FALSE, use only DCT size <= 8 and simple separate upsampling. Default is TRUE.

For better image stability in multiple generation compression cycles it is preferable that this value matches the corresponding `do_fancy_downsampling` value in compression.

boolean `do_block_smoothing`

If TRUE, interblock smoothing is applied in early stages of decoding progressive JPEG files; if FALSE, not. Default is TRUE. Early progression stages look "fuzzy" with smoothing, "blocky" without. In any case, block smoothing ceases to be applied after the first few AC coefficients are known to full accuracy, so it is relevant only when using buffered-image mode for progressive images.

boolean `enable_1pass_quant`

boolean `enable_external_quant`

boolean `enable_2pass_quant`

These are significant only in buffered-image mode, which is described in its own section below.

The output image dimensions are given by the following fields. These are computed from the source image dimensions and the decompression parameters by `jpeg_start_decompress()`. You can also call `jpeg_calc_output_dimensions()` to obtain the values that will result from the current parameter settings.

This can be useful if you are trying to pick a scaling ratio that will get close to a desired target size. It's also important if you are using the JPEG library's memory manager to allocate output buffer space, because you are supposed to request such buffers *before* `jpeg_start_decompress()`.

JDIMENSION `output_width` Actual dimensions of output image.

JDIMENSION `output_height`

int `out_color_components` Number of color components in `out_color_space`.

int `output_components` Number of color components returned.

int `rec_outbuf_height` Recommended height of scanline buffer.

When quantizing colors, `output_components` is 1, indicating a single color map index per pixel. Otherwise it equals `out_color_components`. The output arrays are required to be `output_width * output_components` JSAMPLEs wide.

`rec_outbuf_height` is the recommended minimum height (in scanlines) of the buffer passed to `jpeg_read_scanlines()`. If the buffer is smaller, the library will still work, but time will be wasted due to unnecessary data copying. In high-quality modes, `rec_outbuf_height` is always 1, but some

faster, lower-quality modes set it to larger values (typically 2 to 4).  
If you are going to ask for a high-speed processing mode, you may as well go to the trouble of honoring `rec_outbuf_height` so as to avoid data copying. (An output buffer larger than `rec_outbuf_height` lines is OK, but won't provide any material speed improvement over that height.)

## Special color spaces

-----

The JPEG standard itself is "color blind" and doesn't specify any particular color space. It is customary to convert color data to a luminance/chrominance color space before compressing, since this permits greater compression. The existing JPEG file interchange format standards specify YCbCr or GRAYSCALE data (JFIF version 1), GRAYSCALE, RGB, YCbCr, CMYK, or YCCK (Adobe), or BG\_RGB or BG\_YCC (big gamut color spaces, JFIF version 2). For special applications such as multispectral images, other color spaces can be used, but it must be understood that such files will be unportable.

The JPEG library can handle the most common colorspace conversions (namely RGB  $\Leftrightarrow$  YCbCr and CMYK  $\Leftrightarrow$  YCCK). It can also deal with data of an unknown color space, passing it through without conversion. If you deal extensively with an unusual color space, you can easily extend the library to understand additional color spaces and perform appropriate conversions.

For compression, the source data's color space is specified by field `in_color_space`. This is transformed to the JPEG file's color space given by `jpeg_color_space`. `jpeg_set_defaults()` chooses a reasonable JPEG color space depending on `in_color_space`, but you can override this by calling `jpeg_set_colorspace()`. Of course you must select a supported transformation. `jccolor.c` currently supports the following transformations:

RGB  $\Rightarrow$  YCbCr

RGB  $\Rightarrow$  GRAYSCALE

RGB  $\Rightarrow$  BG\_YCC

YCbCr  $\Rightarrow$  GRAYSCALE

YCbCr  $\Rightarrow$  BG\_YCC

CMYK  $\Rightarrow$  YCCK

plus the null transforms: GRAYSCALE  $\Rightarrow$  GRAYSCALE, RGB  $\Rightarrow$  RGB, BG\_RGB  $\Rightarrow$  BG\_RGB, YCbCr  $\Rightarrow$  YCbCr, BG\_YCC  $\Rightarrow$  BG\_YCC, CMYK  $\Rightarrow$  CMYK, YCCK  $\Rightarrow$  YCCK, and UNKNOWN  $\Rightarrow$  UNKNOWN.

The file interchange format standards (JFIF and Adobe) specify APPn markers that indicate the color space of the JPEG file. It is important to ensure that these are written correctly, or omitted if the JPEG file's color space is not one of the ones supported by the interchange



standards.

`jpeg_set_colorspace()` will set the compression parameters to include or omit the APPn markers properly, so long as it is told the truth about the JPEG color space. For example, if you are writing some random 3-component color space without conversion, don't try to fake out the library by setting `in_color_space` and `jpeg_color_space` to `JCS_YCbCr`; use `JCS_UNKNOWN`. You may want to write an APPn marker of your own devising to identify the colorspace --- see "Special markers", below.

When told that the color space is `UNKNOWN`, the library will default to using luminance-quality compression parameters for all color components. You may well want to change these parameters. See the source code for `jpeg_set_colorspace()`, in `jcparam.c`, for details.

For decompression, the JPEG file's color space is given in `jpeg_color_space`, and this is transformed to the output color space `out_color_space`. `jpeg_read_header`'s setting of `jpeg_color_space` can be relied on if the file conforms to JFIF

or Adobe conventions, but otherwise it is no better than a guess. If you know the JPEG file's color space for certain, you can override `jpeg_read_header`'s guess by setting `jpeg_color_space`. `jpeg_read_header` also selects a default output color space based on (its guess of) `jpeg_color_space`; set `out_color_space` to override this. Again, you must select a supported transformation. `jdcolor.c` currently supports

`YCbCr => RGB`

`YCbCr => GRAYSCALE`

`BG_YCC => RGB`

`BG_YCC => GRAYSCALE`

`RGB => GRAYSCALE`

`GRAYSCALE => RGB`

`YCCK => CMYK`

as well as the null transforms. (Since `GRAYSCALE=>RGB` is provided, an application can force grayscale JPEGs to look like color JPEGs if it only wants to handle one case.)

The two-pass color quantizer, `jquant2.c`, is specialized to handle RGB data (it weights distances appropriately for RGB colors). You'll need to modify the code if you want to use it for non-RGB output color spaces. Note that `jquant2.c` is used to map to an application-supplied colormap as well as for the normal two-pass colormap selection process.

**CAUTION:** it appears that Adobe Photoshop writes inverted data in CMYK JPEG files: 0 represents 100% ink coverage, rather than 0% ink as you'd expect. This is arguably a bug in Photoshop, but if you need to work with Photoshop CMYK files, you will have to deal with it in your application. We cannot "fix" this in the library by inverting the data during the `CMYK<=>YCCK` transform, because that would break other applications, notably Ghostscript.

Photoshop versions prior to 3.0 write EPS files containing JPEG-encoded CMYK data in the same inverted-YCCK representation used in bare JPEG files, but the surrounding PostScript code performs an inversion using the PS image operator. I am told that Photoshop 3.0 will write uninverted YCCK in EPS/JPEG files, and will omit the PS-level inversion. (But the data polarity used in bare JPEG files will not change in 3.0.) In either case, the JPEG library must not invert the data itself, or else

Ghostscript would read these EPS files incorrectly.

## Error handling

-----

When the default error handler is used, any error detected inside the JPEG routines will cause a message to be printed on stderr, followed by exit(). You can supply your own error handling routines to override this behavior and to control the treatment of nonfatal warnings and trace/debug messages. The file `example.c` illustrates the most common case, which is to have the application regain control after an error rather than exiting.

The JPEG library never writes any message directly; it always goes through the error handling routines. Three classes of messages are recognized:

- \* Fatal errors: the library cannot continue.
- \* Warnings: the library can continue, but the data is corrupt, and a damaged output image is likely to result.
- \* Trace/informational messages. These come with a trace level indicating the importance of the message; you can control the verbosity of the program by adjusting the maximum trace level that will be displayed.

You may, if you wish, simply replace the entire JPEG error handling module (`jerror.c`) with your own code. However, you can avoid code duplication by only replacing some of the routines depending on the behavior you need. This is accomplished by calling `jpeg_std_error()` as usual, but then overriding some of the method pointers in the `jpeg_error_mgr` struct, as illustrated by `example.c`.

All of the error handling routines will receive a pointer to the JPEG object (a `j_common_ptr` which points to either a `jpeg_compress_struct` or a `jpeg_decompress_struct`; if you need to tell which, test the `is_decompressor` field). This struct includes a pointer to the error manager struct in its "err" field. Frequently, custom error handler routines will need to access additional data which is not known to the JPEG library or the standard error handler. The most convenient way to do this is to embed either the JPEG object or the `jpeg_error_mgr` struct in a larger structure that contains additional fields; then casting the passed pointer provides access to the

additional fields. Again, see `example.c` for one way to do it. (Beginning with IJG version 6b, there is also a void pointer "client\_data" in each JPEG object, which the application can also use to find related data. The library does not touch client\_data at all.)

The individual methods that you might wish to override are:

`error_exit (j_common_ptr cinfo)`

Receives control for a fatal error. Information sufficient to generate the error message has been stored in `cinfo->err`; call `output_message` to display it. Control must NOT return to the caller; generally this routine will `exit()` or `longjmp()` somewhere. Typically you would override this routine to get rid of the `exit()` default behavior. Note that if you continue processing, you should clean up the JPEG object with `jpeg_abort()` or `jpeg_destroy()`.

`output_message (j_common_ptr cinfo)`

Actual output of any JPEG message.

Override this to send messages somewhere other than `stderr`. Note that this method does not know how to generate a message, only where to send it.

`format_message (j_common_ptr cinfo, char * buffer)`

Constructs a readable error message string based on the error info stored in `cinfo->err`. This method is called by `output_message`. Few applications should need to override this method. One possible reason for doing so is to implement dynamic switching of error message language.

`emit_message (j_common_ptr cinfo, int msg_level)`

Decide whether or not to emit a warning or trace message; if so, calls `output_message`. The main reason for overriding this method would be to abort on warnings. `msg_level` is -1 for warnings, 0 and up for trace messages.

Only `error_exit()` and `emit_message()` are called from the rest of the JPEG library; the other two are internal to the error handler.

The actual message texts are stored in an array of strings which is pointed to by the field `err->jpeg_message_table`.

The messages are numbered from 0 to `err->last_jpeg_message`, and it is these code numbers that are used in the JPEG library code. You could replace the message texts (for instance, with messages in French or German) by changing the message table pointer. See `jerror.h` for the default texts. CAUTION: this table will almost certainly change or grow from one library version to the next.

It may be useful for an application to add its own message texts that are

handled by the same mechanism. The error handler supports a second "add-on" message table for this purpose. To define an addon table, set the pointer `err->addon_message_table` and the message numbers `err->first_addon_message` and `err->last_addon_message`. If you number the addon messages beginning at 1000 or so, you won't have to worry about conflicts with the library's built-in messages. See the sample applications `cjpeg/djpeg` for an example of using addon messages (the addon messages are defined in `cderror.h`).

Actual

invocation of the error handler is done via macros defined in `jerror.h`:

`ERREXITn(...)` for fatal errors

`WARNMSn(...)` for corrupt-data warnings

`TRACEMSn(...)` for trace and informational messages.

These macros store the message code and any additional parameters into the error handler struct, then invoke the `error_exit()` or `emit_message()` method.

The variants of each macro are for varying numbers of additional parameters.

The additional parameters are inserted into the generated message using standard `printf()` format codes.

See `jerror.h` and `jerror.c` for further details.

Compressed data handling (source and destination managers)

-----

The JPEG compression library sends its compressed data to a "destination manager" module. The default destination manager just writes the data to a memory buffer or to a stdio stream, but you can provide your own manager to do something else. Similarly, the decompression library calls a "source manager" to obtain the compressed data; you can provide your own source manager if you want the data to come from somewhere other than a memory buffer or a stdio stream.

In both cases, compressed data is processed a bufferload at a time: the destination or source manager provides a work buffer, and the library invokes the manager only when the buffer is filled or emptied. (You could define a one-character buffer to force the manager to be invoked for each byte, but that would be rather inefficient.) The buffer's size and location are controlled by the manager, not by the library. For example, the memory source manager just makes the buffer pointer and length point to the original data in memory. In this case the buffer-reload procedure will be invoked only if the decompressor ran off the end of the datastream, which would indicate an erroneous datastream.

The work buffer is defined as an array of datatype `JOCTET`, which is generally "char" or "unsigned char". On a machine

where char is not exactly 8 bits wide, you must define JOCTET as a wider data type and then modify the data source and destination modules to transcribe the work arrays into 8-bit units on external storage.

A data destination manager struct contains a pointer and count defining the next byte to write in the work buffer and the remaining free space:

```
JOCTET * next_output_byte; /* => next byte to write in buffer */
size_t free_in_buffer;    /* # of byte spaces remaining in buffer */
```

The library increments the pointer and decrements the count until the buffer is filled. The manager's empty\_output\_buffer method must reset the pointer and count. The manager is expected to remember the buffer's starting address and total size in private fields not visible to the library.

A data destination manager provides three methods:

init\_destination (j\_compress\_ptr cinfo)

Initialize destination. This is called by jpeg\_start\_compress() before any data is actually written. It must initialize next\_output\_byte and free\_in\_buffer. free\_in\_buffer must be initialized to a positive value.

empty\_output\_buffer (j\_compress\_ptr cinfo)

This is called whenever the buffer has filled (free\_in\_buffer reaches zero). In typical applications, it should write out the \*entire\* buffer (use the saved start address and buffer length; ignore the current state of next\_output\_byte and free\_in\_buffer). Then reset the pointer & count to the start of the buffer, and return TRUE indicating that the buffer has been dumped. free\_in\_buffer must be set to a positive value when TRUE is returned. A FALSE return should only be used when I/O suspension is desired (this operating mode is discussed in the next section).

term\_destination (j\_compress\_ptr cinfo)

Terminate destination --- called by jpeg\_finish\_compress() after all data has been written. In most applications, this must flush any data remaining in the buffer. Use either next\_output\_byte or free\_in\_buffer to determine how much data is in the buffer.

term\_destination() is NOT called by jpeg\_abort() or jpeg\_destroy(). If you want the destination manager to be cleaned up during an abort, you must do it yourself.

You will also need code to create a jpeg\_destination\_mgr struct, fill in its

method pointers, and insert a pointer to the struct into the "dest" field of the JPEG compression object. This can be done in-line in your setup code if you like, but it's probably cleaner to provide a separate routine similar to the `jpeg_stdio_dest()` or `jpeg_mem_dest()` routines of the supplied destination managers.

Decompression source managers follow a parallel design, but with some additional frammishes. The source manager struct contains a pointer and count defining the next byte to read from the work buffer and the number of bytes remaining:

```
const JOCTET * next_input_byte; /* => next byte to read from buffer */
size_t bytes_in_buffer;      /* # of bytes remaining in buffer */
```

The library increments the pointer and decrements the count until the buffer is emptied. The manager's `fill_input_buffer` method must reset the pointer and count. In most applications, the manager must remember the buffer's starting address and total size in private fields not visible to the library.

A data source manager provides five methods:

`init_source (j_decompress_ptr cinfo)`

Initialize source. This is called by `jpeg_read_header()` before any data is actually read. Unlike `init_destination()`, it may leave `bytes_in_buffer` set to 0 (in which case a `fill_input_buffer()` call will occur immediately).

`fill_input_buffer (j_decompress_ptr cinfo)`

This is called whenever `bytes_in_buffer` has reached zero and more data is wanted. In typical applications, it should read fresh data into the buffer (ignoring the current state of `next_input_byte` and `bytes_in_buffer`), reset the pointer & count to the start of the buffer, and return `TRUE` indicating that the buffer has been reloaded. It is not necessary to fill the buffer entirely, only to obtain at least one more byte. `bytes_in_buffer` **MUST** be set to a positive value if `TRUE` is returned. A `FALSE` return should only be used when I/O suspension is desired (this mode is discussed in the next section).

`skip_input_data (j_decompress_ptr cinfo, long num_bytes)`

Skip `num_bytes` worth of data. The buffer pointer and count should be advanced over `num_bytes` input bytes, refilling the buffer as needed. This is used to skip over a potentially large amount of uninteresting data (such as an APPn marker). In some applications it may be possible to optimize away the reading of the skipped data, but it's not clear that being smart is worth much trouble; large skips are uncommon. `bytes_in_buffer` may be zero on return.

A zero or negative skip count should be treated as a no-op.

`resync_to_restart (j_decompress_ptr cinfo, int desired)`

This routine is called only when the decompressor has failed to find a restart (RSTn) marker where one is expected. Its

mission is to

find a suitable point for resuming decompression. For most applications, we recommend that you just use the default resync procedure, `jpeg_resync_to_restart()`. However, if you are able to back up in the input data stream, or if you have a-priori knowledge about the likely location of restart markers, you may be able to do better. Read the `read_restart_marker()` and `jpeg_resync_to_restart()` routines in `jdmarker.c` if you think you'd like to implement your own resync procedure.

`term_source (j_decompress_ptr cinfo)`

Terminate source --- called by `jpeg_finish_decompress()` after all data has been read. Often a no-op.

For both `fill_input_buffer()` and `skip_input_data()`, there is no such thing as an EOF return. If the end of the file has been reached, the routine has a choice of exiting via `ERREXIT()` or inserting fake data into the buffer. In most cases, generating a warning message and inserting a fake EOI marker is the best course of action --- this will allow the decompressor to output however much of the image is there. In pathological cases, the decompressor may swallow the EOI and again demand data ... just keep feeding it fake EOIs. `jdatsrc.c` illustrates the recommended error recovery behavior.

`term_source()` is NOT called by `jpeg_abort()` or `jpeg_destroy()`. If you want the source manager to be cleaned up during an abort, you must do it yourself.

You will also need code to create a `jpeg_source_mgr` struct, fill in its method pointers, and insert a pointer to the struct into the "src" field of the JPEG decompression object. This can be done in-line in your setup code if you like, but it's probably cleaner to provide a separate routine similar to the `jpeg_stdio_src()` or `jpeg_mem_src()` routines of the supplied source managers.

For more information, consult the memory and stdio source and destination managers in `jdatsrc.c` and `jdadst.c`.

I/O suspension

-----

Some applications need to use the JPEG library as an incremental memory-to-memory

filter: when the compressed data buffer is filled or emptied, they want control to return to the outer loop, rather than expecting that the buffer can be emptied or reloaded within the data source/destination manager subroutine. The library supports this need by providing an "I/O suspension" mode, which we describe in this section.

The I/O suspension mode is not a panacea: nothing is guaranteed about the maximum amount of time spent in any one call to the library, so it will not eliminate response-time problems in single-threaded applications. If you need guaranteed response time, we suggest you "bite the bullet" and implement a real multi-tasking capability.

To use I/O suspension, cooperation is needed between the calling application and the data source or destination manager; you will always need a custom source/destination manager. (Please read the previous section if you haven't already.) The basic idea is that the `empty_output_buffer()` or `fill_input_buffer()` routine is a no-op, merely returning `FALSE` to indicate that it has done nothing. Upon seeing this, the JPEG library suspends operation and returns to its caller. The surrounding application is responsible for emptying or refilling the work buffer before calling the JPEG library again.

Compression suspension:

For compression suspension, use an `empty_output_buffer()` routine that returns `FALSE`; typically it will not do anything else. This will cause the compressor to return to the caller of `jpeg_write_scanlines()`, with the return value indicating that not all the supplied scanlines have been accepted. The application must make more room in the output buffer, adjust the output buffer pointer/count appropriately, and then call `jpeg_write_scanlines()` again, pointing to the first unconsumed scanline.

When forced to suspend, the compressor will backtrack to a convenient stopping point (usually the start of the current MCU); it will regenerate some output data when restarted. Therefore, although `empty_output_buffer()` is only called when the buffer is filled, you should NOT write out the entire buffer after a suspension. Write only the data up to the current position of `next_output_byte/free_in_buffer`. The data beyond that point will be regenerated after resumption.

Because of the backtracking behavior, a good-size output buffer is essential for efficiency; you don't want the compressor to suspend often. (In fact, an overly small buffer could lead to infinite looping, if a single MCU required more data than would fit in the buffer.) We recommend a buffer of at least several Kbytes. You may want to insert explicit code to ensure that you don't call `jpeg_write_scanlines()` unless there is a reasonable amount of space in



the output buffer; in other words, flush the buffer before trying to compress more data.

The compressor does not allow suspension while it is trying to write JPEG markers at the beginning and end of the file. This means that:

- \* At the beginning of a compression operation, there must be enough free space in the output buffer to hold the header markers (typically 600 or so bytes). The recommended buffer size is bigger than this anyway, so this is not a problem as long as you start with an empty buffer. However, this restriction might catch you if you insert large special markers, such as a JFIF thumbnail image, without flushing the buffer afterwards.
- \* When you call `jpeg_finish_compress()`, there must be enough space in the output buffer to emit any buffered data and the final EOI marker. In the current implementation, half a dozen bytes should suffice for this, but for safety's sake we recommend ensuring that at least 100 bytes are free before calling `jpeg_finish_compress()`.

A more significant restriction is that `jpeg_finish_compress()` cannot suspend. This means you cannot use suspension with multi-pass operating modes, namely Huffman code optimization and multiple-scan output. Those modes write the whole file during `jpeg_finish_compress()`, which will certainly result in buffer overrun. (Note that this restriction applies only to compression, not decompression. The decompressor supports input suspension in all of its operating modes.)

Decompression suspension:

For decompression suspension, use a `fill_input_buffer()` routine that simply returns `FALSE` (except perhaps during error recovery, as discussed below). This will cause the decompressor to return to its caller with an indication that suspension has occurred. This can happen at four places:

- \* `jpeg_read_header()`: will return `JPEG_SUSPENDED`.
- \* `jpeg_start_decompress()`: will return `FALSE`, rather than its usual `TRUE`.
- \* `jpeg_read_scanlines()`: will return the number of scanlines already completed (possibly 0).
- \* `jpeg_finish_decompress()`: will return `FALSE`, rather than its usual `TRUE`.

The surrounding application must recognize these cases, load more data into the input buffer, and repeat the call. In the case of `jpeg_read_scanlines()`, increment the passed pointers past any scanlines successfully read.

Just as with compression, the decompressor will typically backtrack to a convenient restart point before suspending. When `fill_input_buffer()` is called, `next_input_byte/bytes_in_buffer` point to the current restart point, which is where the decompressor will backtrack to if `FALSE` is returned. The data beyond that position must NOT be discarded if you suspend; it needs

to be re-read upon resumption. In most implementations, you'll need to shift this data down to the start of your work buffer and then load more data after it. Again, this behavior means that a several-Kbyte work buffer is essential for decent performance; furthermore, you should load a reasonable amount of new data before resuming decompression. (If you loaded, say, only one new byte each time around, you could waste a LOT of cycles.)

The `skip_input_data()` source manager routine requires special care in a suspension scenario.

This routine is NOT granted the ability to suspend the decompressor; it can decrement `bytes_in_buffer` to zero, but no more. If the requested skip distance exceeds the amount of data currently in the input buffer, then `skip_input_data()` must set `bytes_in_buffer` to zero and record the additional skip distance somewhere else. The decompressor will immediately call `fill_input_buffer()`, which should return `FALSE`, which will cause a suspension return. The surrounding application must then arrange to discard the recorded number of bytes before it resumes loading the input buffer. (Yes, this design is rather baroque, but it avoids complexity in the far more common case where a non-suspending source manager is used.)

If the input data has been exhausted, we recommend that you emit a warning and insert dummy EOI markers just as a non-suspending data source manager would do. This can be handled either in the surrounding application logic or within `fill_input_buffer()`; the latter is probably more efficient. If `fill_input_buffer()` knows that no more data is available, it can set the pointer/count to point to a dummy EOI marker and then return `TRUE` just as though it had read more data in a non-suspending situation.

The decompressor does not attempt to suspend within standard JPEG markers; instead it will backtrack to the start of the marker and reprocess the whole marker next time. Hence the input buffer must be large enough to hold the longest standard marker in the file. Standard JPEG markers should normally not exceed a few hundred bytes each (DHT tables are typically the longest). We recommend at least a 2K buffer for performance reasons, which is much larger than any correct marker is likely to be. For robustness against damaged marker length counts, you may wish to insert a test in your application for the case that the input buffer is completely full and yet the decoder has suspended without consuming any data --- otherwise, if this situation did occur, it would lead to an endless loop. (The library can't provide this test since it has no idea whether "the buffer is full", or even whether there is a fixed-size input buffer.)

The input buffer would need to be 64K to allow for arbitrary COM or APPn markers, but these are handled specially: they are either saved into allocated memory, or skipped over by calling `skip_input_data()`. In the former case, suspension is handled correctly, and in the latter case, the problem of

buffer overrun is placed on skip\_input\_data's shoulders, as explained above. Note that if you provide your own marker handling routine for large markers, you should consider how to deal with buffer overflow.

#### Multiple-buffer management:

In some applications it is desirable to store the compressed data in a linked list of buffer areas, so as to avoid data copying. This can be handled by having empty\_output\_buffer() or fill\_input\_buffer() set the pointer and count to reference the next available buffer; FALSE is returned only if no more buffers are available. Although seemingly straightforward, there is a pitfall in this approach: the backtrack that occurs when FALSE is returned could back up into an earlier buffer. For example, when fill\_input\_buffer() is called, the current pointer & count indicate the backtrack restart point. Since fill\_input\_buffer() will set the pointer and count to refer to a new buffer, the restart position must be saved somewhere else. Suppose a second call to fill\_input\_buffer() occurs in the same library call, and no additional input data is available, so fill\_input\_buffer must return FALSE. If the JPEG library has not moved the pointer/count forward in the current buffer, then \*the correct restart point is the saved position in the prior buffer\*. Prior buffers may be discarded only after the library establishes a restart point within a later buffer. Similar remarks apply for output into a chain of buffers.

The library will never attempt to backtrack over a skip\_input\_data() call, so any skipped data can be permanently discarded. You still have to deal with the case of skipping not-yet-received data, however.

It's much simpler to use only a single buffer; when fill\_input\_buffer() is called, move any unconsumed data (beyond the current pointer/count) down to the beginning of this buffer and then load new data into the remaining buffer space. This approach requires a little more data copying but is far easier to get right.

#### Progressive JPEG support

-----

Progressive JPEG rearranges the stored data into a series of scans of increasing quality. In situations where a JPEG file is transmitted across a slow communications link, a decoder can generate a low-quality image very quickly from the first scan, then gradually improve the displayed quality as more scans are received. The final image after all scans are complete is identical to that of a regular (sequential) JPEG file of the same quality setting. Progressive JPEG files are often

slightly smaller than equivalent sequential JPEG files, but the possibility of incremental display is the main reason for using progressive JPEG.

The IJG encoder library generates progressive JPEG files when given a suitable "scan script" defining how to divide the data into scans. Creation of progressive JPEG files is otherwise transparent to the encoder. Progressive JPEG files can also be read transparently by the decoder library. If the decoding application simply uses the library as defined above, it will receive a final decoded image without any indication that the file was progressive. Of course, this approach does not allow incremental display. To perform incremental display, an application needs to use the decoder library's "buffered-image" mode, in which it receives a decoded image multiple times.

Each displayed scan requires about as much work to decode as a full JPEG image of the same size, so the decoder must be fairly fast in relation to the data transmission rate in order to make incremental display useful. However, it is possible to skip displaying the image and simply add the incoming bits to the decoder's coefficient buffer. This is fast because only Huffman decoding need be done, not IDCT, upsampling, colorspace conversion, etc. The IJG decoder library allows the application to switch dynamically between displaying the image and simply absorbing the incoming bits. A properly coded application can automatically adapt the number of display passes to suit the time available as the image is received. Also, a final higher-quality display cycle can be performed from the buffered data after the end of the file is reached.

Progressive compression:

To create a progressive JPEG file (or a multiple-scan sequential JPEG file), set the scan\_info cinfo field to point to an array of scan descriptors, and perform compression as usual. Instead of constructing your own scan list, you can call the jpeg\_simple\_progression() helper routine to create a recommended progression sequence; this method should be used by all applications that don't want to get involved in the nitty-gritty of progressive scan sequence design. (If you want to provide user control of scan sequences, you may wish to borrow the scan script reading code found in rdswitch.c, so that you can read scan script files just like cjpeg's.) When scan\_info is not NULL, the compression library will store DCT'd data into a buffer array as jpeg\_write\_scanlines() is called, and will emit all the requested scans during jpeg\_finish\_compress(). This implies that multiple-scan output cannot be created with a suspending data destination manager, since jpeg\_finish\_compress() does not support suspension. We should also note that the compressor currently forces Huffman optimization mode when creating a progressive JPEG file, because the default Huffman

tables are unsuitable for progressive files.

Progressive decompression:

When buffered-image mode is not used, the decoder library will read all of a multi-scan file during `jpeg_start_decompress()`, so that it can provide a final decoded image. (Here "multi-scan" means either progressive or multi-scan sequential.) This makes multi-scan files transparent to the decoding application. However, existing applications that used suspending input with version 5 of the IJG library will need to be modified to check for a suspension return from `jpeg_start_decompress()`.

To perform incremental display, an application must use the library's buffered-image mode. This is described in the next section.

Buffered-image mode

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In buffered-image mode, the library stores the partially decoded image in a coefficient buffer, from which it can be read out as many times as desired. This mode is typically used for incremental display of progressive JPEG files, but it can be used with any JPEG file. Each scan of a progressive JPEG file adds more data (more detail) to the buffered image. The application can display in lockstep with the source file (one display pass per input scan), or it can allow input processing to outrun display processing. By making input and display processing run independently, it is possible for the application to adapt progressive display to a wide range of data transmission rates.

The basic control flow for buffered-image decoding is

```
jpeg_create_decompress()
set data source
jpeg_read_header()
set overall decompression parameters
cinfo.buffered_image = TRUE; /* select buffered-image mode */
jpeg_start_decompress()
for (each output pass) {
    adjust output decompression parameters if required
    jpeg_start_output() /* start a new output pass */
    for (all scanlines in image) {
        jpeg_read_scanlines()
        display scanlines
    }
    jpeg_finish_output() /* terminate output pass */
```

```
}  
jpeg_finish_decompress()  
jpeg_destroy_decompress()
```

This differs from ordinary unbuffered decoding in that there is an additional level of looping. The application can choose how many output passes to make and how to display each pass.

The simplest approach to displaying progressive images is to do one display pass for each scan appearing in the input file. In this case the outer loop condition is typically

```
while (! jpeg_input_complete(&cinfo))  
and the start-output call should read  
jpeg_start_output(&cinfo, cinfo.input_scan_number);
```

The second parameter to `jpeg_start_output()` indicates which scan of the input file is to be displayed; the scans are numbered starting at 1 for this purpose. (You can use a loop counter starting at 1 if you like, but using the library's input scan counter is easier.) The library automatically reads data as necessary to complete each requested scan, and `jpeg_finish_output()` advances to the next scan or end-of-image marker (hence `input_scan_number` will be incremented by the time control arrives back at `jpeg_start_output()`). With this technique, data is read from the input file only as needed, and input and output processing run in lockstep.

After reading the final scan and reaching the end of the input file, the buffered image remains available; it can be read additional times by repeating the `jpeg_start_output()/jpeg_read_scanlines()/jpeg_finish_output()` sequence. For example, a useful technique is to use fast one-pass color quantization for display passes made while the image is arriving, followed by a final display pass using two-pass quantization for highest quality. This is done by changing the library parameters before the final output pass. Changing parameters between passes is discussed in detail below.

In general the last scan of a progressive file cannot be recognized as such until after it is read, so a post-input display pass is the best approach if you want special processing in the final pass.

When done with the image, be sure to call `jpeg_finish_decompress()` to release the buffered image (or just use `jpeg_destroy_decompress()`).

If input data arrives faster than it can be displayed, the application can cause the library to decode input data in advance of what's needed to produce output. This is done by calling the routine `jpeg_consume_input()`.

The return value is one of the following:

`JPEG_REACHED_SOS`: reached an SOS marker (the start of a new scan)

JPEG\_REACHED\_EOI: reached the EOI marker (end of image)  
JPEG\_ROW\_COMPLETED: completed reading one MCU row of compressed data  
JPEG\_SCAN\_COMPLETED: completed reading last MCU row of current scan  
JPEG\_SUSPENDED: suspended before completing any of the above  
(JPEG\_SUSPENDED can occur only if a suspending data source is used.) This routine can be called at any time after initializing the JPEG object. It reads some additional data and returns when one of the indicated significant events occurs. (If called after the EOI marker is reached, it will immediately return JPEG\_REACHED\_EOI without attempting to read more data.)

The library's output processing will automatically call `jpeg_consume_input()` whenever

the output processing overtakes the input; thus, simple lockstep display requires no direct calls to `jpeg_consume_input()`. But by adding calls to `jpeg_consume_input()`, you can absorb data in advance of what is being displayed. This has two benefits:

- \* You can limit buildup of unprocessed data in your input buffer.
- \* You can eliminate extra display passes by paying attention to the state of the library's input processing.

The first of these benefits only requires interspersing calls to `jpeg_consume_input()` with your display operations and any other processing you may be doing. To avoid wasting cycles due to backtracking, it's best to call `jpeg_consume_input()` only after a hundred or so new bytes have arrived. This is discussed further under "I/O suspension", above. (Note: the JPEG library currently is not thread-safe. You must not call `jpeg_consume_input()` from one thread of control if a different library routine is working on the same JPEG object in another thread.)

When input arrives fast enough that more than one new scan is available before you start a new output pass, you may as well skip the output pass corresponding to the completed scan. This occurs for free if you pass `cinfo.input_scan_number` as the target scan number to `jpeg_start_output()`. The `input_scan_number` field is simply the index of the scan currently being consumed by the input processor. You can ensure that this is up-to-date by emptying the input buffer just before calling `jpeg_start_output()`: call `jpeg_consume_input()` repeatedly until it returns `JPEG_SUSPENDED` or `JPEG_REACHED_EOI`.

The target scan number passed to `jpeg_start_output()` is saved in the `cinfo.output_scan_number` field. The library's output processing calls `jpeg_consume_input()` whenever the current input scan number and row within that scan is less than or equal to the current output scan number and row. Thus, input processing can "get ahead" of the output processing but is not allowed to "fall behind".

You can achieve several different effects by manipulating this interlock rule. For example, if you pass a target scan

number greater than the current input scan number, the output processor will wait until that scan starts to arrive before producing any output. (To avoid an infinite loop, the target scan number is automatically reset to the last scan number when the end of image is reached. Thus, if you specify a large target scan number, the library will just absorb the entire input file and then perform an output pass. This is effectively the same as what `jpeg_start_decompress()` does when you don't select buffered-image mode.) When you pass a target scan number equal to the current input scan number, the image is displayed no faster than the current input scan arrives. The final possibility is to pass a target scan number less than the current input scan number; this disables the input/output interlock and causes the output processor to simply display whatever it finds in the image buffer, without waiting for input. (However, the library will not accept a target scan number less than one, so you can't avoid waiting for the first scan.)

When data is arriving faster than the output display processing can advance through the image, `jpeg_consume_input()` will store data into the buffered image beyond the point at which the output processing is reading data out again. If the input arrives fast enough, it may "wrap around" the buffer to the point where the input is more than one whole scan ahead of the output. If the output processing simply proceeds through its display pass without paying attention to the input, the effect seen on-screen is that the lower part of the image is one or more scans better in quality than the upper part. Then, when the next output scan is started, you have a choice of what target scan number to use. The recommended choice is to use the current input scan number at that time, which implies that you've skipped the output scans corresponding to the input scans that were completed while you processed the previous output scan. In this way, the decoder automatically adapts its speed to the arriving data, by skipping output scans as necessary to keep up with the arriving data.

When using this strategy, you'll want to be sure that you perform a final output pass after receiving all the data; otherwise your last display may not be full quality across the whole screen. So the right outer loop logic is something like this:

```
do {
    absorb any waiting input by calling jpeg_consume_input()
    final_pass = jpeg_input_complete(&cinfo);
    adjust output decompression parameters if required
    jpeg_start_output(&cinfo, cinfo.input_scan_number);
    ...
    jpeg_finish_output()
} while (! final_pass);
```

rather than quitting as soon as `jpeg_input_complete()` returns TRUE. This arrangement makes it simple to use higher-quality decoding parameters for the final pass. But if you don't want to use special parameters for



the

final pass, the right loop logic is like this:

```
for (;;) {
    absorb any waiting input by calling jpeg_consume_input()
    jpeg_start_output(&cinfo, cinfo.input_scan_number);
    ...
    jpeg_finish_output()
    if (jpeg_input_complete(&cinfo) &&
        cinfo.input_scan_number == cinfo.output_scan_number)
        break;
}
```

In this case you don't need to know in advance whether an output pass is to be the last one, so it's not necessary to have reached EOF before starting the final output pass; rather, what you want to test is whether the output pass was performed in sync with the final input scan. This form of the loop will avoid an extra output pass whenever the decoder is able (or nearly able) to keep up with the incoming data.

When the data transmission speed is high, you might begin a display pass, then find that much or all of the file has arrived before you can complete the pass. (You can detect this by noting the JPEG\_REACHED\_EOI return code from jpeg\_consume\_input(),

or equivalently by testing jpeg\_input\_complete().)

In this situation you may wish to abort the current display pass and start a new one using the newly arrived information. To do so, just call jpeg\_finish\_output() and then start a new pass with jpeg\_start\_output().

A variant strategy is to abort and restart display if more than one complete scan arrives during an output pass; this can be detected by noting JPEG\_REACHED\_SOS returns and/or examining cinfo.input\_scan\_number. This idea should be employed with caution, however, since the display process might never get to the bottom of the image before being aborted, resulting in the lower part of the screen being several passes worse than the upper. In most cases it's probably best to abort an output pass only if the whole file has arrived and you want to begin the final output pass immediately.

When receiving data across a communication link, we recommend always using the current input scan number for the output target scan number;

if a

higher-quality final pass is to be done, it should be started (aborting any incomplete output pass) as soon as the end of file is received. However, many other strategies are possible. For example, the application can examine the parameters of the current input scan and decide whether to display it or not. If the scan contains only chroma data, one might choose not to use it as the target scan, expecting that the scan will be small and will arrive quickly. To skip to the next scan, call jpeg\_consume\_input() until it returns JPEG\_REACHED\_SOS or JPEG\_REACHED\_EOI. Or just use the next higher number as the target scan for jpeg\_start\_output(); but that method doesn't

let you inspect the next scan's parameters before deciding to display it.

In buffered-image mode, `jpeg_start_decompress()` never performs input and thus never suspends. An application that uses input suspension with buffered-image mode must be prepared for suspension returns from these routines:

- \* `jpeg_start_output()`

performs input only if you request 2-pass quantization and the target scan isn't fully read yet. (This is discussed below.)

- \* `jpeg_read_scanlines()`, as always, returns the number of scanlines that it was able to produce before suspending.

- \* `jpeg_finish_output()` will read any markers following the target scan, up to the end of the file or the SOS marker that begins another scan. (But it reads no input if `jpeg_consume_input()` has already reached the end of the file or a SOS marker beyond the target output scan.)

- \* `jpeg_finish_decompress()` will read until the end of file, and thus can suspend if the end hasn't already been reached (as can be tested by calling `jpeg_input_complete()`).

`jpeg_start_output()`, `jpeg_finish_output()`, and `jpeg_finish_decompress()` all return TRUE if they completed their tasks, FALSE if they had to suspend. In the event of a FALSE return, the application must load more input data and repeat the call. Applications that use non-suspending data sources need not check the return values of these three routines.

It is possible to change decoding parameters between output passes in the buffered-image mode. The decoder library currently supports only very limited changes of parameters. ONLY THE FOLLOWING parameter changes are allowed after `jpeg_start_decompress()` is called:

- \* `dct_method` can be changed before each call to `jpeg_start_output()`.

For example, one could use a fast DCT method for early scans, changing to a higher quality method for the final scan.

- \* `dither_mode` can be changed before each call to `jpeg_start_output()`; of course this has no impact if not using color quantization. Typically one would use ordered dither for initial passes, then switch to Floyd-Steinberg dither for the final pass. Caution: changing dither mode can cause more memory to be allocated by the library. Although the amount of memory involved is not large (a scanline or so), it may cause the initial `max_memory_to_use` specification to be exceeded, which in the worst case would result in an out-of-memory failure.

- \* `do_block_smoothing` can be changed before each call to `jpeg_start_output()`.

This setting is relevant only when decoding a progressive JPEG image. During the first DC-only scan, block smoothing provides a very "fuzzy" look instead of the very "blocky" look seen without it; which is better seems a matter of personal taste. But block smoothing is nearly always a win

during later stages, especially when decoding a successive-approximation image: smoothing helps to hide the slight blockiness that otherwise shows up on smooth gradients until the lowest coefficient bits are sent.

\* Color quantization mode can be changed under the rules described below. You \*cannot\* change between full-color and quantized output (because that would alter the required I/O buffer sizes), but you can change which quantization method is used.

When generating color-quantized output, changing quantization method is a

very useful way of switching between high-speed and high-quality display.

The library allows you to change among its three quantization methods:

1. Single-pass quantization to a fixed color cube.

Selected by `cinfo.two_pass_quantize = FALSE` and `cinfo.colormap = NULL`.

2. Single-pass quantization to an application-supplied colormap.

Selected by setting `cinfo.colormap` to point to the colormap (the value of `two_pass_quantize` is ignored); also set `cinfo.actual_number_of_colors`.

3. Two-pass quantization to a colormap chosen specifically for the image.

Selected by `cinfo.two_pass_quantize = TRUE` and `cinfo.colormap = NULL`. (This is the default setting selected by `jpeg_read_header`, but it is probably NOT what you want for the first pass of progressive display!)

These methods offer successively better quality and lesser speed. However, only the first method is available for quantizing in non-RGB color spaces.

IMPORTANT: because the different quantizer methods have very different working-storage

requirements, the library requires you to indicate which

one(s) you intend to use before you call `jpeg_start_decompress()`. (If we did not require this, the `max_memory_to_use` setting would be a complete fiction.)

You do this by setting one or more of these three `cinfo` fields to TRUE:

`enable_1pass_quant` Fixed color cube colormap

`enable_external_quant` Externally-supplied colormap

`enable_2pass_quant` Two-pass custom colormap

All three are initialized FALSE by `jpeg_read_header()`. But

`jpeg_start_decompress()` automatically sets TRUE the one selected by the current `two_pass_quantize` and `colormap` settings, so you only need to set the enable flags for any other quantization methods you plan to change to later.

After setting the enable flags correctly at `jpeg_start_decompress()` time, you can change to any enabled quantization method by setting `two_pass_quantize` and `colormap` properly just before calling `jpeg_start_output()`. The following special rules apply:

1. You must

explicitly set `cinfo.colormap` to NULL when switching to 1-pass or 2-pass mode from a different mode, or when you want the 2-pass quantizer to be re-run to generate a new colormap.

2. To switch to an external colormap, or to change to a different external colormap than was used on the prior pass, you must call

`jpeg_new_colormap()` after setting `cinfo.colormap`.

NOTE: if you want to use the same colormap as was used in the prior pass, you should not do either of these things. This will save some nontrivial switchover costs.

(These requirements exist because `cinfo.colormap` will always be non-NULL after completing a prior output pass, since both the 1-pass and 2-pass quantizers set it to point to their output colormaps. Thus you have to do one of these two things to notify the library that something has changed. Yup, it's a bit klugy, but it's necessary to do it this way for backwards compatibility.)

Note that in buffered-image mode, the library generates any requested colormap during `jpeg_start_output()`, not during `jpeg_start_decompress()`.

When using two-pass quantization, `jpeg_start_output()` makes a pass over the buffered image to determine the optimum color map; it therefore may take a significant amount of time, whereas ordinarily it does little work. The progress monitor hook is called during this pass, if defined. It is also important to realize that if the specified target scan number is greater than or equal to the current input scan number, `jpeg_start_output()` will attempt to consume input as it makes this pass. If you use a suspending data source, you need to check for a FALSE return from `jpeg_start_output()` under these conditions. The combination of 2-pass quantization and a not-yet-fully-read target scan is the only case in which `jpeg_start_output()` will consume input.

Application authors who support buffered-image mode may be tempted to use it for all JPEG images, even single-scan ones. This will work, but it is inefficient: there is

no need to create an image-sized coefficient buffer for single-scan images. Requesting buffered-image mode for such an image wastes memory. Worse, it can cost time on large images, since the buffered data has to be swapped out or written to a temporary file. If you are concerned about maximum performance on baseline JPEG files, you should use buffered-image mode only when the incoming file actually has multiple scans. This can be tested by calling `jpeg_has_multiple_scans()`, which will return a correct result at any time after `jpeg_read_header()` completes.

It is also worth noting that when you use `jpeg_consume_input()` to let input processing get ahead of output processing, the resulting pattern of access to the coefficient buffer is quite nonsequential. It's best to use the memory manager `jmemnobs.c` if you can (ie, if you have enough real or virtual main memory). If not, at least make sure that `max_memory_to_use` is set as high as possible. If the JPEG memory manager has to use a temporary file, you will probably see a lot of disk traffic and poor performance. (This could be improved with additional work on the memory manager, but we haven't gotten

around to it yet.)

In some applications it may be convenient to use `jpeg_consume_input()` for all input processing, including reading the initial markers; that is, you may wish to call `jpeg_consume_input()` instead of `jpeg_read_header()` during startup. This works, but note that you must check for `JPEG_REACHED_SOS` and `JPEG_REACHED_EOI` return codes as the equivalent of `jpeg_read_header's` codes. Once the first SOS marker has been reached, you must call `jpeg_start_decompress()` before `jpeg_consume_input()` will consume more input; it'll just keep returning `JPEG_REACHED_SOS` until you do. If you read a tables-only file this way, `jpeg_consume_input()` will return `JPEG_REACHED_EOI` without ever returning `JPEG_REACHED_SOS`; be sure to check for this case. If this happens, the decompressor will not read any more input until you call `jpeg_abort()` to reset it. It is OK to call `jpeg_consume_input()` even when not using buffered-image mode, but in that case it's basically a no-op after the initial markers have been read: it will just return `JPEG_SUSPENDED`.

#### Abbreviated datastreams and multiple images

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A JPEG compression or decompression object can be reused to process multiple images. This saves a small amount of time per image by eliminating the "create" and "destroy" operations, but that isn't the real purpose of the feature. Rather, reuse of an object provides support for abbreviated JPEG datastreams. Object reuse can also simplify processing a series of images in a single input or output file. This section explains these features.

A JPEG file normally contains several hundred bytes worth of quantization and Huffman tables. In a situation where many images will be stored or transmitted with identical tables, this may represent an annoying overhead.

#### The JPEG

standard therefore permits tables to be omitted. The standard defines three classes of JPEG datastreams:

- \* "Interchange" datastreams contain an image and all tables needed to decode the image. These are the usual kind of JPEG file.
- \* "Abbreviated image" datastreams contain an image, but are missing some or all of the tables needed to decode that image.
- \* "Abbreviated table specification" (henceforth "tables-only") datastreams contain only table specifications.

To decode an abbreviated image, it is necessary to load the missing table(s) into the decoder beforehand. This can be accomplished by reading a separate tables-only file. A variant scheme uses a series of images in which the first image is an interchange (complete) datastream, while subsequent ones are abbreviated and rely on the tables loaded by the first image. It is assumed that once the decoder has read a table, it will remember that table until a new definition for the same table number is encountered.

It

is the application designer's responsibility to figure out how to associate the correct tables with an abbreviated image. While abbreviated datastreams can be useful in a closed environment, their use is strongly discouraged in any situation where data exchange with other applications might be needed. Caveat designer.

The JPEG library provides support for reading and writing any combination of tables-only datastreams and abbreviated images. In both compression and decompression objects, a quantization or Huffman table will be retained for the lifetime of the object, unless it is overwritten by a new table definition.

To create abbreviated image datastreams, it is only necessary to tell the compressor not to emit some or all of the tables it is using. Each quantization and Huffman table struct contains a boolean field "sent\_table", which normally is initialized to FALSE. For each table used by the image, the header-writing process emits the table and sets sent\_table = TRUE unless it is already TRUE. (In normal usage, this prevents outputting the same table definition multiple times, as would otherwise occur because the chroma components typically share tables.) Thus, setting this field to TRUE before calling jpeg\_start\_compress() will prevent the table from being written at all.

If you want to create a "pure" abbreviated image file containing no tables, just call "jpeg\_suppress\_tables(&cinfo, TRUE)" after constructing all the tables. If you want to emit some but not all tables, you'll need to set the individual sent\_table fields directly.

To create an abbreviated image, you must also call jpeg\_start\_compress() with a second parameter of FALSE, not TRUE. Otherwise jpeg\_start\_compress() will force all the sent\_table fields to FALSE. (This is a safety feature to prevent abbreviated images from being created accidentally.)

To create a tables-only file, perform the same parameter setup that you normally would, but instead of calling jpeg\_start\_compress() and so on, call jpeg\_write\_tables(&cinfo). This will write an abbreviated datastream containing only SOI, DQT and/or DHT markers, and EOI. All the quantization and Huffman tables that are currently defined in the compression object will be emitted unless their sent\_tables flag is already TRUE, and then all the sent\_tables flags will be set TRUE.

A sure-fire way to create matching tables-only and abbreviated image files is to proceed as follows:

```

create JPEG compression object
set JPEG parameters
set destination to tables-only file
jpeg_write_tables(&cinfo);
set destination to image file
jpeg_start_compress(&cinfo, FALSE);
write data...
jpeg_finish_compress(&cinfo);

```

Since the JPEG parameters are not altered between writing the table file and the abbreviated image file, the same tables are sure to be used. Of course, you can repeat the `jpeg_start_compress()` ... `jpeg_finish_compress()` sequence many times to produce many abbreviated image files matching the table file.

You

cannot suppress output of the computed Huffman tables when Huffman optimization is selected. (If you could, there'd be no way to decode the image...) Generally, you don't want to set `optimize_coding = TRUE` when you are trying to produce abbreviated files.

In some cases you might want to compress an image using tables which are not stored in the application, but are defined in an interchange or tables-only file readable by the application. This can be done by setting up a JPEG decompression object to read the specification file, then copying the tables into your compression object. See `jpeg_copy_critical_parameters()` for an example of copying quantization tables.

To read abbreviated image files, you simply need to load the proper tables into the decompression object before trying to read the abbreviated image. If the proper tables are stored in the application program, you can just allocate the table structs and fill in their contents directly. For example, to load a fixed quantization table into table slot "n":

```

if (cinfo.quant_tbl_ptrs[n] == NULL)
    cinfo.quant_tbl_ptrs[n] = jpeg_alloc_quant_table((j_common_ptr) &cinfo);
quant_ptr = cinfo.quant_tbl_ptrs[n]; /* quant_ptr is JQUANT_TBL* */
for (i = 0; i < 64; i++) {
    /* Qtable[] is desired quantization table, in natural array order */
    quant_ptr->quantval[i] = Qtable[i];
}

```

Code to load a fixed Huffman table is typically (for AC table "n"):

```

if (cinfo.ac_huff_tbl_ptrs[n] == NULL)
    cinfo.ac_huff_tbl_ptrs[n] = jpeg_alloc_huff_table((j_common_ptr) &cinfo);
huff_ptr = cinfo.ac_huff_tbl_ptrs[n]; /* huff_ptr is JHUFF_TBL* */

```

```

for (i = 1; i <= 16; i++) {
    /* counts[i] is number of Huffman codes of length i bits, i=1..16 */
    huff_ptr->bits[i] = counts[i];
}
for (i = 0; i < 256; i++) {
    /* symbols[] is the list of Huffman symbols, in code-length order */
    huff_ptr->huffval[i] = symbols[i];
}

```

(Note that trying to set `cinfo.quant_tbl_ptrs[n]` to point directly at a constant `JQUANT_TBL` object is not safe. If the incoming file happened to contain a quantization table definition, your master table would get overwritten! Instead allocate a working table copy and copy the master table into it, as illustrated above. Ditto for Huffman tables, of course.)

You might want to read the tables from a tables-only file, rather than hard-wiring them into your application. The `jpeg_read_header()` call is sufficient to read a tables-only file. You must pass a second parameter of `FALSE` to indicate that you do not require an image to be present. Thus, the typical scenario is

```

create JPEG decompression object
set source to tables-only file
jpeg_read_header(&cinfo, FALSE);
set source to abbreviated image file
jpeg_read_header(&cinfo, TRUE);
set decompression parameters
jpeg_start_decompress(&cinfo);
read data...
jpeg_finish_decompress(&cinfo);

```

In some cases, you may want to read a file without knowing whether it contains an image or just tables. In that case, pass `FALSE` and check the return value from `jpeg_read_header()`: it will be `JPEG_HEADER_OK` if an image was found, `JPEG_HEADER_TABLES_ONLY` if only tables were found. (A third return value, `JPEG_SUSPENDED`, is possible when using a suspending data source manager.) Note that `jpeg_read_header()` will not complain if you read an abbreviated image for which you haven't loaded the missing tables; the missing-table check occurs later, in `jpeg_start_decompress()`.

It is possible to read a series of images from a single source file by repeating the `jpeg_read_header() ... jpeg_finish_decompress()` sequence, without releasing/recreating the JPEG object or the data source module. (If you did reinitialize, any partial bufferload left in the data source buffer at the end of one image would be discarded, causing you to lose the



start of the next image.) When you use this method, stored tables are automatically carried forward, so some of the images can be abbreviated images that depend on tables from earlier images.

If you intend to write a series of images into a single destination file, you might want to make a specialized data destination module that doesn't flush the output buffer at `term_destination()` time. This would speed things up by some trifling amount. Of course, you'd need to remember to flush the buffer after the last image. You can make the later images be abbreviated ones by passing `FALSE` to `jpeg_start_compress()`.

### Special markers

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Some applications may need to insert or extract special data in the JPEG datastream. The JPEG standard provides marker types "COM" (comment) and "APP0" through "APP15" (application) to hold application-specific data. Unfortunately, the use of these markers is not specified by the standard. COM markers are fairly widely used to hold user-supplied text. The JFIF file format spec uses APP0 markers with specified initial strings to hold certain data. Adobe applications use APP14 markers beginning with the string "Adobe" for miscellaneous data. Other APPn markers are rarely seen, but might contain almost anything.

If you wish to store user-supplied text, we recommend you use COM markers and place readable 7-bit ASCII text in them. Newline conventions are not standardized --- expect to find LF (Unix style), CR/LF (DOS style), or CR (Mac style). A robust COM reader should be able to cope with random binary garbage, including nulls, since some applications generate COM markers containing non-ASCII junk. (But yours should not be one of them.)

For program-supplied data, use an APPn marker, and be sure to begin it with an identifying string so that you can tell whether the marker is actually yours. It's probably best to avoid using APP0 or APP14 for any private markers. (NOTE: the upcoming SPIFF standard will use APP8 markers; we recommend you not use APP8 markers for any private purposes, either.)

Keep in mind that at most 65533 bytes can be put into one marker, but you can have as many markers as you like.

By default, the IJG compression library will write a JFIF APP0 marker if the selected JPEG colorspace is grayscale or YCbCr, or an Adobe APP14 marker if the selected colorspace is RGB, CMYK, or YCCK. You can disable this, but we don't recommend it. The decompression library will recognize JFIF and

Adobe markers and will set the JPEG colorspace properly when one is found.

You can write special markers immediately following the datastream header by calling `jpeg_write_marker()` after `jpeg_start_compress()` and before the first call to `jpeg_write_scanlines()`. When you do this, the markers appear after the SOI and the JFIF APP0 and Adobe APP14 markers (if written), but before all else. Specify the marker type parameter as "JPEG\_COM" for COM or "JPEG\_APP0 + n" for APPn. (Actually, `jpeg_write_marker` will let you write any marker type, but we don't recommend writing any other kinds of marker.) For example, to write a user comment string pointed to `comment_text`:

```
jpeg_write_marker(cinfo, JPEG_COM, comment_text, strlen(comment_text));
```

If it's not convenient to store all the marker data in memory at once, you can instead call `jpeg_write_m_header()` followed by multiple calls to `jpeg_write_m_byte()`. If you do it this way, it's your responsibility to call `jpeg_write_m_byte()` exactly the number of times given in the length parameter to `jpeg_write_m_header()`. (This method lets you empty the output buffer partway through a marker, which might be important when using a suspending data destination module. In any case, if you are using a suspending destination, you should flush its buffer after inserting any special markers. See "I/O suspension".)

Or, if you prefer to synthesize the marker byte sequence yourself, you can just cram it straight into the data destination module.

If you are writing JFIF 1.02 extension markers (thumbnail images), don't forget to set `cinfo.JFIF_minor_version = 2` so that the encoder will write the correct

JFIF version number in the JFIF header marker. The library's default is to write version 1.01, but that's wrong if you insert any 1.02 extension markers. (We could probably get away with just defaulting to 1.02, but there used to be broken decoders that would complain about unknown minor version numbers. To reduce compatibility risks it's safest not to write 1.02 unless you are actually using 1.02 extensions.)

When reading, two methods of handling special markers are available:

1. You can ask the library to save the contents of COM and/or APPn markers into memory, and then examine them at your leisure afterwards.
2. You can supply your own routine to process COM and/or APPn markers on-the-fly as they are read.

The first method is simpler to use, especially if you are using a suspending data source; writing a marker processor that copes with input suspension is not easy (consider what happens if the marker is longer than your available input buffer). However, the second method

conserves memory since the marker data need not be kept around after it's been processed.

For either method, you'd normally set up marker handling after creating a decompression object and before calling `jpeg_read_header()`, because the markers of interest will typically be near the head of the file and so will be scanned by `jpeg_read_header`. Once you've established a marker handling method, it will be used for the life of that decompression object (potentially many datastreams), unless you change it. Marker handling is determined separately for COM markers and for each APPn marker code.

To save the contents of special markers in memory, call `jpeg_save_markers(cinfo, marker_code, length_limit)` where `marker_code` is the marker type to save, `JPEG_COM` or `JPEG_APP0+n`. (To arrange to save all the special marker types, you need to call this routine 17 times, for COM and APP0-APP15.) If the incoming marker is longer than `length_limit` data bytes, only `length_limit` bytes will be saved; this parameter allows you to avoid chewing up memory when you only need to see the first few bytes of a potentially large marker. If you want to save all the data, set `length_limit` to `0xFFFF`; that is enough since marker lengths are only 16 bits. As a special case, setting `length_limit` to 0 prevents that marker type from being saved at all. (That is the default behavior, in fact.)

After `jpeg_read_header()` completes, you can examine the special markers by following the `cinfo->marker_list` pointer chain. All the special markers in the file appear in this list, in order of their occurrence in the file (but omitting any markers of types you didn't ask for). Both the original data length and the saved data length are recorded for each list entry; the latter will not exceed `length_limit` for the particular marker type. Note that these lengths exclude the marker length word, whereas the stored representation within the JPEG file includes it. (Hence the maximum data length is really only 65533.)

It is possible that additional special markers appear in the file beyond the SOS marker at which `jpeg_read_header` stops; if so, the marker list will be extended during reading of the rest of the file. This is not expected to be common, however. If you are short on memory you may want to reset the length limit to zero for all marker types after finishing `jpeg_read_header`, to ensure that the `max_memory_to_use` setting cannot be exceeded due to addition of later markers.

The marker list remains stored until you call `jpeg_finish_decompress` or `jpeg_abort`, at which point the memory is freed and the list is set to empty. (`jpeg_destroy` also releases the storage, of course.)

Note that the library is internally interested in APP0 and APP14 markers; if you try to set a small nonzero length limit on these types, the library will silently force the length up to the minimum it wants. (But you can set a zero length limit to prevent them from being saved at all.) Also, in a 16-bit environment, the maximum length limit may be constrained to less than 65533 by malloc() limitations. It is therefore best not to assume that the effective length limit is exactly what you set it to be.

If you want to supply your own marker-reading routine, you do it by calling jpeg\_set\_marker\_processor(). A marker processor routine must have the signature

```
boolean jpeg_marker_parser_method (j_decompress_ptr cinfo)
```

Although the marker code is not explicitly passed, the routine can find it in cinfo->unread\_marker. At the time of call, the marker proper has been read from the data source module. The processor routine is responsible for reading the marker length word and the remaining parameter bytes, if any. Return TRUE to indicate success. (FALSE should be returned only if you are using a suspending data source and it tells you to suspend. See the standard marker processors in jdmarker.c for appropriate coding methods if you need to use a suspending data source.)

If you override the default

APP0 or APP14 processors, it is up to you to recognize JFIF and Adobe markers if you want colorspace recognition to occur properly. We recommend copying and extending the default processors if you want to do that. (A better idea is to save these marker types for later examination by calling jpeg\_save\_markers(); that method doesn't interfere with the library's own processing of these markers.)

jpeg\_set\_marker\_processor() and jpeg\_save\_markers() are mutually exclusive --- if you call one it overrides any previous call to the other, for the particular marker type specified.

A simple example of an external COM processor can be found in djpeg.c. Also, see jpegtran.c for an example of using jpeg\_save\_markers.

Raw (downsampled) image data

-----

Some applications need to supply already-downsampled image data to the JPEG compressor, or to receive raw downsampled data from the decompressor. The library supports this requirement by allowing the application to write  
or  
read raw data, bypassing the normal preprocessing or postprocessing steps. The interface is different from the standard one and is somewhat harder to

use. If your interest is merely in bypassing color conversion, we recommend that you use the standard interface and simply set `jpeg_color_space = in_color_space` (or `jpeg_color_space = out_color_space` for decompression). The mechanism described in this section is necessary only to supply or receive downsampled image data, in which not all components have the same dimensions.

To compress raw data, you must supply the data in the colorspace to be used in the JPEG file (please read the earlier section on Special color spaces) and downsampled to the sampling factors specified in the JPEG parameters. You must supply the data in the format used internally by the JPEG library, namely a JSAMPIMAGE array. This is an array of pointers to two-dimensional arrays, each of type JSAMPARRAY. Each 2-D array holds the values for one color component.

This structure is necessary since the components are of different sizes. If the image dimensions are not a multiple of the MCU size, you must also pad the data correctly (usually, this is done by replicating the last column and/or row). The data must be padded to a multiple of a DCT block in each component: that is, each downsampled row must contain a multiple of `block_size` valid samples, and there must be a multiple of `block_size` sample rows for each component. (For applications such as conversion of digital TV images, the standard image size is usually a multiple of the DCT block size, so that no padding need actually be done.)

The procedure for compression of raw data is basically the same as normal compression, except that you call `jpeg_write_raw_data()` in place of `jpeg_write_scanlines()`. Before calling `jpeg_start_compress()`, you must do the following:

- \* Set `cinfo->raw_data_in` to TRUE. (It is set FALSE by `jpeg_set_defaults()`.)

This notifies the library that you will be supplying raw data.

Furthermore, set `cinfo->do_fancy_downsampling` to FALSE if you want to use real downsampled data. (It is set TRUE by `jpeg_set_defaults()`.)

- \* Ensure `jpeg_color_space` is correct --- an explicit `jpeg_set_colorspace()` call is a good idea. Note that since color conversion is bypassed, `in_color_space` is ignored, except that `jpeg_set_defaults()` uses it to choose the default `jpeg_color_space` setting.

- \* Ensure the sampling factors, `cinfo->comp_info[i].h_samp_factor` and `cinfo->comp_info[i].v_samp_factor`, are correct. Since these indicate the dimensions of the data you are supplying, it's wise to set them explicitly, rather than assuming the library's defaults are what you want.

To pass raw data to the library, call `jpeg_write_raw_data()` in place of `jpeg_write_scanlines()`. The two routines work similarly except that `jpeg_write_raw_data` takes a JSAMPIMAGE data array rather than JSAMPARRAY. The scanlines count passed to and returned

from `jpeg_write_raw_data` is measured in terms of the component with the largest `v_samp_factor`.

`jpeg_write_raw_data()` processes one MCU row per call, which is to say `v_samp_factor*block_size` sample rows of each component. The passed `num_lines` value must be at least `max_v_samp_factor*block_size`, and the return value will be exactly that amount (or possibly some multiple of that amount, in future library versions). This is true even on the last call at the bottom of the image; don't forget to pad your data as necessary.

The required dimensions of the supplied data can be computed for each component as

```
cinfo->comp_info[i].width_in_blocks*block_size  samples per row
cinfo->comp_info[i].height_in_blocks*block_size rows in image
```

after `jpeg_start_compress()` has initialized those fields. If the valid data is smaller than this, it must be padded appropriately. For some sampling factors and image sizes, additional dummy DCT blocks are inserted to make the image a multiple of the MCU dimensions.

The library creates such dummy blocks itself; it does not read them from your supplied data. Therefore you need never pad by more than `block_size` samples. An example may help here.

Assume 2h2v downsampling of YCbCr data, that is

```
cinfo->comp_info[0].h_samp_factor = 2  for Y
cinfo->comp_info[0].v_samp_factor = 2
cinfo->comp_info[1].h_samp_factor = 1  for Cb
cinfo->comp_info[1].v_samp_factor = 1
cinfo->comp_info[2].h_samp_factor = 1  for Cr
cinfo->comp_info[2].v_samp_factor = 1
```

and suppose that the nominal image dimensions (`cinfo->image_width` and `cinfo->image_height`) are 101x101 pixels. Then `jpeg_start_compress()` will compute `downsampled_width = 101` and `width_in_blocks = 13` for Y, `downsampled_width = 51` and `width_in_blocks = 7` for Cb and Cr (and the same for the height fields). You must pad the Y data to at least  $13*8 = 104$  columns and rows, the Cb/Cr data to at least  $7*8 = 56$  columns and rows. The MCU height is `max_v_samp_factor = 2` DCT rows so you must pass at least 16 scanlines

on each call to `jpeg_write_raw_data()`, which is to say 16 actual sample rows of Y and 8 each of Cb and Cr. A total of 7 MCU rows are needed, so you must pass a total of  $7*16 = 112$  "scanlines". The last DCT block row of Y data is dummy, so it doesn't matter what you pass for it in the data arrays, but the scanlines count must total up to 112 so that all of the Cb and Cr data gets passed.

Output suspension is supported with raw-data compression: if the data destination module suspends, `jpeg_write_raw_data()` will return 0.

In this case the same data rows must be passed again on the next call.

Decompression with raw data output implies bypassing all postprocessing. You must deal with the color space and sampling factors present in the incoming file. If your application only handles, say, 2h1v YCbCr data, you must check for and fail on other color spaces or other sampling factors. The library will not convert to a different color space for you.

To obtain raw data output,

set `cinfo->raw_data_out = TRUE` before

`jpeg_start_decompress()` (it is set `FALSE` by `jpeg_read_header()`). Be sure to verify that the color space and sampling factors are ones you can handle.

Furthermore, set `cinfo->do_fancy_upsampling = FALSE` if you want to get real downsampled data (it is set `TRUE` by `jpeg_read_header()`).

Then call `jpeg_read_raw_data()` in place of `jpeg_read_scanlines()`. The decompression process is otherwise the same as usual.

`jpeg_read_raw_data()` returns one MCU row per call, and thus you must pass a buffer of at least `max_v_samp_factor*block_size` scanlines (scanline counting is the same as for raw-data compression). The buffer you pass must be large enough to hold the actual data plus padding to DCT-block boundaries. As with compression, any entirely dummy DCT blocks are not processed so you need not allocate space for them, but the total scanline count includes them. The above example of computing buffer dimensions for raw-data compression is equally valid for decompression.

#### Input

suspension is supported with raw-data decompression: if the data source module suspends, `jpeg_read_raw_data()` will return 0. You can also use buffered-image mode to read raw data in multiple passes.

#### Really raw data: DCT coefficients

-----

It is possible to read or write the contents of a JPEG file as raw DCT coefficients. This facility is mainly intended for use in lossless transcoding between different JPEG file formats. Other possible applications include lossless cropping of a JPEG image, lossless reassembly of a multi-strip or multi-tile TIFF/JPEG file into a single JPEG datastream, etc.

To read the contents of a JPEG file as DCT coefficients, open the file and do `jpeg_read_header()` as usual. But instead of calling `jpeg_start_decompress()` and `jpeg_read_scanlines()`, call `jpeg_read_coefficients()`. This will read the entire image into a set of virtual coefficient-block arrays, one array per component. The return value is a pointer to an array of virtual-array descriptors. Each virtual array can be accessed directly using the JPEG memory manager's `access_virt_barray` method (see Memory management, below, and also `read.structure.txt`'s discussion of virtual array handling). Or,

for simple transcoding to a different JPEG file format, the array list can just be handed directly to `jpeg_write_coefficients()`.

Each block in the block arrays contains quantized coefficient values in normal array order (not JPEG zigzag order). The block arrays contain only DCT blocks containing real data; any entirely-dummy blocks added to fill out interleaved MCUs at the right or bottom edges of the image are discarded during reading and are not stored in the block arrays. (The size of each block array can be determined from the `width_in_blocks` and `height_in_blocks` fields of the component's `comp_info` entry.) This is also the data format expected by `jpeg_write_coefficients()`.

When you are done using the virtual arrays, call `jpeg_finish_decompress()` to release the array storage and return the decompression object to an idle state; or just call `jpeg_destroy()` if you don't need to reuse the object.

If you use a suspending data source, `jpeg_read_coefficients()` will return NULL if it is forced to suspend; a non-NULL return value indicates successful completion. You need not test for a NULL return value when using a non-suspending data source.

It is also possible to call `jpeg_read_coefficients()` to obtain access to the decoder's coefficient arrays during a normal decode cycle in buffered-image mode. This frammish might be useful for progressively displaying an incoming image and then re-encoding it without loss. To do this, decode in buffered-image mode as discussed previously, then call `jpeg_read_coefficients()` after the last `jpeg_finish_output()` call. The arrays will be available for your use until you call `jpeg_finish_decompress()`.

To write the contents of a JPEG file as DCT coefficients, you must provide the

DCT coefficients stored in virtual block arrays. You can either pass block arrays read from an input JPEG file by `jpeg_read_coefficients()`, or allocate virtual arrays from the JPEG compression object and fill them yourself. In either case, `jpeg_write_coefficients()` is substituted for `jpeg_start_compress()` and `jpeg_write_scanlines()`. Thus the sequence is

- \* Create compression object
- \* Set all compression parameters as necessary
- \* Request virtual arrays if needed
- \* `jpeg_write_coefficients()`
- \* `jpeg_finish_compress()`
- \* Destroy or re-use compression object

`jpeg_write_coefficients()` is passed a pointer to an array of virtual block array descriptors; the number of arrays is equal to `cinfo.num_components`.

The virtual arrays need only have been requested, not realized, before



`jpeg_write_coefficients()` is called. A side-effect of `jpeg_write_coefficients()` is to realize any virtual arrays that have been requested from the compression object's memory manager. Thus, when obtaining the virtual arrays from the compression object, you should fill the arrays after calling `jpeg_write_coefficients()`. The data is actually written out when you call `jpeg_finish_compress()`; `jpeg_write_coefficients()` only writes the file header.

When writing raw DCT coefficients, it is crucial that the JPEG quantization tables and sampling factors match the way the data was encoded, or the resulting file will be invalid. For transcoding from an existing JPEG file, we recommend using `jpeg_copy_critical_parameters()`. This routine initializes all the compression parameters to default values (like `jpeg_set_defaults()`), then copies the critical information from a source decompression object. The decompression object should have just been used to read the entire JPEG input file --- that is, it should be awaiting `jpeg_finish_decompress()`.

`jpeg_write_coefficients()` marks all tables stored in the compression object as needing to be written to the output file (thus, it acts like `jpeg_start_compress(cinfo, TRUE)`). This is for safety's sake, to avoid emitting abbreviated JPEG files by accident. If you really want to emit an abbreviated JPEG file, call `jpeg_suppress_tables()`, or set the tables' individual `sent_table` flags, between calling `jpeg_write_coefficients()` and `jpeg_finish_compress()`.

#### Progress monitoring

-----

Some applications may need to regain control from the JPEG library every so often. The typical use of this feature is to produce a percent-done bar or other progress display. (For a simple example, see `cjpeg.c` or `djpeg.c`.) Although you do get control back frequently during the data-transferring pass (the `jpeg_read_scanlines` or `jpeg_write_scanlines` loop), any additional passes will occur inside `jpeg_finish_compress` or `jpeg_start_decompress`; those routines may take a long time to execute, and you don't get control back until they are done.

You can define a progress-monitor routine which will be called periodically by the library. No guarantees are made about how often this call will occur, so we don't recommend you use it for mouse tracking or anything like that. At present, a call will occur once per MCU row, scanline, or sample row group, whichever unit is convenient for the current processing mode; so the wider the image, the longer the time between calls. During the data transferring pass, only one call occurs per call of `jpeg_read_scanlines` or

jpeg\_write\_scanlines, so don't pass a large number of scanlines at once if you want fine resolution in the progress count. (If you really need to use the callback mechanism for time-critical tasks like mouse tracking, you could insert additional calls inside some of the library's inner loops.)

To establish a progress-monitor callback, create a struct jpeg\_progress\_mgr, fill in its progress\_monitor field with a pointer to your callback routine, and set cinfo->progress to point to the struct. The callback will be called whenever cinfo->progress is non-NULL. (This pointer is set to NULL by jpeg\_create\_compress or jpeg\_create\_decompress; the library will not change it thereafter. So if you allocate dynamic storage for the progress struct, make sure it will live as long as the JPEG object does. Allocating from the JPEG memory manager with lifetime JPOOL\_PERMANENT will work nicely.) You can use the same callback routine for both compression and decompression.

The jpeg\_progress\_mgr struct contains four fields which are set by the library:

```
long pass_counter; /* work units completed in this pass */
long pass_limit; /* total number of work units in this pass */
int completed_passes; /* passes completed so far */
int total_passes; /* total number of passes expected */
```

During any one pass, pass\_counter increases from 0 up to (not including) pass\_limit; the step size is usually but not necessarily 1. The pass\_limit value may change from one pass to another. The expected total number of passes is in total\_passes, and the number of passes already completed is in

completed\_passes. Thus the fraction of work completed may be estimated as

$$\frac{\text{completed\_passes} + (\text{pass\_counter}/\text{pass\_limit})}{\text{total\_passes}}$$

ignoring the fact that the passes may not be equal amounts of work.

When decompressing, pass\_limit can even change within a pass, because it depends on the number of scans in the JPEG file, which isn't always known in advance. The computed fraction-of-work-done may jump suddenly (if the library discovers it has overestimated the number of scans) or even decrease (in the opposite case). It is not wise to put great faith in the work estimate.

When using the decompressor's buffered-image mode, the progress monitor work estimate is likely to be completely unhelpful, because the library has no way to know how many output passes will be demanded of it. Currently, the library sets total\_passes based on the assumption that there will be one more output pass if the input file end hasn't yet been read

(jpeg\_input\_complete() isn't TRUE), but no more output passes if the file end has been reached when the output pass is started. This means that total\_passes will rise as additional output passes are requested. If you have a way of determining the input file size, estimating progress based on the fraction of the file that's been read

will probably be more useful than using the library's value.

## Memory management

-----

This section covers some key facts about the JPEG library's built-in memory manager. For more info, please read `structure.txt`'s section about the memory manager, and consult the source code if necessary.

All memory and temporary file allocation within the library is done via the memory manager. If necessary, you can replace the "back end" of the memory manager to control allocation yourself (for example, if you don't want the library to use `malloc()` and `free()` for some reason).

Some data is allocated "permanently" and will not be freed until the JPEG object

is destroyed. Most data is allocated "per image" and is freed by `jpeg_finish_compress`, `jpeg_finish_decompress`, or `jpeg_abort`. You can call the memory manager yourself to allocate structures that will automatically be freed at these times. Typical code for this is

```
ptr = (*cinfo->mem->alloc_small) ((j_common_ptr) cinfo, JPOOL_IMAGE, size);
```

Use `JPOOL_PERMANENT` to get storage that lasts as long as the JPEG object.

Use `alloc_large` instead of `alloc_small` for anything bigger than a few Kbytes.

There are also `alloc_sarray` and `alloc_barray` routines that automatically build 2-D sample or block arrays.

The library's minimum space requirements to process an image depend on the image's width, but not on its height, because the library ordinarily works with "strip" buffers that are as wide as the image but just a few rows high. Some operating modes (eg, two-pass color quantization) require full-image buffers. Such buffers are treated as "virtual arrays": only the current strip need be in

memory, and the rest can be swapped out to a temporary file.

If you use the simplest memory manager back end (`jmemnobs.c`), then no temporary files are used; virtual arrays are simply `malloc()`'d. Images bigger than memory can be processed only if your system supports virtual memory. The other memory manager back ends support temporary files of various flavors and thus work in machines without virtual memory. They may also be useful on Unix machines if you need to process images that exceed available swap space.

When using temporary files, the library will make the in-memory buffers for its virtual arrays just big enough to stay within a "maximum memory" setting. Your application can set this limit by setting `cinfo->mem->max_memory_to_use` after creating the JPEG object. (Of course, there is still a minimum size for the buffers, so the max-memory setting is effective only if it is bigger than the minimum space needed.) If you allocate any large structures yourself, you

must allocate

them before `jpeg_start_compress()` or `jpeg_start_decompress()` in order to have them counted against the max memory limit. Also keep in mind that space allocated with `alloc_small()` is ignored, on the assumption that it's too small to be worth worrying about; so a reasonable safety margin should be left when setting `max_memory_to_use`.

If you use the `jmemname.c` or `jmemdos.c` memory manager back end, it is important to clean up the JPEG object properly to ensure that the temporary files get deleted. (This is especially crucial with `jmemdos.c`, where the "temporary files" may be extended-memory segments; if they are not freed, DOS will require a reboot to recover the memory.) Thus, with these memory managers, it's a good idea to provide a signal handler that will trap any early exit from your program. The handler should call either `jpeg_abort()` or `jpeg_destroy()` for any active JPEG objects. A handler is not needed with `jmemnobs.c`, and shouldn't be necessary with `jmemansi.c` or `jmemmac.c` either, since the C library is supposed to take care of deleting files made with `tmpfile()`.

#### Memory usage

-----

Working memory requirements while performing compression or decompression depend on image dimensions, image characteristics (such as colorspace and JPEG process), and operating mode (application-selected options).

As of v6b, the decompressor requires:

1. About 24K in more-or-less-fixed-size data. This varies a bit depending on operating mode and image characteristics (particularly color vs. grayscale), but it doesn't depend on image dimensions.
2. Strip buffers (of size proportional to the image width) for IDCT and upsampling results. The worst case for commonly used sampling factors is about 34 bytes \* width in pixels for a color image. A grayscale image only needs about 8 bytes per pixel column.
3. A full-image DCT coefficient buffer is needed to decode a multi-scan JPEG file (including progressive JPEGs), or whenever you select buffered-image mode. This takes 2 bytes/coefficient. At typical 2x2 sampling, that's 3 bytes per pixel for a color image. Worst case (1x1 sampling) requires 6 bytes/pixel. For grayscale, figure 2 bytes/pixel.
4. To perform 2-pass color quantization, the decompressor also needs a 128K color lookup table and a full-image pixel buffer (3 bytes/pixel). This does not count any memory allocated by the application, such as a buffer to hold the final output image.

The above figures are valid for 8-bit JPEG data precision and a machine with 32-bit ints. For 9-bit to 12-bit JPEG data, double the size of the strip

buffers and quantization pixel buffer. The "fixed-size" data will be somewhat smaller with 16-bit ints, larger with 64-bit ints. Also, CMYK or other unusual color spaces will require different amounts of space.

The full-image coefficient and pixel buffers, if needed at all, do not have to be fully RAM resident; you can have the library use temporary files instead

when the total memory usage would exceed a limit you set.

(But if your OS supports virtual memory, it's probably better to just use `jmemnobs` and let the OS do the swapping.)

The compressor's memory requirements are similar, except that it has no need for color quantization. Also, it needs a full-image DCT coefficient buffer if Huffman-table optimization is asked for, even if progressive mode is not requested.

If you need more detailed information about memory usage in a particular situation, you can enable the `MEM_STATS` code in `jmemmgr.c`.

#### Library compile-time options

-----

A number of compile-time options are available by modifying `jmorecfg.h`.

The IJG code currently supports 8-bit to 12-bit sample data precision by defining `BITS_IN_JSAMPLE` as 8, 9, 10, 11, or 12.

Note that a value larger than 8 causes `JSAMPLE` to be larger than a char, so it affects the surrounding application's image data.

The sample applications `cjpeg` and `djpeg` can support deeper than 8-bit data

only for PPM and GIF file formats; you must disable the other file formats to compile a 9-bit to 12-bit `cjpeg` or `djpeg`. (`install.txt` has more information about that.)

Run-time selection and conversion of data precision are currently not supported and may be added later.

Exception: The transcoding part (`jpegtran`) supports all settings in a single instance, since it operates on the level of DCT coefficients and not sample values.

(If you need to include an 8-bit library and a 9-bit to 12-bit library for compression or decompression in a single application, you could probably do it by defining `NEED_SHORT_EXTERNAL_NAMES` for just one of the copies. You'd have to access the 8-bit and the 9-bit to 12-bit copies from separate application source files. This is untested ... if you try it, we'd like to hear whether it works!)

Note that the standard Huffman tables are only valid for 8-bit data precision.

If you selected more than 8-bit data precision, `cjpeg` uses arithmetic coding

by default.

The Huffman encoder normally uses entropy optimization to compute usable tables for higher precision. Otherwise, you'll have to supply different default Huffman tables. You may also want to supply your own DCT quantization tables; the existing quality-scaling code has been developed for 8-bit use, and probably doesn't generate especially good tables for 9-bit to 12-bit.

The maximum number of components (color channels) in the image is determined by MAX\_COMPONENTS. The JPEG standard allows up to 255 components, but we expect that few applications will need more than four or so.

On machines with unusual data type sizes, you may be able to improve performance or reduce memory space by tweaking the various typedefs in jmorecfg.h. In particular, on some RISC CPUs, access to arrays of "short"s is quite slow; consider trading memory for speed by making JCOEF, INT16, and UINT16 be "int" or "unsigned int". UINT8 is also a candidate to become int. You probably don't want to make JSAMPLE be int unless you have lots of memory to burn.

You can reduce the size of the library by compiling out various optional functions. To do this, undefine xxx\_SUPPORTED symbols as necessary.

You can also save a few K by not having text error messages in the library; the standard error message table occupies about 5Kb. This is particularly reasonable for embedded applications where there's no good way to display a message anyway. To do this, remove the creation of the message table (jpeg\_std\_message\_table[]) from jerror.c, and alter format\_message to do something reasonable without it. You could output the numeric value of the message code number, for example. If you do this, you can also save a couple more K by modifying the TRACEMSn() macros in jerror.h to expand to nothing; you don't need trace capability anyway, right?

#### Portability considerations

-----

The JPEG library has been written to be extremely portable; the sample applications cjpeg and djpeg are slightly less so. This section summarizes the design goals in this area. (If you encounter any bugs that cause the library to be less portable than is claimed here, we'd appreciate hearing about them.)

The code works fine on ANSI C, C++, and pre-ANSI C compilers, using any of the popular system include file setups, and some not-so-popular ones too. See install.txt for configuration procedures.

The code is not dependent on the exact sizes of the C data types. As distributed, we make the assumptions that

- char is at least 8 bits wide
- short is at least 16 bits wide
- int is at least 16 bits wide
- long is at least 32 bits wide

(These are the minimum requirements of the ANSI C standard.) Wider types will work fine, although memory may be used inefficiently if char is much larger than 8 bits or short is much bigger than 16 bits. The code should work equally well with 16- or 32-bit ints.

In a system where these assumptions are not met, you may be able to make the code work by

- modifying the typedefs in `jmorecfg.h`. However, you will probably have difficulty if int is less than 16 bits wide, since references to plain int abound in the code.

char can be either signed or unsigned, although the code runs faster if an unsigned char type is available. If char is wider than 8 bits, you will need to redefine JOCTET and/or provide custom data source/destination managers so that JOCTET represents exactly 8 bits of data on external storage.

The JPEG library proper does not assume ASCII representation of characters. But some of the image file I/O modules in `cjpeg/djpeg` do have ASCII dependencies in file-header manipulation; so does `cjpeg's select_file_type()` routine.

The JPEG library does not rely heavily on the C library. In particular, C `stdio` is used only by the data source/destination modules and the error handler, all of which are application-replaceable. (`cjpeg/djpeg` are more heavily dependent on `stdio`.) `malloc` and `free` are called only from the memory manager "back end" module, so you can use a different memory allocator by replacing that one file.

The code generally assumes that C names must be unique in the first 15 characters. However, global function names can be made unique in the first 6 characters by defining `NEED_SHORT_EXTERNAL_NAMES`.

More info about porting the code may be gleaned by reading `jconfig.txt`, `jmorecfg.h`, and `jinclue.h`.

Notes for MS-DOS implementors

-----

The IJG code is designed to work efficiently in 80x86 "small" or "medium"

memory models (i.e., data pointers are 16 bits unless explicitly declared "far"; code pointers can be either size). You may be able to use small model to compile cjpeg or djpeg by itself, but you will probably have to use medium model for any larger application. This won't make much difference in performance. You *will* take a noticeable performance hit if you use a large-data memory model (perhaps 10%-25%), and you should avoid "huge" model if at all possible.

The

JPEG library typically needs 2Kb-3Kb of stack space. It will also malloc about 20K-30K of near heap space while executing (and lots of far heap, but that doesn't count in this calculation). This figure will vary depending on selected operating mode, and to a lesser extent on image size. There is also about 5Kb-6Kb of constant data which will be allocated in the near data segment (about 4Kb of this is the error message table). Thus you have perhaps 20K available for other modules' static data and near heap space before you need to go to a larger memory model. The C library's static data will account for several K of this, but that still leaves a good deal for your needs. (If you are tight on space, you could reduce the sizes of the I/O buffers allocated by jdatasrc.c and jdatadst.c, say from 4K to 1K. Another possibility is to move the error message table to far memory; this should be doable with only localized hacking on jerror.c.)

About 2K of the near heap space is "permanent" memory that will not be released until you destroy the JPEG object. This is only an issue if you save a JPEG object between compression or decompression operations.

Far data space may also be a tight resource when you are dealing with large images. The most memory-intensive case is decompression with two-pass color quantization, or single-pass quantization to an externally supplied color map. This requires a 128Kb color lookup table plus strip buffers amounting to about 40 bytes per column for typical sampling ratios (eg, about 25600 bytes for a 640-pixel-wide image). You may not be able to process wide images if you have large data structures of your own.

Of course, all of these concerns vanish if you use a 32-bit flat-memory-model compiler, such as DJGPP or Watcom C. We highly recommend flat model if you can use it; the JPEG library is significantly faster in flat model.

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/libjpeg.txt

No license file was found, but licenses were detected in source scan.

/\*

\* jidctint.c

\*

\* Copyright (C) 1991-1998, Thomas G. Lane.



- \* Modification developed 2002-2016 by Guido Vollbeding.
- \* This file is part of the Independent JPEG Group's software.
- \* For conditions of distribution and use, see the accompanying README file.
- \*
- \* This file contains a slow-but-accurate integer implementation of the
- \* inverse DCT (Discrete Cosine Transform). In the IJG code, this routine
- \* must also perform dequantization of the input coefficients.
- \*
- \* A 2-D IDCT can be done by 1-D IDCT on each column followed by 1-D IDCT
- \* on each row (or vice versa, but it's more convenient to emit a row at
- \* a time). Direct algorithms are also available, but they are much more
- \* complex and seem not to be any faster when reduced to code.
- \*
- \* This implementation is based on an algorithm described in
- \* C. Loeffler, A. Ligtenberg and G. Moschytz, "Practical Fast 1-D DCT
- \* Algorithms with 11 Multiplications",
- Proc. Int'l. Conf. on Acoustics,
- \* Speech, and Signal Processing 1989 (ICASSP '89), pp. 988-991.
- \* The primary algorithm described there uses 11 multiplies and 29 adds.
- \* We use their alternate method with 12 multiplies and 32 adds.
- \* The advantage of this method is that no data path contains more than one
- \* multiplication; this allows a very simple and accurate implementation in
- \* scaled fixed-point arithmetic, with a minimal number of shifts.
- \*
- \* We also provide IDCT routines with various output sample block sizes for
- \* direct resolution reduction or enlargement and for direct resolving the
- \* common 2x1 and 1x2 subsampling cases without additional resampling: NxN
- \* (N=1...16), 2NxN, and Nx2N (N=1...8) pixels for one 8x8 input DCT block.
- \*
- \* For N<8 we simply take the corresponding low-frequency coefficients of
- \* the 8x8 input DCT block and apply an NxN point IDCT on the sub-block
- \* to yield the downsampled outputs.
- \* This can be seen as direct low-pass downsampling
- from the DCT domain
- \* point of view rather than the usual spatial domain point of view,
- \* yielding significant computational savings and results at least
- \* as good as common bilinear (averaging) spatial downsampling.
- \*
- \* For N>8 we apply a partial NxN IDCT on the 8 input coefficients as
- \* lower frequencies and higher frequencies assumed to be zero.
- \* It turns out that the computational effort is similar to the 8x8 IDCT
- \* regarding the output size.
- \* Furthermore, the scaling and descaling is the same for all IDCT sizes.
- \*
- \* CAUTION: We rely on the FIX() macro except for the N=1,2,4,8 cases
- \* since there would be too many additional constants to pre-calculate.
- \*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdctint.c

No license file was found, but licenses were detected in source scan.

/\*

\* jmemdos.c

\*

\* Copyright (C) 1992-1997, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file provides an MS-DOS-compatible implementation of the system-

\* dependent portion of the JPEG memory manager. Temporary data can be

\* stored in extended or expanded memory as well as in regular DOS files.

\*

\* If you use this file, you must be sure that NEED\_FAR\_POINTERS is defined

\* if you compile in a small-data memory model; it should NOT be defined if

\* you use a large-data memory model. This file is not recommended if you

\* are using a flat-memory-space 386 environment such as DJGCC or Watcom C.

\* Also, this code will NOT work if struct fields are aligned on greater than

\* 2-byte boundaries.

\*

\* Based on code contributed by Ge' Weijers.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemdos.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdmainct.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* Modified 2002-2016 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains the main buffer controller for decompression.

\* The main buffer lies between the JPEG decompressor proper and the

\* post-processor; it holds downsampled data in the JPEG colorspace.

\*

\* Note that this code is bypassed in raw-data mode, since the application

\* supplies the equivalent of the main buffer in that case.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdmainct.c

No license file was found, but licenses were detected in source scan.

```
/*
 * jdmarker.c
 *
 * Copyright (C) 1991-1998, Thomas G. Lane.
 * Modified 2009-2013 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains routines to decode JPEG datastream markers.
 * Most of the complexity arises from our desire to support input
 * suspension: if not all of the data for a marker is available,
 * we must exit back to the application. On resumption, we reprocess
 * the marker.
 */
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdmarker.c
```

No license file was found, but licenses were detected in source scan.

```
/*
 * jdtrans.c
 *
 * Copyright (C) 1995-1997, Thomas G. Lane.
 * Modified 2000-2009 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains library routines for transcoding decompression,
 * that is, reading raw DCT coefficient arrays from an input JPEG file.
 * The routines in jdapimin.c will also be needed by a transcoder.
 */
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdtrans.c
```

No license file was found, but licenses were detected in source scan.

```
/*
 * jdatadst.c
 *
 * Copyright (C) 1994-1996, Thomas G. Lane.
 * Modified 2009-2017 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains compression data destination routines for the case of
 * emitting JPEG data to memory or to a file (or any stdio stream).
```

\* While these routines are sufficient for most applications,  
\* some will want to use a different destination manager.  
\* IMPORTANT: we assume that fwrite() will correctly transcribe an array of  
\* JOCTETs into 8-bit-wide elements on external storage. If char is wider  
\* than 8 bits on your machine, you may need to do some tweaking.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdatadst.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jdpostct.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains the decompression postprocessing controller.

\* This controller manages the upsampling, color conversion, and color

\* quantization/reduction steps; specifically, it controls the buffering

\* between upsample/color conversion and color quantization/reduction.

\*

\* If no color quantization/reduction is required, then this module has no

\* work to do, and it just hands off to the upsample/color conversion code.

\* An integrated upsample/convert/quantize process would replace this module

\* entirely.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdpostct.c  
No license file was found, but licenses were detected in source scan.

/\*

\* jaricom.c

\*

\* Developed 1997-2011 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains probability estimation tables for common use in

\* arithmetic entropy encoding and decoding routines.

\*

\* This data represents Table D.3 in the JPEG spec (D.2 in the draft),

\* ISO/IEC IS 10918-1 and CCITT Recommendation ITU-T T.81, and Table 24

\* in the JBIG spec, ISO/IEC IS 11544 and CCITT Recommendation ITU-T T.82.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jaricom.c

No license file was found, but licenses were detected in source scan.

/\*

\* jddctmgr.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* Modified 2002-2013 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains the inverse-DCT management logic.

\* This code selects a particular IDCT implementation to be used,

\* and it performs related housekeeping chores. No code in this file

\* is executed per IDCT step, only during output pass setup.

\*

\* Note that the IDCT routines are responsible for performing coefficient

\* dequantization as well as the IDCT proper. This module sets up the

\* dequantization multiplier table needed by the IDCT routine.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jddctmgr.c

No license file was found, but licenses were detected in source scan.

/\*

\* transupp.c

\*

\* Copyright (C) 1997-2017, Thomas G. Lane, Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains image transformation routines and other utility code

\* used by the jpegtran sample application. These are NOT part of the core

\* JPEG library. But we keep these routines separate from jpegtran.c to

\* ease the task of maintaining jpegtran-like programs that have other user

\* interfaces.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/transupp.c

No license file was found, but licenses were detected in source scan.

/\*

\* cderror.h

\*

\* Copyright (C) 1994-1997, Thomas G. Lane.

\* Modified 2009-2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file defines the error and message codes for the cjpeg/djpeg  
\* applications. These strings are not needed as part of the JPEG library  
\* proper.  
\* Edit this file to add new codes, or to translate the message strings to  
\* some other language.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/cderror.h  
No license file was found, but licenses were detected in source scan.

/\*  
\* rdppm.c  
\*  
\* Copyright (C) 1991-1997, Thomas G. Lane.  
\* Modified 2009-2017 by Bill Allombert, Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains routines to read input images in PPM/PGM format.  
\* The extended 2-byte-per-sample raw PPM/PGM formats are supported.  
\* The PBMPLUS library is NOT required to compile this software  
\* (but it is highly useful as a set of PPM image manipulation programs).  
\*  
\* These routines may need modification for non-Unix environments or  
\* specialized applications. As they stand, they assume input from  
\* an ordinary stdio stream. They further assume that reading begins  
\* at the start of the file; start\_input may need work if the  
\* user interface has already read some data (e.g., to determine that  
\* the file is indeed PPM format).  
\*/

/\* Portions

of this code are based on the PBMPLUS library, which is:

\*\*  
\*\* Copyright (C) 1988 by Jef Poskanzer.  
\*\*  
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\*\* that the above copyright notice appear in all copies and that both that  
\*\* copyright notice and this permission notice appear in supporting  
\*\* documentation. This software is provided "as is" without express or  
\*\* implied warranty.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdppm.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdhuft.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.

\* Modified 2006-2016 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains Huffman entropy decoding routines.

\* Both sequential and progressive modes are supported in this single module.

\*

\* Much of the complexity here has to do with supporting input suspension.

\* If the data source module demands suspension, we want to be able to back

\* up to the start of the current MCU. To do this, we copy state variables

\* into local working storage, and update them back to the permanent

\* storage only upon successful completion of an MCU.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdhuft.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdcoefct.c

\*

\* Copyright (C) 1994-1997, Thomas G. Lane.

\* Modified 2002-2011 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains the coefficient buffer controller for decompression.

\* This controller is the top level of the JPEG decompressor proper.

\* The coefficient buffer lies between entropy decoding and inverse-DCT steps.

\*

\* In buffered-image mode, this controller is the interface between

\* input-oriented processing and output-oriented processing.

\* Also, the input side (only) is used when reading a file for transcoding.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdcoefct.c

No license file was found, but licenses were detected in source scan.

/\*

```
* jcdctmgr.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2003-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the forward-DCT management logic.
* This code selects a particular DCT implementation to be used,
* and it performs related housekeeping chores including coefficient
* quantization.
*/
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcdctmgr.c
```

No license file was found, but licenses were detected in source scan.

```
/*
* jquant1.c
*
* Copyright (C) 1991-1996, Thomas G. Lane.
* Modified 2011 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains 1-pass color quantization (color mapping) routines.
* These routines provide mapping to a fixed color map using equally spaced
* color values. Optional Floyd-Steinberg or ordered dithering is available.
*/
```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jquant1.c
```

No license file was found, but licenses were detected in source scan.

```
/*
* cjpeg.c
*
* Copyright (C) 1991-1998, Thomas G. Lane.
* Modified 2003-2013 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a command-line user interface for the JPEG compressor.
* It should work on any system with Unix- or MS-DOS-style command lines.
*
* Two different command line styles are permitted, depending on the
* compile-time switch TWO_FILE_COMMANDLINE:
* cjpeg [options] inputfile outputfile
```



```

* cjpeg [options] [inputfile]
* In the second style, output is always to standard output, which you'd
* normally redirect to a file or pipe to some other program. Input is
* either from a named file or from standard input (typically redirected).
* The second style is convenient on Unix but is unhelpful on systems that
* don't support pipes. Also, you MUST use the
  first style if your system
* doesn't do binary I/O to stdin/stdout.
* To simplify script writing, the "-outfile" switch is provided. The syntax
* cjpeg [options] -outfile outputfile inputfile
* works regardless of which command line style is used.
*/

```

Found in path(s):

```

* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/cjpeg.c

```

No license file was found, but licenses were detected in source scan.

```

/*
* jfdctfst.c
*
* Copyright (C) 1994-1996, Thomas G. Lane.
* Modified 2003-2017 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains a fast, not so accurate integer implementation of the
* forward DCT (Discrete Cosine Transform).
*
* A 2-D DCT can be done by 1-D DCT on each row followed by 1-D DCT
* on each column. Direct algorithms are also available, but they are
* much more complex and seem not to be any faster when reduced to code.
*
* This implementation is based on Arai, Agui, and Nakajima's algorithm for
* scaled DCT. Their original paper (Trans. IEICE E-71(11):1095) is in
* Japanese, but the algorithm is described in the Pennebaker & Mitchell
* JPEG textbook (see REFERENCES section in file README). The following code
* is based directly on figure 4-8 in P&M.
* While an 8-point DCT cannot be done in less than 11 multiplies, it is
* possible to arrange the computation so that many of the multiplies are
* simple scalings of the final outputs. These multiplies can then be
* folded into the multiplications or divisions by the JPEG quantization
* table entries. The AA&N method leaves only 5 multiplies and 29 adds
* to be done in the DCT itself.
* The primary disadvantage of this method is that with fixed-point math,
* accuracy is lost due to imprecise representation of the scaled
* quantization values. The smaller the quantization table entry, the less
* precise the scaled value, so this implementation does worse with high-
* quality-setting files than with low-quality ones.

```

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jfdctfst.c

No license file was found, but licenses were detected in source scan.

/\*

\* rdcolmap.c

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file implements djpeg's "-map file" switch. It reads a source image

\* and constructs a colormap to be supplied to the JPEG decompressor.

\*

\* Currently, these file formats are supported for the map file:

\* GIF: the contents of the GIF's global colormap are used.

\* PPM (either text or raw flavor): the entire file is read and

\* each unique pixel value is entered in the map.

\* Note that reading a large PPM file will be horrendously slow.

\* Typically, a PPM-format map file should contain just one pixel

\* of each desired color. Such a file can be extracted from an

\* ordinary image PPM file with ppmtomap(1).

\*

\* Rescaling a PPM that has a maxval unequal to MAXJSAMPLE is not

\* currently implemented.

\*/

/\* Portions of this code are based on the PBMPLUS library, which is:

\*\*

\*\* Copyright (C) 1988 by Jef Poskanzer.

\*\*

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\*\* documentation for any purpose and without fee is hereby granted, provided

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\*\* copyright notice and this permission notice appear in supporting

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\*\* implied warranty.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/rdcolmap.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdsample.c

\*

\* Copyright (C) 1991-1996, Thomas G. Lane.

\* Modified 2002-2015 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains upsampling routines.  
\*  
\* Upsampling input data is counted in "row groups". A row group  
\* is defined to be  $(v\_samp\_factor * DCT\_v\_scaled\_size / min\_DCT\_v\_scaled\_size)$   
\* sample rows of each component. Upsampling will normally produce  
\*  $max\_v\_samp\_factor$  pixel rows from each row group (but this could vary  
\* if the upsampler is applying a scale factor of its own).  
\*  
\* An excellent reference for image resampling is  
\* Digital Image Warping, George Wolberg, 1990.  
\* Pub. by IEEE Computer Society Press, Los Alamitos, CA. ISBN 0-8186-8944-7.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdsample.c

No license file was found, but licenses were detected in source scan.

/\*

\* jdct.h

\*

\* Copyright (C) 1994-1996, Thomas G. Lane.  
\* Modified 2002-2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This include file contains common declarations for the forward and  
\* inverse DCT modules. These declarations are private to the DCT managers  
\* (jcdctmgr.c, jddctmgr.c) and the individual DCT algorithms.  
\* The individual DCT algorithms are kept in separate files to ease  
\* machine-dependent tuning (e.g., assembly coding).  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdct.h

No license file was found, but licenses were detected in source scan.

/\*

\* jdcolor.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.  
\* Modified 2011-2017 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*

\* This file contains output colorspace conversion routines.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jdcolor.c

No license file was found, but licenses were detected in source scan.

/\*

\* wrgif.c

\*

\* Copyright (C) 1991-1997, Thomas G. Lane.

\* Modified 2015-2017 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains routines to write output images in GIF format.

\*

\*\*\*\*\*

\* NOTE: to avoid entanglements with Unisys' patent on LZW compression, \*

\* this code has been modified to output "uncompressed GIF" files. \*

\* There is no trace of the LZW algorithm in this file. \*

\*\*\*\*\*

\*

\* These routines may need modification for non-Unix environments or

\* specialized applications. As they stand, they assume output to

\* an ordinary stdio stream.

\*/

/\*

\* This code is loosely based on ppmtogif from the PBMPLUS  
distribution

\* of Feb. 1991. That file contains the following copyright notice:

\* Based on GIFENCOD by David Rowley <mgardi@watdscu.waterloo.edu>.

\* Lempel-Ziv compression based on "compress" by Spencer W. Thomas et al.

\* Copyright (C) 1989 by Jef Poskanzer.

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\*

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\* CompuServe Incorporated. GIF(sm) is a Service Mark property of

\* CompuServe Incorporated."

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/wrgif.c

No license file was found, but licenses were detected in source scan.

/\*

\* jccoefct.c

\*

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\* Modified 2003-2011 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains the coefficient buffer controller for compression.

\* This controller is the top level of the JPEG compressor proper.

\* The coefficient buffer lies between forward-DCT and entropy encoding steps.

\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jccoefct.c

No license file was found, but licenses were detected in source scan.

/\*

\* jidctfst.c

\*

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\* Modified 2015-2017 by Guido Vollbeding.

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\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file contains a fast, not so accurate integer implementation of the

\* inverse DCT (Discrete Cosine Transform). In the IJG code, this routine

\* must also perform dequantization of the input coefficients.

\*

\* A 2-D IDCT can be done by 1-D IDCT on each column followed by 1-D IDCT

\* on each row (or vice versa, but it's more convenient to emit a row at

\* a time). Direct algorithms are also available, but they are much more

\* complex and seem not to be any faster when reduced to code.

\*

\* This implementation is based on Arai, Agui, and Nakajima's algorithm for

\* scaled DCT. Their original paper (Trans. IEICE E-71(11):1095) is in

\* Japanese, but the algorithm

is described in the Pennebaker & Mitchell

\* JPEG textbook (see REFERENCES section in file README). The following code

\* is based directly on figure 4-8 in P&M.

\* While an 8-point DCT cannot be done in less than 11 multiplies, it is

\* possible to arrange the computation so that many of the multiplies are

\* simple scalings of the final outputs. These multiplies can then be

\* folded into the multiplications or divisions by the JPEG quantization

\* table entries. The AA&N method leaves only 5 multiplies and 29 adds

\* to be done in the DCT itself.  
\* The primary disadvantage of this method is that with fixed-point math,  
\* accuracy is lost due to imprecise representation of the scaled  
\* quantization values. The smaller the quantization table entry, the less  
\* precise the scaled value, so this implementation does worse with high-  
\* quality-setting files than with low-quality ones.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jidctfst.c

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/\*

\* jconfig.txt

\*

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\* Modified 2009-2013 by Guido Vollbeding.

\* This file is part of the Independent JPEG Group's software.

\* For conditions of distribution and use, see the accompanying README file.

\*

\* This file documents the configuration options that are required to

\* customize the JPEG software for a particular system.

\*

\* The actual configuration options for a particular installation are stored

\* in jconfig.h. On many machines, jconfig.h can be generated automatically

\* or copied from one of the "canned" jconfig files that we supply. But if

\* you need to generate a jconfig.h file by hand, this file tells you how.

\*

\* DO NOT EDIT THIS FILE --- IT WON'T ACCOMPLISH ANYTHING.

\* EDIT A COPY NAMED JCONFIG.H.

\*/

/\*

\* These symbols indicate the properties of your machine or compiler.

\* #define the symbol if yes, #undef it if no.

\*/

/\* Does your compiler

support function prototypes?

\* (If not, you also need to use ansi2knr, see install.txt)

\*/

#define HAVE\_PROTOTYPES

/\* Does your compiler support the declaration "unsigned char" ?

\* How about "unsigned short" ?

\*/

#define HAVE\_UNSIGNED\_CHAR

```

#define HAVE_UNSIGNED_SHORT

/* Define "void" as "char" if your compiler doesn't know about type void.
 * NOTE: be sure to define void such that "void *" represents the most general
 * pointer type, e.g., that returned by malloc().
 */
/* #define void char */

/* Define "const" as empty if your compiler doesn't know the "const" keyword.
 */
/* #define const */

/* Define this if an ordinary "char" type is unsigned.
 * If you're not sure, leaving it undefined will work at some cost in speed.
 * If you defined HAVE_UNSIGNED_CHAR then the speed difference is minimal.
 */
#undef CHAR_IS_UNSIGNED

/* Define this if your system has an ANSI-conforming <stddef.h> file.
 */
#define HAVE_STDDEF_H

/* Define this if your system has an ANSI-conforming <stdlib.h>
file.
 */
#define HAVE_STDLIB_H

/* Define this if your system does not have an ANSI/SysV <string.h>,
 * but does have a BSD-style <strings.h>.
 */
#undef NEED_BSD_STRINGS

/* Define this if your system does not provide typedef size_t in any of the
 * ANSI-standard places (stddef.h, stdlib.h, or stdio.h), but places it in
 * <sys/types.h> instead.
 */
#undef NEED_SYS_TYPES_H

/* For 80x86 machines, you need to define NEED_FAR_POINTERS,
 * unless you are using a large-data memory model or 80386 flat-memory mode.
 * On less brain-damaged CPUs this symbol must not be defined.
 * (Defining this symbol causes large data structures to be referenced through
 * "far" pointers and to be allocated with a special version of malloc.)
 */
#undef NEED_FAR_POINTERS

/* Define this if your linker needs global names to be unique in less
 * than the first 15 characters.

```

```

*/
#undef NEED_SHORT_EXTERNAL_NAMES

/* Although a real ANSI C compiler can deal perfectly well with pointers to
* unspecified
* structures (see "incomplete types" in the spec), a few pre-ANSI
* and pseudo-ANSI compilers get confused. To keep one of these bozos happy,
* define INCOMPLETE_TYPES_BROKEN. This is not recommended unless you
* actually get "missing structure definition" warnings or errors while
* compiling the JPEG code.
*/
#undef INCOMPLETE_TYPES_BROKEN

/* Define "boolean" as unsigned char, not enum, on Windows systems.
*/
#ifdef _WIN32
#ifndef __RPCNDR_H__ /* don't conflict if rpcndr.h already read */
typedef unsigned char boolean;
#endif
#ifndef FALSE /* in case these macros already exist */
#define FALSE 0 /* values of boolean */
#endif
#ifndef TRUE
#define TRUE 1
#endif
#define HAVE_BOOLEAN /* prevent jmorecfg.h from redefining it */
#endif

/*
* The following options affect code selection within the JPEG library,
* but they don't need to be visible to applications using the library.
* To minimize application namespace pollution, the symbols won't be
* defined unless JPEG_INTERNALS
* has been defined.
*/
#ifdef JPEG_INTERNALS

/* Define this if your compiler implements ">>" on signed values as a logical
* (unsigned) shift; leave it undefined if ">>" is a signed (arithmetic) shift,
* which is the normal and rational definition.
*/
#undef RIGHT_SHIFT_IS_UNSIGNED

#endif /* JPEG_INTERNALS */

```



```

/*
* The remaining options do not affect the JPEG library proper,
* but only the sample applications cjpeg/djpeg (see cjpeg.c, djpeg.c).
* Other applications can ignore these.
*/

#ifndef JPEG_CJPEG_DJPEG

/* These defines indicate which image (non-JPEG) file formats are allowed. */

#define BMP_SUPPORTED /* BMP image file format */
#define GIF_SUPPORTED /* GIF image file format */
#define PPM_SUPPORTED /* PBMPLUS PPM/PGM image file format */
#undef RLE_SUPPORTED /* Utah RLE image file format */
#define TARGA_SUPPORTED /* Targa image file format */

/* Define this if you want to name both input and output files on the command
* line, rather than using stdout
and optionally stdin. You MUST do this if
* your system can't cope with binary I/O to stdin/stdout. See comments at
* head of cjpeg.c or djpeg.c.
*/
#undef TWO_FILE_COMMANDLINE

/* Define this if your system needs explicit cleanup of temporary files.
* This is crucial under MS-DOS, where the temporary "files" may be areas
* of extended memory; on most other systems it's not as important.
*/
#undef NEED_SIGNAL_CATCHER

/* By default, we open image files with fopen(...,"rb") or fopen(...,"wb").
* This is necessary on systems that distinguish text files from binary files,
* and is harmless on most systems that don't. If you have one of the rare
* systems that complains about the "b" spec, define this symbol.
*/
#undef DONT_USE_B_MODE

/* Define this if you want percent-done progress reports from cjpeg/djpeg.
*/
#undef PROGRESS_REPORT

#endif /* JPEG_CJPEG_DJPEG */

Found in path(s):
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jconfig.txt

```

No license file was found, but licenses were detected in source scan.

```
/*
 * jcmaster.c
 *
 * Copyright (C) 1991-1997, Thomas G. Lane.
 * Modified 2003-2017 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains master control logic for the JPEG compressor.
 * These routines are concerned with parameter validation, initial setup,
 * and inter-pass control (determining the number of passes and the work
 * to be done in each pass).
 */
```

Found in path(s):

```
*/opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jcmaster.c
```

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```
/*
 * jpegtran.c
 *
 * Copyright (C) 1995-2013, Thomas G. Lane, Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains a command-line user interface for JPEG transcoding.
 * It is very similar to cjpeg.c, and partly to djpeg.c, but provides
 * lossless transcoding between different JPEG file formats. It also
 * provides some lossless and sort-of-lossless transformations of JPEG data.
 */
```

Found in path(s):

```
*/opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jpegtran.c
```

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```
/*
 * wrbmp.c
 *
 * Copyright (C) 1994-1996, Thomas G. Lane.
 * Modified 2017 by Guido Vollbeding.
 * This file is part of the Independent JPEG Group's software.
 * For conditions of distribution and use, see the accompanying README file.
 *
 * This file contains routines to write output images in Microsoft "BMP"
 * format (MS Windows 3.x and OS/2 1.x flavors).
 * Either 8-bit colormapped or 24-bit full-color format can be written.
```

\* No compression is supported.  
\*  
\* These routines may need modification for non-Unix environments or  
\* specialized applications. As they stand, they assume output to  
\* an ordinary stdio stream.  
\*  
\* This code contributed by James Arthur Boucher.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/wrbmp.c  
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/\*  
\* jccolor.c  
\*  
\* Copyright (C) 1991-1996, Thomas G. Lane.  
\* Modified 2011-2013 by Guido Vollbeding.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* This file contains input colorspace conversion routines.  
\*/

Found in path(s):

\* /opt/cola/permits/1103525591\_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jccolor.c  
No license file was found, but licenses were detected in source scan.

/\*  
\* jmemmac.c  
\*  
\* Copyright (C) 1992-1997, Thomas G. Lane.  
\* This file is part of the Independent JPEG Group's software.  
\* For conditions of distribution and use, see the accompanying README file.  
\*  
\* jmemmac.c provides an Apple Macintosh implementation of the system-  
\* dependent portion of the JPEG memory manager.  
\*  
\* If you use jmemmac.c, then you must define USE\_MAC\_MEMMGR in the  
\* JPEG\_INTERNALS part of jconfig.h.  
\*  
\* jmemmac.c uses the Macintosh toolbox routines NewPtr and DisposePtr  
\* instead of malloc and free. It accurately determines the amount of  
\* memory available by using CompactMem. Notice that if left to its  
\* own devices, this code can chew up all available space in the  
\* application's zone, with the exception of the rather small "slop"  
\* factor computed in jpeg\_mem\_available(). The application can ensure  
\* that more space is left over by reducing max\_memory\_to\_use.

```

*
* Large images
are swapped to disk using temporary files and System 7.0+'s
* temporary folder functionality.
*
* Note that jmemmac.c depends on two features of MacOS that were first
* introduced in System 7: FindFolder and the FSSpec-based calls.
* If your application uses jmemmac.c and is run under System 6 or earlier,
* and the jpeg library decides it needs a temporary file, it will abort,
* printing error messages about requiring System 7. (If no temporary files
* are created, it will run fine.)
*
* If you want to use jmemmac.c in an application that might be used with
* System 6 or earlier, then you should remove dependencies on FindFolder
* and the FSSpec calls. You will need to replace FindFolder with some
* other mechanism for finding a place to put temporary files, and you
* should replace the FSSpec calls with their HFS equivalents:
*
* FSpDelete  -> HDelete
* FSpGetFInfo -> HGetFInfo
* FSpCreate  -> HCreate
* FSpOpenDF  -> HOpen
*** Note: not HOpenDF ***
* FSMakeFSSpec -> (fill in spec by hand.)
*
* (Use HOpen instead of HOpenDF. HOpen is just a glue-interface to PBHOpen,
* which is on all HFS macs. HOpenDF is a System 7 addition which avoids the
* ages-old problem of names starting with a period.)
*
* Contributed by Sam Bushell (jsam@iagu.on.net) and
* Dan Gildor (gyld@in-touch.com).
*/

```

Found in path(s):

```

* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemmac.c

```

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```

/*
* jmemmgr.c
*
* Copyright (C) 1991-1997, Thomas G. Lane.
* Modified 2011-2012 by Guido Vollbeding.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains the JPEG system-independent memory management
* routines. This code is usable across a wide variety of machines; most
* of the system dependencies have been isolated in a separate file.

```

```

* The major functions provided here are:
* * pool-based allocation and freeing of memory;
* * policy decisions about how to divide available memory among the
*   virtual arrays;
* * control logic for swapping virtual arrays between main memory and
*   backing storage.
* The separate system-dependent file provides the actual backing-storage
* access code, and it contains the policy decision about how much total
* main memory to use.
* This file is
  system-dependent in the sense that some of its functions
* are unnecessary in some systems. For example, if there is enough virtual
* memory so that backing storage will never be used, much of the virtual
* array control logic could be removed. (Of course, if you have that much
* memory then you shouldn't care about a little bit of unused code...)
*/

```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/jmemmgr.c
```

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```

/*
* cdjpeg.h
*
* Copyright (C) 1994-1997, Thomas G. Lane.
* This file is part of the Independent JPEG Group's software.
* For conditions of distribution and use, see the accompanying README file.
*
* This file contains common declarations for the sample applications
* cjpeg and djpeg. It is NOT used by the core JPEG library.
*/

```

Found in path(s):

```
* /opt/cola/permits/1103525591_1607965476.8/0/jpeg-9c-master-zip/jpeg-9c-master/cdjpeg.h
```

## 1.220 Icms 2.7

### 1.220.1 Available under license :

Little CMS

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The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

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## 1.221 glib 2.60.4

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# 1.223 binutils 2.29.1

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the

library". The executable is therefore covered by this License.

Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any

executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

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c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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A "library" means a collection of software functions and/or data

prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

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b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

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If you've contributed to gas and your name isn't listed here, it is not meant as a slight. I just don't know about it. Email me, [nickc@redhat.com](mailto:nickc@redhat.com) and I'll correct the situation.

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+++++

Dean Elsner wrote the original gas for vax. [more details?]

Jay Fenlason maintained gas for a while, adding support for gdb-specific debug information and the 68k series machines, most of the preprocessing pass, and extensive changes in messages.c, input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various enhancements and many bug fixes, including merging support for several processors, breaking gas up to handle multiple object file format backends (including heavy rewrite, testing, an integration of the coff and b.out backends), adding configuration including heavy testing and verification of cross assemblers and file splits and renaming, converted gas to strictly ansi C including full prototypes, added support for m680[34]0 & cpu32, considerable work on i960 including a coff port (including considerable amounts of reverse engineering), a sparc opcode file rewrite, decstation, rs6000, and hp300hpux host ports, updated "know" assertions and made them work, much other reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan. Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of Buffalo University and Torbjorn Granlund of the Swedish Institute of Computer Science.

Keith

Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many bugs, including true tested cross-compilation support, and one bug in relaxation that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many small bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000 series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30 (tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error checking, updating the code, and improving the 16 bit support, using patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If you've contributed significant work and are not mentioned on this list, and want to be, let us know. Some of the history has been lost; we aren't intentionally leaving anyone out.

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# 1.250 typedarray 0.0.6

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// Original can be found at:

// <https://bitbucket.org/lindenlab/llsd>

// Modifications by Joshua Bell [inexorabletaash@gmail.com](mailto:inexorabletaash@gmail.com)

// <https://github.com/inexorabletaash/polyfill>

// ES3/ES5 implementation of the Khronos Typed Array Specification

// Ref: <http://www.khronos.org/registry/typedarray/specs/latest/>

// Date: 2011-02-01

//

// Variations:

// \* Allows typed\_array.get/set() as alias for subscripts (typed\_array[])

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# 1.253 http-proxy-agent 2.1.0

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http-proxy-agent

=====

### An HTTP(s) proxy `http.Agent` implementation for HTTP

[![Build Status](https://travis-ci.org/TooTallNate/node-http-proxy-agent.svg?branch=master)](https://travis-ci.org/TooTallNate/node-http-proxy-agent)

This module provides an `http.Agent` implementation that connects to a specified HTTP or HTTPS proxy server, and can be used with the built-in `http` module.

\_\_Note:\_\_ For HTTP proxy usage with the `https` module, check out [node-https-proxy-agent](https://github.com/TooTallNate/node-https-proxy-agent).

Installation

-----

Install with `npm`:

```
``` bash
$ npm install http-proxy-agent
```
```

Example

-----

```
``` js
var url = require('url');
var http = require('http');
var HttpProxyAgent = require('http-proxy-agent');

// HTTP/HTTPS proxy to connect to
var proxy = process.env.http_proxy || 'http://168.63.76.32:3128';
console.log('using proxy server %j', proxy);

// HTTP endpoint
for the proxy to connect to
var endpoint = process.argv[2] || 'http://nodejs.org/api/';
console.log('attempting to GET %j', endpoint);
var opts = url.parse(endpoint);
```



```
// create an instance of the `HttpProxyAgent` class with the proxy server information
var agent = new HttpProxyAgent(proxy);
opts.agent = agent;

http.get(opts, function (res) {
  console.log("'response' event!", res.headers);
  res.pipe(process.stdout);
});
...

```

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## 1.254 pumpify 1.5.1

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## 1.260 config-chain 1.1.12

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# 1.276 socks-proxy-agent 4.0.1

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socks-proxy-agent

=====

### A SOCKS proxy `http.Agent` implementation for HTTP and HTTPS

[![Build Status](https://travis-ci.org/TooTallNate/node-socks-proxy-agent.svg?branch=master)](https://travis-ci.org/TooTallNate/node-socks-proxy-agent)

This module provides an `http.Agent` implementation that connects to a specified SOCKS proxy server, and can be used with the built-in `http` or `https` modules.

It can also be used in conjunction with the `ws` module to establish a WebSocket connection over a SOCKS proxy. See the "Examples" section below.

Installation

-----

Install with `npm`:

```
``` bash
$ npm install socks-proxy-agent
```
```

Examples

-----

#### `http` module example

```
``` js
var url = require('url');
var http = require('http');
var SocksProxyAgent = require('socks-proxy-agent');

// SOCKS proxy to connect to
var proxy = process.env.socks_proxy || 'socks://127.0.0.1:9050';
console.log('using
proxy server %j', proxy);

// HTTP endpoint for the proxy to connect to
var endpoint = process.argv[2] || 'http://nodejs.org/api/';
console.log('attempting to GET %j', endpoint);
```

```

var opts = url.parse(endpoint);

// create an instance of the `SocksProxyAgent` class with the proxy server information
var agent = new SocksProxyAgent(proxy);
opts.agent = agent;

http.get(opts, function (res) {
  console.log('"response" event!', res.headers);
  res.pipe(process.stdout);
});

```

#### `https` module example

```

``` js
var url = require('url');
var https = require('https');
var SocksProxyAgent = require('socks-proxy-agent');

// SOCKS proxy to connect to
var proxy = process.env.socks_proxy || 'socks://127.0.0.1:9050';
console.log('using proxy server %j', proxy);

// HTTP endpoint for the proxy to connect to
var endpoint = process.argv[2] || 'https://encrypted.google.com/';
console.log('attempting to GET %j', endpoint);
var opts = url.parse(endpoint);

// create an instance of the `SocksProxyAgent`
class with the proxy server information
// NOTE: the `true` second argument! Means to use TLS encryption on the socket
var agent = new SocksProxyAgent(proxy, true);
opts.agent = agent;

https.get(opts, function (res) {
  console.log('"response" event!', res.headers);
  res.pipe(process.stdout);
});

```

#### `ws` WebSocket connection example

```

``` js
var WebSocket = require('ws');
var SocksProxyAgent = require('socks-proxy-agent');

// SOCKS proxy to connect to
var proxy = process.env.socks_proxy || 'socks://127.0.0.1:9050';

```

```

console.log('using proxy server %j', proxy);

// WebSocket endpoint for the proxy to connect to
var endpoint = process.argv[2] || 'ws://echo.websocket.org';
console.log('attempting to connect to WebSocket %j', endpoint);

// create an instance of the `SocksProxyAgent` class with the proxy server information
var agent = new SocksProxyAgent(proxy);

// initiate the WebSocket connection
var socket = new WebSocket(endpoint, { agent: agent });

socket.on('open', function
() {
console.log('"open" event!');
socket.send('hello world');
});

socket.on('message', function (data, flags) {
console.log('"message" event! %j %j', data, flags);
socket.close();
});

```

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=== EOF ===

## 1.394 python3-asn1crypto 0.24.0

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## 1.407 jackson 2.12.0

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# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library.  
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## 1.408 python-requests 2.19.1

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# 1.409 netkit-tftp 1.9.4

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## 1.412 libdnet 1.12

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# 1.413 mtools 4.0.18

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Version 3, 29 June 2007

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```

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```
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```

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```
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```

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```
# File generated by xf86config.
```

```
#
```

```
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```

```
#
```

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#
# *****
# Refer to the XF86Config(4/5) man page for details about the format of
# this file.
# *****

# NOTE: This is a NEW IMPROVED version of XF86Config-fbdev that uses the vesa
# driver instead of the fbdev driver. Thanks to Kenneth Fanyo who pointed
# this out to me. :)

# This XF86Config file is designed for use with the VESA framebuffer.
# This generic interface should work with nearly all video cards
# (although
# not every card will support every resolution).

# With the new driver, it should no longer be required to have frame buffer
# support in the kernel, or to run it on the console.
#
# Enjoy! :)
# -- volkerdi@slackware.com
#
# *****
# Module section -- this section is used to specify
# which dynamically loadable modules to load.
# *****
#
Section "Module"

# This loads the DBE extension module.

Load      "dbe" # Double buffer extension

```

```

# This loads the miscellaneous extensions module, and disables
# initialisation of the XFree86-DGA extension within that module.
SubSection "extmod"
    Option "omit xfree86-dga" # don't initialise the DGA extension
EndSubSection

# This loads the font modules
Load "type1"
Load "freetype"
Load "speedo"

# This loads the GLX module
Load "glx"

EndSection

#
*****
# Files section. This allows default font and rgb paths to be set
# *****

Section "Files"

# The location of the RGB database. Note, this is the name of the
# file minus the extension (like ".txt" or ".db"). There is normally
# no need to change the default.

    RgbPath "/usr/X11R6/lib/X11/rgb"

# Multiple FontPath entries are allowed (which are concatenated together),
# as well as specifying multiple comma-separated entries in one FontPath
# command (or a combination of both methods)
#
# If you don't have a floating point coprocessor and emacs, Mosaic or other
# programs take long to start up, try moving the Type1 and Speedo directory
# to the end of this list (or comment them out).
#

    FontPath "/usr/X11R6/lib/X11/fonts/local/"
    FontPath "/usr/X11R6/lib/X11/fonts/misc/"
    FontPath "/usr/X11R6/lib/X11/fonts/75dpi:unscaled"
    FontPath "/usr/X11R6/lib/X11/fonts/100dpi:unscaled"
    FontPath "/usr/X11R6/lib/X11/fonts/Type1/"
    FontPath "/usr/X11R6/lib/X11/fonts/CID/"
    FontPath "/usr/X11R6/lib/X11/fonts/Speedo/"
    FontPath "/usr/X11R6/lib/X11/fonts/75dpi"
    FontPath "/usr/X11R6/lib/X11/fonts/100dpi"

```



```

FontPath "/usr/X11R6/lib/X11/fonts/cyrillic/"

# ModulePath can be used to set a search path for the X server modules.
# The default path is shown here.

# ModulePath "/usr/X11R6/lib/modules"

EndSection

# *****
# Server flags section.
# *****

Section "ServerFlags"

# Uncomment this to cause a core dump at the spot where a signal is
# received. This may leave the console in an unusable state, but may
# provide a better stack trace in the core dump to aid in debugging

# Option "NoTrapSignals"

# Uncomment this to disable the <Ctrl><Alt><Fn>
# VT switch sequence
# (where n is 1 through 12). This allows clients to receive these key
# events.

# Option "DontVTSwitch"

# Uncomment this to disable the <Ctrl><Alt><BS> server abort sequence
# This allows clients to receive this key event.

# Option "DontZap"

# Uncomment this to disable the <Ctrl><Alt><KP_+>/<KP_-> mode switching
# sequences. This allows clients to receive these key events.

# Option "DontZoom"

# Uncomment this to disable tuning with the xvidtune client. With
# it the client can still run and fetch card and monitor attributes,
# but it will not be allowed to change them. If it tries it will
# receive a protocol error.

# Option "DisableVidModeExtension"

# Uncomment this to enable the use of a non-local xvidtune client.

# Option "AllowNonLocalXvidtune"

```

```
# Uncomment this to disable dynamically modifying the input device
# (mouse and keyboard) settings.
```

```
# Option "DisableModInDev"
```

```
# Uncomment this to enable the use of a
non-local client to
# change the keyboard or mouse settings (currently only xset).
```

```
# Option "AllowNonLocalModInDev"
```

```
# Set the basic blanking screen saver timeout.
```

```
# Option "blank time" "10" # 10 minutes
```

```
# Set the DPMS timeouts. These are set here because they are global
# rather than screen-specific. These settings alone don't enable DPMS.
# It is enabled per-screen (or per-monitor), and even then only when
# the driver supports it.
```

```
# Option "standby time" "20"
```

```
# Option "suspend time" "30"
```

```
# Option "off time" "60"
```

```
# On some platform the server needs to estimate the sizes of PCI
# memory and pio ranges. This is done by assuming that PCI ranges
# don't overlap. Some broken BIOSes tend to set ranges of inactive
# devices wrong. Here one can adjust how aggressive the assumptions
# should be. Default is 0.
```

```
# Option "EstimateSizesAggressively" "0"
```

```
EndSection
```

```
# *****
```

```
#
```

```
Input devices
```

```
# *****
```

```
# *****
```

```
# Core keyboard's InputDevice section
```

```
# *****
```

```
Section "InputDevice"
```

```
Identifier "Keyboard1"
```

```
Driver "Keyboard"
```

```
# For most OSs the protocol can be omitted (it defaults to "Standard").
# When using XQUEUE (only for SVR3 and SVR4, but not Solaris),
# uncomment the following line.

# Option "Protocol" "Xqueue"

# Set the keyboard auto repeat parameters. Not all platforms implement
# this.

# Option "AutoRepeat" "500 5"

# Specify which keyboard LEDs can be user-controlled (eg, with xset(1)).

# Option "Xleds" "1 2 3"

# To disable the XKEYBOARD extension, uncomment XkbDisable.

# Option "XkbDisable"

# To customise the XKB settings to suit your keyboard, modify the
# lines below (which are the defaults). For example,
# for a European
# keyboard, you will probably want to use one of:
#
# Option "XkbModel" "pc102"
# Option "XkbModel" "pc105"
#
# If you have a Microsoft Natural keyboard, you can use:
#
# Option "XkbModel" "microsoft"
#
# If you have a US "windows" keyboard you will want:
#
# Option "XkbModel" "pc104"
#
# Then to change the language, change the Layout setting.
# For example, a german layout can be obtained with:
#
# Option "XkbLayout" "de"
#
# or:
#
# Option "XkbLayout" "de"
# Option "XkbVariant" "nodeadkeys"
#
# If you'd like to switch the positions of your capslock and
# control keys, use:
#
```

```

# Option "XkbOptions" "ctrl:swapcaps"

# These are the default XKB settings for XFree86
#
# Option "XkbRules" "xfree86"
# Option "XkbModel" "pc101"
# Option "XkbLayout" "us"
# Option "XkbVariant" ""
# Option "XkbOptions" ""

EndSection

# *****
#
Core Pointer's InputDevice section
# *****

Section "InputDevice"

# Identifier and driver

Identifier "Mouse1"
Driver "mouse"

# On platforms where PnP mouse detection is supported the following
# protocol setting can be used when using a newer PnP mouse:

# Option "Protocol" "Auto"

# The available mouse protocols types that you can set below are:
# Auto BusMouse GlidePoint GlidePointPS/2 IntelliMouse IMPS/2
# Logitech Microsoft MMHitTab MMSeries Mouseman MouseManPlusPS/2
# MouseSystems NetMousePS/2 NetScrollPS/2 OSMouse PS/2 SysMouse
# ThinkingMouse ThinkingMousePS/2 Xqueue
Option "Protocol" "PS/2"

# The mouse device. The device is normally set to /dev/mouse,
# which is usually a symbolic link to the real device.

Option "Device" "/dev/mouse"
# Option "Device" "/dev/psaux"
# Option "Device" "/dev/ttyS0"
#
Option "Device" "/dev/ttyS1"

# When using XQUEUE, comment out the above two lines, and uncomment

```

```

# the following line.

# Option "Protocol" "Xqueue"

# Baudrate and SampleRate are only for some Logitech mice. In
# almost every case these lines should be omitted.

# Option "BaudRate" "9600"
# Option "SampleRate" "150"

# Emulate3Buttons is an option for 2-button Microsoft mice
# Emulate3Timeout is the timeout in milliseconds (default is 50ms)

# Option "Emulate3Buttons"
# Option "Emulate3Timeout" "50"

# ChordMiddle is an option for some 3-button Logitech mice

# Option "ChordMiddle"

EndSection

# Some examples of extended input devices

# Section "InputDevice"
# Identifier "spaceball"
# Driver "magellan"
# Option "Device" "/dev/cua0"
# EndSection
#
# Section "InputDevice"
# Identifier "spaceball2"
# Driver "spaceorb"
# Option "Device" "/dev/cua0"
# EndSection
#
# Section "InputDevice"
# Identifier
"touchscreen0"
# Driver "microtouch"
# Option "Device" "/dev/ttyS0"
# Option "MinX" "1412"
# Option "MaxX" "15184"
# Option "MinY" "15372"
# Option "MaxY" "1230"
# Option "ScreenNumber" "0"
# Option "ReportingMode" "Scaled"
# Option "ButtonNumber" "1"

```

```

# Option "SendCoreEvents"
# EndSection
#
# Section "InputDevice"
# Identifier "touchscreen1"
# Driver "elo2300"
# Option "Device" "/dev/ttyS0"
# Option "MinX" "231"
# Option "MaxX" "3868"
# Option "MinY" "3858"
# Option "MaxY" "272"
# Option "ScreenNumber" "0"
# Option "ReportingMode" "Scaled"
# Option "ButtonThreshold" "17"
# Option "ButtonNumber" "1"
# Option "SendCoreEvents"
# EndSection

```

```

# *****
# Monitor section
# *****

```

```

#
Any number of monitor sections may be present

```

Section "Monitor"

Identifier "My Monitor"

```

# HorizSync is in kHz unless units are specified.
# HorizSync may be a comma separated list of discrete values, or a
# comma separated list of ranges of values.
# NOTE: THE VALUES HERE ARE EXAMPLES ONLY. REFER TO YOUR MONITOR'S
# USER MANUAL FOR THE CORRECT NUMBERS.

```

HorizSync 31.5 - 50.0

```

# HorizSync 30-64 # multisync
# HorizSync 31.5, 35.2 # multiple fixed sync frequencies
# HorizSync 15-25, 30-50 # multiple ranges of sync frequencies

```

```

# VertRefresh is in Hz unless units are specified.
# VertRefresh may be a comma separated list of discrete values, or a
# comma separated list of ranges of values.
# NOTE: THE VALUES HERE ARE EXAMPLES ONLY. REFER TO YOUR MONITOR'S
# USER MANUAL FOR THE CORRECT NUMBERS.

```

VertRefresh 40-90

EndSection

```
# *****  
#  
Graphics device section  
# *****
```

# Any number of graphics device sections may be present

Section "Device"

```
Identifier "VESA Framebuffer"  
Driver "vesa"  
#VideoRam 4096  
# Insert Clocks lines here if appropriate
```

EndSection

```
# *****  
# Screen sections  
# *****
```

# Any number of screen sections may be present. Each describes  
# the configuration of a single screen. A single specific screen section  
# may be specified from the X server command line with the "-screen"  
# option.

Section "Screen"

```
Identifier "Screen 1"  
Device "VESA Framebuffer"  
Monitor "My Monitor"
```

# If your card can handle it, a higher default color depth (like 24 or 32)  
# is highly recommended.

```
# DefaultDepth 8  
# DefaultDepth 16  
DefaultDepth 24  
# DefaultDepth 32
```

# "1024x768"  
is also a conservative usable default resolution. If you  
# have a better monitor, feel free to try resolutions such as  
# "1152x864", "1280x1024", "1600x1200", and "1800x1400" (or whatever your  
# card/monitor can produce)

Subsection "Display"

```
Depth 8  
Modes "1024x768" "800x600" "640x480"
```

```

EndSubsection
Subsection "Display"
    Depth    16
    Modes "1024x768" "800x600" "640x480"
EndSubsection
Subsection "Display"
    Depth    24
    Modes "1024x768" "800x600" "640x480"
EndSubsection
Subsection "Display"
    Depth    32
    Modes "1024x768" "800x600" "640x480"
EndSubsection

```

```
EndSection
```

```

# *****
# ServerLayout sections.
# *****

```

```

# Any number of ServerLayout sections may be present. Each describes
# the way multiple screens are organised. A specific ServerLayout
# section
# may be specified from the X server command line with the
# "-layout" option. In the absence of this, the first section is used.
# When now ServerLayout section is present, the first Screen section
# is used alone.

```

```
Section "ServerLayout"
```

```

# The Identifier line must be present
Identifier "Simple Layout"

```

```

# Each Screen line specifies a Screen section name, and optionally
# the relative position of other screens. The four names after
# primary screen name are the screens to the top, bottom, left and right
# of the primary screen. In this example, screen 2 is located to the
# right of screen 1.

```

```
Screen "Screen 1"
```

```

# Each InputDevice line specifies an InputDevice section name and
# optionally some options to specify the way the device is to be
# used. Those options include "CorePointer", "CoreKeyboard" and
# "SendCoreEvents".

```

```

InputDevice "Mouse1" "CorePointer"
InputDevice "Keyboard1" "CoreKeyboard"

```



EndSection

Found in path(s):

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#

# \*\*\*\*\*

# Refer to the XF86Config(4/5) man page for details about the format of  
# this file.

# \*\*\*\*\*

# This XF86Config file is designed for use with the Linux framebuffer console.  
# This generic interface should work with nearly all video cards (although  
# not every card will support every resolution). To use the Linux framebuffer  
# console, you need to enable these kernel options:  
# Using 'make menuconfig', in

```

'console drivers', enable:
# [*] VGA text console
# [*] Video mode selection support
# [*] Support for frame buffer devices (EXPERIMENTAL)
# [*] VESA VGA graphics console
# [*] Advanced low level driver options
# <*> 8 bpp packed pixels support
# <*> 16 bpp packed pixels support
# <*> 24 bpp packed pixels support
# <*> 32 bpp packed pixels support
# <*> VGA characters/attributes support
# [*] Select compiled-in fonts
# [*] VGA 8x8 font
# [*] VGA 8x16 font
# If you have a Matrox or ATI Mach64, you might try enabling the options having
# to do with those cards as well. However, if the card is VESA compliant, you
# don't really need to (and it might cause problems, possibly)
#
# Next, if this file is not already named /etc/X11/XF86Config, make a copy
# with that name. This file ships with the name XF86Config-fbdev to avoid
# overwriting an existing config file.
#
# To get the kernel to start in VESA framebuffer mode, you need to pass it
# a vga= init string
# at boot time. For example, if you use LILO you'll
# probably find a vga=normal string in your /etc/lilo.conf. If you edit that
# to one of the values in this table:
#
# Colours 640x480 800x600 1024x768 1280x1024 1600x1200
# -----+-----
# 256 | 769 771 773 775 796
# 32,768 | 784 787 790 793 797
# 65,536 | 785 788 791 794 798
# 16.8M | 786 789 792 795 799
#
# ...such as this for 1024x768x64k:
# vga = 791
# and then reinstall LILO by running 'lilo' as root, then at the next boot
# Linux should start in a VESA framebuffer console mode.
#
# For more information on how to activate the Linux frame buffer, see
# /usr/src/linux/Documentation/fb/vesafb.txt.
#
# Enjoy! :)
# -- volkerdi@slackware.com
#
# *****

```

```

# Module section -- this section is used to specify
# which dynamically
# loadable modules to load.
# *****
#
Section "Module"

# This loads the DBE extension module.

    Load      "dbe" # Double buffer extension

# This loads the miscellaneous extensions module, and disables
# initialisation of the XFree86-DGA extension within that module.
SubSection "extmod"
    Option    "omit xfree86-dga" # don't initialise the DGA extension
EndSubSection

# This loads the font modules
    Load      "type1"
    Load      "freetype"
    Load      "speedo"

# This loads the GLX module
    Load      "glx"

EndSection

# *****
# Files section. This allows default font and rgb paths to be set
# *****

Section "Files"

# The location of the RGB database. Note, this is the name of the
# file minus the extension (like ".txt" or ".db"). There is normally
# no
# need to change the default.

    RgbPath "/usr/X11R6/lib/X11/rgb"

# Multiple FontPath entries are allowed (which are concatenated together),
# as well as specifying multiple comma-separated entries in one FontPath
# command (or a combination of both methods)
#
# If you don't have a floating point coprocessor and emacs, Mosaic or other
# programs take long to start up, try moving the Type1 and Speedo directory
# to the end of this list (or comment them out).
#

```

```

FontPath "/usr/X11R6/lib/X11/fonts/local/"
FontPath "/usr/X11R6/lib/X11/fonts/misc/"
FontPath "/usr/X11R6/lib/X11/fonts/75dpi:unscaled"
FontPath "/usr/X11R6/lib/X11/fonts/100dpi:unscaled"
FontPath "/usr/X11R6/lib/X11/fonts/Type1/"
FontPath "/usr/X11R6/lib/X11/fonts/CID/"
FontPath "/usr/X11R6/lib/X11/fonts/Speedo/"
FontPath "/usr/X11R6/lib/X11/fonts/75dpi/"
FontPath "/usr/X11R6/lib/X11/fonts/100dpi/"
FontPath "/usr/X11R6/lib/X11/fonts/cyrillic/"

# ModulePath can be
used to set a search path for the X server modules.
# The default path is shown here.

# ModulePath "/usr/X11R6/lib/modules"

EndSection

# *****
# Server flags section.
# *****

Section "ServerFlags"

# Uncomment this to cause a core dump at the spot where a signal is
# received. This may leave the console in an unusable state, but may
# provide a better stack trace in the core dump to aid in debugging

# Option "NoTrapSignals"

# Uncomment this to disable the <Ctrl><Alt><Fn> VT switch sequence
# (where n is 1 through 12). This allows clients to receive these key
# events.

# Option "DontVTSwitch"

# Uncomment this to disable the <Ctrl><Alt><BS> server abort sequence
# This allows clients to receive this key event.

# Option "DontZap"

# Uncomment this to disable the <Ctrl><Alt><KP_+>/<KP_-> mode switching
# sequences. This allows
clients to receive these key events.

# Option "DontZoom"

```

```
# Uncomment this to disable tuning with the xvidtune client. With
# it the client can still run and fetch card and monitor attributes,
# but it will not be allowed to change them. If it tries it will
# receive a protocol error.

# Option "DisableVidModeExtension"

# Uncomment this to enable the use of a non-local xvidtune client.

# Option "AllowNonLocalXvidtune"

# Uncomment this to disable dynamically modifying the input device
# (mouse and keyboard) settings.

# Option "DisableModInDev"

# Uncomment this to enable the use of a non-local client to
# change the keyboard or mouse settings (currently only xset).

# Option "AllowNonLocalModInDev"

# Set the basic blanking screen saver timeout.

# Option "blank time" "10" # 10 minutes

# Set the DPMS timeouts. These are set here because they are global
# rather than screen-specific. These settings alone don't enable DPMS.
# It
# is enabled per-screen (or per-monitor), and even then only when
# the driver supports it.

# Option "standby time" "20"
# Option "suspend time" "30"
# Option "off time" "60"

# On some platform the server needs to estimate the sizes of PCI
# memory and pio ranges. This is done by assuming that PCI ranges
# don't overlap. Some broken BIOSes tend to set ranges of inactive
# devices wrong. Here one can adjust how aggressive the assumptions
# should be. Default is 0.

# Option "EstimateSizesAggressively" "0"

EndSection

# *****
# Input devices
```

```

# *****

# *****

# Core keyboard's InputDevice section
# *****

Section "InputDevice"

    Identifier "Keyboard1"
    Driver "Keyboard"
# For most OSs the protocol
    can be omitted (it defaults to "Standard").
# When using XQUEUE (only for SVR3 and SVR4, but not Solaris),
# uncomment the following line.

# Option "Protocol" "Xqueue"

# Set the keyboard auto repeat parameters. Not all platforms implement
# this.

# Option "AutoRepeat" "500 5"

# Specify which keyboard LEDs can be user-controlled (eg, with xset(1)).

# Option "Xleds" "1 2 3"

# To disable the XKEYBOARD extension, uncomment XkbDisable.

# Option "XkbDisable"

# To customise the XKB settings to suit your keyboard, modify the
# lines below (which are the defaults). For example, for a European
# keyboard, you will probably want to use one of:
#
# Option "XkbModel" "pc102"
# Option "XkbModel" "pc105"
#
# If you have a Microsoft Natural keyboard, you can use:
#
# Option "XkbModel" "microsoft"
#
# If you have a US "windows" keyboard you will want:
#
# Option "XkbModel" "pc104"
#
# Then to change the language,
    change the Layout setting.
# For example, a german layout can be obtained with:

```

```

#
# Option "XkbLayout" "de"
#
# or:
#
# Option "XkbLayout" "de"
# Option "XkbVariant" "nodeadkeys"
#
# If you'd like to switch the positions of your capslock and
# control keys, use:
#
# Option "XkbOptions" "ctrl:swapcaps"

# These are the default XKB settings for XFree86
#
# Option "XkbRules" "xfree86"
# Option "XkbModel" "pc101"
# Option "XkbLayout" "us"
# Option "XkbVariant" ""
# Option "XkbOptions" ""

EndSection

# *****
# Core Pointer's InputDevice section
# *****

Section "InputDevice"

# Identifier and driver

Identifier "Mouse1"
Driver "mouse"

# On platforms where PnP mouse detection is supported the following
# protocol setting can be used when using a newer
PnP mouse:

# Option "Protocol" "Auto"

# The available mouse protocols types that you can set below are:
# Auto BusMouse GlidePoint GlidePointPS/2 IntelliMouse IMPS/2
# Logitech Microsoft MMHitTab MMSeries Mouseman MouseManPlusPS/2
# MouseSystems NetMousePS/2 NetScrollPS/2 OSMouse PS/2 SysMouse
# ThinkingMouse ThinkingMousePS/2 Xqueue
Option "Protocol" "PS/2"

```

```

# The mouse device. The device is normally set to /dev/mouse,
# which is usually a symbolic link to the real device.

Option "Device" "/dev/mouse"
# Option "Device" "/dev/psaux"
# Option "Device" "/dev/ttyS0"
# Option "Device" "/dev/ttyS1"

# When using XQUEUE, comment out the above two lines, and uncomment
# the following line.

# Option "Protocol" "Xqueue"

# Baudrate and SampleRate are only for some Logitech mice. In
# almost every case these lines should be omitted.

# Option "BaudRate" "9600"
# Option "SampleRate" "150"

# Emulate3Buttons is an option
# for 2-button Microsoft mice
# Emulate3Timeout is the timeout in milliseconds (default is 50ms)

# Option "Emulate3Buttons"
# Option "Emulate3Timeout" "50"

# ChordMiddle is an option for some 3-button Logitech mice

# Option "ChordMiddle"

EndSection

# Some examples of extended input devices

# Section "InputDevice"
# Identifier "spaceball"
# Driver "magellan"
# Option "Device" "/dev/cua0"
# EndSection
#
# Section "InputDevice"
# Identifier "spaceball2"
# Driver "spaceorb"
# Option "Device" "/dev/cua0"
# EndSection
#
# Section "InputDevice"

```



```

# Identifier "touchscreen0"
# Driver "microtouch"
# Option "Device" "/dev/ttyS0"
# Option "MinX" "1412"
# Option "MaxX" "15184"
# Option "MinY" "15372"
# Option "MaxY" "1230"
# Option "ScreenNumber" "0"
# Option "ReportingMode" "Scaled"
# Option "ButtonNumber" "1"
# Option
"SendCoreEvents"
# EndSection
#
# Section "InputDevice"
# Identifier "touchscreen1"
# Driver "elo2300"
# Option "Device" "/dev/ttyS0"
# Option "MinX" "231"
# Option "MaxX" "3868"
# Option "MinY" "3858"
# Option "MaxY" "272"
# Option "ScreenNumber" "0"
# Option "ReportingMode" "Scaled"
# Option "ButtonThreshold" "17"
# Option "ButtonNumber" "1"
# Option "SendCoreEvents"
# EndSection

# *****
# Monitor section
# *****

# Any number of monitor sections may be present

Section "Monitor"

    Identifier "My Monitor"

# HorizSync is in kHz unless units are specified.
# HorizSync may be a comma separated list of discrete values, or a
# comma separated list of ranges of values.
# NOTE: THE VALUES HERE ARE EXAMPLES ONLY. REFER TO YOUR
MONITOR'S
# USER MANUAL FOR THE CORRECT NUMBERS.

    HorizSync 31.5 - 50.0

```

```
# HorizSync 30-64      # multisync
# HorizSync 31.5, 35.2 # multiple fixed sync frequencies
# HorizSync 15-25, 30-50 # multiple ranges of sync frequencies

# VertRefresh is in Hz unless units are specified.
# VertRefresh may be a comma separated list of discrete values, or a
# comma separated list of ranges of values.
# NOTE: THE VALUES HERE ARE EXAMPLES ONLY. REFER TO YOUR MONITOR'S
# USER MANUAL FOR THE CORRECT NUMBERS.
```

```
VertRefresh 40-90
```

```
EndSection
```

```
# *****
# Graphics device section
# *****
```

```
# Any number of graphics device sections may be present
```

```
Section "Device"
```

```
Identifier "VESA Framebuffer"
Driver     "fbdev"
#VideoRam  4096
# Insert Clocks lines here if appropriate
```

```
EndSection
```

```
# *****
#
Screen sections
# *****
```

```
# Any number of screen sections may be present. Each describes
# the configuration of a single screen. A single specific screen section
# may be specified from the X server command line with the "-screen"
# option.
```

```
Section "Screen"
```

```
Identifier "Screen 1"
Device     "VESA Framebuffer"
Monitor    "My Monitor"
```

```
# You shouldn't need to set a default depth as the server will use
# whatever the framebuffer is set to. If you insist on setting it, make
# sure it matches the setting for your framebuffer.
# DefaultDepth 8
```

```
Subsection "Display"
```

```
    Depth    8
EndSubsection
Subsection "Display"
    Depth    16
EndSubsection
Subsection "Display"
    Depth    24
EndSubsection
Subsection "Display"
    Depth    32
EndSubsection
```

EndSection

```
# *****
#
ServerLayout sections.
# *****
```

```
# Any number of ServerLayout sections may be present. Each describes
# the way multiple screens are organised. A specific ServerLayout
# section may be specified from the X server command line with the
# "-layout" option. In the absence of this, the first section is used.
# When now ServerLayout section is present, the first Screen section
# is used alone.
```

Section "ServerLayout"

```
# The Identifier line must be present
Identifier "Simple Layout"
```

```
# Each Screen line specifies a Screen section name, and optionally
# the relative position of other screens. The four names after
# primary screen name are the screens to the top, bottom, left and right
# of the primary screen. In this example, screen 2 is located to the
# right of screen 1.
```

```
Screen "Screen 1"
```

```
# Each InputDevice line specifies an InputDevice section name and
# optionally some options to specify the way the device is to
be
# used. Those options include "CorePointer", "CoreKeyboard" and
# "SendCoreEvents".
```

```
InputDevice "Mouse1" "CorePointer"
InputDevice "Keyboard1" "CoreKeyboard"
```

EndSection

Found in path(s):

\* /opt/cola/permits/1131210695\_1612910374.39/0/pkgtools-tar-gz/etc/X11/XF86Config-fbdev  
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\* /opt/cola/permits/1131210695\_1612910374.39/0/pkgtools-tar-gz/usr/X11R6/bin/xfree86setup  
\* /opt/cola/permits/1131210695\_1612910374.39/0/pkgtools-tar-gz/usr/X11R6/bin/xwmconfig  
\* /opt/cola/permits/1131210695\_1612910374.39/0/pkgtools-tar-gz/sbin/upgradepkg  
\* /opt/cola/permits/1131210695\_1612910374.39/0/pkgtools-tar-gz/sbin/installpkg  
\* /opt/cola/permits/1131210695\_1612910374.39/0/pkgtools-tar-gz/sbin/makepkg  
\* /opt/cola/permits/1131210695\_1612910374.39/0/pkgtools-tar-gz/sbin/makebootdisk

## 1.428 shadow 4.6

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# 1.431 shared-mime-info 1.1

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## 1.432 dmalloc 5.5.2

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```
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#
# dmalloc_summarize -- summarizes dmalloc log files
#
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#
# $Id: dmalloc_summarize.pl,v 1.1.1.1 2012/09/18
# 09:28:11 mohammr1 Exp $
#
/*
*
* Copyright (c) 1994, Textil Computer Design GmbH, Dresden
*
* Author: J"org Wunsch
*
* Dumb atexit() implementation. It is far from being elegant. It is
* only here to provide a workaround for systems where the existing
* atexit() implementation is known to cause problems due to doing
* own mallocs. The problem arose originally on a Data General
* machine running DG/UX 5.4R*, along with gcc compiling C++ code.
* In order to have global and static variables called their const-
* ructors, a chunk of code has been placed by the compiler that
* ran before invoking main(). This code registered the destructors
* with atexit() at this very early stage, but the existing atexit()
* bypassed the normal memory allocation scheme, and hence caused
* grievous troubles in combination with the dmalloc library.
*
* Known problem for DG/UX: the crt0.o (at least in a COFF environ-
* ment) passes the return value from main() to _real_exit() instead
* of exit().
* Hence programs which return from main instead of calling
* exit() do not work as expected. I do not see any good workaround
* for this so far (since crt0.o always happens to reference the
* _real_exit() from the library, even if we would provide our very
* own symbol for it).
*
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```

The hypothetical commands

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```
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## 1.434 libsodium 1.0.16

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```
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 */
```

## 1.435 base-passwd 3.5.3

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Format-Specification: <http://svn.debian.org/wsvn/dep/web/deps/dep5.mdwn?op=file&rev=135>

Name: base-passwd

Maintainer: Colin Watson <cjwatson@debian.org>

Files: update-passwd.c, man/\*

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Files: passwd.master, group.master

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X-Notes: Originally written by Ian Murdock <imurdock@debian.org> and Bruce Perens <bruce@pixar.com>.

Files: doc/\*

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```

```
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Ty Coon, President of Vice
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1. Seti UI - A subtle dark colored UI theme for Atom. (<https://github.com/jesseweed/seti-ui>)

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# 1.443 json-glib 1.4.2

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## 1.444 crash 7.2.4

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Version 3, 29 June 2007

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# 1.447 gobject-introspection 1.58.0

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```
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```

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# 1.448 npth 1.6

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## 1.449 tdb 1.44.3

### 1.449.1 Available under license :

This package was added to the e2fsprogs debian source package by Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

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Sources were obtained from <http://sourceforge.net/projects/e2fsprogs>

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#

# This is a Makefile stub which handles the creation of BSD shared # libraries.

#

# In order to use this stub, the following makefile variables must be defined.

#

# BSDLIB\_VERSION = 1.0

# BSDLIB\_IMAGE = libce

# BSDLIB\_MYDIR = et

# BSDLIB\_INSTALL\_DIR = \$(SHLIBDIR)

```

#

all:: image

real-subdirs:: Makefile
@echo " MKDIR pic"
@mkdir -p pic

BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
BSDLIB_PIC_FLAG = -fpic

image: $(BSD_LIB)

$(BSD_LIB): $(OBJS)
(cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
$(MV) pic/$(BSD_LIB) .
$(RM) -f ../$(BSD_LIB)
(cd ..; $(LN) $(LINK_BUILD_FLAGS) \
`echo $(my_dir) | sed -e 's/lib/;`/$(BSD_LIB) $(BSD_LIB))

install-shlibs install:: $(BSD_LIB)
@echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
@$(INSTALL_PROGRAM) $(BSD_LIB) \
$(DESTDIR)$$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
@-$(LDCONFIG)

install-strip: install

install-shlibs-strip:: install-shlibs

uninstall-shlibs uninstall::
$(RM) -f $(DESTDIR)$$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)

clean::
$(RM)
-rf pic
$(RM) -f $(BSD_LIB)
$(RM) -f ../$(BSD_LIB)

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This is the Debian GNU/Linux prepackaged version of the translation files of the EXT2 file system utilities. The EXT2 utilities were written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from <http://sourceforge.net/projects/e2fsprogs>

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It is part of the main e2fsprogs distribution, which can be found at:

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Index: tdbsa/tdb.c

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--- tdbsa.orig/tdb.c

+++ tdbsa/tdb.c

@@ -4,11 +4,11 @@ Rev: 23371

Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)

\*/

/\*

- Unix SMB/CIFS implementation.

+ trivial database library - standalone version

- trivial database library - private includes

-

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Gadi Oxman, August 1995

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Theodore Ts'o

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This is the Debian GNU/Linux prepackaged version of the EXT2 file system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

Sources were obtained from <http://sourceforge.net/projects/e2fsprogs>

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This package was added to the e2fsprogs debian source package by Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

<http://sourceforge.net/projects/e2fsprogs>

Upstream Author: Theodore Ts'o <tytso@mit.edu>

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## 1.451 run-postinsts 1.0

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/\*

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C utilities for the pytalloc test suite.

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NOTE: Please read talloc\_guide.txt for full documentation

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## THANKS

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# Example makefile for build outside of the LTTng-UST tree.

hello:

```
$(CC) -O2 -I. -o hello -lc -lltng-ust hello.c tp.c
```

.PHONY: clean

clean:

```
rm -f hello
```

LTTng UST - Userspace Tracer

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## 1.459 man-db 2.8.3

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## 1.460 cmake 3.12.2

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```
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CMAKE_INSTALL_DATADIR='share'  
CMAKE_INSTALL_DATAROOTDIR='share'  
CMAKE_INSTALL_DOCDIR='share/doc/UsrLocal'  
CMAKE_INSTALL_INCLUDEDIR='include'  
CMAKE_INSTALL_INFODIR='info'  
CMAKE_INSTALL_LIBDIR='(lib|lib64)'  
CMAKE_INSTALL_LIBEXECDIR='libexec'  
CMAKE_INSTALL_LOCALEDIR='share/locale'  
CMAKE_INSTALL_LOCALSTATEDIR='var'  
CMAKE_INSTALL_RUNSTATEDIR='var/run'  
CMAKE_INSTALL_MANDIR='man'  
CMAKE_INSTALL_SBINDIR='sbin'  
CMAKE_INSTALL_SHAREDSTATEDIR='com'
```

```
CMAKE_INSTALL_SYSCONFDIR='etc'  
CMAKE_INSTALL_FULL_BINDIR='/usr/local/bin'  
CMAKE_INSTALL_FULL_DATADIR='/usr/local/share'  
CMAKE_INSTALL_FULL_DATAROOTDIR='/usr/local/share'  
CMAKE_INSTALL_FULL_DOCDIR='/usr/local/share/doc/UsrLocal'  
CMAKE_INSTALL_FULL_INCLUDEDIR='/usr/local/include'  
CMAKE_INSTALL_FULL_INFODIR='/usr/local/info'  
CMAKE_INSTALL_FULL_LIBDIR='/usr/local/(lib|lib64)'  
CMAKE_INSTALL_FULL_LIBEXECDIR='/usr/local/libexec'  
CMAKE_INSTALL_FULL_LOCALEDIR='/usr/local/share/locale'  
CMAKE_INSTALL_FULL_LOCALSTATEDIR='/usr/local/var'  
CMAKE_INSTALL_FULL_RUNSTATEDIR='/usr/local/var/run'  
CMAKE_INSTALL_FULL_MANDIR='/usr/local/man'  
CMAKE_INSTALL_FULL_SBINDIR='/usr/local/sbin'  
CMAKE_INSTALL_FULL_SHAREDSTATEDIR='/usr/local/com'  
CMAKE_INSTALL_FULL_SYSCONFDIR='/usr/local/etc'$
```

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=====

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'zlib' general purpose compression library  
version 1.2.3, July 18th, 2005

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Jean-loup Gailly     Mark Adler  
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Julian Seward, [jseward@bzip.org](mailto:jseward@bzip.org)  
bzip2/libbzip2 version 1.0.5 of 10 December 2007

```
-----  
^CMAKE_INSTALL_BINDIR='bin'  
CMAKE_INSTALL_DATADIR='share'  
CMAKE_INSTALL_DATAROOTDIR='share'  
CMAKE_INSTALL_DOCDIR='share/doc/Usr'  
CMAKE_INSTALL_INCLUDEDIR='include'  
CMAKE_INSTALL_INFODIR='info'  
CMAKE_INSTALL_LIBDIR='(lib|lib64|lib/arch)'  
CMAKE_INSTALL_LIBEXECDIR='libexec'  
CMAKE_INSTALL_LOCALEDIR='share/locale'  
CMAKE_INSTALL_LOCALSTATEDIR='var'  
CMAKE_INSTALL_RUNSTATEDIR='var/run'  
CMAKE_INSTALL_MANDIR='man'  
CMAKE_INSTALL_SBINDIR='sbin'  
CMAKE_INSTALL_SHAREDSTATEDIR='com'  
CMAKE_INSTALL_SYSCONFDIR='etc'  
CMAKE_INSTALL_FULL_BINDIR='/usr/bin'  
CMAKE_INSTALL_FULL_DATADIR='/usr/share'  
CMAKE_INSTALL_FULL_DATAROOTDIR='/usr/share'  
CMAKE_INSTALL_FULL_DOCDIR='/usr/share/doc/Usr'  
CMAKE_INSTALL_FULL_INCLUDEDIR='/usr/include'  
CMAKE_INSTALL_FULL_INFODIR='/usr/info'  
CMAKE_INSTALL_FULL_LIBDIR='/usr/(lib|lib64|lib/arch)'  
CMAKE_INSTALL_FULL_LIBEXECDIR='/usr/libexec'  
CMAKE_INSTALL_FULL_LOCALEDIR='/usr/share/locale'  
CMAKE_INSTALL_FULL_LOCALSTATEDIR='/var'  
CMAKE_INSTALL_FULL_RUNSTATEDIR='/var/run'  
CMAKE_INSTALL_FULL_MANDIR='/usr/man'  
CMAKE_INSTALL_FULL_SBINDIR='/usr/sbin'  
CMAKE_INSTALL_FULL_SHAREDSTATEDIR='/usr/com'  
CMAKE_INSTALL_FULL_SYSCONFDIR='/etc/$
```

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hello world

merhaba dnya

4-Byte sequences:

Perch (Fish) Elevator !

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```
^CMAKE_INSTALL_BINDIR='usr/bin'
CMAKE_INSTALL_DATADIR='usr/share'
CMAKE_INSTALL_DATAROOTDIR='usr/share'
CMAKE_INSTALL_DOCDIR='usr/share/doc/Root'
CMAKE_INSTALL_INCLUDEDIR='usr/include'
CMAKE_INSTALL_INFODIR='usr/info'
CMAKE_INSTALL_LIBDIR='usr/(lib|lib64)'
CMAKE_INSTALL_LIBEXECDIR='usr/libexec'
CMAKE_INSTALL_LOCALEDIR='usr/share/locale'
CMAKE_INSTALL_LOCALSTATEDIR='var'
CMAKE_INSTALL_RUNSTATEDIR='var/run'
CMAKE_INSTALL_MANDIR='usr/man'
CMAKE_INSTALL_SBINDIR='usr/sbin'
CMAKE_INSTALL_SHAREDSTATEDIR='usr/com'
CMAKE_INSTALL_SYSCONFDIR='etc'
CMAKE_INSTALL_FULL_BINDIR='/usr/bin'
CMAKE_INSTALL_FULL_DATADIR='/usr/share'
CMAKE_INSTALL_FULL_DATAROOTDIR='/usr/share'
CMAKE_INSTALL_FULL_DOCDIR='/usr/share/doc/Root'
CMAKE_INSTALL_FULL_INCLUDEDIR='/usr/include'
CMAKE_INSTALL_FULL_INFODIR='/usr/info'
CMAKE_INSTALL_FULL_LIBDIR='/usr/(lib|lib64)'
CMAKE_INSTALL_FULL_LIBEXECDIR='/usr/libexec'
CMAKE_INSTALL_FULL_LOCALEDIR='/usr/share/locale'
CMAKE_INSTALL_FULL_LOCALSTATEDIR='/var'
CMAKE_INSTALL_FULL_RUNSTATEDIR='/var/run'
CMAKE_INSTALL_FULL_MANDIR='/usr/man'
CMAKE_INSTALL_FULL_SBINDIR='/usr/sbin'
CMAKE_INSTALL_FULL_SHAREDSTATEDIR='/usr/com'
CMAKE_INSTALL_FULL_SYSCONFDIR='/etc'$
```

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Version 2.0, January 2004

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`CMAKE_INSTALL_DATADIR='share'`

`CMAKE_INSTALL_DATAROOTDIR='share'`

`CMAKE_INSTALL_DOCDIR='share/doc/Opt'`

`CMAKE_INSTALL_INCLUDEDIR='include'`

`CMAKE_INSTALL_INFODIR='info'`

`CMAKE_INSTALL_LIBDIR='(lib|lib64)'`

`CMAKE_INSTALL_LIBEXECDIR='libexec'`

`CMAKE_INSTALL_LOCALEDIR='share/locale'`

`CMAKE_INSTALL_LOCALSTATEDIR='var'`

CMAKE\_INSTALL\_RUNSTATEDIR='var/run'  
CMAKE\_INSTALL\_MANDIR='man'  
CMAKE\_INSTALL\_SBINDIR='sbin'  
CMAKE\_INSTALL\_SHAREDSTATEDIR='com'  
CMAKE\_INSTALL\_SYSCONFDIR='etc'  
CMAKE\_INSTALL\_FULL\_BINDIR='/opt/Opt/bin'  
CMAKE\_INSTALL\_FULL\_DATADIR='/opt/Opt/share'  
CMAKE\_INSTALL\_FULL\_DATAROOTDIR='/opt/Opt/share'  
CMAKE\_INSTALL\_FULL\_DOCDIR='/opt/Opt/share/doc/Opt'  
CMAKE\_INSTALL\_FULL\_INCLUDEDIR='/opt/Opt/include'  
CMAKE\_INSTALL\_FULL\_INFODIR='/opt/Opt/info'  
CMAKE\_INSTALL\_FULL\_LIBDIR='/opt/Opt/(lib|lib64)'  
CMAKE\_INSTALL\_FULL\_LIBEXECDIR='/opt/Opt/libexec'  
CMAKE\_INSTALL\_FULL\_LOCALEDIR='/opt/Opt/share/locale'  
CMAKE\_INSTALL\_FULL\_LOCALSTATEDIR='/var/opt/Opt'  
CMAKE\_INSTALL\_FULL\_RUNSTATEDIR='/var/run/opt/Opt'  
CMAKE\_INSTALL\_FULL\_MANDIR='/opt/Opt/man'  
CMAKE\_INSTALL\_FULL\_SBINDIR='/opt/Opt/sbin'  
CMAKE\_INSTALL\_FULL\_SHAREDSTATEDIR='/opt/Opt/com'  
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## 1.462 alsa-utils 1.1.6

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@c Local Variables:
@c ispell-local-pdict: "ispell-dict"
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That's all there is to it!  
Mathieu Desnoyers  
May 13th, 2009

IBM Corporation allowed LGPLv2.1+ licensing of their contribution to the userspace RCU library in a patch submitted on May 8, 2009 from Paul E. McKenney and reviewed by Steven L. Bennett:

<http://lists.casi.polymtl.ca/pipermail/ltt-dev/2009-May/001584.html>

I (Mathieu Desnoyers) re-implemented ACCESS\_ONCE(), likely(), unlikely() and barrier() from scratch without reference to the original code.

commit id : 2dc5fa0f7cfbfb0a64a7a67b39626650e863f16a

Bert Wesarg <bert.wesarg@googlemail.com> approved LGPL relicensing of his patch in an email dated May 13, 2009 :

<http://lkml.org/lkml/2009/5/13/16>

xchg() primitives has been rewritten from a MIT-licensed cmpxchg for Intel and powerpc. They are MIT-licensed and therefore usable in LGPL code.

This cmpxchg code was obtained from the atomic\_ops project:

[http://www.hpl.hp.com/research/linux/atomic\\_ops/](http://www.hpl.hp.com/research/linux/atomic_ops/)

I (Mathieu Desnoyers) wrote the remainder of the code.

The license for the library files in this project was therefore changed to LGPLv2.1 on May 13, 2009, as detailed in LICENSE.

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# PLY (Python Lex-Yacc)                      Version 3.11

[![Build Status](https://travis-ci.org/dabeaz/ply.svg?branch=master)](https://travis-ci.org/dabeaz/ply)



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Introduction

=====

PLY is a 100% Python implementation of the common parsing tools lex and yacc. Here are a few highlights:

- PLY is very closely modeled after traditional lex/yacc.  
If you know how to use these tools in C, you will find PLY to be similar.
- PLY provides *very* extensive error reporting and diagnostic information to assist in parser construction. The original implementation was developed for instructional purposes. As a result, the system tries to identify the most common types of errors made by novice users.
- PLY provides full support for empty productions, error recovery, precedence specifiers, and moderately ambiguous grammars.

- Parsing is based on LR-parsing which is fast, memory efficient, better suited to large grammars, and which has a number of nice properties when dealing with syntax errors and other parsing problems. Currently, PLY builds its parsing tables using the LALR(1) algorithm used in yacc.
- PLY uses Python introspection features to build lexers and parsers. This greatly simplifies the task of parser construction since it reduces the number of files and eliminates the need to run a separate lex/yacc tool before running your program.
- PLY can be used to build parsers for "real" programming languages. Although it is not ultra-fast due to its Python implementation, PLY can be used to parse grammars consisting of several hundred rules (as might be found for a language like C). The lexer and LR parser are also reasonably efficient when parsing typically sized programs. People have used PLY to build parsers for C, C++, ADA, and other real programming languages.

#### How to Use

=====

PLY consists of two files : lex.py and yacc.py. These are contained within the 'ply' directory which may also be used as a Python package. To use PLY, simply copy the 'ply' directory to your project and import lex and yacc from the associated 'ply' package. For example:

```
import ply.lex as lex
import ply.yacc as yacc
```

Alternatively, you can copy just the files lex.py and yacc.py individually and use them as modules. For example:

```
import lex
import yacc
```

The file setup.py can be used to install ply using distutils.

The file doc/ply.html contains complete documentation on how to use the system.

The example directory contains several different examples including a PLY specification for ANSI C as given in K&R 2nd Ed.

A simple example is found at the end of this document

## Requirements

=====

PLY requires the use of Python 2.6 or greater. However, you should use the latest Python release if possible. It should work on just about any platform. PLY has been tested with both CPython and Jython. It also seems to work with IronPython.

## Resources

=====

More information about PLY can be obtained on the PLY webpage at:

<http://www.dabeaz.com/ply>

For a detailed overview of parsing theory, consult the excellent book "Compilers : Principles, Techniques, and Tools" by Aho, Sethi, and Ullman. The topics found in "Lex & Yacc" by Levine, Mason, and Brown may also be useful.

The GitHub page for PLY can be found at:

<https://github.com/dabeaz/ply>

An old and

relatively inactive discussion group for PLY is found at:

<http://groups.google.com/group/ply-hack>

## Acknowledgments

=====

A special thanks is in order for all of the students in CS326 who suffered through about 25 different versions of these tools :-).

The CHANGES file acknowledges those who have contributed patches.

Elias Ioup did the first implementation of LALR(1) parsing in PLY-1.x. Andrew Waters and Markus Schoepflin were instrumental in reporting bugs and testing a revised LALR(1) implementation for PLY-2.0.

## Special Note for PLY-3.0

=====

PLY-3.0 the first PLY release to support Python 3. However, backwards compatibility with Python 2.6 is still preserved. PLY provides dual Python 2/3 compatibility by restricting its implementation to a common subset of basic language features. You should not convert PLY using 2to3--it is not necessary and may in fact break the implementation.

## Example

=====

Here is a simple example showing a PLY implementation  
of a calculator  
with variables.

```
# -----  
# calc.py  
#  
# A simple calculator with variables.  
# -----  
  
tokens = (  
    'NAME','NUMBER',  
    'PLUS','MINUS','TIMES','DIVIDE','EQUALS',  
    'LPAREN','RPAREN',  
    )  
  
# Tokens  
  
t_PLUS = r\+'  
t_MINUS = r\-'  
t_TIMES = r\*'  
t_DIVIDE = r\/'  
t_EQUALS = r\='  
t_LPAREN = r\  
t_RPAREN = r\  
t_NAME = r'[a-zA-Z_][a-zA-Z0-9_]*'  
  
def t_NUMBER(t):  
    r\d+'  
    t.value = int(t.value)  
    return t  
  
# Ignored characters  
t_ignore = " \t"  
  
def t_newline(t):  
    r\  
    t.lexer.lineno += t.value.count("\n")  
  
def t_error(t):  
    print("Illegal character '%s'" % t.value[0])  
    t.lexer.skip(1)  
  
# Build the lexer  
import ply.lex as lex  
lex.lex()
```

```

# Precedence
rules for the arithmetic operators
precedence = (
    ('left','PLUS','MINUS'),
    ('left','TIMES','DIVIDE'),
    ('right','UMINUS'),
    )

# dictionary of names (for storing variables)
names = { }

def p_statement_assign(p):
    'statement : NAME EQUALS expression'
    names[p[1]] = p[3]

def p_statement_expr(p):
    'statement : expression'
    print(p[1])

def p_expression_binop(p):
    '''expression : expression PLUS expression
    | expression MINUS expression
    | expression TIMES expression
    | expression DIVIDE expression'''
    if p[2] == '+': p[0] = p[1] + p[3]
    elif p[2] == '-': p[0] = p[1] - p[3]
    elif p[2] == '*': p[0] = p[1] * p[3]
    elif p[2] == '/': p[0] = p[1] / p[3]

def p_expression_uminus(p):
    'expression : MINUS expression %prec UMINUS'
    p[0] = -p[2]

def p_expression_group(p):
    'expression : LPAREN
expression RPAREN'
    p[0] = p[2]

def p_expression_number(p):
    'expression : NUMBER'
    p[0] = p[1]

def p_expression_name(p):
    'expression : NAME'
    try:
        p[0] = names[p[1]]
    except LookupError:
        print("Undefined name '%s'" % p[1])

```

```

p[0] = 0

def p_error(p):
    print("Syntax error at '%s'" % p.value)

import ply.yacc as yacc
yacc.yacc()

while True:
    try:
        s = raw_input('calc > ') # use input() on Python 3
    except EOFError:
        break
    yacc.parse(s)

```

## Bug Reports and Patches

=====

My goal with PLY is to simply have a decent lex/yacc implementation for Python. As a general rule, I don't spend huge amounts of time working on it unless I receive very specific bug reports and/or patches to fix problems. I also try to incorporate submitted feature requests and enhancements into each new version. Please visit the PLY github page

at <https://github.com/dabeaz/ply> to submit issues and pull requests. To contact me about bugs and/or new features, please send email to [dave@dabeaz.com](mailto:dave@dabeaz.com).

-- Dave

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```
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```

# 1.489 future 0.16.0

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```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/handshake_server.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/s3_lib.cc

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/dsa/dsa_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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```

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/* gzjoin -- command to join gzip files into one gzip file

```

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\*  
\* Dec-29-2003 -- I added AMD64 inflate asm support. This version is also  
\* slightly quicker on x86 systems because, instead of using rep movsb to copy  
\* data, it uses rep movsw, which moves data in 2-byte chunks instead of single  
\* bytes. I've tested the AMD64 code on a Fedora Core 1 + the x86\_64 updates  
\* from [http://fedora.linux.duke.edu/fc1\\_x86\\_64](http://fedora.linux.duke.edu/fc1_x86_64)  
\* which is running on an Athlon 64 3000+ / Gigabyte GA-K8VT800M system with  
\* 1GB ram. The 64-bit version is about 4% faster than the 32-bit version,  
\* when decompressing mozilla-source-1.3.tar.gz.  
\*  
\* Mar-13-2003 -- Most of this is derived from inffast.S which  
is derived from  
\* the gcc -S output of zlib-1.2.0/inffast.c. Zlib-1.2.0 is in beta release at  
\* the moment. I have successfully compiled and tested this code with gcc2.96,  
\* gcc3.2, icc5.0, msvc6.0. It is very close to the speed of inffast.S  
\* compiled with gcc -DNO\_MMX, but inffast.S is still faster on the P3 with MMX  
\* enabled. I will attempt to merge the MMX code into this version. Newer  
\* versions of this and inffast.S can be found at  
\* <http://www.eetbeetee.com/zlib/> and <http://www.charm.net/~christop/zlib/>  
\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/contrib/inflate86/inffas86.c

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```
/* inffast.c -- fast decoding
* Copyright (C) 1995-2017 Mark Adler
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*/
```

Found in path(s):

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/zlib/inffast.c
```

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1.14.1/third\_party/boringssl/ssl/dtls\_method.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/ssl/d1\_lib.cc

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/\* inflate.c -- zlib decompression

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- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/slice\_weak\_hash\_table.h
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/slice\_hash\_table.h

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- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/d1\_pkt.cc
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/d1\_both.cc

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1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/polyval.c

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1.14.1/third\_party/boringssl/crypto/obj/obj\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/curve25519/spake25519\_test.cc

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1.14.1/third\_party/boringssl/crypto/curve25519/spake25519.c

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1.14.1/third\_party/boringssl/fuzz/ssl\_ctx\_api.cc

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1.14.1/third\_party/boringssl/crypto/poly1305/internal.h

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 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fuzz/cert.cc  
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 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fuzz/spki.cc  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fuzz/server.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/bytestring/asn1\_compat.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fuzz/client.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/ec/p256-x86\_64\_test.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/pool/pool\_test.cc  
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 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/asn1\_test.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/pool/pool.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fuzz/privkey.cc  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509\_test.cc  
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*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cpu-arm-linux.c
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```

```
/* inflate9.h -- internal inflate state definition
* Copyright (C) 1995-2003 Mark Adler
* For conditions of distribution and use, see copyright notice in zlib.h
*/
```

```
Found in path(s):
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/zlib/contrib/inflate9/inflate9.h
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1.14.1/third\_party/boringssl/crypto/x509/x509cset.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/pem/pem\_xaux.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/pem/pem\_x509.c

\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/asn1/time\_support.c

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/\* infback9.c -- inflate deflate64 data using a call-back interface  
\* Copyright (C) 1995-2008 Mark Adler  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
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1.14.1/third_party/boringssl/decrepit/xts/xts.c

```

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/\* trees.c -- output deflated data using Huffman coding

\* Copyright (C) 1995-2017 Jean-loup Gailly

\* detect\_data\_type() function provided freely by Cosmin Truta, 2006

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/\* compress.c -- compress a memory buffer

\* Copyright (C) 1995-2005, 2014, 2016 Jean-loup Gailly, Mark Adler

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/\* inftrees.h -- header to use inftrees.c

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/\* gzclose.c -- zlib gzclose() function

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1.14.1/third_party/boringssl/third_party/ fiat/internal.h
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\*

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/tls\_record.cc

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/ssl\_transcript.cc

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/scripts/generator/cpp/ast.py

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/scripts/generator/cpp/keywords.py

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/scripts/generator/cpp/tokenize.py

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_llist.h

\*



/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_mkquery.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_timeout.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_getenv.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_strcasecmp.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_strcasecmp.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_getenv.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_writev.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_strdup.c  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_parse\_ptr\_reply.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_strdup.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_search.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_writev.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_\_read\_line.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_expand\_string.c  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_query.c  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_strerror.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_parse\_ns\_reply.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_\_close\_sockets.c  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_llist.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_fds.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_create\_query.c

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/cares/cares/ares_gethostbyaddr.c
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```

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/third_party/googletest/test/gtest-unittest-api_test.cc
```

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\*  
\*/  
/\*\* Signal that the call is cacheable. GRPC is free to use GET verb \*/

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/impl/codegen/grpc\_types.h  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/http2\_settings.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/debug/stats\_data.cc  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/debug/stats\_data.h  
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- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/util/bot/go/bootstrap.py
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/util/bot/go/env.py

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1.14.1/third\_party/address\_sorting/address\_sorting\_windows.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/address\_sorting/address\_sorting.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/address\_sorting/include/address\_sorting/address\_sorting.h  
\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/address\_sorting/address\_sorting\_posix.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
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1.14.1/src/core/lib/security/credentials/composite/composite\_credentials.cc

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/census.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/ev_poll_posix.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/completion_queue.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/completion_queue.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/json/json_reader.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client_channel/resolver/sockaddr/sockaddr_resolver.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/grpc.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/server.cc
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```

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/cares/cares/ares_parse_srv_reply.c
```

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/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/cares/cares/ares_parse_txt_reply.c
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/cipher\_extra/e\_aesgcm\_siv.c  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/test/fuzzer.h  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_hmac\_test.cc  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/evp/p\_ed25519\_asn1.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/test/gtest\_main.h  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fuzz/bn\_div.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/tool/sign.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/delocate.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/test/fuzzer\_tags.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_ecdsa2\_keypair\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_ecdsa2\_sigver\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_aes\_gcm\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_ecdsa2\_siggen\_test.cc  
\*

```

/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/tool/file.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/span_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/pkcs7/internal.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/cavp_rsa2_sigver_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/cavp_rsa2_keygen_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/pkcs7/pkcs7_x509.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/cavp_sha_monte_test.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/rand_extra/rand_extra.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/rand_extra/fuchsia.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/scrypt_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/rand/ctrdrbg.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fuzz/dtls_client.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/rand_extra/forkunsafe.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/cavp_keywrap_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/cavp_main.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/cavp_ctr_drbg_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/test_fips.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/fipstools/cavp_ecdsa2_pkv_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/test/file_test_gtest.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cipher_extra/e_aesctrhmac.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/self_check/self_check.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/ssl_versions.cc
*

```



/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/buf/buf\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_aes\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/rand/ctrdrbg\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_test\_util.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_sha\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_rsa2\_siggen\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/boringssl/crypto\_test\_data.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/compiler\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fuzz/bn\_mod\_exp.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/fipstools/cavp\_test\_util.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bcm.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/span.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/aes/internal.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/err/internal.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/is\_boringssl.h

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/evp/digestsign.c

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```

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/decrepit/cfb/cfb_test.cc

```

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/decrepit/cfb/cfb.c

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/decrepit/dh/dh\_decrepit.c

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\* version 2.3, 21 Jan 2013

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1.14.1/third\_party/zlib/contrib/puff/pufftest.c

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1.14.1/third_party/cares/cares/ares_getsock.c
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/rsa/padding.c

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/third\_party/cares/cares/ares\_options.c

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channelz.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/zero_copy_frame_protector/alts_iovec_record_protocol.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset_custom.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/ssl/session_cache/ssl_session.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/endpoint_cfstream.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/handshaker/alts_handshaker_client.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/crypt/aes_gcm.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset_set.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/frame_protector/alts_frame_protector.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/tcp_server.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/handshaker/alts_tsi_handshaker.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/endpoint_cfstream.cc
```



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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/crypt/gsec.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/handshaker/alts_tsi_utils.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/frame_protector/frame_handler.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_server_custom.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/security_connector/local_security_connector.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/frame_protector/alts_frame_protector.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/resolve_address.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_client_custom.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/load_reporting/registered_opencensus_objects.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/alts/alts_credentials.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/zero_copy_frame_protector/alts_grpc_privacy_integrity_record_protocol.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/alts/grpc_alts_credentials_client_options.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/local/local_credentials.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/ssl/session_cache/ssl_session_boringssl.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/ssl/session_cache/ssl_session_cache.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/client/authority.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_client_cfstream.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/zero_copy_frame_protector/alts_grpc_integrity_only_record_protocol.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/handshaker/alts_handshaker_service_api.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_custom.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/iomgr_uv.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/frame_protector/alts_unseal_privacy_integrity_crypter.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/lib/security/credentials/alts/check\_gcp\_environment\_linux.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/handshaker/alts\_tsi\_utils.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/timer\_custom.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/frame\_protector/frame\_handler.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/filters/http/client\_authority\_filter.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/handshaker/alts\_tsi\_handshaker\_private.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/pollset.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/sockaddr\_custom.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/ssl/session\_cache/ssl\_session\_openssl.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/zero\_copy\_frame\_protector/alts\_iovec\_record\_protocol.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/frame\_protector/alts\_counter.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/frame\_protector/alts\_crypter.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/ssl/session\_cache/ssl\_session\_cache.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/handshaker/alts\_handshaker\_service\_api.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/handshaker/alts\_handshaker\_service\_api\_util.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/security/security\_connector/alts\_security\_connector.cc  
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 1.14.1/src/core/ext/filters/http/client\_authority\_filter.cc  
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 1.14.1/src/core/lib/security/credentials/alts/check\_gcp\_environment.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/alts/zero\_copy\_frame\_protector/alts\_grpc\_record\_protocol\_common.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/resolve\_address\_custom.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/include/grpc/support/thd\_id.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/iomgr\_internal.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/timer.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/handshaker/transport\_security\_common\_api.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/iomgr\_custom.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/local/local\_credentials.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/security\_connector/local\_security\_connector.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/alts/grpc\_alts\_credentials\_options.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/zero\_copy\_frame\_protector/alts\_zero\_copy\_grpc\_protector.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/local\_transport\_security.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/zero\_copy\_frame\_protector/alts\_grpc\_record\_protocol.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/frame\_protector/alts\_record\_protocol\_crypter\_common.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/zero\_copy\_frame\_protector/alts\_zero\_copy\_grpc\_protector.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/alts/check\_gcp\_environment.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/gevent\_util.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/frame\_protector/alts\_record\_protocol\_crypter\_common.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/alts/check\_gcp\_environment\_no\_op.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/frame\_protector/alts\_counter.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset\_set\_custom.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/lb\_policy/grpclb/grpclb.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset\_custom.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/crypt/gsec.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/alloc.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/handshaker/alts\_tsi\_handshaker.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/resolve\_address\_custom.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts/zero\_copy\_frame\_protector/alts\_grpc\_privacy\_integrity\_record\_protocol.h

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/alts/alts_credentials.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/frame_protector/alts_seal_privacy_integrity_crypter.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/alts/grpc_alts_credentials_server_options.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/alts/check_gcp_environment_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/client/authority.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/error_cfstream.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/cfstream_handle.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/handshaker/alts_tsi_event.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/client_channel_channelz.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_custom.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/frame_protector/alts_crypter.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/handshaker/alts_tsi_event.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/handshaker/transport_security_common_api.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/alts/grpc_alts_credentials_options.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/local_transport_security.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/security_connector/alts_security_connector.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/cfstream_handle.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/error_cfstream.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/zero_copy_frame_protector/alts_grpc_integrity_only_record_protocol.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/client_channel_channelz.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/handshaker/alts_handshaker_client.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/zero_copy_frame_protector/alts_grpc_record_protocol_common.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/tsi/alts/handshaker/alts\_handshaker\_service\_api\_util.cc

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/nanopb/extra/pb\_syshdr.h

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// public domain but parts have been replaced with code generated by Fiat  
// (<https://github.com/mit-plv/flat-crypto>), which is MIT licensed.

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/flat/curve25519.c

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/rsa_pss.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/p_ec_asn1.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/p_rsa_asn1.c

```

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```

```

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// domain sources in SUPERCOP: http://bench.cr.yp.to/supercop.html

```

```

// +build amd64,!gccgo,!appengine

```

```

// These constants cannot be encoded in non-MOVQ immediates.

```

// We access them directly from memory instead.

DATA · \_121666\_213(SB)/8, \$996687872  
GLOBL · \_121666\_213(SB), 8, \$8

DATA · \_2P0(SB)/8, \$0xFFFFFFFFFFDA  
GLOBL · \_2P0(SB), 8, \$8

DATA · \_2P1234(SB)/8, \$0xFFFFFFFFFFFE  
GLOBL · \_2P1234(SB), 8, \$8

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/test/runner/curve25519/const\_amd64.s  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_\_get\_hostent.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_dns.h

\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_expand\_name.c

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/\* infree9.h -- header to use infree9.c  
\* Copyright (C) 1995-2008 Mark Adler  
\* For conditions of distribution and use, see copyright notice in zlib.h  
\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/zlib/contrib/infback9/inftree9.h

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```
/* gzread.c -- zlib functions for reading gzip files
 * Copyright (C) 2004, 2005, 2010, 2011, 2012, 2013, 2016 Mark Adler
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 */
```

Found in path(s):

`*/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/zlib/gzread.c`

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```

```
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```

```
// +build amd64,!gccgo,!appengine
```

```
// func cswap(inout *[5]uint64, v uint64)
```

```
TEXT -cswap(SB),7,$0
```

```
MOVQ inout+0(FP),DI
```

```
MOVQ v+8(FP),SI
```

```
CMPQ SI,$1
```

```
MOVQ 0(DI),SI
```

```
MOVQ 80(DI),DX
```

```
MOVQ 8(DI),CX
```

```
MOVQ 88(DI),R8
```

```
MOVQ SI,R9
```

```
CMOVQEQ DX,SI
```

```
CMOVQEQ R9,DX
```

```
MOVQ CX,R9
```

```
CMOVQEQ R8,CX
```

```
CMOVQEQ R9,R8
```

```
MOVQ SI,0(DI)
```

```
MOVQ DX,80(DI)
```

```
MOVQ CX,8(DI)
```

```
MOVQ R8,88(DI)
```

```
MOVQ 16(DI),SI
```

```
MOVQ 96(DI),DX
```

```
MOVQ 24(DI),CX
```

```
MOVQ 104(DI),R8
```

```
MOVQ SI,R9
```

```
CMOVQEQ DX,SI
```

```
CMOVQEQ R9,DX
```



MOVQ CX,R9  
CMOVQEQ R8,CX  
CMOVQEQ R9,R8  
MOVQ SI,16(DI)  
MOVQ DX,96(DI)  
MOVQ CX,24(DI)  
MOVQ R8,104(DI)  
MOVQ 32(DI),SI  
MOVQ 112(DI),DX  
MOVQ 40(DI),CX  
MOVQ  
120(DI),R8  
MOVQ SI,R9  
CMOVQEQ DX,SI  
CMOVQEQ R9,DX  
MOVQ CX,R9  
CMOVQEQ R8,CX  
CMOVQEQ R9,R8  
MOVQ SI,32(DI)  
MOVQ DX,112(DI)  
MOVQ CX,40(DI)  
MOVQ R8,120(DI)  
MOVQ 48(DI),SI  
MOVQ 128(DI),DX  
MOVQ 56(DI),CX  
MOVQ 136(DI),R8  
MOVQ SI,R9  
CMOVQEQ DX,SI  
CMOVQEQ R9,DX  
MOVQ CX,R9  
CMOVQEQ R8,CX  
CMOVQEQ R9,R8  
MOVQ SI,48(DI)  
MOVQ DX,128(DI)  
MOVQ CX,56(DI)  
MOVQ R8,136(DI)  
MOVQ 64(DI),SI  
MOVQ 144(DI),DX  
MOVQ 72(DI),CX  
MOVQ 152(DI),R8  
MOVQ SI,R9  
CMOVQEQ DX,SI  
CMOVQEQ R9,DX  
MOVQ CX,R9  
CMOVQEQ R8,CX  
CMOVQEQ R9,R8  
MOVQ SI,64(DI)  
MOVQ DX,144(DI)

MOVQ CX,72(DI)  
MOVQ R8,152(DI)  
MOVQ DI,AX  
MOVQ SI,DX  
RET

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/test/runner/curve25519/cswap\_amd64.s  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_platform.h  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/ares\_iphlpapi.h  
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\* Copyright (C) 1995-2017 Mark Adler  
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/\* zutil.c -- target dependent utility functions for the compression library

\* Copyright (C) 1995-2017 Jean-loup Gailly

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Additional tools for Minizip

Code: Xavier Roche '2004

License: Same as ZLIB ([www.gzip.org](http://www.gzip.org))

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\* version 2.2, 14 Aug 2012

\*/

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```

```

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*/

```

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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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\*

\* Author: Emilia Kasper (emilia@openssl.org)

\* Based on previous work by Bodo Moeller, Emilia Kasper, Adam Langley

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```
/* minigzip.c -- simulate gzip using the zlib compression library
* Copyright (C) 1995-2006, 2010, 2011, 2016 Jean-loup Gailly
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*/
```

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```

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```
/* unzip.h -- IO for uncompress .zip files using zlib
Version 1.1, February 14h, 2010
part of the MiniZip project - ( http://www.winimage.com/zLibDll/minizip.html )
```

Copyright (C) 1998-2010 Gilles Vollant (minizip) ( <http://www.winimage.com/zLibDll/minizip.html> )

Modifications of Unzip for Zip64  
Copyright (C) 2007-2008 Even Rouault

Modifications for Zip64 support on both zip and unzip  
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For more info read MiniZip\_info.txt

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## Changes

See header of unzip64.c

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/asn1.h
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1.14.1/third_party/boringssl/crypto/conf/conf_def.h

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/config-win32.h

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cmac/cmac.c

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1.14.1/third_party/cares/cares/ares_inet_net_pton.h

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1.14.1/third_party/boringssl/util/bot/extract.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/util/generate-asm-icov.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/util/generate_build_files.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/util/bot/vs_env.py
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1.14.1/third\_party/boringssl/ssl/ssl\_file.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/decrepit/ssl/ssl\_decrepit.c

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/max\_age/max\_age\_filter.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/resolver/fake/fake\_resolver.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/subchannel\_index.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/message\_size/message\_size\_filter.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/message\_size/message\_size\_filter.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/transport/service\_config.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/deadline/deadline\_filter.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

```
1.14.1/src/core/ext/filters/deadline/deadline_filter.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/workarounds/workaround_cronet_compression_filter.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/workarounds/workaround_cronet_compression_filter.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/workarounds/workaround_utils.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/workarounds/workaround_utils.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts/handshaker/proto/transport_security_common.proto
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/service_config.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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/* gun.c -- simple gunzip to give an example of the use of inflateBack()
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Version 1.7 12 August 2012 Mark Adler */
```

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1.14.1/third_party/boringssl/third_party/googletest/test/gtest_shuffle_test.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest_shuffle_test.py
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/* zran.c -- example of zlib/gzip stream indexing and random access
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```

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/\* blast.h -- interface for blast.c

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version 1.3, 24 Aug 2013

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/\* unzip.c -- IO for uncompress .zip files using zlib

Version 1.1, February 14h, 2010

part of the MiniZip project - ( <http://www.winimage.com/zLibDll/minizip.html> )

Copyright (C) 1998-2010 Gilles Vollant (minizip) ( <http://www.winimage.com/zLibDll/minizip.html> )

Modifications of Unzip for Zip64

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Modifications for Zip64 support on both zip and unzip

Copyright (C) 2009-2010 Mathias Svensson ( <http://result42.com> )

For more info read MiniZip\_info.txt

-----  
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Code woven in by Terry Thorsen 1/2003.

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(the contents of which are also included in zip.h) for terms of use.

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-----  
Changes in unzip.c

2007-2008 - Even Rouault - Addition of cpl\_unzGetCurrentFileZStreamPos



2007-2008 - Even Rouault - Decoration of symbol names unz\* -> cpl\_unz\*

2007-2008 - Even Rouault - Remove old C style function prototypes

2007-2008 - Even Rouault - Add unzip support for ZIP64

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Oct-2009 - Mathias Svensson - Removed cpl\_\* from symbol names (Even Rouault added them but since this is now moved to a new project (minizip64) I renamed them again).

Oct-2009 - Mathias Svensson - Fixed problem if uncompressed size was > 4G and compressed size was <4G should only read the compressed/uncompressed size from the Zip64 format if the size from normal header was 0xFFFFFFFF

Oct-2009 - Mathias Svensson - Applied some bug fixes from patches received from Gilles Vollant

Oct-2009 - Mathias Svensson - Applied support to unzip files with compression method BZIP2 (bzip2 lib is required)

Patch created by Daniel Borca

Jan-2010 - back to unzip and minizip 1.0 name scheme, with compatibility layer

Copyright (C) 1998 - 2010 Gilles Vollant, Even Rouault, Mathias Svensson

\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/contrib/minizip/unzip.c

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/\* inffas8664.c is a hand tuned assembler version of inffast.c - fast decoding

\* version for AMD64 on Windows using Microsoft C compiler

\*

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\*

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\*

\* 2005 - Adaptation to Microsoft C Compiler for AMD64 by Gilles Vollant

\*

\* inffas8664.c call function inffas8664fnc in inffasx64.asm

\* inffasx64.asm is automatically convert from AMD64 portion of inffas86.c

\*

\* Dec-29-2003 -- I added AMD64 inflate asm support. This version is also

\* slightly quicker on x86 systems because, instead of using rep movsb to copy

\* data, it uses rep movsw, which moves data in 2-byte chunks instead of single

\* bytes. I've tested the AMD64 code on a Fedora Core 1 + the x86\_64 updates

\* from [http://fedora.linux.duke.edu/fc1\\_x86\\_64](http://fedora.linux.duke.edu/fc1_x86_64)

\* which is running on an Athlon 64 3000+ / Gigabyte GA-K8VT800M system with  
\* 1GB ram. The 64-bit version is about 4% faster than the 32-bit version,  
\* when decompressing mozilla-source-1.3.tar.gz.  
\*  
\* Mar-13-2003 -- Most of this is derived from inffast.S which is derived from  
\* the gcc -S output of zlib-1.2.0/inffast.c. Zlib-1.2.0 is in beta release at  
\* the moment. I have successfully compiled and tested this code with gcc2.96,  
\* gcc3.2, icc5.0, msvc6.0. It is very close to the speed of inffast.S  
\* compiled with gcc -DNO\_MMX, but inffast.S is still faster on the P3 with MMX  
\* enabled. I will attempt to merge the MMX code into this version. Newer  
\* versions of this and inffast.S can be found at  
\* <http://www.eetbeetee.com/zlib/> and <http://www.charm.net/~christop/zlib/>  
\*  
\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/zlib/contrib/masmx64/inffas8664.c

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1.14.1/third\_party/boringssl/ssl/ssl\_buffer.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/include/openssl/srtp.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/curve25519/ed25519\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/evp/pbkdf\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/include/openssl/curve25519.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/curve25519/x25519\_test.cc

```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/ssl_aead_ctx.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/tool/rand.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/test/file_test.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/pkcs8/pkcs8_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/poly1305/poly1305_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/refcount_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/aes/aes_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/boringssl/err_data.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/bn_extra/bn_asn1.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/refcount_c11.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/dtls1.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/buffer.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/tool/generate_ed25519.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/ec/util.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/tool/genrsa.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cmac/cmac_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/refcount_lock.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/test/file_test.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/tool/ciphers.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/thread_win.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/thread_pthread.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/cmac.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/conf/internal.h

```

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/crypto/test/test_util.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/crypto/thread_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/crypto/thread_none.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/crypto/test/test_util.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/crypto/fipsmodule/rand/internal.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/ssl/ssl_key_share.cc
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```
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```
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```

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/cares/cares/ahost.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/cares/cares/adig.c
```

```
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```

```
/*
```

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/http/client/http\_client\_filter.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/http/client/http\_client\_filter.h

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/scripts/generator/cpp/gmock\_class.py

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/\* zlib.c -- zlib functions common to reading and writing gzip files  
\* Copyright (C) 2004-2017 Mark Adler  
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\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/gzlib.c

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest-listener\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest-listener\_test.cc

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/src/core/lib/transport/static\_metadata.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/src/core/lib/transport/static\_metadata.cc

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/\* inflate.h -- internal inflate state definition

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/inflate.h

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/\* uncompr.c -- decompress a memory buffer

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\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/uncompr.c

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- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/ex\_data.c
- \*
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/ex\_data.h
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/gcd.c
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/random.c
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/prime.c
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/internal.h

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```

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```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/boringssl/third_party/ fiat/p256.c
```

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```
/* inffast.h -- header to use inffast.c
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*/
```

Found in path(s):

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/zlib/inffast.h
```

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```
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest-death-test\_ex\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/samples/sample3-inl.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/cares/cares/test/gmock-1.7.0/include/gmock/gmock-matchers.h  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_xml\_outfile1\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock-cardinalities\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_unittest.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/src/gtest-internal-inl.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock-nice-strict\_test.cc

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/third_party/googletest/test/gtest-param-test_test.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/cares/cares/test/gmock-1.7.0/gtest/test/production.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/third_party/googletest/samples/sample2.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/third_party/googletest/test/gtest_xml_outfile2_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/third_party/googletest/test/gtest_list_tests_unittest.cc
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/cares/cares/test/gmock-1.7.0/src/gmock-cardinalities.cc

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_throw\_on\_failure\_ex\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/xcode/Samples/FrameworkSample/widget.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/src/gmock-internal-utils.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_pred\_impl\_unittest.cc

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/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/include/gtest/gtest.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/src/gtest-test-part.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/src/gmock-spec-builders.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/samples/sample1.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/src/gtest-port.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock\_all\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/include/gtest/internal/gtest-port-arch.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/src/gtest-death-test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/samples/sample1\_unittest.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/src/gtest-internal-inl.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/src/gtest.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_all\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/include/gtest/gtest-death-test.h

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/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock-generated-internal-utils\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_uninitialized\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/samples/sample4\_unittest.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/include/gtest/gtest\_prod.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/src/gtest-all.cc

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/third\_party/googletest/include/gtest/internal/gtest-internal.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/third\_party/googletest/include/gtest/gtest-test-part.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock\_link\_test.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/third\_party/googletest/include/gtest/internal/gtest-death-test-internal.h

\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/production.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/samples/sample1.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest-options\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/include/gtest/internal/gtest-internal.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_uninitialized\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_color\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock-generated-matchers\_test.cc  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_throw\_on\_failure\_ex\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/include/gmock/gmock-generated-actions.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/include/gmock/gmock-more-actions.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_list\_tests\_unittest.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/src/gtest-printers.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest-linked\_ptr\_test.cc  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest-printers\_test.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/samples/sample4.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_no\_test\_unittest.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/src/gtest-all.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/codegear/gtest\_all.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/samples/sample4.cc  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/include/gtest/gtest\_prod.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/samples/sample3\_unittest.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/include/gtest/internal/gtest-filepath.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/include/gmock/gmock-more-matchers.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest-tuple\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/samples/sample2\_unittest.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest-death-test\_test.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_premature\_exit\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock-matchers\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/include/gmock/internal/gmock-port.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest-linked\_ptr\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_env\_var\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/src/gtest-death-test.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/include/gtest/gtest-death-test.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_main\_unittest.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest-options\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/include/gtest/internal/gtest-linked\_ptr.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_filepath\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/xcode/Samples/FrameworkSample/widget.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_sole\_header\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/include/gmock/gmock-actions.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest-message\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/test/gmock\_stress\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_filepath\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_break\_on\_failure\_unittest.cc

\*





Jean-loup Gailly     Mark Adler  
jloup@gzip.org     madler@alumni.caltech.edu

The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://tools.ietf.org/html/rfc1950> (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).

\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/zlib.h

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\* This product includes cryptographic software written by Eric Young  
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\* Hudson (tjh@cryptsoft.com). \*/

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/fipsmodule/tls/kdf.c

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1.14.1/third\_party/cares/cares/inet\_ntop.c

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/ssl/bio\_ssl.cc

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/\* gzappend -- command to append to a gzip file

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version 1.2, 11 Oct 2012

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Mark Adler [madler@alumni.caltech.edu](mailto:madler@alumni.caltech.edu)  
\*/

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/zlib/examples/gzappend.c

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\*  
\* Originally written by Shay Gueron (1, 2), and Vlad Krasnov (1)  
\* (1) Intel Corporation, Israel Development Center, Haifa, Israel  
\* (2) University of Haifa, Israel  
\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/rsaz\_exp.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/rsaz\_exp.h

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/\* gzwrite.c -- zlib functions for writing gzip files  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/bitncmp.h

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/\* inftree9.c -- generate Huffman trees for efficient decoding

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/\* example.c -- usage example of the zlib compression library  
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/\* deflate.h -- internal compression state

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/\* fitblk.c: example of fitting compressed output to a specified size

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Version 1.1 25 November 2004 Mark Adler \*/

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/\* zip.h -- IO on .zip files using zlib

Version 1.1, February 14h, 2010

part of the MiniZip project - ( <http://www.winimage.com/zLibDll/minizip.html> )

Copyright (C) 1998-2010 Gilles Vollant (minizip) ( <http://www.winimage.com/zLibDll/minizip.html> )

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\* Reference:

\* S.Gueron and V.Krasnov, "Fast Prime Field Elliptic Curve Cryptography with

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\*/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/scripts/upload\_gtest.py

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\*/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_xml\_test\_utils.py

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/test/gtest\_xml\_outfiles\_test.py

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_env\_var\_test.py

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/scripts/fuse\_gmock\_files.py

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_output\_test.py

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest\_xml\_output\_unittest.py

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1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/scripts/fuse\_gtest\_files.py  
No license file was found, but licenses were detected in source scan.

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1.14.1/third_party/boringssl/crypto/bio/socket_helper.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/opensslv.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/hkdf/hkdf.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/opensslconf.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/chacha.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/evp_extra_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/custom_extensions.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/err/err_test.cc
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/ssl/t1\_lib.cc

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509spki.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/v3\_akeya.c

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/pkcs8/p5\_pbev2.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_x509a.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/pkcs8/pkcs8\_x509.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/v3\_prn.c

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/pkcs8.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/pkcs8/pkcs8.c

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/v3\_akey.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/v3\_pku.c

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ca:42:dd:41:74:5f:d0:b8:1e:b9:02:36:2c:f9:d8:bf:71:9d:a1:bd:1b:1e:fc:94:6f:5b:4c:99:f4:2c:1b:9e  
-----BEGIN CERTIFICATE-----  
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A1UECxMXR2xvYmFsU2lnbiBSb290IENBIC0gUjIxZzARBgNVBAoTCkdsb2JhbFNp  
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CQYDVQQGEwJVUzEXMBUGA1UEChMOVmVyaVNpZ24sIEluYy4xHzAdBgNVBAsTFiZl  
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bmMuIC0gRm9yIGF1dGhvcml6ZWQgdXNIIG9ubHkxRTBDBgNVBAMTPFZlcm1TaWdu  
IENsYXNzIDMgUHVibGljIFByaW1hcnkgQ2VydGlmaWNhdGlviBBdXRob3JpdHkg  
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TxzHT5yvDwyd93gN2PQ1VoDat20Xj50egWTh/sVFuq1ruQp6Tk9LhO5L8X3dEQ==  
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MIIEKjCCAxKgAwIBAgIEOGPe+DANBgkqhkiG9w0BAQUFAADCBlDEUMBIGA1UEChML  
RW50cnVzdC5uZXQxQDA+BgNVBAsUN3d3dy5lbnRydXN0Lm5ldC9DUFNfmjA0OCP  
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-----END

CERTIFICATE-----

# Issuer: CN=Baltimore CyberTrust Root O=Baltimore OU=CyberTrust

# Subject: CN=Baltimore CyberTrust Root O=Baltimore OU=CyberTrust

# Label: "Baltimore CyberTrust Root"

# Serial: 33554617

# MD5 Fingerprint: ac:b6:94:a5:9c:17:e0:d7:91:52:9b:b1:97:06:a6:e4

# SHA1 Fingerprint: d4:de:20:d0:5e:66:fc:53:fe:1a:50:88:2c:78:db:28:52:ca:e4:74

# SHA256 Fingerprint:

16:af:57:a9:f6:76:b0:ab:12:60:95:aa:5e:ba:de:f2:2a:b3:11:19:d6:44:ac:95:cd:4b:93:db:f3:f2:6a:eb

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=AddTrust External CA Root O=AddTrust AB OU=AddTrust External TTP Network

# Subject: CN=AddTrust External

CA Root O=AddTrust AB OU=AddTrust External TTP Network

# Label: "AddTrust External Root"

# Serial: 1

# MD5 Fingerprint: 1d:35:54:04:85:78:b0:3f:42:42:4d:bf:20:73:0a:3f

# SHA1 Fingerprint: 02:fa:f3:e2:91:43:54:68:60:78:57:69:4d:f5:e4:5b:68:85:18:68

# SHA256 Fingerprint:

68:7f:a4:51:38:22:78:ff:f0:c8:b1:1f:8d:43:d5:76:67:1c:6e:b2:bc:ea:b4:13:fb:83:d9:65:d0:6d:2f:f2

-----BEGIN CERTIFICATE-----

MIENjCCAx6gAwIBAgIBATANBgkqhkiG9w0BAQUFADBvMQswCQYDVQQGEwJTRTEU  
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-----END

CERTIFICATE-----

# Issuer: CN=Entrust Root Certification Authority O=Entrust, Inc. OU=www.entrust.net/CPS is incorporated by reference/(c) 2006 Entrust, Inc.

# Subject: CN=Entrust Root Certification Authority O=Entrust, Inc. OU=www.entrust.net/CPS is incorporated by reference/(c) 2006 Entrust, Inc.

# Label: "Entrust Root Certification Authority"

# Serial: 1164660820

# MD5 Fingerprint: d6:a5:c3:ed:5d:dd:3e:00:c1:3d:87:92:1f:1d:3f:e4

# SHA1 Fingerprint: b3:1e:b1:b7:40:e3:6c:84:02:da:dc:37:d4:4d:f5:d4:67:49:52:f9

# SHA256 Fingerprint:

73:c1:76:43:4f:1b:c6:d5:ad:f4:5b:0e:76:e7:27:28:7c:8d:e5:76:16:c1:e6:e6:14:1a:2b:2c:bc:7d:8e:4c

-----BEGIN CERTIFICATE-----

MIIekTCCA3mgAwIBAgIERWtQVDANBgkqhkiG9w0BAQUFADCBSDELMAkGA1UEBhMC  
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# Subject: CN=GeoTrust Universal CA O=GeoTrust Inc.  
# Label: "GeoTrust Universal CA"  
# Serial: 1  
# MD5 Fingerprint: 92:65:58:8b:a2:1a:31:72:73:68:5c:b4:a5:7a:07:48  
#  
SHA1 Fingerprint: e6:21:f3:35:43:79:05:9a:4b:68:30:9d:8a:2f:74:22:15:87:ec:79  
# SHA256 Fingerprint:  
a0:45:9b:9f:63:b2:25:59:f5:fa:5d:4c:6d:b3:f9:f7:2f:f1:93:42:03:35:78:f0:73:bf:1d:1b:46:cb:b9:12  
-----BEGIN CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: CN=GeoTrust Universal CA 2 O=GeoTrust Inc.  
# Subject: CN=GeoTrust Universal CA 2 O=GeoTrust Inc.  
# Label: "GeoTrust Universal CA 2"  
# Serial: 1  
# MD5 Fingerprint: 34:fc:b8:d0:36:db:9e:14:b3:c2:f2:db:8f:e4:94:c7  
# SHA1 Fingerprint: 37:9a:19:7b:41:85:45:35:0c:a6:03:69:f3:3c:2e:af:47:4f:20:79  
# SHA256 Fingerprint:

a0:23:4f:3b:c8:52:7c:a5:62:8e:ec:81:ad:5d:69:89:5d:a5:68:0d:c9:1d:1c:b8:47:7f:33:f8:78:b9:5b:0b  
-----BEGIN CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: CN=Visa eCommerce Root O=VISA OU=Visa International Service Association  
# Subject: CN=Visa eCommerce Root O=VISA OU=Visa International Service Association  
# Label: "Visa eCommerce Root"  
# Serial: 25952180776285836048024890241505565794  
# MD5 Fingerprint: fc:11:b8:d8:08:93:30:00:6d:23:f9:7e:eb:52:1e:02  
# SHA1 Fingerprint: 70:17:9b:86:8c:00:a4:fa:60:91:52:22:3f:9f:3e:32:bd:e0:05:62  
# SHA256 Fingerprint:  
69:fa:c9:bd:55:fb:0a:c7:8d:53:bb:ee:5c:f1:d5:97:98:9f:d0:aa:ab:20:a2:51:51:bd:f1:73:3e:e7:d1:22  
-----BEGIN  
CERTIFICATE-----

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-----END  
CERTIFICATE-----

# Issuer: CN=AAA Certificate Services O=Comodo CA Limited  
# Subject: CN=AAA Certificate Services O=Comodo CA Limited  
# Label: "Comodo AAA Services root"  
# Serial: 1  
# MD5 Fingerprint: 49:79:04:b0:eb:87:19:ac:47:b0:bc:11:51:9b:74:d0  
# SHA1 Fingerprint: d1:eb:23:a4:6d:17:d6:8f:d9:25:64:c2:f1:f1:60:17:64:d8:e3:49  
# SHA256 Fingerprint:  
d7:a7:a0:fb:5d:7e:27:31:d7:71:e9:48:4e:bc:de:f7:1d:5f:0c:3e:0a:29:48:78:2b:c8:3e:e0:ea:69:9e:f4  
-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=QuoVadis Root Certification Authority O=QuoVadis Limited OU=Root Certification Authority  
# Subject: CN=QuoVadis Root Certification Authority O=QuoVadis Limited OU=Root Certification Authority  
# Label: "QuoVadis Root CA"  
# Serial: 985026699  
# MD5 Fingerprint: 27:de:36:fe:72:b7:00:03:00:9d:f4:f0:1e:6c:04:24  
# SHA1 Fingerprint: de:3f:40:bd:50:93:d3:9b:6c:60:f6:da:bc:07:62:01:00:89:76:c9  
# SHA256 Fingerprint:  
a4:5e:de:3b:bb:f0:9c:8a:e1:5c:72:ef:c0:72:68:d6:93:a2:1c:99:6f:d5:1e:67:ca:07:94:60:fd:6d:88:73

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-----END

CERTIFICATE-----

# Issuer: CN=QuoVadis Root CA 2 O=QuoVadis Limited  
# Subject: CN=QuoVadis Root CA 2 O=QuoVadis Limited  
# Label: "QuoVadis Root CA 2"  
#  
Serial: 1289  
# MD5 Fingerprint: 5e:39:7b:dd:f8:ba:ec:82:e9:ac:62:ba:0c:54:00:2b  
# SHA1 Fingerprint: ca:3a:fb:cf:12:40:36:4b:44:b2:16:20:88:80:48:39:19:93:7c:f7  
# SHA256 Fingerprint:  
85:a0:dd:7d:d7:20:ad:b7:ff:05:f8:3d:54:2b:20:9d:c7:ff:45:28:f7:d6:77:b1:83:89:fe:a5:e5:c4:9e:86

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-----END

CERTIFICATE-----

# Issuer: CN=QuoVadis Root CA 3 O=QuoVadis Limited  
# Subject: CN=QuoVadis Root CA 3 O=QuoVadis Limited



# Label: "QuoVadis Root CA 3"  
# Serial: 1478  
# MD5 Fingerprint: 31:85:3c:62:94:97:63:b9:aa:fd:89:4e:af:6f:e0:cf  
# SHA1 Fingerprint: 1f:49:14:f7:d8:74:95:1d:dd:ae:02:c0:be:fd:3a:2d:82:75:51:85  
# SHA256 Fingerprint:  
18:f1:fc:7f:20:5d:f8:ad:dd:eb:7f:e0:07:dd:57:e3:af:37:5a:9c:4d:8d:73:54:6b:f4:f1:fe:d1:e1:8d:35  
-----BEGIN CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: O=SECOM Trust.net OU=Security Communication RootCA1  
# Subject: O=SECOM Trust.net OU=Security Communication RootCA1

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# Label: "Security Communication Root CA"
# Serial: 0
# MD5 Fingerprint: f1:bc:63:6a:54:e0:b5:27:f5:cd:e7:1a:e3:4d:6e:4a
# SHA1 Fingerprint: 36:b1:2b:49:f9:81:9e:d7:4c:9e:bc:38:0f:c6:56:8f:5d:ac:b2:f7
# SHA256 Fingerprint:
e7:5e:72:ed:9f:56:0e:ec:6e:b4:80:00:73:a4:3f:c3:ad:19:19:5a:39:22:82:01:78:95:97:4a:99:02:6b:6c
-----BEGIN CERTIFICATE-----
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-----END
CERTIFICATE-----
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# Issuer: CN=Sonera Class2 CA O=Sonera
# Subject: CN=Sonera Class2 CA O=Sonera
# Label: "Sonera Class 2 Root CA"
# Serial: 29
# MD5 Fingerprint: a3:ec:75:0f:2e:88:df:fa:48:01:4e:0b:5c:48:6f:fb
# SHA1 Fingerprint: 37:f7:6d:e6:07:7c:90:c5:b1:3e:93:1a:b7:41:10:b4:f2:e4:9a:27
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SHA256 Fingerprint:
79:08:b4:03:14:c1:38:10:0b:51:8d:07:35:80:7f:fb:fc:f8:51:8a:00:95:33:71:05:ba:38:6b:15:3d:d9:27
-----BEGIN CERTIFICATE-----
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-----END

CERTIFICATE-----

# Issuer: CN=XRamp Global Certification Authority O=XRamp Security Services Inc

OU=www.xrampsecurity.com

# Subject: CN=XRamp Global Certification Authority O=XRamp Security Services Inc

OU=www.xrampsecurity.com

# Label: "XRamp Global CA Root"

# Serial: 107108908803651509692980124233745014957

# MD5 Fingerprint: a1:0b:44:b3:ca:10:d8:00:6e:9d:0f:d8:0f:92:0a:d1

# SHA1 Fingerprint: b8:01:86:d1:eb:9c:86:a5:41:04:cf:30:54:f3:4c:52:b7:e5:58:c6

# SHA256 Fingerprint:

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-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: O=The Go Daddy Group, Inc. OU=Go Daddy Class 2 Certification Authority



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CERTIFICATE-----

# Issuer: O=Government Root Certification Authority

# Subject: O=Government Root Certification Authority

# Label: "Taiwan GRCA"

# Serial: 42023070807708724159991140556527066870

# MD5 Fingerprint: 37:85:44:53:32:45:1f:20:f0:f3:95:e1:25:c4:43:4e

# SHA1 Fingerprint: f4:8b:11:bf:de:ab:be:94:54:20:71:e6:41:de:6b:be:88:2b:40:b9

# SHA256 Fingerprint:

76:00:29:5e:ef:e8:5b:9e:1f:d6:24:db:76:06:2a:aa:ae:59:81:8a:54:d2:77:4c:d4:c0:b2:c0:11:31:e1:b3

-----BEGIN CERTIFICATE-----

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CERTIFICATE-----

# Issuer: CN=DigiCert Assured ID Root CA O=DigiCert Inc OU=www.digicert.com  
# Subject: CN=DigiCert Assured ID Root CA O=DigiCert Inc OU=www.digicert.com  
# Label: "DigiCert Assured ID Root CA"  
# Serial: 17154717934120587862167794914071425081  
# MD5 Fingerprint: 87:ce:0b:7b:2a:0e:49:00:e1:58:71:9b:37:a8:93:72  
# SHA1 Fingerprint: 05:63:b8:63:0d:62:d7:5a:bb:c8:ab:1e:4b:df:b5:a8:99:b2:4d:43  
#

SHA256 Fingerprint:

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-----BEGIN CERTIFICATE-----

MIIDtzCCAp+gAwIBAgIQDOfg5RfYRv6P5WD8G/AwOTANBgkqhkiG9w0BAQUFADBIMQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNlcnQgSW5jMRkwFwYDVQQLExB3d3cuZGlnaWNIcnQuY29tMSQwIgYDVQQDEExtEaWdpQ2VydCBBC3N1cmVkieIEIEIFJvb3QgQ0EwHhcNMDYxMTEwMDAwMDAwWhcNMzExMTEwMDAwMDAwWjBIMQswCQYDVQQGEwJVUzEVMBMGA1UEChMMRGlnaUNlcnQgSW5jMRkwFwYDVQQLExB3d3cuZGlnaWNIcnQuY29tMSQwIgYDVQQDEExtEaWdpQ2VydCBBC3N1cmVkieIEIEIFJvb3QgQ0EwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQCtDhXO5EOAXLGH87dg+XESpa7cJpSIqvTO9SA5KFhgDPIA2qkVITJhPLWxKISKityfCgyDF3qPkKyK53ITXDGEKvYPMdI2dsze3Tyoo9q+yHyUmHfnyDXH+Kx2f4YZNISW1/5WBg1vEfNoTb5a3/UsDg+wRvDjDPZ2C8Y/igPs6eD1sNuRMBhNZYW/lmci3Zt1/GiSw0r/wty2p5g0I6QNcZ4VYcgoc/lbQrISXwxmDNslumH0DJaoroTghHtORedmTpyoeb6pNnVFzF1roV9Iq4/AUA9ih5yLHa5FcXxH4cDrC0kqZWs72yl+2qp/C3xag/lRbQ/6GW6whfGHdPAgMBAAGjYzBhMA4GA1UdDwEB/wQEAwIBhjAPBgNVHRMBAf8EBTADAQH/MB0GA1UdDgQWBBRF66Kv9JLLgjEtUYunpyGd823IDzANBgkqhkiG9w0BAQUFAAOCAQEAog683+Lt8ONyc3pkll/3cmbYMuRcdWKuh+vy1dneVrOfzM4UKLkNl2BcEkxY5NM9g0lFWJc1aRqoR+pWxnmrEthngYTffwk8lOa4JiwgvT2zKIn3X/8i4peEH+l174fg38FnSbNd67IJKusm7Xi+fT8r87cmNW1fiQG2SVufAQWbqz0lwcY2f8Lxb4bG+mRo64EtlOtCt/qMHtli8b5QZ7dsvfPxH2sMNgcWfzd8qVtteVESRmCD1ycEvkvOI77DZypoEd+A5wwzZr8TDRRu838fYxAe+o0bJW1sj6W3YQGx0qMmoRBxna3iw/nDmVG3KwcIzi7mULKn+gpFL6Lw8g==

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CERTIFICATE-----

# Issuer: CN=DigiCert Global Root CA O=DigiCert Inc OU=www.digicert.com  
# Subject: CN=DigiCert Global Root CA O=DigiCert Inc OU=www.digicert.com

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# Label: "DigiCert Global Root CA"
# Serial: 10944719598952040374951832963794454346
# MD5 Fingerprint: 79:e4:a9:84:0d:7d:3a:96:d7:c0:4f:e2:43:4c:89:2e
# SHA1 Fingerprint: a8:98:5d:3a:65:e5:e5:c4:b2:d7:d6:6d:40:c6:dd:2f:b1:9c:54:36
# SHA256 Fingerprint:
43:48:a0:e9:44:4c:78:cb:26:5e:05:8d:5e:89:44:b4:d8:4f:96:62:bd:26:db:25:7f:89:34:a4:43:c7:01:61
-----BEGIN CERTIFICATE-----
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-----END
CERTIFICATE-----
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# Issuer: CN=DigiCert High Assurance EV Root CA O=DigiCert Inc OU=www.digicert.com
# Subject: CN=DigiCert High Assurance EV Root CA O=DigiCert Inc OU=www.digicert.com
# Label: "DigiCert High Assurance EV Root CA"
# Serial: 3553400076410547919724730734378100087
# MD5 Fingerprint: d4:74:de:57:5c:39:b2:d3:9c:85:83:c5:c0:65:49:8a
# SHA1 Fingerprint: 5f:b7:ee:06:33:e2:59:db:ad:0c:4c:9a:e6:d3:8f:1a:61:c7:dc:25
# SHA256 Fingerprint:
74:31:e5:f4:c3:c1:ce:46:90:77:4f:0b:61:e0:54:40:88:3b:a9:a0:1e:d0:0b:a6:ab:d7:80:6e:d3:b1:18:cf
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CERTIFICATE-----

# Issuer: CN=Class 2 Primary CA O=Certplus

# Subject: CN=Class 2 Primary CA O=Certplus

# Label: "Certplus Class 2 Primary CA"

# Serial: 17770208045934040241468760488327595043

# MD5 Fingerprint: 88:2c:8c:52:b8:a2:3c:f3:f7:bb:03:ea:ae:ac:42:0b

# SHA1 Fingerprint: 74:20:74:41:72:9c:dd:92:ec:79:31:d8:23:10:8d:c2:81:92:e2:bb

# SHA256 Fingerprint:

0f:99:3c:8a:ef:97:ba:af:56:87:14:0e:d5:9a:d1:82:1b:b4:af:ac:f0:aa:9a:58:b5:d5:7a:33:8a:3a:fb:cb

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=DST Root CA X3 O=Digital Signature



Trust Co.

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# Subject: CN=DST Root CA X3 O=Digital Signature Trust Co.
# Label: "DST Root CA X3"
# Serial: 91299735575339953335919266965803778155
# MD5 Fingerprint: 41:03:52:dc:0f:f7:50:1b:16:f0:02:8e:ba:6f:45:c5
# SHA1 Fingerprint: da:c9:02:4f:54:d8:f6:df:94:93:5f:b1:73:26:38:ca:6a:d7:7c:13
# SHA256 Fingerprint:
06:87:26:03:31:a7:24:03:d9:09:f1:05:e6:9b:cf:0d:32:e1:bd:24:93:ff:c6:d9:20:6d:11:bc:d6:77:07:39
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-----END
CERTIFICATE-----
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# Issuer: CN=SwissSign Gold CA - G2 O=SwissSign AG
# Subject: CN=SwissSign Gold CA - G2 O=SwissSign AG
# Label: "SwissSign Gold CA - G2"
# Serial: 13492815561806991280
# MD5 Fingerprint: 24:77:d9:a8:91:d1:3b:fa:88:2d:c2:ff:f8:cd:33:93
# SHA1 Fingerprint: d8:c5:38:8a:b7:30:1b:1b:6e:d4:7a:e6:45:25:3a:6f:9f:1a:27:61
# SHA256 Fingerprint:
62:dd:0b:e9:b9:f5:0a:16:3e:a0:f8:e7:5c:05:3b:1e:ca:57:ea:55:c8:68:8f:64:7c:68:81:f2:c8:35:7b:95
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-----END

CERTIFICATE-----

# Issuer: CN=SwissSign Silver CA - G2 O=SwissSign AG  
# Subject: CN=SwissSign Silver CA - G2 O=SwissSign AG  
# Label: "SwissSign Silver CA - G2"  
# Serial: 5700383053117599563  
# MD5 Fingerprint: e0:06:a1:c9:7d:cf:c9:fc:0d:c0:56:75:96:d8:62:13  
# SHA1 Fingerprint: 9b:aa:e5:9f:56:ee:21:cb:43:5a:be:25:93:df:a7:f0:40:d1:1d:cb  
# SHA256 Fingerprint:  
be:6c:4d:a2:bb:b9:ba:59:b6:f3:93:97:68:37:42:46:c3:c0:05:99:3f:a9:8f:02:0d:1d:ed:be:d4:8a:81:d5

-----BEGIN CERTIFICATE-----

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CERTIFICATE-----

# Issuer: CN=GeoTrust Primary Certification Authority O=GeoTrust Inc.  
# Subject: CN=GeoTrust Primary Certification Authority O=GeoTrust Inc.  
# Label: "GeoTrust Primary Certification Authority"  
# Serial: 32798226551256963324313806436981982369  
# MD5 Fingerprint: 02:26:c3:01:5e:08:30:37:43:a9:d0:7d:cf:37:e6:bf  
# SHA1 Fingerprint: 32:3c:11:8e:1b:f7:b8:b6:52:54:e2:e2:10:0d:d6:02:90:37:f0:96  
# SHA256 Fingerprint:  
37:d5:10:06:c5:12:ea:ab:62:64:21:f1:ec:8c:92:01:3f:c5:f8:2a:e9:8e:e5:33:eb:46:19:b8:de:b4:d0:6c

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# Issuer: CN=thawte Primary Root CA O=thawte, Inc. OU=Certification Services Division/(c) 2006 thawte, Inc. -  
For authorized use only  
# Subject: CN=thawte Primary Root CA O=thawte, Inc. OU=Certification Services Division/(c) 2006 thawte, Inc. -  
For authorized use only  
# Label: "thawte Primary Root CA"  
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# Issuer: CN=VeriSign Class 3 Public Primary Certification Authority - G5 O=VeriSign, Inc. OU=VeriSign Trust  
Network/(c) 2006 VeriSign, Inc. - For authorized use only  
# Subject: CN=VeriSign Class 3 Public Primary Certification Authority - G5 O=VeriSign, Inc. OU=VeriSign Trust  
Network/(c) 2006 VeriSign, Inc. - For authorized use only  
# Label: "VeriSign Class 3 Public Primary Certification Authority - G5"  
# Serial: 33037644167568058970164719475676101450



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# Subject: CN=Secure Global CA O=SecureTrust Corporation  
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# Issuer: CN=COMODO Certification Authority O=COMODO CA Limited  
# Subject: CN=COMODO Certification Authority O=COMODO CA Limited  
# Label: "COMODO Certification Authority"  
# Serial: 104350513648249232941998508985834464573  
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# Subject: CN=Network Solutions Certificate Authority O=Network Solutions L.L.C.  
# Label: "Network Solutions Certificate Authority"  
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# Subject: CN=COMODO ECC Certification Authority O=COMODO CA Limited  
# Label: "COMODO ECC Certification Authority"  
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-----BEGIN CERTIFICATE-----

MIICiTCCAg+gAwIBAgIQH0evqmIACFBUTAGem2OZKjAKBggqhkiOPQQDAzCBhTELMakGA1UEBhMCR0IxGzAZBgNVBAGTEkdyZWV0ZXR3b3JrIFNvbHV0aW9ucyBDZXJ0aWZpY2F0ZSBBdXR0b3JpdHkwHhcNMDYxMjAxMDAwMDAwWhcNMjMxMjMxMjM1OTU5WjBiMQswCQYDVQQGEwJVUzEhMB8GA1UEChMYTmV0d29yayBTb2x1dGlvbnMgTC5MLkMuMTAwLgYDVQQDEydOZXR3b3JrIFNvbHV0aW9ucyBDZXJ0aWZpY2F0ZSBBdXR0b3JpdHkwggEiMA0GCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQCkvH6SMG3G2I4rC7xGzuAnlt7e+foS0zwc7MEL7xxjOWftiJgPI9dzgn/ggwbmlFQGiaJ3dVhXRncEg8tCqJDXRfQNJIg6nPPOCwGJgl6cvf6UDL4wpPTaaljzkGxzOTVHzbRijr4jGPiFFlp7Q3Tf2vouAPIT2rlmGNpSAW+Lv8ztumXWwn4Zxmuk2GWRBXTcrA/vGp97Eh/jcOrqnErU2IBUzS1sLnFBgrEsEX1QV1uiUV7PTsmjHTC5dLRfbIR1PtYMiKagMnc/Qzpf14DI847ABSHJ3A4qY5usy2mFHgBeMhqxrVhSI8KbWafSwaQPS7azCPL0YCorEMiUdTAgMBAAGjgZcwgZQwHQYDVR0OBByEFCEWYfsA106Y2oeqKtCnLrFAMadMMA4GA1UdDwEB/wQEAwIBBjAPBgNVHRMBAf8EBTADAQH/MFIGA1UdHwRLMEkwR6BFoEOGQWh0dHA6Ly9jcmwuYmV0c29sc3NsLmNvbS9OZXR3b3JrU29sdXRpb25zQ2VydGlmaWNhdGVbdXR0b3JpdHkuY3JsMA0GCSqGSIb3DQEBAQUAA4IBAQc7rkvnt1frf6ott3NHhWrB5KUd5Oc86fRZZXe1eltajSU24HqXLjjAV2CDmAA4Dn7l2em5Q4LqLLPxFzBiwmZVRDudwduJ/h1AcgsLj4DKAv6ALR8jDMe+ZZzKATxcheQxpXN5eNK4CtSbqUN9/GGUsyfJj4akH/nxxH2szJGoeBfcFaMBqEssuXmHLrijTfsK0ZpEmXzWuJF/LWA/rKOyvEZb3HtwKeI8lN3s2Berq4o2jUsbZRF0ybh3uxbTydrFny9RAQYgrOJeRcQcT16ohZO9QHnpGxlaKFJdlxDyid8NmdspZS11My5vWo1ViHe2MPr+8ukYEywVaCge1ey





# SHA256 Fingerprint:

e3:b6:a2:db:2e:d7:ce:48:84:2f:7a:c5:32:41:c7:b7:1d:54:14:4b:fb:40:c1:1f:3f:1d:0b:42:f5:ee:a1:2d

-----BEGIN CERTIFICATE-----

MIIDqDCCApCgAwIBAgIJAP7c4wEPyUj/MA0GCSqGSIb3DQEBBQUAMDQxCzAJBgNV
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-----END

CERTIFICATE-----

# Issuer: CN=Deutsche Telekom Root CA 2 O=Deutsche Telekom AG OU=T-TeleSec Trust Center
# Subject: CN=Deutsche Telekom Root CA 2 O=Deutsche Telekom AG OU=T-TeleSec Trust Center
# Label: "Deutsche Telekom Root CA 2"
# Serial: 38
# MD5 Fingerprint: 74:01:4a:91:b1:08:c4:58:ce:47:cd:f0:dd:11:53:08
# SHA1 Fingerprint: 85:a4:08:c0:9c:19:3e:5d:51:58:7d:cd:d6:13:30:fd:8c:de:37:bf
# SHA256 Fingerprint:

b6:19:1a:50:d0:c3:97:7f:7d:a9:9b:cd:aa:c8:6a:22:7d:ae:b9:67:9e:c7:0b:a3:b0:c9:d9:22:71:c1:70:d3

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CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=Cybertrust Global Root O=Cybertrust, Inc  
# Subject: CN=Cybertrust Global Root O=Cybertrust, Inc  
# Label: "Cybertrust Global Root"  
# Serial: 4835703278459682877484360  
# MD5 Fingerprint: 72:e4:4a:87:e3:69:40:80:77:ea:bc:e3:f4:ff:f0:e1  
# SHA1 Fingerprint: 5f:43:e5:b1:bf:f8:78:8c:ac:1c:c7:ca:4a:9a:c6:22:2b:cc:34:c6  
# SHA256 Fingerprint:  
96:0a:df:00:63:e9:63:56:75:0c:29:65:dd:0a:08:67:da:0b:9c:bd:6e:77:71:4a:ea:fb:23:49:ab:39:3d:a3

-----BEGIN CERTIFICATE-----

MIIDoTCCAomgAwIBAgILBAAAAAABD4WqLUgwDQYJKoZIhvcNAQEFBQAwwOzEYMBYGCg  
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WL1WMRJOEcgh4LMRkWXbtKaIOM5V

-----END

CERTIFICATE-----

# Issuer: O=Chunghwa Telecom Co., Ltd. OU=ePKI Root Certification Authority  
# Subject: O=Chunghwa Telecom Co., Ltd. OU=ePKI Root Certification Authority  
# Label: "ePKI Root Certification Authority"  
# Serial: 28956088682735189655030529057352760477  
# MD5 Fingerprint: 1b:2e:00:ca:26:06:90:3d:ad:fe:6f:15:68:d3:6b:b3



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-----END

CERTIFICATE-----

# Issuer: CN=GeoTrust Primary Certification Authority - G3 O=GeoTrust Inc. OU=(c) 2008 GeoTrust Inc. - For authorized use only

# Subject: CN=GeoTrust Primary Certification Authority - G3 O=GeoTrust Inc. OU=(c) 2008 GeoTrust Inc. - For authorized use only

# Label: "GeoTrust Primary Certification Authority - G3"

# Serial: 28809105769928564313984085209975885599

# MD5 Fingerprint: b5:e8:34:36:c9:10:44:58:48:70:6d:2e:83:d4:b8:05

# SHA1 Fingerprint: 03:9e:ed:b8:0b:e7:a0:3c:69:53:89:3b:20:d2:d9:32:3a:4c:2a:fd

# SHA256 Fingerprint:

b4:78:b8:12:25:0d:f8:78:63:5c:2a:a7:ec:7d:15:5e:aa:62:5e:e8:29:16:e2:cd:29:43:61:88:6c:d1:fb:d4

-----BEGIN CERTIFICATE-----

MIID/jCCAuagAwIBAgIQFaxulBmyeUtB9iepwXgPHzANBgkqhkiG9w0BAQsFADCB  
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-----END

CERTIFICATE-----

# Issuer: CN=thawte Primary Root CA - G2 O=thawte, Inc. OU=(c) 2007 thawte, Inc. - For authorized use only  
# Subject: CN=thawte Primary Root CA - G2 O=thawte, Inc. OU=(c) 2007 thawte, Inc. - For authorized use only  
# Label: "thawte Primary Root CA - G2"  
# Serial: 71758320672825410020661621085256472406  
# MD5 Fingerprint: 74:9d:ea:60:24:c4:fd:22:53:3e:cc:3a:72:d9:29:4f  
# SHA1 Fingerprint: aa:db:bc:22:23:8f:c4:01:a1:27:bb:38:dd:f4:1d:db:08:9e:f0:12  
# SHA256 Fingerprint:  
a4:31:0d:50:af:18:a6:44:71:90:37:2a:86:af:af:8b:95:1f:fb:43:1d:83:7f:1e:56:88:b4:59:71:ed:15:57

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=thawte Primary Root CA - G3 O=thawte, Inc. OU=Certification Services Division/(c) 2008 thawte, Inc. - For authorized use only  
# Subject: CN=thawte Primary Root CA - G3 O=thawte, Inc. OU=Certification Services Division/(c) 2008 thawte, Inc. - For authorized use only  
# Label: "thawte Primary Root CA - G3"  
# Serial: 127614157056681299805556476275995414779  
# MD5 Fingerprint: fb:1b:5d:43:8a:94:cd:44:c6:76:f2:43:4b:47:e7:31  
# SHA1 Fingerprint: f1:8b:53:8d:1b:e9:03:b6:a6:f0:56:43:5b:17:15:89:ca:f3:6b:f2  
# SHA256 Fingerprint:  
4b:03:f4:58:07:ad:70:f2:1b:fc:2c:ae:71:c9:fd:e4:60:4c:06:4c:f5:ff:b6:86:ba:e5:db:aa:d7:fd:d3:4c

-----BEGIN CERTIFICATE-----

MIIEKjCCAxKgAwIBAgIQYAGXt0an6rS0mtZLL/eQ+zANBgkqhkiG9w0BAQsFADCB  
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Issuer: CN=VeriSign Class 3 Public Primary Certification Authority - G4 O=VeriSign, Inc. OU=VeriSign Trust Network/(c) 2007 VeriSign, Inc. - For authorized use only  
# Subject: CN=VeriSign Class 3 Public Primary Certification Authority - G4 O=VeriSign, Inc. OU=VeriSign Trust Network/(c) 2007 VeriSign, Inc. - For authorized use only  
# Label: "VeriSign Class 3 Public Primary Certification Authority - G4"  
# Serial: 63143484348153506665311985501458640051  
# MD5 Fingerprint: 3a:52:e1:e7:fd:6f:3a:e3:6f:f3:6f:99:1b:f9:22:41  
# SHA1 Fingerprint: 22:d5:d8:df:8f:02:31:d1:8d:f7:9d:b7:cf:8a:2d:64:c9:3f:6c:3a  
# SHA256 Fingerprint:  
69:dd:d7:ea:90:bb:57:c9:3e:13:5d:c8:5e:a6:fc:d5:48:0b:60:32:39:bd:c4:54:fc:75:8b:2a:26:cf:7f:79  
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-----END  
CERTIFICATE-----

#  
Issuer: CN=NetLock Arany (Class Gold) Ftanstvny O=NetLock Kft. OU=Tanstvnykiadk (Certification Services)  
# Subject: CN=NetLock Arany (Class Gold) Ftanstvny O=NetLock Kft. OU=Tanstvnykiadk (Certification Services)  
# Label: "NetLock Arany (Class Gold) Ftanstvny"  
# Serial: 80544274841616  
# MD5 Fingerprint: c5:a1:b7:ff:73:dd:d6:d7:34:32:18:df:fc:3c:ad:88  
# SHA1 Fingerprint: 06:08:3f:59:3f:15:a1:04:a0:69:a4:6b:a9:03:d0:06:b7:97:09:91  
# SHA256 Fingerprint:  
6c:61:da:c3:a2:de:f0:31:50:6b:e0:36:d2:a6:fe:40:19:94:fb:d1:3d:f9:c8:d4:66:59:92:74:c4:46:ec:98  
-----BEGIN CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: CN=Staat der Nederlanden Root CA - G2 O=Staat der Nederlanden  
# Subject: CN=Staat der Nederlanden Root CA - G2 O=Staat der Nederlanden  
# Label: "Staat der Nederlanden Root CA - G2"  
# Serial: 10000012  
# MD5 Fingerprint: 7c:a5:0f:f8:5b:9a:7d:6d:30:ae:54:5a:e3:42:a2:8a  
# SHA1 Fingerprint: 59:af:82:79:91:86:c7:b4:75:07:cb:cf:03:57:46:eb:04:dd:b7:16  
# SHA256 Fingerprint:  
66:8c:83:94:7d:a6:3b:72:4b:ec:e1:74:3c:31:a0:e6:ae:d0:db:8e:c5:b3:1b:e3:77:bb:78:4f:91:b6:71:6f

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-----END  
CERTIFICATE-----

# Issuer: CN=Hongkong Post Root CA 1 O=Hongkong Post  
# Subject: CN=Hongkong Post Root CA 1 O=Hongkong Post  
# Label: "Hongkong Post Root CA 1"  
# Serial: 1000  
# MD5 Fingerprint: a8:0d:6f:39:78:b9:43:6d:77:42:6d:98:5a:cc:23:ca  
# SHA1 Fingerprint: d6:da:a8:20:8d:09:d2:15:4d:24:b5:2f:cb:34:6e:b2:58:b2:8a:58  
# SHA256 Fingerprint:  
f9:e6:7d:33:6c:51:00:2a:c0:54:c6:32:02:2d:66:dd:a2:e7:e3:ff:f1:0a:d0:61:ed:31:d8:bb:b4:10:cf:b2  
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CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: CN=SecureSign RootCA11 O=Japan Certification Services, Inc.  
# Subject: CN=SecureSign RootCA11 O=Japan Certification Services, Inc.

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# Label: "SecureSign RootCA11"
# Serial: 1
# MD5 Fingerprint: b7:52:74:e2:92:b4:80:93:f2:75:e4:cc:d7:f2:ea:26
# SHA1 Fingerprint: 3b:c4:9f:48:f8:f3:73:a0:9c:1e:bd:f8:5b:b1:c3:65:c7:d8:11:b3
# SHA256 Fingerprint:
bf:0f:ee:fb:9e:3a:58:1a:d5:f9:e9:db:75:89:98:57:43:d2:61:08:5c:4d:31:4f:6f:5d:72:59:aa:42:16:12
-----BEGIN CERTIFICATE-----
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-----END
CERTIFICATE-----
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# Issuer: CN=Microsec e-Szigno Root CA 2009 O=Microsec Ltd.
# Subject: CN=Microsec
e-Szigno Root CA 2009 O=Microsec Ltd.
# Label: "Microsec e-Szigno Root CA 2009"
# Serial: 14014712776195784473
# MD5 Fingerprint: f8:49:f4:03:bc:44:2d:83:be:48:69:7d:29:64:fc:b1
# SHA1 Fingerprint: 89:df:74:fe:5c:f4:0f:4a:80:f9:e3:37:7d:54:da:91:e1:01:31:8e
# SHA256 Fingerprint:
3c:5f:81:fe:a5:fa:b8:2c:64:bf:a2:ea:ec:af:cd:e8:e0:77:fc:86:20:a7:ca:e5:37:16:3d:f3:6e:db:f3:78
-----BEGIN CERTIFICATE-----
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-----END  
CERTIFICATE-----

# Issuer: CN=GlobalSign O=GlobalSign OU=GlobalSign Root CA - R3  
# Subject: CN=GlobalSign O=GlobalSign OU=GlobalSign Root CA - R3  
# Label: "GlobalSign Root CA - R3"  
#  
Serial: 4835703278459759426209954  
# MD5 Fingerprint: c5:df:b8:49:ca:05:13:55:ee:2d:ba:1a:c3:3e:b0:28  
# SHA1 Fingerprint: d6:9b:56:11:48:f0:1c:77:c5:45:78:c1:09:26:df:5b:85:69:76:ad  
# SHA256 Fingerprint:  
cb:b5:22:d7:b7:f1:27:ad:6a:01:13:86:5b:df:1c:d4:10:2e:7d:07:59:af:63:5a:7c:f4:72:0d:c9:63:c5:3b  
-----BEGIN CERTIFICATE-----

MIIDXzCCAkegAwIBAgILBAAAAAABIVhTCKIwDQYJKoZIhvcNAQELBQAwTDEgMB4G  
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WD9f  
-----END  
CERTIFICATE-----

# Issuer: CN=Autoridad de Certificacion Firmaprofesional CIF A62634068  
# Subject: CN=Autoridad de Certificacion Firmaprofesional CIF A62634068  
# Label: "Autoridad de Certificacion Firmaprofesional CIF A62634068"  
# Serial: 6047274297262753887  
# MD5 Fingerprint: 73:3a:74:7a:ec:bb:a3:96:a6:c2:e4:e2:c8:9b:c0:c3  
# SHA1 Fingerprint: ae:c5:fb:3f:c8:e1:bf:c4:e5:4f:03:07:5a:9a:e8:00:b7:f7:b6:fa  
# SHA256 Fingerprint:  
04:04:80:28:bf:1f:28:64:d4:8f:9a:d4:d8:32:94:36:6a:82:88:56:55:3f:3b:14:30:3f:90:14:7f:5d:40:ef  
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----END  
CERTIFICATE-----

# Issuer: CN=Izenpe.com O=IZENPE S.A.  
# Subject: CN=Izenpe.com O=IZENPE S.A.

# Label: "Izenpe.com"  
# Serial: 917563065490389241595536686991402621  
# MD5 Fingerprint: a6:b0:cd:85:80:da:5c:50:34:a3:39:90:2f:55:67:73  
# SHA1 Fingerprint: 2f:78:3d:25:52:18:a7:4a:65:39:71:b5:2c:a2:9c:45:15:6f:e9:19  
# SHA256 Fingerprint:  
25:30:cc:8e:98:32:15:02:ba:d9:6f:9b:1f:ba:1b:09:9e:2d:29:9e:0f:45:48:bb:91:4f:36:3b:c0:d4:53:1f  
-----BEGIN CERTIFICATE-----

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VQQGEwJFUzEUMBIGA1UECgwLSVpFTIBFIFMuQS4xEzARBgNVBAMMCKl6ZW5wZS5j  
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-----END  
CERTIFICATE-----

# Issuer: CN=Chambers of Commerce Root - 2008 O=AC Camerfirma S.A.  
# Subject: CN=Chambers of Commerce Root - 2008 O=AC Camerfirma S.A.  
# Label: "Chambers of Commerce Root - 2008"  
# Serial: 11806822484801597146  
# MD5 Fingerprint: 5e:80:9e:84:5a:0e:65:0b:17:02:f3:55:18:2a:3e:d7  
#







-----END  
CERTIFICATE-----

# Issuer: CN=Go Daddy Root Certificate Authority - G2 O=GoDaddy.com, Inc.  
# Subject: CN=Go Daddy Root Certificate Authority - G2 O=GoDaddy.com,  
Inc.  
# Label: "Go Daddy Root Certificate Authority - G2"  
# Serial: 0  
# MD5 Fingerprint: 80:3a:bc:22:c1:e6:fb:8d:9b:3b:27:4a:32:1b:9a:01  
# SHA1 Fingerprint: 47:be:ab:c9:22:ea:e8:0e:78:78:34:62:a7:9f:45:c2:54:fd:e6:8b  
# SHA256 Fingerprint:  
45:14:0b:32:47:eb:9c:c8:c5:b4:f0:d7:b5:30:91:f7:32:92:08:9e:6e:5a:63:e2:74:9d:d3:ac:a9:19:8e:da

-----BEGIN CERTIFICATE-----

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-----END  
CERTIFICATE-----

# Issuer: CN=Starfield Root Certificate Authority - G2 O=Starfield Technologies, Inc.  
# Subject: CN=Starfield Root Certificate Authority - G2 O=Starfield Technologies, Inc.  
# Label: "Starfield Root Certificate Authority - G2"  
# Serial: 0  
# MD5 Fingerprint: d6:39:81:c6:52:7e:96:69:fc:fc:ca:66:ed:05:f2:96  
#  
SHA1 Fingerprint: b5:1c:06:7c:ee:2b:0c:3d:f8:55:ab:2d:92:f4:fe:39:d4:e7:0f:0e  
# SHA256 Fingerprint:  
2c:e1:cb:0b:f9:d2:f9:e1:02:99:3f:be:21:51:52:c3:b2:dd:0c:ab:de:1c:68:e5:31:9b:83:91:54:db:b7:f5

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=Starfield Services Root Certificate Authority - G2 O=Starfield Technologies, Inc.

# Subject: CN=Starfield Services Root Certificate Authority - G2 O=Starfield Technologies, Inc.

# Label: "Starfield Services Root Certificate Authority - G2"

# Serial: 0

# MD5 Fingerprint: 17:35:74:af:7b:61:1c:eb:f4:f9:3c:e2:ee:40:f9:a2

# SHA1 Fingerprint: 92:5a:8f:8d:2c:6d:04:e0:66:5f:59:6a:ff:22:d8:63:e8:25:6f:3f

#

SHA256 Fingerprint:

56:8d:69:05:a2:c8:87:08:a4:b3:02:51:90:ed:cf:ed:b1:97:4a:60:6a:13:c6:e5:29:0f:cb:2a:e6:3e:da:b5

-----BEGIN CERTIFICATE-----

MIID7zCCAtAgAwIBAgIBADANBgkqhkiG9w0BAQsFADCbMDELMAkGA1UEBhMCVVMx  
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HFNOYXJmaWVsZCBUZWNobm9sb2dpZXMsIEluYy4xMjAwBgNVBAMTKVNOYXJmaWVs  
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-----BEGIN CERTIFICATE-----

MIIDTCCAjSgAwIBAgIIIfE8EORzUmS0wDQYJKoZIhvcNAQEFBQAwrDELMaKGA1UE  
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-----END

CERTIFICATE-----

# Issuer: CN=AffirmTrust Premium O=AffirmTrust

# Subject: CN=AffirmTrust Premium O=AffirmTrust

# Label: "AffirmTrust Premium"

# Serial: 7893706540734352110

# MD5

Fingerprint: c4:5d:0e:48:b6:ac:28:30:4e:0a:bc:f9:38:16:87:57

# SHA1 Fingerprint: d8:a6:33:2c:e0:03:6f:b1:85:f6:63:4f:7d:6a:06:65:26:32:28:27

# SHA256 Fingerprint:

70:a7:3f:7f:37:6b:60:07:42:48:90:45:34:b1:14:82:d5:bf:0e:69:8e:cc:49:8d:f5:25:77:eb:f2:e9:3b:9a

-----BEGIN CERTIFICATE-----

MIIFRjCCAy6gAwIBAgIIbYwURrGmCu4wDQYJKoZIhvcNAQEMBQAQwQTELMaKGA1UE  
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-----END

CERTIFICATE-----

# Issuer: O=SECOM Trust Systems CO.,LTD. OU=Security

Communication RootCA2

# Subject: O=SECOM Trust Systems CO.,LTD. OU=Security Communication RootCA2

# Label: "Security Communication RootCA2"

# Serial: 0

# MD5 Fingerprint: 6c:39:7d:a4:0e:55:59:b2:3f:d6:41:b1:12:50:de:43

# SHA1 Fingerprint: 5f:3b:8c:f2:f8:10:b3:7d:78:b4:ce:ec:19:19:c3:73:34:b9:c7:74

# SHA256 Fingerprint:

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-----BEGIN CERTIFICATE-----

MIIDdzCCA1+gAwIBAgIBADANBgkqhkiG9w0BAQsFADBdMQswCQYDVQQGEwJKUDEI  
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U2VjdXJpdHkgQ29tbXVuaWNhdGlvbSBs290Q0EYMB4XDTA5MDUyOTA1MDAzOVoX  
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CERTIFICATE-----

# Issuer: CN=EC-ACC O=Agencia Catalana de Certificacio (NIF Q-0801176-I) OU=Serveis Publics de  
Certificacio/Vegeu <https://www.catcert.net/verarrel> (c)03/Jerarquia Entitats de Certificacio Catalanes

# Subject: CN=EC-ACC O=Agencia Catalana de Certificacio (NIF Q-0801176-I) OU=Serveis Publics de  
Certificacio/Vegeu <https://www.catcert.net/verarrel>

(c)03/Jerarquia Entitats de Certificacio Catalanes

# Label: "EC-ACC"

# Serial: -23701579247955709139626555126524820479

# MD5 Fingerprint: eb:f5:9d:29:0d:61:f9:42:1f:7c:c2:ba:6d:e3:15:09

# SHA1 Fingerprint: 28:90:3a:63:5b:52:80:fa:e6:77:4c:0b:6d:a7:d6:ba:a6:4a:f2:e8



# SHA256 Fingerprint:

88:49:7f:01:60:2f:31:54:24:6a:e2:8c:4d:5a:ef:10:f1:d8:7e:bb:76:62:6f:4a:e0:b7:f9:5b:a7:96:87:99

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=Hellenic Academic and Research Institutions RootCA 2011 O=Hellenic Academic and Research Institutions Cert. Authority

# Subject: CN=Hellenic Academic and Research Institutions RootCA 2011 O=Hellenic Academic and Research Institutions Cert. Authority

# Label: "Hellenic Academic and Research Institutions RootCA 2011"

# Serial: 0

# MD5 Fingerprint: 73:9f:4c:4b:73:5b:79:e9:fa:ba:1c:ef:6e:cb:d5:c9

# SHA1 Fingerprint: fe:45:65:9b:79:03:5b:98:a1:61:b5:51:2e:ac:da:58:09:48:22:4d

# SHA256 Fingerprint:

bc:10:4f:15:a4:8b:e7:09:dc:a5:42:a7:e1:d4:b9:df:6f:05:45:27:e8:02:ea:a9:2d:59:54:44:25:8a:fe:71

-----BEGIN CERTIFICATE-----

```
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-----END

CERTIFICATE-----

# Issuer: CN=Actalis Authentication Root CA O=Actalis S.p.A./03358520967

# Subject: CN=Actalis Authentication Root CA O=Actalis S.p.A./03358520967

# Label: "Actalis Authentication Root CA"

# Serial: 6271844772424770508

# MD5 Fingerprint: 69:c1:0d:4f:07:a3:1b:c3:fe:56:3d:04:bc:11:f6:a6

# SHA1 Fingerprint: f3:73:b3:87:06:5a:28:84:8a:f2:f3:4a:ce:19:2b:dd:c7:8e:9c:ac

# SHA256 Fingerprint:

55:92:60:84:ec:96:3a:64:b9:6e:2a:be:01:ce:0b:a8:6a:64:fb:fe:bc:c7:aa:b5:af:c1:55:b3:7f:d7:60:66

-----BEGIN CERTIFICATE-----

MIIFuzCCA6OgAwIBAgIIVwoRI0LE48wwDQYJKoZIhvcNAQELBQAwezELMAkGA1UE  
BhMCSVQxDjAMBgNVBAcMBU1pbGFuMSMwIQYDVQKDBpBY3RhbGlzIFMucC5BLi8w  
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-----END

CERTIFICATE-----

# Issuer: O=Trustis Limited

OU=Trustis FPS Root CA

# Subject: O=Trustis Limited OU=Trustis FPS Root CA

# Label: "Trustis FPS Root CA"

# Serial: 360536403753990343047249889755637110553

# MD5 Fingerprint: 30:c9:e7:1e:6b:e6:14:eb:65:b2:16:69:20:31:67:4d

# SHA1 Fingerprint: 3b:c0:38:0b:33:c3:f6:a6:0c:86:15:22:93:d9:df:f5:4b:81:c0:04

# SHA256 Fingerprint:

c1:b4:82:99:ab:a5:20:8f:e9:63:0a:ce:55:ca:68:a0:3e:da:5a:51:9c:88:02:a0:d3:a6:73:be:8f:8e:55:7d

-----BEGIN CERTIFICATE-----

MIIDZzCCAk+gAwIBAgIQGx+ttiD5JNM2a/fH8YygWTANBgkqhkiG9w0BAQUFADBFI  
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-----END

CERTIFICATE-----

# Issuer: CN=Buypass Class 2 Root CA O=Buypass AS-983163327  
# Subject: CN=Buypass Class 2 Root CA O=Buypass AS-983163327  
# Label: "Buypass Class 2 Root CA"  
# Serial: 2  
# MD5 Fingerprint: 46:a7:d2:fe:45:fb:64:5a:a8:59:90:9b:78:44:9b:29  
# SHA1 Fingerprint: 49:0a:75:74:de:87:0a:47:fe:58:ee:f6:c7:6b:eb:c6:0b:12:40:99  
# SHA256 Fingerprint:  
9a:11:40:25:19:7c:5b:b9:5d:94:e6:3d:55:cd:43:79:08:47:b6:46:b2:3c:df:11:ad:a4:a0:0e:ff:15:fb:48

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=Buypass Class 3 Root CA O=Buypass AS-983163327  
# Subject: CN=Buypass Class 3 Root CA O=Buypass AS-983163327  
# Label: "Buypass Class 3 Root CA"  
# Serial: 2

# MD5 Fingerprint: 3d:3b:18:9e:2c:64:5a:e8:d5:88:ce:0e:f9:37:c2:ec  
# SHA1 Fingerprint: da:fa:f7:fa:66:84:ec:06:8f:14:50:bd:c7:c2:81:a5:bc:a9:64:57  
# SHA256 Fingerprint:  
ed:f7:eb:bc:a2:7a:2a:38:4d:38:7b:7d:40:10:c6:66:e2:ed:b4:84:3e:4c:29:b4:ae:1d:5b:93:32:e6:b2:4d  
-----BEGIN CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: CN=T-TeleSec GlobalRoot Class 3 O=T-Systems Enterprise Services GmbH OU=T-Systems Trust Center  
# Subject: CN=T-TeleSec GlobalRoot Class 3 O=T-Systems Enterprise Services GmbH OU=T-Systems Trust Center  
# Label: "T-TeleSec GlobalRoot Class 3"  
# Serial: 1  
# MD5 Fingerprint: ca:fb:40:a8:4e:39:92:8a:1d:fe:8e:2f:c4:27:ea:ef  
# SHA1 Fingerprint: 55:a6:72:3e:cb:f2:ec:cd:c3:23:74:70:19:9d:2a:be:11:e3:81:d1  
# SHA256 Fingerprint:  
fd:73:da:d3:1c:64:4f:f1:b4:3b:ef:0c:cd:da:96:71:0b:9c:d9:87:5e:ca:7e:31:70:7a:f3:e9:6d:52:2b:bd  
-----BEGIN CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: CN=EE Certification Centre Root CA O=AS Sertifitseerimiskeskus  
# Subject: CN=EE Certification Centre Root CA O=AS Sertifitseerimiskeskus  
# Label: "EE Certification Centre Root CA"  
# Serial: 112324828676200291871926431888494945866  
# MD5 Fingerprint: 43:5e:88:d4:7d:1a:4a:7e:fd:84:2e:52:eb:01:d4:6f  
# SHA1 Fingerprint: c9:a8:b9:e7:55:80:5e:58:e3:53:77:a7:25:eb:af:c3:7b:27:cc:d7  
# SHA256 Fingerprint:  
3e:84:ba:43:42:90:85:16:e7:75:73:c0:99:2f:09:79:ca:08:4e:46:85:68:1f:f1:95:cc:ba:8a:22:9b:8a:76  
-----BEGIN CERTIFICATE-----

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# Issuer: CN=D-TRUST Root Class 3 CA 2 2009 O=D-Trust GmbH  
# Subject: CN=D-TRUST Root Class 3 CA 2 2009 O=D-Trust GmbH  
# Label: "D-TRUST Root Class 3 CA 2 2009"  
# Serial: 623603  
# MD5 Fingerprint: cd:e0:25:69:8d:47:ac:9c:89:35:90:f7:fd:51:3d:2f  
# SHA1 Fingerprint: 58:e8:ab:b0:36:15:33:fb:80:f7:9b:1b:6d:29:d3:ff:8d:5f:00:f0  
# SHA256 Fingerprint:  
49:e7:a4:42:ac:f0:ea:62:87:05:00:54:b5:25:64:b6:50:e4:f4:9e:42:e3:48:d6:aa:38:e0:39:e9:57:b1:c1

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# Issuer: CN=D-TRUST Root Class 3 CA 2 EV 2009 O=D-Trust GmbH  
# Subject: CN=D-TRUST Root Class 3 CA 2 EV 2009 O=D-Trust GmbH  
# Label: "D-TRUST Root Class 3 CA 2 EV 2009"  
# Serial: 623604

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# MD5 Fingerprint: aa:c6:43:2c:5e:2d:cd:c4:34:c0:50:4f:11:02:4f:b6
# SHA1 Fingerprint: 96:c9:1b:0b:95:b4:10:98:42:fa:d0:d8:22:79:fe:60:fa:b9:16:83
# SHA256 Fingerprint:
ee:c5:49:6b:98:8c:e9:86:25:b9:34:09:2e:ec:29:08:be:d0:b0:f3:16:c2:d4:73:0c:84:ea:f1:f3:d3:48:81
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# Issuer: CN=CA Disig Root R2 O=Disig a.s.
# Subject: CN=CA Disig Root R2 O=Disig a.s.
# Label: "CA Disig Root R2"
# Serial: 10572350602393338211
# MD5 Fingerprint: 26:01:fb:d8:27:a7:17:9a:45:54:38:1a:43:01:3b:03
# SHA1 Fingerprint: b5:61:eb:ea:a4:de:e4:25:4b:69:1a:98:a5:57:47:c2:34:c7:d9:71
# SHA256 Fingerprint:
e2:3d:4a:03:6d:7b:70:e9:f5:95:b1:42:20:79:d2:b9:1e:df:bb:1f:b6:51:a0:63:3e:aa:8a:9d:c5:f8:07:03
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-----END  
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# Issuer: CN=ACCVRAIZ1 O=ACCV OU=PKIACCV  
# Subject: CN=ACCVRAIZ1 O=ACCV OU=PKIACCV  
# Label: "ACCVRAIZ1"  
# Serial: 6828503384748696800  
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# SHA1 Fingerprint: 93:05:7a:88:15:c6:4f:ce:88:2f:fa:91:16:52:28:78:bc:53:64:17  
# SHA256 Fingerprint:  
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CERTIFICATE-----

# Issuer: CN=TWCA Global Root CA O=TAIWAN-CA OU=Root CA  
# Subject: CN=TWCA Global Root CA O=TAIWAN-CA OU=Root CA  
# Label: "TWCA Global Root CA"  
# Serial: 3262  
# MD5 Fingerprint: f9:03:7e:cf:e6:9e:3c:73:7a:2a:90:07:69:ff:2b:96  
# SHA1 Fingerprint: 9c:bb:48:53:f6:a4:f6:d3:52:a4:e8:32:52:55:60:13:f5:ad:af:65  
# SHA256

Fingerprint: 59:76:90:07:f7:68:5d:0f:cd:50:87:2f:9f:95:d5:75:5a:5b:2b:45:7d:81:f3:69:2b:61:0a:98:67:2f:0e:1b

-----BEGIN CERTIFICATE-----

MIIFQTCCAymgAwIBAgICDL4wDQYJKoZIhvcNAQELBQAUTELMAkGA1UEBhMCVFcx  
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-----END

CERTIFICATE-----

#

Issuer: CN=TeliaSonera Root CA v1 O=TeliaSonera

# Subject: CN=TeliaSonera Root CA v1 O=TeliaSonera

# Label: "TeliaSonera Root CA v1"

# Serial: 199041966741090107964904287217786801558

# MD5 Fingerprint: 37:41:49:1b:18:56:9a:26:f5:ad:c2:66:fb:40:a5:4c

# SHA1 Fingerprint: 43:13:bb:96:f1:d5:86:9b:c1:4e:6a:92:f6:cf:f6:34:69:87:82:37

# SHA256 Fingerprint:

dd:69:36:fe:21:f8:f0:77:c1:23:a1:a5:21:c1:22:24:f7:22:55:b7:3e:03:a7:26:06:93:e8:a2:4b:0f:a3:89

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=E-Tugra Certification Authority O=E-Tura EBG Biliim Teknolojileri ve Hizmetleri A.. OU=E-Tugra  
Sertifikasyon Merkezi  
# Subject: CN=E-Tugra Certification Authority O=E-Tura EBG Biliim Teknolojileri ve Hizmetleri A.. OU=E-Tugra  
Sertifikasyon Merkezi  
# Label: "E-Tugra Certification Authority"  
# Serial: 7667447206703254355  
# MD5 Fingerprint: b8:a1:03:63:b0:bd:21:71:70:8a:6f:13:3a:bb:79:49  
# SHA1 Fingerprint: 51:c6:e7:08:49:06:6e:f3:92:d4:5c:a0:0d:6d:a3:62:8f:c3:52:39  
# SHA256 Fingerprint:  
b0:bf:d5:2b:b0:d7:d9:bd:92:bf:5d:4d:c1:3d:a2:55:c0:2c:54:2f:37:83:65:ea:89:39:11:f5:5e:55:f2:3c

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=T-TeleSec GlobalRoot Class 2 O=T-Systems Enterprise Services GmbH OU=T-Systems Trust Center  
# Subject: CN=T-TeleSec GlobalRoot Class 2 O=T-Systems Enterprise Services GmbH OU=T-Systems Trust Center

# Label: "T-TeleSec GlobalRoot Class 2"

# Serial: 1

# MD5 Fingerprint: 2b:9b:9e:e4:7b:6c:1f:00:72:1a:cc:c1:77:79:df:6a

# SHA1 Fingerprint: 59:0d:2d:7d:88:4f:40:2e:61:7e:a5:62:32:17:65:cf:17:d8:94:e9

# SHA256 Fingerprint:

91:e2:f5:78:8d:58:10:eb:a7:ba:58:73:7d:e1:54:8a:8e:ca:cd:01:45:98:bc:0b:14:3e:04:1b:17:05:25:52

-----BEGIN CERTIFICATE-----

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CERTIFICATE-----

# Issuer: CN=Atos TrustedRoot 2011 O=Atos  
# Subject: CN=Atos TrustedRoot 2011 O=Atos  
# Label: "Atos TrustedRoot 2011"  
# Serial: 6643877497813316402  
# MD5 Fingerprint: ae:b9:c4:32:4b:ac:7f:5d:66:cc:77:94:bb:2a:77:56  
# SHA1 Fingerprint: 2b:b1:f5:3e:55:0c:1d:c5:f1:d4:e6:b7:6a:46:4b:55:06:02:ac:21  
# SHA256 Fingerprint:  
f3:56:be:a2:44:b7:a9:1e:b3:5d:53:ca:9a:d7:86:4a:ce:01:8e:2d:35:d5:f8:f9:6d:df:68:a6:f4:1a:a4:74

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=QuoVadis Root CA 1 G3 O=QuoVadis Limited  
# Subject: CN=QuoVadis Root CA 1 G3 O=QuoVadis Limited  
# Label: "QuoVadis Root CA 1 G3"  
# Serial: 687049649626669250736271037606554624078720034195  
# MD5 Fingerprint: a4:bc:5b:3f:fe:37:9a:fa:64:f0:e2:fa:05:3d:0b:ab  
#  
SHA1 Fingerprint: 1b:8e:ea:57:96:29:1a:c9:39:ea:b8:0a:81:1a:73:73:c0:93:79:67

# SHA256 Fingerprint:  
8a:86:6f:d1:b2:76:b5:7e:57:8e:92:1c:65:82:8a:2b:ed:58:e9:f2:f2:88:05:41:34:b7:f1:f4:bf:c9:cc:74

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-----END

CERTIFICATE-----

# Issuer: CN=QuoVadis Root CA 2 G3 O=QuoVadis Limited  
# Subject: CN=QuoVadis Root CA 2 G3 O=QuoVadis Limited  
# Label: "QuoVadis Root CA 2 G3"  
# Serial: 390156079458959257446133169266079962026824725800  
# MD5 Fingerprint: af:0c:86:6e:bf:40:2d:7f:0b:3e:12:50:ba:12:3d:06  
# SHA1 Fingerprint: 09:3c:61:f3:8b:8b:dc:7d:55:df:75:38:02:05:00:e1:25:f5:c8:36  
# SHA256 Fingerprint:  
8f:e4:fb:0a:f9:3a:4d:0d:67:db:0b:eb:b2:3e:37:c7:1b:f3:25:dc:bc:dd:24:0e:a0:4d:af:58:b4:7e:18:40  
-----BEGIN CERTIFICATE-----  
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-----END  
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# Issuer: CN=QuoVadis Root CA 3 G3 O=QuoVadis Limited  
# Subject: CN=QuoVadis Root CA 3 G3 O=QuoVadis Limited  
# Label: "QuoVadis Root CA 3 G3"  
# Serial: 268090761170461462463995952157327242137089239581  
# MD5 Fingerprint: df:7d:b9:ad:54:6f:68:a1:df:89:57:03:97:43:b0:d7  
# SHA1 Fingerprint: 48:12:bd:92:3c:a8:c4:39:06:e7:30:6d:27:96:e6:a4:cf:22:2e:7d  
# SHA256 Fingerprint:  
88:ef:81:de:20:2e:b0:18:45:2e:43:f8:64:72:5c:ea:5f:bd:1f:c2:d9:d2:05:73:07:09:c5:d8:b8:69:0f:46

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-----END

CERTIFICATE-----

# Issuer: CN=DigiCert Assured ID Root G2 O=DigiCert Inc OU=www.digicert.com

# Subject:

CN=DigiCert Assured ID Root G2 O=DigiCert Inc OU=www.digicert.com

# Label: "DigiCert Assured ID Root G2"

# Serial: 15385348160840213938643033620894905419

# MD5 Fingerprint: 92:38:b9:f8:63:24:82:65:2c:57:33:e6:fe:81:8f:9d

# SHA1 Fingerprint: a1:4b:48:d9:43:ee:0a:0e:40:90:4f:3c:e0:a4:c0:91:93:51:5d:3f

# SHA256 Fingerprint:

7d:05:eb:b6:82:33:9f:8c:94:51:ee:09:4e:eb:fe:fa:79:53:a1:14:ed:b2:f4:49:49:45:2f:ab:7d:2f:c1:85

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-----END

CERTIFICATE-----

# Issuer: CN=DigiCert Assured ID Root G3 O=DigiCert Inc OU=www.digicert.com

# Subject: CN=DigiCert Assured ID Root G3 O=DigiCert Inc OU=www.digicert.com  
# Label: "DigiCert Assured ID Root G3"  
# Serial: 15459312981008553731928384953135426796  
# MD5 Fingerprint: 7c:7f:65:31:0c:81:df:8d:ba:3e:99:e2:5c:ad:6e:fb  
#  
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# SHA256 Fingerprint:  
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-----BEGIN CERTIFICATE-----  
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-----END  
CERTIFICATE-----

# Issuer: CN=DigiCert Global Root G2 O=DigiCert Inc OU=www.digicert.com  
# Subject: CN=DigiCert Global Root G2 O=DigiCert Inc OU=www.digicert.com  
# Label: "DigiCert Global Root G2"  
# Serial: 4293743540046975378534879503202253541  
# MD5 Fingerprint: e4:a6:8a:c8:54:ac:52:42:46:0a:fd:72:48:1b:2a:44  
# SHA1 Fingerprint: df:3c:24:f9:bf:d6:66:76:1b:26:80:73:fe:06:d1:cc:8d:4f:82:a4  
# SHA256 Fingerprint:  
cb:3c:cb:b7:60:31:e5:e0:13:8f:8d:d3:9a:23:f9:de:47:ff:c3:5e:43:c1:14:4c:ea:27:d4:6a:5a:b1:cb:5f  
-----BEGIN CERTIFICATE-----  
MIIDjjCCAnagAwIBAgIQAzrx5qcRqaC7KGSxHQn65TANBkgqhkiG9w0BAQsFADBh  
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-----END  
CERTIFICATE-----

# Issuer: CN=DigiCert Global Root G3 O=DigiCert Inc OU=www.digicert.com  
# Subject: CN=DigiCert Global Root G3 O=DigiCert Inc  
OU=www.digicert.com  
# Label: "DigiCert Global Root G3"  
# Serial: 7089244469030293291760083333884364146  
# MD5 Fingerprint: f5:5d:a4:50:a5:fb:28:7e:1e:0f:0d:cc:96:57:56:ca  
# SHA1 Fingerprint: 7e:04:de:89:6a:3e:66:6d:00:e6:87:d3:3f:fa:d9:3b:e8:3d:34:9e  
# SHA256 Fingerprint:  
31:ad:66:48:f8:10:41:38:c7:38:f3:9e:a4:32:01:33:39:3e:3a:18:cc:02:29:6e:f9:7c:2a:c9:ef:67:31:d0  
-----BEGIN CERTIFICATE-----

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-----END  
CERTIFICATE-----

# Issuer: CN=DigiCert Trusted Root G4 O=DigiCert Inc OU=www.digicert.com  
# Subject: CN=DigiCert Trusted Root G4 O=DigiCert Inc OU=www.digicert.com  
# Label: "DigiCert Trusted Root G4"  
# Serial: 7451500558977370777930084869016614236  
# MD5 Fingerprint: 78:f2:fc:aa:60:1f:2f:b4:eb:c9:37:ba:53:2e:75:49  
# SHA1 Fingerprint: dd:fb:16:cd:49:31:c9:73:a2:03:7d:3f:c8:3a:4d:7d:77:5d:05:e4  
# SHA256 Fingerprint:  
55:2f:7b:dc:f1:a7:af:9e:6c:e6:72:01:7f:4f:12:ab:f7:72:40:c7:8e:76:1a:c2:03:d1:d9:d2:0a:c8:99:88  
-----BEGIN CERTIFICATE-----  
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-----END

CERTIFICATE-----

# Issuer: CN=COMODO RSA Certification Authority O=COMODO CA Limited

# Subject: CN=COMODO RSA Certification Authority O=COMODO CA Limited

# Label: "COMODO RSA Certification Authority"

# Serial: 101909084537582093308941363524873193117

# MD5 Fingerprint: 1b:31:b0:71:40:36:cc:14:36:91:ad:c4:3e:fd:ec:18

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# SHA256 Fingerprint:

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-----END

CERTIFICATE-----

# Issuer: CN=USERTrust RSA Certification Authority O=The USERTRUST Network  
# Subject: CN=USERTrust RSA Certification Authority O=The USERTRUST Network  
# Label: "USERTrust RSA Certification Authority"  
# Serial: 2645093764781058787591871645665788717  
# MD5 Fingerprint: 1b:fe:69:d1:91:b7:19:33:a3:72:a8:0f:e1:55:e5:b5  
# SHA1 Fingerprint: 2b:8f:1b:57:33:0d:bb:a2:d0:7a:6c:51:f7:0e:e9:0d:da:b9:ad:8e  
# SHA256 Fingerprint:  
e7:93:c9:b0:2f:d8:aa:13:e2:1c:31:22:8a:cc:b0:81:19:64:3b:74:9c:89:89:64:b1:74:6d:46:c3:d4:cb:d2

-----BEGIN CERTIFICATE-----

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CERTIFICATE-----

# Issuer: CN=USERTrust ECC Certification Authority O=The USERTRUST Network

# Subject: CN=USERTrust ECC Certification

Authority O=The USERTRUST Network

# Label: "USERTrust ECC Certification Authority"

# Serial: 123013823720199481456569720443997572134

# MD5 Fingerprint: fa:68:bc:d9:b5:7f:ad:fd:c9:1d:06:83:28:cc:24:c1

# SHA1 Fingerprint: d1:cb:ca:5d:b2:d5:2a:7f:69:3b:67:4d:e5:f0:5a:1d:0c:95:7d:f0

# SHA256 Fingerprint:

4f:f4:60:d5:4b:9c:86:da:bf:bc:fc:57:12:e0:40:0d:2b:ed:3f:bc:4d:4f:bd:aa:86:e0:6a:dc:d2:a9:ad:7a

-----BEGIN CERTIFICATE-----

MIICjzCCAhWgAwIBAgIQXIUzXVqUxdJxVt7NiYDMJjAKBggqhkJOPQQDAzCBiDEL  
MAkGA1UEBhMCVVMxEzARBgNVBAgTCK5ldyBKZXJzZXkxZDASBgNVBAcTC0plcnNl  
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-----END

CERTIFICATE-----

# Issuer: CN=GlobalSign O=GlobalSign OU=GlobalSign ECC Root CA - R4  
# Subject: CN=GlobalSign O=GlobalSign OU=GlobalSign ECC Root CA - R4  
# Label: "GlobalSign ECC Root CA - R4"  
# Serial: 14367148294922964480859022125800977897474  
# MD5 Fingerprint: 20:f0:27:68:d1:7e:a0:9d:0e:e6:2a:ca:df:5c:89:8e  
# SHA1 Fingerprint: 69:69:56:2e:40:80:f4:24:a1:e7:19:9f:14:ba:f3:ee:58:ab:6a:bb  
# SHA256 Fingerprint:  
be:c9:49:11:c2:95:56:76:db:6c:0a:55:09:86:d7:6e:3b:a0:05:66:7c:44:2c:97:62:b4:fb:b7:73:de:22:8c  
-----BEGIN CERTIFICATE-----

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-----END  
CERTIFICATE-----

# Issuer: CN=GlobalSign O=GlobalSign OU=GlobalSign ECC Root CA - R5  
# Subject: CN=GlobalSign O=GlobalSign OU=GlobalSign ECC Root CA - R5  
# Label: "GlobalSign ECC Root CA - R5"  
# Serial: 32785792099990507226680698011560947931244  
# MD5 Fingerprint: 9f:ad:3b:1c:02:1e:8a:ba:17:74:38:81:0c:a2:bc:08  
# SHA1 Fingerprint: 1f:24:c6:30:cd:a4:18:ef:20:69:ff:ad:4f:dd:5f:46:3a:1b:69:aa  
# SHA256 Fingerprint:  
17:9f:bc:14:8a:3d:d0:0f:d2:4e:a1:34:58:cc:43:bf:a7:f5:9c:81:82:d7:83:a5:13:f6:eb:ec:10:0c:89:24  
-----BEGIN  
CERTIFICATE-----

MIICHjCCAAsG AwIBAgIRYFIJ4CYuu1X5CneKcflK2GwwCgYIKoZlZj0EAwMwUDEk  
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MHYwEAYHKoZIzj0CAQYFK4EEACIDYgAER0UOlvt9Xb/pOdEh+J8LttV7HpI6SFkc  
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-----END CERTIFICATE-----





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# MD5 Fingerprint: fc:06:af:7b:e8:1a:f1:9a:b4:e8:d2:70:1f:c0:f5:ba
# SHA1 Fingerprint: 76:e2:7e:c1:4f:db:82:c1:c0:a6:75:b5:05:be:3d:29:b4:ed:db:bb
# SHA256 Fingerprint:
4d:24:91:41:4c:fe:95:67:46:ec:4c:ef:a6:cf:6f:72:e2:8a:13:29:43:2f:9d:8a:90:7a:c4:cb:5d:ad:c1:5a
-----BEGIN CERTIFICATE-----
MIIFcDCCA1igAwIBAgIEAJiWjTANBgkqhkiG9w0BAQsFADBVMQswCQYDVQQLGwJOTDEEeMBwGA1UECgwVU3RhYXQgZGVyIE5lZGVybGFuZGVuMSkwJwYDVQQDDCBTdGFhdCBkZXIyIG9wZW4gR3V5Um9vdCBDQTAeFw0xMDEyMDgxMTE5MjlaFw0yMjE5MDgxMTEwMjhaMFgxZzAJBgNVBAYTAk5MMR4wHAYDVQQKDBVtdGFhdCBkZXIyIG9wZW4gR3V5Um9vdCBDQTAeFw0xMDEyMDgxMTE5MjlaFw0yMjE5MDgxMTEwMjhaMFgxZzAJBgNVBAMMIFN0YWF0IGRlciBOZWRLcmxhbmRlbiBFVjBSb290IENBMTIjANBgkqhkiG9w0BAQEFAAOCAg8AMIICgKCAgEA48d+ifkkSzsM4M1LGns3Amk41GoJSt5uAg94JG6hIXGhaTK5skuU6TJJB79VWZxXSzFYGgEt9nCUiY4iKTWO0Cmws0/zZiTs1QUWJZV1VD+hq2kY39ch/aO5ieSZxeSAgMs3NZmdO3dZ//BYY1jTw+bbRcwJu+r0h8QoPnFfxZpgQNH7R5ojXKhTbImxrpsX23Wr9GxE46p rfNeaXUmGD5BKyF/7otdBwadQ8QpCiv8Kj6GzyDOvnJDdrFmeK8eEEzduG/L13lpJhQDBX4dPqcfzho0LKmeqfRmB1+ilgnQ7O6M5HTp5gVXJrm0w912fxBmJc+qiXbj5IusHsMX/FjqTf5m3VpTCgmJdrV8hJwRVXj33NeN/UhbJCONVrJ0yPr08C+eKxC KFhmpUZtcALXEPILVPxdhkqHz3/KRawRWUgUY0viEeXOcDPusBCAUCZSCELA6fS/ZbV0b5GnUngC6agIk440ME8MLxwjyx1zNDFjFE7PZQIZCZhfbnDZY8UnCHQqv0XcgOPvZuM515Tnrmd74K74bzickFbIZTTRTeU0d8JOV3nI6qaHcptqAqGhYqCvkiH1vI4gnPah1vIPNOePqc7nvQDs/nxfRN0Av+7oeX6AHkcpmZBiFhgV6YuCcS6/ZrPpx9Aw7vMWgpVSzs4dlG4Y4uElBbmVvMCAwEAaAANCMEAWDwYDVR0TAQH/BAUwAwEB/zAOBgNVHQ8BAf8EBAMCAQYwHQYDVR0OBBYEFp6rAJCYniT8qcwaiwvsnUL8wbqg7MA0GCSqGSIb3DQEBCwUAA4ICAQDPdyxvVr5Os7aEASrR8kN0nbHhp8dB9O2tLsIeK9p0gtJ3jPfrK3CiAJ9Brc1AsFgyb/E6JTe1NOPEyVa/m6irm0F3H3zbPB+po3u2dfOWBfoqSmuc0iH55vKbimhZF8ZE/euBhD/UcabTVUIT5OZEAFtdfETzsemQUHSv4ilf0X8rLiltTMMgsT7B/Zq5SWEXwbKwYY5EdtYzXc7LMJMD16a4/CrPmEbUCTCwPTxGfARKbalGAKb12NMcIxHowNDXLdRqANb/9Zjr7dn3LDWyyvfjFvO5QxGbJKyCqNMVEIYFRIYvdr8unRu/8G2oGTyqV9Vrp9canaW2HNnh/tNf1zuacpZEPuKqf2evTY4SUmH9A4U8OmHuD+nT3pajnnUk+S7aFKErGzp85hwVXIy+TSrK0m1zSBi5Dp6Z2OrltxrpfS/J92VoguZs9btsmksNcFuuEnL5O7Jiqik7Ab846+HUCjuTaPPoIaGl6l6lD4WeKDRikL40Rc4ZW2aZCaFG+XroHPaO+Zmr615+F/+PoTRxZMzG0IQOeLeG9QgkRQP2YGiqtdhFZKDyAthg710tvSeopLzaXoTvFeJiUBWSOgftL2fiFX1ye8FVdMpEbB4IMEDeXNH08GGeL5qPQ6gqGyeUN51q1veieQA6TqJic/2b3Z6fJfUEkc7uzXLg==
-----END
CERTIFICATE-----
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# Issuer: CN=IdenTrust Commercial Root CA 1 O=IdenTrust
# Subject: CN=IdenTrust Commercial Root CA 1 O=IdenTrust
# Label: "IdenTrust Commercial Root CA 1"
# Serial: 13298821034946342390520003877796839426
# MD5 Fingerprint: b3:3e:77:73:75:ee:a0:d3:e3:7e:49:63:49:59:bb:c7
# SHA1 Fingerprint: df:71:7e:aa:4a:d9:4e:c9:55:84:99:60:2d:48:de:5f:bc:f0:3a:25
#
SHA256 Fingerprint:
5d:56:49:9b:e4:d2:e0:8b:cf:ca:d0:8a:3e:38:72:3d:50:50:3b:de:70:69:48:e4:2f:55:60:30:19:e5:28:ae
-----BEGIN CERTIFICATE-----
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CERTIFICATE-----

# Issuer: CN=IdenTrust Public Sector Root CA 1 O=IdenTrust  
# Subject: CN=IdenTrust Public Sector Root CA 1 O=IdenTrust  
# Label: "IdenTrust Public Sector Root CA 1"  
# Serial: 13298821034946342390521976156843933698  
# MD5 Fingerprint: 37:06:a5:b0:fc:89:9d:ba:f4:6b:8c:1a:64:cd:d5:ba  
# SHA1 Fingerprint: ba:29:41:60:77:98:3f:f4:f3:ef:f2:31:05:3b:2e:ea:6d:4d:45:fd  
# SHA256 Fingerprint:  
30:d0:89:5a:9a:44:8a:26:20:91:63:55:22:d1:f5:20:10:b5:86:7a:ca:e1:2c:78:ef:95:8f:d4:f4:38:9f:2f

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=Entrust Root Certification Authority - G2 O=Entrust, Inc. OU=See www.entrust.net/legal-terms/(c)  
2009 Entrust, Inc. - for authorized use only  
# Subject: CN=Entrust Root Certification Authority - G2 O=Entrust, Inc. OU=See www.entrust.net/legal-terms/(c)  
2009 Entrust, Inc. - for authorized use only  
# Label: "Entrust Root Certification Authority - G2"  
# Serial: 1246989352  
# MD5 Fingerprint: 4b:e2:c9:91:96:65:0c:f4:0e:5a:93:92:a0:0a:fe:b2  
# SHA1 Fingerprint: 8c:f4:27:fd:79:0c:3a:d1:66:06:8d:e8:1e:57:ef:bb:93:22:72:d4  
#

SHA256 Fingerprint:

43:df:57:74:b0:3e:7f:ef:5f:e4:0d:93:1a:7b:ed:f1:bb:2e:6b:42:73:8c:4e:6d:38:41:10:3d:3a:a7:f3:39

-----BEGIN CERTIFICATE-----

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# Label: "CFCA EV ROOT"  
# Serial: 407555286  
# MD5 Fingerprint: 74:e1:b6:ed:26:7a:7a:44:30:33:94:ab:7b:27:81:30  
# SHA1 Fingerprint: e2:b8:29:4b:55:84:ab:6b:58:c2:90:46:6c:ac:3f:b8:39:8f:84:83  
# SHA256 Fingerprint:  
5c:c3:d7:8e:4e:1d:5e:45:54:7a:04:e6:87:3e:64:f9:0c:f9:53:6d:1c:cc:2e:f8:00:f3:55:c4:c5:fd:70:fd  
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# Issuer: CN=Certinomis - Root CA O=Certinomis OU=0002 433998903  
# Subject: CN=Certinomis - Root CA O=Certinomis OU=0002 433998903  
#  
Label: "Certinomis - Root CA"  
# Serial: 1  
# MD5 Fingerprint: 14:0a:fd:8d:a8:28:b5:38:69:db:56:7e:61:22:03:3f  
# SHA1 Fingerprint: 9d:70:bb:01:a5:a4:a0:18:11:2e:f7:1c:01:b9:32:c5:34:e7:88:a8  
# SHA256 Fingerprint:

2a:99:f5:bc:11:74:b7:3c:bb:1d:62:08:84:e0:1c:34:e5:1c:cb:39:78:da:12:5f:0e:33:26:88:83:bf:41:58

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-----END

CERTIFICATE-----

# Issuer: CN=OISTE WISEKey Global Root GB CA O=WISEKey OU=OISTE Foundation Endorsed  
# Subject: CN=OISTE WISEKey Global Root GB CA O=WISEKey OU=OISTE Foundation Endorsed  
# Label: "OISTE WISEKey Global Root GB CA"  
# Serial: 157768595616588414422159278966750757568  
# MD5 Fingerprint: a4:eb:b9:61:28:2e:b7:2f:98:b0:35:26:90:99:51:1d  
# SHA1 Fingerprint: 0f:f9:40:76:18:d3:d7:6a:4b:98:f0:a8:35:9e:0c:fd:27:ac:cc:ed  
# SHA256 Fingerprint:  
6b:9c:08:e8:6e:b0:f7:67:cf:ad:65:cd:98:b6:21:49:e5:49:4a:67:f5:84:5e:7b:d1:ed:01:9f:27:b8:6b:d6

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CERTIFICATE-----

# Issuer: CN=SZAFIR ROOT CA2 O=Krajowa Izba Rozliczeniowa S.A.  
# Subject: CN=SZAFIR ROOT CA2 O=Krajowa Izba Rozliczeniowa S.A.  
# Label: "SZAFIR ROOT CA2"  
# Serial: 357043034767186914217277344587386743377558296292  
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# SHA256 Fingerprint:  
a1:33:9d:33:28:1a:0b:56:e5:57:d3:d3:2b:1c:e7:f9:36:7e:b0:94:bd:5f:a7:2a:7e:50:04:c8:de:d7:ca:fe  
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# Issuer: CN=Certum Trusted Network CA 2 O=Unizeto Technologies S.A. OU=Certum Certification Authority  
# Subject: CN=Certum Trusted Network CA 2 O=Unizeto Technologies S.A. OU=Certum Certification Authority  
# Label: "Certum Trusted Network CA 2"  
# Serial: 44979900017204383099463764357512596969  
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# SHA1 Fingerprint: d3:dd:48:3e:2b:bf:4c:05:e8:af:10:f5:fa:76:26:cf:d3:dc:30:92  
# SHA256 Fingerprint:  
b6:76:f2:ed:da:e8:77:5c:d3:6c:b0:f6:3c:d1:d4:60:39:61:f4:9e:62:65:ba:01:3a:2f:03:07:b6:d0:b8:04

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-----END

CERTIFICATE-----

# Issuer: CN=Hellenic Academic and Research Institutions RootCA 2015 O=Hellenic Academic and Research



Institutions Cert. Authority  
# Subject: CN=Hellenic Academic and Research Institutions RootCA 2015 O=Hellenic Academic and Research  
Institutions Cert. Authority  
# Label: "Hellenic Academic and Research Institutions RootCA 2015"  
# Serial: 0  
# MD5 Fingerprint: ca:ff:e2:db:03:d9:cb:4b:e9:0f:ad:84:fd:7b:18:ce  
# SHA1 Fingerprint: 01:0c:06:95:a6:98:19:14:ff:bf:5f:c6:b0:b6:95:ea:29:e9:12:a6  
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SHA256 Fingerprint:  
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-----END  
CERTIFICATE-----  
# Issuer: CN=Hellenic Academic and Research Institutions ECC RootCA 2015 O=Hellenic Academic and Research

Institutions Cert. Authority

# Subject: CN=Hellenic Academic and Research Institutions ECC RootCA 2015 O=Hellenic Academic and Research Institutions Cert. Authority

# Label: "Hellenic Academic and Research Institutions ECC RootCA 2015"

# Serial: 0

# MD5 Fingerprint: 81:e5:b4:17:eb:c2:f5:e1:4b:0d:41:7b:49:92:fe:ef

# SHA1 Fingerprint: 9f:f1:71:8d:92:d5:9a:f3:7d:74:97:b4:bc:6f:84:68:0b:ba:b6:66

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-----BEGIN CERTIFICATE-----

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CERTIFICATE-----

# Issuer: CN=Certplus Root CA G1 O=Certplus

#

Subject: CN=Certplus Root CA G1 O=Certplus

# Label: "Certplus Root CA G1"

# Serial: 1491911565779898356709731176965615564637713

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# SHA256 Fingerprint:

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-----END  
CERTIFICATE-----

# Issuer: CN=Certplus Root CA G2 O=Certplus  
# Subject: CN=Certplus Root CA G2 O=Certplus  
# Label: "Certplus Root CA G2"  
# Serial: 1492087096131536844209563509228951875861589  
# MD5 Fingerprint: a7:ee:c4:78:2d:1b:ee:2d:b9:29:ce:d6:a7:96:32:31  
# SHA1 Fingerprint: 4f:65:8e:1f:e9:06:d8:28:02:e9:54:47:41:c9:54:25:5d:69:cc:1a  
# SHA256 Fingerprint:  
6c:c0:50:41:e6:44:5e:74:69:6c:4c:fb:c9:f8:0f:54:3b:7e:ab:bb:44:b4:ce:6f:78:7c:6a:99:71:c4:2f:17  
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# Issuer: CN=OpenTrust Root CA G1 O=OpenTrust  
# Subject: CN=OpenTrust Root CA G1 O=OpenTrust

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# Label: "OpenTrust Root CA G1"
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# SHA1 Fingerprint: 79:91:e8:34:f7:e2:ee:dd:08:95:01:52:e9:55:2d:14:e9:58:d5:7e
# SHA256 Fingerprint:
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-----END
CERTIFICATE-----
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# Issuer: CN=OpenTrust Root CA G2 O=OpenTrust
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Subject: CN=OpenTrust Root CA G2 O=OpenTrust
# Label: "OpenTrust Root CA G2"
# Serial: 1492012448042702096986875987676935573415441
# MD5 Fingerprint: 57:24:b6:59:24:6b:ae:c8:fe:1c:0c:20:f2:c0:4e:eb
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# SHA256 Fingerprint:

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-----BEGIN CERTIFICATE-----

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3jg9CcCoSmVGFvyq1ROTVu+OEO3KMqLM6oaJbolXCkvW0pujOotnCr2BXbgd5eA
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S1IK
```

-----END

CERTIFICATE-----

# Issuer: CN=OpenTrust Root CA G3 O=OpenTrust

# Subject: CN=OpenTrust Root CA G3 O=OpenTrust

# Label: "OpenTrust Root CA G3"

# Serial: 1492104908271485653071219941864171170455615

# MD5 Fingerprint: 21:37:b4:17:16:92:7b:67:46:70:a9:96:d7:a8:13:24

# SHA1 Fingerprint: 6e:26:64:f3:56:bf:34:55:bf:d1:93:3f:7c:01:de:d8:13:da:8a:a6

# SHA256 Fingerprint:

b7:c3:62:31:70:6e:81:07:8c:36:7c:b8:96:19:8f:1e:32:08:dd:92:69:49:dd:8f:57:09:a4:10:f7:5b:62:92

-----BEGIN CERTIFICATE-----

```
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QDELMAkGA1UEBhMCRIIEjAQBgNVBAoMCU9wZW5UcnVzdEdEdMBsGA1UEAwwU
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QDELMaKGA1UEBhMCRlIxEjAQBgNVBAoMCU9wZW5UcnVzdDEdMBsGA1UEAwUT3BlRydxN0IFJvb3QgQ0EgRzZmW7ptz6kjFYwvWYpa3RTqnVkrQ7cG7DK2uu5Bta1doYXM6h0UZqNnfkbilPPntlahFVmhTzeXuSievRHR9LIfXsMUmuXZl5mjYzBhMA4GA1UdDwEB/wQEAwIBBjAPBgNVHRMBAf8EBTADAQH/MB0GA1UdDgQWBRRHd8MU2i5DMlv4VBN0BBY3JWlBTafBgNVHSMEGDAWgBRHd8MU2i5DMlv4VBN0BBY3JWlBTAKBggqhkjOPQDDAwNpADBMAjEAj6jcnboMBBf6Fek9LykBI7+BFjNAk2z8+e2AcG+qj9uEwov1NcoG3GRvaBbhj5G5AJEA2Euly8LQCgZpGPta3U1fJAuWACEI74+nBCZx4nXP5V2a+EEfOzmTk51V6s2N8fvB

-----END

CERTIFICATE-----

# Issuer: CN=ISRG Root X1 O=Internet Security Research Group  
# Subject: CN=ISRG Root X1 O=Internet Security Research Group  
# Label: "ISRG Root X1"  
# Serial: 172886928669790476064670243504169061120  
# MD5 Fingerprint: 0c:d2:f9:e0:da:17:73:e9:ed:86:4d:a5:e3:70:e7:4e  
# SHA1 Fingerprint: ca:bd:2a:79:a1:07:6a:31:f2:1d:25:36:35:cb:03:9d:43:29:a5:e8  
# SHA256 Fingerprint:  
96:bc:ec:06:26:49:76:f3:74:60:77:9a:cf:28:c5:a7:cf:e8:a3:c0:aa:e1:1a:8f:fc:ee:05:c0:bd:df:08:c6

-----BEGIN

CERTIFICATE-----

MIIFAzCCA1OgAwIBAgIRAIQz7DSQONZRGpGU2OCiAwDQYJKoZIhvcNAQELBQAwTzELMAkGA1UEBhMCMVVMxKTAnBgNVBAoTIEludGVybmV0IFNlY3VyaXR5IFJlc2VhcmNoIEdyb3VwMRUwEwYDVQDEwXJU1JHIFJvb3QgWDEwHhcNMTUwNjA0MTEwNDM4WheNMzUwNjA0MTEwNDM4WjBPMQswCQYDVQQGEwJVUzEpMCCGA1UEChMGSW50ZXJlZlZlZjU2VjJpdHkgUmVzZW50Y2ggR3JvdXAxFTATBgNVBAMTDElUckgUm9vdCBYMTCCAIwDQYJKoZIhvcNAQEBBQADggIPADCCAgcGgIBAK3oJHP0FDfzm54rVygch77ct984kIxuPOZxHj3dcKi/vVqbyATYj3miGbESTtrFj/RQSa78f0uoxmyF+0TM8ukj13Xnfs7j/EvEhmkvBioZxaUpmZmyPfxwv60pIgbz5MDmgK7iS4+3mX6UA5/TR5d8mUgJU+g4rk8Kb4Mu0UIXjIB0ttov0DiNewNwIRt18jA8+o+u3dpjq+sWT8KOEUt+zwvo/7V3LvSye0rgTBIIHCNAymg4VMk7BPZ7hm/ELNKjD+Jo2FR3qyHB5T0Y3HsLuJvW5iB4YlcNHlsdu87kGJ55tukmi8mxdAQ4Q7e2RCOFvu396j3x+UCB5iPNgiV5+I3lg02dZ77DnKxHZu8A/IJbdiB3QW0KtZB6awBdpUKD9jf1b0SHzUvKBds0pjBqAlkd25HN7rOrFleaJ1/ctaJxQZBKt5ZPt0m9STJEadao0xAH0ahmbWnOIFuhjuEFXKnEgV4We0+UXgVCwOPjdAvBBI+e0ocS3MFEVzG6uBQE3xDk3SzynTnjh8BCNAw1FtxNrQHusEwMFxIt4I7mKZ9YIqioymCzLq9gwQbooMDQaHWBfEbwrwqHyGOaoSCqI3Haadr8faqU9GY/rOPNk3sgrDQoo/fb4hVC1CLQJ13hef4Y53CIrU7m2Ys6xt0nUW7/vGT1M0NPAgMBAAGjQjBAMA4GA1UdDwEB/wQEAwIBBjAPBgNVHRMBAf8EBTADAQH/MB0GA1UdDgQWBRRHd8MU2i5DMlv4VBN0BBY3JWlBTAKBggqhkjOPQDDAwNpADBMAjEAj6jcnboMBBf6Fek9LykBI7+BFjNAk2z8+e2AcG+qj9uEwov1NcoG3GRvaBbhj5G5AJEA2Euly8LQCgZpGPta3U1fJAuWACEI74+nBCZx4nXP5V2a+EEfOzmTk51V6s2N8fvB

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-----END

CERTIFICATE-----

# Issuer:

O=FNMT-RCM OU=AC RAIZ FNMT-RCM

# Subject: O=FNMT-RCM OU=AC RAIZ FNMT-RCM

# Label: "AC RAIZ FNMT-RCM"

# Serial: 485876308206448804701554682760554759

# MD5 Fingerprint: e2:09:04:b4:d3:bd:d1:a0:14:fd:1a:d2:47:c4:57:1d

# SHA1 Fingerprint: ec:50:35:07:b2:15:c4:95:62:19:e2:a8:9a:5b:42:99:2c:4c:2c:20

# SHA256 Fingerprint:

eb:c5:57:0c:29:01:8c:4d:67:b1:aa:12:7b:af:12:f7:03:b4:61:1e:bc:17:b7:da:b5:57:38:94:17:9b:93:fa

-----BEGIN CERTIFICATE-----

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WiBGTk1ULVJDTTAEFw0wODEwMjkxNTU5NTZaFw0zMDAxMDEwMDAwMDBaMDsxCzAJ  
BgNVBAYTAkVTMREwDwYDVQQKDAhGTk1ULVJDTTEZMBcGA1UECwwQQUMgUkFJWiBG  
Tk1ULVJDTTCCAiIwDQYJKoZIhvcNAQEBBQADggIPADCCAgoCggIBALpxgHpMhm5/  
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uu8wd+RU4riEmViAqhOLUTpPSPaLtrM=

-----END

CERTIFICATE-----

# Issuer: CN=Amazon Root CA 1 O=Amazon
# Subject: CN=Amazon Root CA 1 O=Amazon
# Label: "Amazon Root CA 1"
# Serial: 143266978916655856878034712317230054538369994
# MD5 Fingerprint: 43:c6:bf:ae:ec:fe:ad:2f:18:c6:88:68:30:fc:c8:e6
# SHA1 Fingerprint: 8d:a7:f9:65:ec:5e:fc:37:91:0f:1c:6e:59:fd:c1:cc:6a:6e:de:16
# SHA256 Fingerprint:
8e:cd:e6:88:4f:3d:87:b1:12:5b:a3:1a:c3:fc:b1:3d:70:16:de:7f:57:cc:90:4f:e1:cb:97:c6:ae:98:19:6e

-----BEGIN CERTIFICATE-----

MIIDQTCCAimgAwIBAgITBmyfz5m/jAo54vB4ikPmljZbyjANBgkqhkiG9w0BAQsF
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MAkGA1UEBhMCVVMxMDEwNzAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAw
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U5PMCCjmmCXPI6T53iHTfIUJrU6adTrCC2qJeHZERxhIbI1Bjtt/mv0tadQ1wUs
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5MsI+yMRQ+hDKXJioaldXgjUkK642M4UwtBV8ob2xJNDd2ZhwLnoQdeXeGADbkpy
rqXRfboQnoZsG4q5WTP468SQvvG5

-----END

CERTIFICATE-----

#
Issuer: CN=Amazon Root CA 2 O=Amazon
# Subject: CN=Amazon Root CA 2 O=Amazon
# Label: "Amazon Root CA 2"
# Serial: 143266982885963551818349160658925006970653239
# MD5 Fingerprint: c8:e5:8d:ce:a8:42:e2:7a:c0:2a:5c:7c:9e:26:bf:66
# SHA1 Fingerprint: 5a:8c:ef:45:d7:a6:98:59:76:7a:8c:8b:44:96:b5:78:cf:47:4b:1a
# SHA256 Fingerprint:
1b:a5:b2:aa:8c:65:40:1a:82:96:01:18:f8:0b:ec:4f:62:30:4d:83:ce:c4:71:3a:19:c3:9c:01:1e:a4:6d:b4

-----BEGIN CERTIFICATE-----

MIIFQTCCAymgAwIBAgITBmyf0pY1hp8KD+WGePhbJruKNzANBgkqhkiG9w0BAQwF
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b24gUm9vdCBDQSAyMB4XDTE1MDUyNjAwMDAwMFoXDTQwMDUyNjAwMDAwMFowOTEL
MAkGA1UEBhMCVVMxMDEwNzAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAwMDAw
b3QgQ0EgMjCCASiWdQYJKoZIhvcNAQEBBQADggIPADCCAgcCggIBAK2Wny2cSkkX
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# Issuer: CN=Amazon Root CA 4 O=Amazon
# Subject: CN=Amazon Root CA 4 O=Amazon
# Label: "Amazon Root CA 4"
# Serial: 143266989758080763974105200630763877849284878
# MD5 Fingerprint: 89:bc:27:d5:eb:17:8d:06:6a:69:d5:fd:89:47:b4:cd
# SHA1 Fingerprint: f6:10:84:07:d6:f8:bb:67:98:0c:c2:e2:44:c2:eb:ae:1c:ef:63:be
# SHA256 Fingerprint:
e3:5d:28:41:9e:d0:20:25:cf:a6:90:38:cd:62:39:62:45:8d:a5:c6:95:fb:de:a3:c2:2b:0b:fb:25:89:70:92
-----BEGIN CERTIFICATE-----
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MQswCQYDVQQGEwJVUzEPMA0GA1UEChMGQW1hem9uMRkwFwYDVQQDExBBbWF6b24g
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A1UEBHMCMVVMxMzQ1NDUyNjAwMDAwMFAwOTELMAkG A1UEAxMQQW1hem9uIFJvb3Qg
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-----END
CERTIFICATE-----
```

```
# Issuer: CN=LuxTrust Global Root 2 O=LuxTrust S.A.
# Subject: CN=LuxTrust Global Root 2 O=LuxTrust S.A.
# Label: "LuxTrust Global Root 2"
# Serial: 59914338225734147123941058376788110305822489521
# MD5 Fingerprint: b2:e1:09:00:61:af:f7:f1:91:6f:c4:ad:8d:5e:3b:7c
# SHA1 Fingerprint: 1e:0e:56:19:0a:d1:8b:25:98:b2:04:44:ff:66:8a:04:17:99:5f:3f
# SHA256 Fingerprint:
54:45:5f:71:29:c2:0b:14:47:c4:18:f9:97:16:8f:24:c5:8f:c5:02:3b:f5:da:5b:e2:eb:6e:1d:d8:90:2e:d5
-----BEGIN
CERTIFICATE-----
MIIFwzCCA6ugAwIBAgIUcn6m30tEntpqJIWe5rgV0xZ/u7EwDQYJKoZIhvcNAQEL
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CERTIFICATE-----

# Issuer: CN=TUBITAK Kamu SM SSL Kok Sertifikasi - Surum 1 O=Turkiye Bilimsel ve Teknolojik Arastirma Kurumu - TUBITAK OU=Kamu Sertifikasyon Merkezi - Kamu SM  
# Subject: CN=TUBITAK Kamu SM SSL Kok Sertifikasi - Surum 1 O=Turkiye Bilimsel ve Teknolojik Arastirma Kurumu - TUBITAK OU=Kamu Sertifikasyon Merkezi - Kamu SM  
# Label: "TUBITAK Kamu SM SSL Kok Sertifikasi - Surum 1"  
# Serial: 1  
# MD5 Fingerprint: dc:00:81:dc:69:2f:3e:2f:b0:3b:f6:3d:5a:91:8e:49  
# SHA1 Fingerprint: 31:43:64:9b:ec:ce:27:ec:ed:3a:3f:0b:8f:0d:e4:e8:91:dd:ee:ca  
# SHA256 Fingerprint:  
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# Issuer: CN=GDCA TrustAUTH R5 ROOT O=GUANG DONG CERTIFICATE AUTHORITY CO.,LTD.  
# Subject: CN=GDCA TrustAUTH R5 ROOT O=GUANG DONG CERTIFICATE AUTHORITY CO.,LTD.  
# Label: "GDCA TrustAUTH R5 ROOT"  
# Serial: 9009899650740120186  
# MD5 Fingerprint: 63:cc:d9:3d:34:35:5c:6f:53:a3:e2:08:70:48:1f:b4  
# SHA1 Fingerprint: 0f:36:38:5b:81:1a:25:c3:9b:31:4e:83:ca:e9:34:66:70:cc:74:b4  
# SHA256 Fingerprint:  
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-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=TrustCor RootCert CA-1 O=TrustCor Systems S. de R.L. OU=TrustCor Certificate Authority  
# Subject: CN=TrustCor RootCert CA-1 O=TrustCor Systems S. de R.L. OU=TrustCor Certificate Authority  
# Label:  
"TrustCor RootCert CA-1"  
# Serial: 15752444095811006489  
# MD5 Fingerprint: 6e:85:f1:dc:1a:00:d3:22:d5:b2:b2:ac:6b:37:05:45  
# SHA1 Fingerprint: ff:bd:cd:e7:82:c8:43:5e:3c:6f:26:86:5c:ca:a8:3a:45:5b:c3:0a  
# SHA256 Fingerprint:  
d4:0e:9c:86:cd:8f:e4:68:c1:77:69:59:f4:9e:a7:74:fa:54:86:84:b6:c4:06:f3:90:92:61:f4:dc:e2:57:5c

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CERTIFICATE-----

# Issuer: CN=TrustCor RootCert CA-2 O=TrustCor Systems S. de R.L. OU=TrustCor Certificate Authority  
# Subject: CN=TrustCor RootCert CA-2 O=TrustCor Systems S. de  
R.L. OU=TrustCor Certificate Authority  
# Label: "TrustCor RootCert CA-2"  
# Serial: 2711694510199101698  
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# SHA1 Fingerprint: b8:be:6d:cb:56:f1:55:b9:63:d4:12:ca:4e:06:34:c7:94:b2:1c:c0  
# SHA256 Fingerprint:  
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-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=TrustCor ECA-1 O=TrustCor Systems S. de R.L. OU=TrustCor Certificate Authority
# Subject: CN=TrustCor ECA-1 O=TrustCor Systems S. de R.L. OU=TrustCor Certificate Authority
# Label: "TrustCor ECA-1"
# Serial: 9548242946988625984
# MD5 Fingerprint: 27:92:23:1d:0a:f5:40:7c:e9:e6:6b:9d:d8:f5:e7:6c
# SHA1 Fingerprint: 58:d1:df:95:95:67:6b:63:c0:f0:5b:1c:17:4d:8b:84:0b:c8:78:bd
# SHA256 Fingerprint:
5a:88:5d:b1:9c:01:d9:12:c5:75:93:88:93:8c:af:bb:df:03:1a:b2:d4:8e:91:ee:15:58:9b:42:97:1d:03:9c
-----BEGIN

CERTIFICATE-----

MIIEDCCAwigAwIBAgiJAISCLF8cYtBAMA0GCSqGSIb3DQEBCwUAMIGcMQswCQYD
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tJ/X5g==

-----END

CERTIFICATE-----

# Issuer: CN=SSL.com Root Certification Authority RSA O=SSL Corporation
# Subject: CN=SSL.com Root Certification Authority RSA O=SSL Corporation
# Label: "SSL.com Root Certification Authority RSA"
# Serial: 8875640296558310041
# MD5 Fingerprint: 86:69:12:c0:70:f1:ec:ac:ac:c2:d5:bc:a5:5b:a1:29
# SHA1 Fingerprint: b7:ab:33:08:d1:ea:44:77:ba:14:80:12:5a:6f:bd:a9:36:49:0c:bb
# SHA256 Fingerprint:
85:66:6a:56:2e:e0:be:5c:e9:25:c1:d8:89:0a:6f:76:a8:7e:c1:6d:4d:7d:5f:29:ea:74:19:cf:20:12:3b:69

-----BEGIN

CERTIFICATE-----

MIIF3TCCA8WgAwIBAgiIeyyb0xaAMpkwDQYJKoZIhvcNAQELBQAfDELMAkGA1UE
BhMCMVVMxDjAMBgNVBAgMBVRleGFzMRAdGgYDVQQHDAIb3VzdG9uMRgwFgYDVQQK
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CERTIFICATE-----

# Issuer: CN=SSL.com EV Root Certification Authority RSA R2 O=SSL Corporation  
# Subject: CN=SSL.com EV Root Certification Authority RSA R2 O=SSL Corporation  
# Label: "SSL.com EV Root Certification Authority RSA R2"  
# Serial: 6248227494352943350  
# MD5 Fingerprint: e1:1e:31:58:1a:ae:54:53:02:f6:17:6a:11:7b:4d:95  
# SHA1 Fingerprint: 74:3a:f0:52:9b:d0:32:a0:f4:4a:83:cd:d4:ba:a9:7b:7c:2e:c4:9a  
# SHA256 Fingerprint:  
2e:7b:f1:6c:c2:24:85:a7:bb:e2:aa:86:96:75:07:61:b0:ae:39:be:3b:2f:e9:d0:cc:6d:4e:f7:34:91:42:5c

-----BEGIN CERTIFICATE-----

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-----END

CERTIFICATE-----

# Issuer: CN=SSL.com EV Root Certification Authority ECC O=SSL Corporation  
# Subject: CN=SSL.com EV Root Certification Authority ECC O=SSL Corporation

```

# Label: "SSL.com EV Root Certification Authority ECC"
# Serial: 3182246526754555285
# MD5 Fingerprint: 59:53:22:65:83:42:01:54:c0:ce:42:b9:5a:7c:f2:90
# SHA1 Fingerprint: 4c:dd:51:a3:d1:f5:20:32:14:b0:c6:c5:32:23:03:91:c7:46:42:6d
# SHA256 Fingerprint:
22:a2:c1:f7:bd:ed:70:4c:c1:e7:01:b5:f4:08:c3:10:88:0f:e9:56:b5:de:2a:4a:44:f9:9c:87:3a:25:a7:c8
-----BEGIN CERTIFICATE-----
MIICIDCCAhqgAwIBAgIILCmcWxbtBZUwCgYIKoZlZj0EAwIwfwELMAkGA1UEBhMC
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U0wgQ29ycG9yYXRpb24xNDAYBgNVBAMMK1NTTC5jb20gRVVgUm9vdCBDZXXJ0aWZp
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-----END
CERTIFICATE-----

```

Found in path(s):

- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/etc/roots.pem
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_credentials/roots.pem

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Found in path(s):

- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/cipher\_extra/e\_aesccm.c
- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/crypto/fipsmodule/tls/internal.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/crypto/cpu-aarch64-fuchsia.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/fipstools/cavp\_kas\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/fipstools/cavp\_tlskdf\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/crypto/self\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/ssl/handoff.cc

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\* =====

\*

\* This product includes cryptographic software written by Eric Young  
\* (eay@cryptsoft.com). This product includes software written by Tim  
\* Hudson (tjh@cryptsoft.com).

\*

\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/pcy\_map.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/pcy\_data.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/pcy\_tree.c

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/pcy\_int.h

No license file was found, but licenses were detected in source scan.

/\* Adler32.c -- compute the Adler-32 checksum of a data stream

\* Copyright (C) 1995-2011, 2016 Mark Adler

\* For conditions of distribution and use, see copyright notice in zlib.h

\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/adler32.c

No license file was found, but licenses were detected in source scan.

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 \* See the License for the specific language governing permissions and  
 \* limitations under the License.  
 \*  
 \*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/timer\_custom.cc  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/compression/stream\_compression\_identity.h  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/retry\_throttle.cc  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/socket\_factory\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/arena.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/transport/target\_authority\_table.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channel\_trace.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/ref\_counted.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/src/core/lib/iomgr/tcp\_server\_utils\_posix\_ifaddrs.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/fork.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/backup\_poller.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channelz\_registry.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/debug/stats.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channel\_trace.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/http/http\_filters\_plugin.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/sys\_epoll\_wrapper.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/validate\_metadata.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/gethostname\_host\_name\_max.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/atomic\_with\_std.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/ev\_epollex\_linux.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/call\_combiner.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/proxy\_mapper.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/nameser.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/proxy\_mapper\_registry.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/call\_combiner.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/lb\_policy/grpclb/grpclb\_channel.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/proxy\_mapper\_registry.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/transport\_security\_grpc.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channelz\_registry.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/debug\_location.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/gethostname\_sysconf.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/orphanable.h

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/fork.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy/grpclb/grpclb_client_stats.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/backup_poller.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/fork.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_server_utils_posix_common.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/debug/stats.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/status_util.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/inproc/inproc_transport.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/completion_queue_factory.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/ev_epoll1_linux.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy/grpclb/client_load_reporting_filter.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/compression/stream_compression_gzip.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_server_utils_posix_noifaddrs.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/max_age/max_age_filter.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/alts_transport_security.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/transport_security_grpc.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/load_reporting.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/gethostname.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy/grpclb/grpclb_client_stats.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/lockfree_event.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/timer_manager.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/status_metadata.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/ev_epoll1_linux.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/ext/filters/client\_channel/lb\_policy/grpclb/client\_load\_reporting\_filter.cc

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/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/abstract.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/lb\_policy/grpclb/grpclb\_channel\_secure.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/flow\_control.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/compression/stream\_compression.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/lb\_policy/grpclb/grpclb\_channel.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/atm.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channelz.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/lockfree\_event.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/tcp\_server\_utils\_posix.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/ref\_counted\_ptr.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/gethostname\_fallback.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/fork.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/proxy\_mapper.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/socket\_factory\_posix.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/status\_util.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/alts\_transport\_security.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/sync\_custom.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/compression/compression\_internal.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/flow\_control.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/atomic\_with\_atm.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/inproc/inproc\_plugin.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/inproc/inproc\_transport.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/completion\_queue\_factory.h

\*



/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/transport/target\_authority\_table.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/timer\_manager.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/fork\_windows.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/compression/stream\_compression.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/impl/codegen/sync\_custom.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/compression/stream\_compression\_identity.cc  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/ssl/ssl\_asn1.cc

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\* puff.c

\* Copyright (C) 2002-2013 Mark Adler

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\* version 2.3, 21 Jan 2013

\*

\* puff.c is a simple inflate written to be an unambiguous way to specify the

\* deflate format. It is not written for speed but rather simplicity. As a

\* side benefit, this code might actually be useful when small code is more

\* important than speed, such as bootstrap applications. For typical deflate

\* data, zlib's inflate() is about four times as fast as puff(). zlib's

\* inflate compiles to around 20K on my machine, whereas puff.c compiles to

\* around 4K on my machine (a PowerPC using GNU cc). If the faster decode()

\* function here is used, then puff() is only twice as slow as zlib's

\* inflate().

\*

\* All dynamically allocated memory comes from the stack. The stack required

\* is less than 2K bytes. This code is compatible with 16-bit int's and

\* assumes that long's are at least 32 bits. puff.c uses the short data type,

\* assumed to be 16 bits, for arrays in order to conserve memory. The code

\* works whether integers are stored big endian or little endian.

\*

\* In the comments below are "Format notes" that describe the inflate process

\* and document some of the less obvious aspects of the format. This source

\* code is meant to supplement RFC 1951, which formally describes the deflate

\* format:

\*

\* <http://www.zlib.org/rfc-deflate.html>

\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/zlib/contrib/puff/puff.c

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1.14.1/third\_party/cares/cares/ares\_setup.h

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/* zpipe.c: example of proper use of zlib's inflate() and deflate()
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Version 1.4 11 December 2005 Mark Adler */

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\* The implementation was written so as to conform with Netscapes SSL.  
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Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/digest.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/obj/obj\_xref.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/pem/pem\_pk8.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/sha.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/by\_file.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/dh.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/stack.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509\_cmp.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/cipher\_extra/e\_rc4.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/pem/pem\_lib.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/buf.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/bio.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/bio/fd.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_all.c

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/conf.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_print.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/base64.h

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_r2x.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/hmac.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_time.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/rsa_extra/rsa_test.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/rc4/rc4.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/f_int.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/buf/buf.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_dup.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_ext.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/internal.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_utctm.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/bn/bytes.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509rset.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/bio/hexdump.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/evp.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_i2d_fp.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/lhash.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/tasn_enc.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_v3.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x_sig.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/decrepit/ripemd/ripemd.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/bio/connect.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/third\_party/boringssl/crypto/pem/pem\_oth.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/dh/check.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509\_txt.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/sha/sha512.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/t\_req.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/generic.c  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/md5.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/asn\_pack.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/a\_sign.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/mem.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/md5/md5.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/decrepit/blowfish/blowfish.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_pubkey.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/asn1\_lib.c  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/rsa/internal.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/bio/bio.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_bool.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/cmp.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_object.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/lhash/lhash.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509\_set.c  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/dh/dh\_test.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_x509.c

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/t_x509.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/cipher.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/obj/obj.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_d2.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/sign.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/t_crl.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x_pkey.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/f_enum.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/tasn_dec.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/a_verify.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/t_x509a.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/decrepit/rsa/rsa_decrepit.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/i2d_pr.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_type.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cipher_extra/cipher_extra.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_utf8.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/evp_asn1.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/des/internal.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_gentm.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509name.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/a_strex.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/sha/sha256.c
*

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/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/cast.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/cipher/e_des.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/type_check.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/evp/evp_ctx.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/tasn_utl.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/bio/file.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/pem/pem_pkey.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/f_string.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x_spki.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/md4.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x_crl.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/mem.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/rsa.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/ripemd.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/bio/bio_mem.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x_val.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/rc4.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_obj.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_req.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cipher_extra/derive_key.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/tasn_fre.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/thread.c

```

\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/des.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/tasn\_typ.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/bio/socket.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/bn.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_bitstr.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/add.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/sha/sha1-altivec.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509\_att.c  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/div.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/by\_dir.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/a\_digest.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509\_vfy.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/blowfish.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_info.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/asn1\_gen.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x509\_lu.c  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/hmac/hmac.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/digest\_extra/digest\_extra.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/thread.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/md4/md4.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/bn/mul.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_octet.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/third\_party/boringssl/crypto/fipsmodule/cipher/internal.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/sha/sha1.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/tasn\_new.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_name.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/decrepit/rc4/rc4\_decrepit.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/stack/stack.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_attrib.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/ssl/ssl\_privkey.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/des/des.c

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/digest/digest.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_strnid.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/digest/internal.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/base64/base64.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_d2i\_fp.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/cpu-intel.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/evp.h

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509/x\_req.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/rsa/rsa\_impl.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/hmac\_extra/hmac\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/bio/internal.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/decrepit/cast/internal.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/asn1/a\_int.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/decrepit/bio/base64\_bio.c



```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cipher_extra/internal.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cipher_extra/e_null.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/asn1_par.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/cipher/cipher.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_enum.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/algorithm.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/conf/conf.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/decrepit/cast/cast_tables.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/include/openssl/obj.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x_exten.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/bn/shift.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/asn1/a_mbstr.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/cipher_extra/e_rc2.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/decrepit/ripemd/internal.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/dh/dh.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/rsa/rsa.c
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/tls_method.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/bio/printf.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/fipsmodule/digest/digests.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/decrepit/macros.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_def.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/bn_extra/convert.c

```

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/ssl/ssl\_cipher.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/ssl/ssl\_x509.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/ssl/ssl\_lib.cc

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1.14.1/third\_party/boringssl/crypto/rsa\_extra/rsa\_asn1.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/dh/dh\_asn1.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/crypto/dsa/dsa\_asn1.c

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// Inspired by Daniel J. Bernstein's public domain nistp224 implementation  
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1.14.1/third\_party/boringssl/crypto/fipsmodule/ec/p224-64.c

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/boringssl/include/openssl/nid.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
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1.14.1/third_party/boringssl/crypto/x509v3/pcy_lib.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509v3/pcy_cache.c
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509v3/pcy_node.c
*

```

```

/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/crypto/x509/x509_vpm.c

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/scripts/release\_docs.py

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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/cfb.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/ofb.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/ctr.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/cbc.c  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/gcm.c  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/internal.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/fipsmodule/modes/gcm\_test.cc  
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Metadata-Version: 1.1  
Name: grpcio  
Version: 1.14.1  
Summary: HTTP/2-based RPC framework  
Home-page: <https://grpc.io>  
Author: The gRPC Authors  
Author-email: [grpc-io@googlegroups.com](mailto:grpc-io@googlegroups.com)  
License: Apache License 2.0  
Description: gRPC Python

=====

Package for gRPC Python.

Installation

-----

gRPC Python is available for Linux, macOS, and Windows.

From PyPI

~~~~~



If you are installing locally...

::

```
$ pip install grpcio
```

Else system wide (on Ubuntu)...

::

```
$ sudo pip install grpcio
```

If you're on Windows make sure that you installed the `pip.exe` component when you installed Python (if not go back and install it!) then invoke:

::

```
$ pip.exe install grpcio
```

Windows users may need to invoke `pip.exe` from a command line ran as administrator.

n.b. On Windows and on Mac OS X one *must* have a recent release of `pip` to retrieve the proper wheel from PyPI. Be sure to upgrade to the latest version!

From Source

~~~~~

Building from source requires that you have the Python headers (usually a package named `python-dev`).

::

```
$ export REPO_ROOT=grpc # REPO_ROOT can be any directory of your choice
$ git clone -b $(curl -L https://grpc.io/release) https://github.com/grpc/grpc $REPO_ROOT
$ cd $REPO_ROOT
$ git submodule update --init

# For the next two commands do `sudo pip install` if you get permission-denied errors
$ pip install -rrequirements.txt
$ GRPC_PYTHON_BUILD_WITH_CYTHON=1 pip install .
```

You cannot currently install Python from source on Windows. Things might work out for you in MSYS2 (follow the Linux instructions), but it isn't officially supported at the moment.

## Troubleshooting

~~~~~

Help, I ...

```
* **... see a** :code:`pkg_resources.VersionConflict` **when I try to install  
grpc**
```

This is likely because :code:`pip` doesn't own the offending dependency,  
which in turn is likely because your operating system's package manager owns  
it. You'll need to force the installation of the dependency:

```
:code:`pip install --ignore-installed $OFFENDING_DEPENDENCY`
```

For example, if you get an error like the following:

```
::
```

```
Traceback (most recent call last):
```

```
File "<string>", line 17, in <module>
```

```
...
```

```
File "/usr/lib/python2.7/dist-packages/pkg_resources.py",
```

```
line 509, in find
```

```
    raise VersionConflict(dist, req)
```

```
pkg_resources.VersionConflict: (six 1.8.0 (/usr/lib/python2.7/dist-packages), Requirement.parse('six>=1.10'))
```

You can fix it by doing:

```
::
```

```
sudo pip install --ignore-installed six
```

```
* **... see the following error on some platforms**
```

```
::
```

```
/tmp/pip-build-U8pSsr/cython/Cython/Plex/Scanners.c:4:20: fatal error: Python.h: No such file or directory
```

```
#include "Python.h"
```

```
^
```

```
compilation terminated.
```

You can fix it by installing `python-dev` package. i.e

```
::
```

```
sudo apt-get install python-dev
```

Platform: UNKNOWN  
Classifier: Development Status :: 5 - Production/Stable  
Classifier: Programming Language :: Python  
Classifier: Programming Language :: Python :: 2  
Classifier: Programming Language  
:: Python :: 2.7  
Classifier: Programming Language :: Python :: 3  
Classifier: Programming Language :: Python :: 3.4  
Classifier: Programming Language :: Python :: 3.5  
Classifier: Programming Language :: Python :: 3.6  
Classifier: License :: OSI Approved :: Apache Software License

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpcio.egg-info/PKG-INFO  
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/fused-src/gtest/gtest-all.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/fused-src/gtest/gtest.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/fused-src/gmock-gtest-all.cc

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\*

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1.14.1/third\_party/boringssl/include/openssl/tls1.h

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/\*

\*

\* IP-address/hostname to country converter.

```

*
* Problem; you want to know where IP a.b.c.d is located.
*
* Use ares_gethostbyname ("d.c.b.a.zz.countries.nerd.dk")
* and get the CNAME (host->h_name). Result will be:
* CNAME = zz<CC>.countries.nerd.dk with address 127.0.x.y (ver 1) or
* CNAME = <a.b.c.d>.zz.countries.nerd.dk with address 127.0.x.y (ver 2)
*
* The 2 letter country code is in <CC> and the ISO-3166 country
* number is in x.y (number = x*256 + y). Version 2 of the protocol is missing
* the <CC> number.
*
* Ref: http://countries.nerd.dk/more.html
*
* Written by G. Vanem <gvanem@yahoo.no> 2006, 2007
*
* NB! This program may not be big-endian aware.
*
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```

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```

/* zconf.h -- configuration of the zlib compression library
* Copyright (C) 1995-2016 Jean-loup Gailly, Mark Adler
* For conditions of distribution and use, see copyright notice in zlib.h
*/

```

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```

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- \*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/include/openssl/ec.h
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\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/test/gtest-typed-test\_test.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/include/gtest/internal/gtest-tuple.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/samples/sample6\_unittest.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/cares/cares/test/gmock-1.7.0/gtest/samples/sample8\_unittest.cc

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/\* crc32.c -- compute the CRC-32 of a data stream

\* Copyright (C) 1995-2006, 2010, 2011, 2012, 2016 Mark Adler

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\*

\* Thanks to Rodney Brown <rbrown64@csc.com.au> for his contribution of faster

\* CRC methods: exclusive-oring 32 bits of data at a time, and pre-computing

\* tables for updating the shift register in one step with three exclusive-ors

\* instead of four steps with four exclusive-ors. This results in about a

\* factor of two increase in speed on a Power PC G4 (PPC7455) using gcc -O3.

\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/crc32.c

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1.14.1/third\_party/boringssl/crypto/fipsmodule/ecdsa/ecdsa\_test.cc  
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Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/third\_party/zlib/test/infcover.c

No license file was found, but licenses were detected in source scan.

/\* gzguts.h -- zlib internal header definitions for gz\* operations  
\* Copyright (C) 2004, 2005, 2010, 2011, 2012, 2013, 2016 Mark Adler  
\* For conditions of distribution and use, see copyright notice in zlib.h  
\*/

Found in path(s):

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/zlib/gzguts.h

No license file was found, but licenses were detected in source scan.

/\* blast.c

```

* Copyright (C) 2003, 2012, 2013 Mark Adler
* For conditions of distribution and use, see copyright notice in blast.h
* version 1.3, 24 Aug 2013
*
* blast.c decompresses data compressed by the PKWare Compression Library.
* This function provides functionality similar to the explode() function of
* the PKWare library, hence the name "blast".
*
* This decompressor is based on the excellent format description provided by
* Ben Rudiak-Gould in comp.compression on August 13, 2001. Interestingly, the
* example Ben provided in the post is incorrect. The distance 110001 should
* instead be 111000. When corrected, the example byte stream becomes:
*
* 00 04 82 24 25 8f 80 7f
*
* which decompresses to "AIAIAIAIAIAIA" (without the quotes).
*/

```

Found in path(s):

```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third_party/zlib/contrib/blast/blast.c

```

No license file was found, but licenses were detected in source scan.

```

# Licensed under the Apache License, Version 2.0 (the "License");
# you may not use this file except in compliance with the License.
# You may obtain a copy of the License at
# http://www.apache.org/licenses/LICENSE-2.0
# distributed under the License is distributed on an "AS IS" BASIS,

```

Found in path(s):

```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/grpc_gevent.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/channel.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/grpc_string.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/_grpcio_metadata.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/call.pyx.pxi
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/security.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc_core_dependencies.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/completion_queue.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

```

1.14.1/src/python/grpcio/grpc/framework/foundation/\_\_init\_\_.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/framework/foundation/\_\_init\_\_.py  
1.14.1/src/python/grpcio/grpc/framework/interfaces/base/base.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/operation.pyx.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/server.pyx.pxi  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc\_version.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/time.pxd.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/framework/foundation/logging\_pool.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/framework/\_\_init\_\_.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/third\_party/googletest/scripts/upload.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/event.pyx.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/records.pyx.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/\_spawn\_patch.py  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/cygrpc.pyx  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/tag.pyx.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/credentials.pxd.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/boringssl/gen\_build\_yaml.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/framework/interfaces/\_\_init\_\_.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_server.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/beta/\_\_init\_\_.py  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/call.pxd.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/framework/foundation/callable\_util.py  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/\_cython/\_cygrpc/tag.pxd.pxi  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/python/grpcio/grpc/beta/\_client\_adaptations.py

```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/interfaces/face/__init__.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/interfaces/base/utilities.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_interceptor.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/time.pyx.pxi
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/foundation/abandonment.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/event.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/operation.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/experimental/__init__.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/channel.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/interfaces/face/face.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/__init__.py
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/metadata.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/test_creds/BUILD
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/foundation/stream_util.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/grpc_gevent.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/common/cardinality.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/experimental/session_cache.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/metadata.pxd.pxi
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_plugin_wrapping.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/beta/implementations.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/foundation/stream.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/setup.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/beta/utilities.py

```

```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_common.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/beta/_metadata.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/records.pxd.pxi
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_auth.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/beta/_server_adaptations.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/support.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/security.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/arguments.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/credentials.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/debug/stats_data.yaml
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/grpc.pxi
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/__init__.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/__init__.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/completion_queue.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/arguments.pyx.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/_cygrpc/server.pxd.pxi
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_channel.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_cython/cygrpc.pxd
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/commands.py
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/_utilities.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/common/style.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/interfaces/base/__init__.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

```

```
1.14.1/src/python/grpcio/grpc/experimental/gevent.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/interfaces/face/utilities.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/beta/interfaces.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/foundation/future.py
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/python/grpcio/grpc/framework/common/__init__.py
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/Makefile
No license file was found, but licenses were detected in source scan.
```

```
/*
*
* Copyright 2015 gRPC authors.
*
* Licensed under the Apache License, Version 2.0 (the "License");
* you may not use this file except in compliance with the License.
* You may obtain a copy of the License at
*
* http://www.apache.org/licenses/LICENSE-2.0
*
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* distributed under the License is distributed on an "AS IS" BASIS,
* WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
* See the License for the specific language governing permissions and
* limitations under the License.
*
*/
```

Found in path(s):

```
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/metadata.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/connector.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_data.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/tmpfile.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/debug/trace.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/sync.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/context.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/transport_op_string.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/init_secure.cc
```



```

* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/context/security_context.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/log.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/client_channel_plugin.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/time_precise.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/endpoint_pair_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy_registry.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/iomgr_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/sockaddr_utils.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/time_precise.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/slice/slice_string_helpers.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/status_conversion.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_window_update.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/atm.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/udp_server.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/load_file.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_ping.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/port_platform.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/client/chttp2_connector.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/string.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/murmur_hash.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/atm_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/b64.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/time_averaged_stats.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/json/json_writer.h

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/transport/tsi_error.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/json/json_reader.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/resolver_registry.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/compression/algorithm_metadata.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/server/secure/server_secure_chttp2.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/security_connector/security_connector.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/resolver.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/security_connector/security_connector.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/iomgr_posix.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/call.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/chttp2_transport.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/fake_transport_security.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/resolver.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/subchannel.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/huffsyms.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_goaway.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/byte_buffer.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy_factory.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/jwt/json_token.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/atm.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/byte_buffer_reader.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/client_channel_factory.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/uri_parser.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/lib/gpr/cpu_posix.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/metadata_batch.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/log.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/sync_generic.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/connected_channel.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/client_channel.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/tmpfile_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy/round_robin/round_robin.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/transport/secure_endpoint.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/alloc.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_server_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/client_channel.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/udp_server.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/http/message_compress/message_compress_filter.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/sync_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/grpc_security.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/sockaddr.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/connectivity_state.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/internal.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/socket_utils_common_posix.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/ssl_types.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/client/insecure/channel_create.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/channel.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/closure.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/lib/iomgr/socket\_windows.cc

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/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/http/message\_compress/message\_compress\_filter.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/metadata\_array.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/cpu\_iphone.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/hpack\_parser.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/subchannel.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/hpack\_table.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/credentials\_metadata.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/impl/codegen/atm\_gcc\_atomic.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/transport/client\_auth\_filter.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/tls\_pthread.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/sync\_windows.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/tls\_msvc.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/frame.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/time.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/alloc.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset\_windows.cc

\*

/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/sync\_posix.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/http/server/http\_server\_filter.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/client\_channel\_factory.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/ssl\_transport\_security.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/transport/server\_auth\_filter.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/resolver\_registry.h

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/http/parser.h

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/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/socket_mutator.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/atm_gcc_sync.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/timeout_encoding.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/debug/trace.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/compression/compression.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/http/format_request.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/iomgr_internal.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/b64.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_rst_stream.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/pollset_set.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/cpu.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/byte_buffer.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/slice/slice_string_helpers.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/transport/security_handshaker.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/timer_generic.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/host_port.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_ping.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/polling_entity.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/time_averaged_stats.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/timer_heap.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/client/secure/secure_channel_create.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/log_posix.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/support/atm_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/call.h
*

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/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/metadata.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/pollset_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/endpoint.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/load_file.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/pollset_set_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/ev_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/hpack_encoder.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/time.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_server_posix.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/byte_stream.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_settings.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/log_android.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/exec_ctx.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/support/workaround_list.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/json/json_common.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/timer_heap.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/ev_posix.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/socket_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/channel_stack.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/fake_transport_security.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/ssl_transport_security.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/status.h

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/hpack_encoder.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/parsing.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/version.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/init.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/murmur_hash.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/incoming_metadata.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/alpn/alpn.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/endpoint.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/pollset_set_windows.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/compression/compression_internal.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/transport/tsi_error.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/google_default/google_default_credentials.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/bin_encoder.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_client_posix.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/sync_posix.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/alpn/alpn.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/channel_ping.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/iocp_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/support/sync_generic.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/tls_pthread.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/ev_epollsig_linux.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/env_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/http/parser.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/lib/gpr/cpu\_windows.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/json/json\_string.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/http/httpcli.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/filters/client\_channel/parse\_address.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/socket\_utils\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/init.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/security/context/security\_context.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/host\_port.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/transport/http2\_errors.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/filters/client\_channel/uri\_parser.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/tcp\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/resolve\_address\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/slice\_buffer.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/sync\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/transport/chttp2/transport/writing.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/wakeup\_fd\_eventfd.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/json/json.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/time\_windows.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/socket\_utils\_posix.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/cpp/ext/filters/census/grpc\_context.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/profiling/stap\_timers.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/transport/chttp2/transport/stream\_map.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/surface/channel\_stack\_type.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/transport/chttp2/transport/chtcp2\_transport.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/include/grpc/impl/codegen/byte\_buffer.h



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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/resolve_address_windows.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/time_posix.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/resolver_factory.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/json/json.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/string.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/byte_stream.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/http2/client/http2_connector.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/api_trace.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/transport.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/sockaddr_windows.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/executor.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/slice.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_posix.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/support/atm_gcc_sync.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/http2/transport/http2_plugin.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/http2/transport/hpack_parser.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/http2/transport/frame_window_update.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/util/json_util.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/wakeup_fd_pipe.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/call_details.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/call_log_batch.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/http/server/http_server_filter.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/wakeup_fd_pipe.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/ext/filters/client\_channel/lb\_policy/pick\_first/pick\_first.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channel\_args.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/server/insecure/server\_chttp2.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/channel.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/frame\_goaway.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/env\_linux.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/string\_windows.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/varint.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/varint.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/wakeup\_fd\_posix.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/credentials.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/iomgr.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/lame\_client.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/byte\_buffer\_reader.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/credentials.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/transport/security\_handshaker.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/port\_platform.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/network\_status\_tracker.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/log\_linux.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/block\_annotate.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channel\_args.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/frame\_settings.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/resolver/dns/native/dns\_resolver.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/slice.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/src/core/lib/iomgr/tcp\_server.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/cpu\_linux.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/log.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/transport/connectivity\_state.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/tcp\_client.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/profiling/timers.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/stream\_lists.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/server/chttp2\_server.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/lb\_policy\_factory.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/compression/message\_compress.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/method\_params.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/impl/codegen/status.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/iocp\_windows.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/server.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/log\_windows.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/iomgr\_posix.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/transport/secure\_endpoint.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/wakeup\_fd\_posix.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/tsi/transport\_security.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/method\_params.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/channel\_connectivity.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/thd.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/thd\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/call\_test\_only.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/src/core/ext/transport/chttp2/transport/huffsyms.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/string\_posix.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/surface/event\_string.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/tls\_gcc.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/include/grpc/support/log\_windows.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/useful.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/security/credentials/jwt/json\_token.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/security/util/json\_util.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/iomgr.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/slice/slice\_buffer.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/filters/client\_channel/resolver/dns/c\_ares/dns\_resolver\_ares.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/slice.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/security/credentials/jwt/jwt\_verifier.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/socket\_utils.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/sync\_windows.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/tmpfile\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/ext/filters/client\_channel/lb\_policy/subchannel\_list.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/tsi/transport\_security\_interface.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/tmpfile\_msys.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/iomgr/endpoint\_pair.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/gpr/string\_windows.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/profiling/basic\_timers.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/transport/transport.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/avl/avl.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/tls.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
 1.14.1/src/core/lib/http/format\_request.cc

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*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/metadata_batch.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/socket_mutator.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_client_posix.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/bin_encoder.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/ev_epollex_linux.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/connector.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/oauth2/oauth2_credentials.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/timer.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/spinlock.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/status_conversion.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/http/httpcli_security_connector.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/connected_channel.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/timeout_encoding.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/compression/message_compress.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/transport/auth_filters.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/env.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/transport/transport_impl.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/composite/composite_credentials.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/exec_ctx.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/json/json_writer.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/resolve_address.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/executor.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/sockaddr_posix.h

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*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_client_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/incoming_metadata.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/tsi/transport_security.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/is_epollexclusive_available.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/avl/avl.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/hpack_table.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_data.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/init_unsecure.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/support/string_util.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/socket_utils_linux.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/frame_rst_stream.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/compression.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/byte_buffer_reader.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/event_string.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/support/atm_gcc_atomic.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy_registry.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/api_trace.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/support/sync.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/http/httpcli.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gprpp/thd_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/ev_posix.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/wakeup_fd_nospecial.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/channel_stack.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/gpr/env_posix.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

```

1.14.1/src/core/ext/transport/chttp2/transport/stream\_map.h

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```
/*
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 */
```

Found in path(s):

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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/sync.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/unix_sockets_posix_noop.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/lame_client.h
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/resolver/dns/c_ares/grpc_ares_ev_driver.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/handshaker_factory.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/endpoint_pair_uv.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/slice/percent_encoding.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/error.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/impl/codegen/propagation_bits.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/include/grpc/grpc_security_constants.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/polling_entity.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/http_proxy.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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1.14.1/src/core/lib/iomgr/socket\_utils\_uv.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/handshaker\_factory.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/error.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/endpoint\_pair\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/jwt/jwt\_credentials.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/impl/codegen/gpr\_types.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/channel\_init.cc  
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 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/plugin\_registry/grpc\_unsecure\_plugin\_registry.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/plugin\_registry/grpc\_plugin\_registry.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/slice\_internal.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/combiner.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/impl/codegen/connectivity\_state.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/google\_default/google\_default\_credentials.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/lb\_policy/grpc\_lb/load\_balancer\_api.h  
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 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/timer\_uv.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/network\_status\_tracker.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/fake/fake\_credentials.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/grpc\_cronet.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/handshaker.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/google\_default/credentials\_generic.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/ev\_poll\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/ssl/ssl\_credentials.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/plugin\_registry/grpc\_cronet\_plugin\_registry.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gprpp/manual\_constructor.h



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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/backoff/backoff.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/handshaker.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/http_connect_handshaker.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/filters/client_channel/lb_policy/grpclb/load_balancer_api.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/channel_init.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/surface/validate_metadata.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/plugin/plugin_credentials.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/wakeup_fd_cv.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/resource_quota.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/tcp_uv.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/channel/handshaker_registry.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/iam/iam_credentials.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/iomgr/socket_utils_windows.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
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* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/lib/security/credentials/jwt/jwt_credentials.cc
*
/opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/src/core/ext/transport/chttp2/transport/bin_decoder.h
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

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1.14.1/src/core/ext/filters/load\_reporting/server\_load\_reporting\_filter.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/transport/error\_utils.h  
 1.14.1/src/core/lib/transport/error\_utils.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/mpscq.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/mpscq.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/handshaker\_registry.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/unix\_sockets\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/transport/bdp\_estimator.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/server/insecure/server\_chttp2\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/timer\_generic.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/transport/error\_utils.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/cronet/client/secure/cronet\_channel\_create.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/port.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/error\_internal.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/surface/channel\_stack\_type.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/combiner.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset\_uv.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/grpc\_posix.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset\_uv.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channel\_stack\_builder.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/slice\_intern.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/client/insecure/channel\_create\_posix.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/cronet/transport/cronet\_transport.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/transport/pid\_controller.h  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/load\_reporting/server\_load\_reporting\_filter.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/transport/pid\_controller.cc

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/fake/fake\_credentials.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/ssl/ssl\_credentials.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/ev\_epollsig\_linux.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/chttp2/transport/bin\_decoder.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/pollset\_set\_custom.cc  
 \*  
 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/resolver/dns/c\_ares/grpc\_ares\_wrapper.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/subchannel\_index.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/iomgr/unix\_sockets\_posix.h  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/filters/client\_channel/resolver/dns/c\_ares/grpc\_ares\_ev\_driver\_posix.cc  
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 /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/string\_util\_windows.cc  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/channel/channel\_stack\_builder.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/gpr/wrap\_memcpy.cc  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/include/grpc/impl/codegen/compression\_types.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/ext/transport/cronet/transport/cronet\_api\_dummy.cc  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/security/credentials/oauth2/oauth2\_credentials.h  
 \*  
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 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/src/core/lib/slice/slice\_traits.h  
 \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-

1.14.1/src/core/ext/filters/client\_channel/lb\_policy/grpclb/grpclb.cc  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/src/core/lib/transport/bdp\_estimator.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/src/core/lib/backoff/backoff.h  
\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-  
1.14.1/src/core/ext/filters/client\_channel/http\_connect\_handshaker.h  
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1.14.1/third_party/boringssl/ssl/s3_both.cc
* /opt/cola/permits/1161056020_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-
1.14.1/third_party/boringssl/ssl/handshake.cc
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- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/v3\_int.c

\* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/ext\_dat.h  
\*  
/opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/x509v3/v3\_purp.c  
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1.14.1/src/core/ext/filters/client\_channel/resolver/dns/c\_ares/grpc\_ares\_wrapper\_fallback.cc

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- \* /opt/cola/permits/1161056020\_1620445410.41/0/grpcio-1-14-1-1-tar-gz/grpcio-1.14.1/third\_party/boringssl/crypto/cipher\_extra/cipher\_test.cc

# 1.493 pyopenssl 18.0.0

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## 1.495 megacli 8.04.07

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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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1.14.1/grpc\_tools/main.cc

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-

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- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec\_message\_field.h
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/java/java\_map\_field.cc
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- /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/parser\_unittest.cc
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/field\_mask\_util\_test.cc
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/java/java\_lazy\_message\_field.cc
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/testdata/struct.proto
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/command\_line\_interface.h
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/field\_mask\_utility.h
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- /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/io/zero\_copy\_stream.cc
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/api.proto
- \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec\_primitive\_field.h
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/io/gzip_stream.cc

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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_field_base.h
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1.14.1/third_party/protobuf/src/google/protobuf/descriptor.h

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\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/repeated\_field.h

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1.14.1/third\_party/protobuf/src/google/protobuf/unittest\_lite.proto  
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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1.14.1/third_party/protobuf/src/google/protobuf/unknown_field_set_unittest.cc

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\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/proto3\_lite\_unittest.cc

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/cpp/cpp\_plugin\_unittest.cc

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\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/descriptor\_unittest.cc

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/wire\_format.h

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/unittest\_custom\_options.proto

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/code\_generator.h

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\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/testdata/oneofs.proto

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/field\_comparator.cc

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/plugin.cc

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec\_primitive\_field.cc

\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/extension\_set\_unittest.cc

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\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/csharp/csharp\_enum.cc

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1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/protostream\_objectwriter\_test.cc  
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 /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/arena\_test\_util.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/js/js\_generator.cc  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/unittest\_import.proto  
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1.14.1/third\_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec\_oneof.cc  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec\_oneof.h  
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 /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/java/java\_context.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/generated\_message\_table\_driven.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/stubs/time\_test.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/java/java\_message\_field\_lite.h  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/object\_source.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/javanano/javanano\_message\_field.cc  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/javanano/javanano\_map\_field.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/java/java\_enum\_field\_lite.cc  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/java/java\_extension.h  
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/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/php/php_generator.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/message.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/util/internal/default_value_objectwriter_test.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_tools/_proto/google/protobuf/source_context.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/io/tokenizer.h
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/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/importer.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_tools/_proto/google/protobuf/struct.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/map_test_util_impl.h
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/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/generated_message_reflection.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/stubs/substitute.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/generated_message_util.cc
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1.14.1/third_party/protobuf/src/google/protobuf/compiler/java/java_file.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/unittest.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/io/package_info.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-

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1.14.1/third\_party/protobuf/src/google/protobuf/duration.proto  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_tools/\_proto/google/protobuf/api.proto  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/cpp/cpp\_file.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/unittest\_mset.proto  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/java/java\_lazy\_message\_field\_lite.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/map\_type\_handler.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/protostream\_objectsource.cc  
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1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/testdata/books.proto  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/util/internal/protostream\_objectsource\_test.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/map\_test.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/test\_util\_lite.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/compiler/code\_generator.cc  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/repeated\_field\_reflection\_unittest.cc  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/struct.proto  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/testing/googletest.cc  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third\_party/protobuf/src/google/protobuf/map\_field\_test.cc

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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_helpers.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/stubs/statusor.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec_generator.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/stubs/statusor.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_reflection_class.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/javanano/javanano_extension.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/stubs/strutil.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/unittest_import_public_lite.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/cpp/cpp_message_field.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/util/internal/type_info.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_enum.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/util/internal/testdata/field_mask.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/generated_message_util.h

```

```

* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/arena_test_util.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/java/java_message_builder_lite.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/java/java_primitive_field_lite.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/io/coded_stream.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_primitive_field.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/java/java_plugin_unittest.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/python/python_generator.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/unittest_no_arena.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_enum_field.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/java/java_enum_field.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/map_test_util.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/javanano/javanano_helpers.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/stubs/int128.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/test_util.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/stubs/bytestream.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/zip_writer.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/util/field_comparator.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/io/printer_unittest.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/io/printer.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec_helpers.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/util/time_util.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/js/well_known_types_embed.h
*

```

```
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/cpp/cpp_string_field.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/java/java_map_field_lite.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/unittest_arena.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/io/zero_copy_stream_impl_lite.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/message_lite.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/testing/googletest.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/mock_code_generator.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/util/internal/datapiece.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/type.proto
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_message_field.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/js/well_known_types/any.js
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/service.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/implicit_weak_message.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/java/java_message.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_tools/_proto/google/protobuf/compiler/plugin.proto
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_solaris.h
```

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 */
/** Signal that the call is cacheable. GRPC is free to use GET verb */
```

Found in path(s):

```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_root/include/grpc/impl/codegen/grpc_types.h
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/python/python_generator.cc
```

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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/setup.py
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_tools/protoc.py
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_version.py
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_tools/_protoc_compiler.pyx
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_tools/command.py
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_tools/__init__.py
*
```

```
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/protoc_lib_deps.py
```

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```
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```

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```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/structurally_valid.cc
```

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\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpcpp/impl/codegen/completion\_queue.h  
\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc/census.h  
\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpcpp/server\_builder.h  
\*  
/opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc/grpc.h

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Metadata-Version: 1.1

Name: grpcio-tools

Version: 1.14.1

Summary: Protobuf code generator for gRPC

Home-page: <https://grpc.io>

Author: The gRPC Authors

Author-email: [grpc-io@googlegroups.com](mailto:grpc-io@googlegroups.com)

License: Apache License 2.0

Description: UNKNOWN

Platform: UNKNOWN

Classifier: Development Status :: 5 - Production/Stable

Classifier: Programming Language :: Python

Classifier: Programming Language :: Python :: 2

Classifier: Programming Language :: Python :: 2.7

Classifier: Programming Language :: Python :: 3

Classifier: Programming Language :: Python :: 3.4

Classifier: Programming Language :: Python :: 3.5

Classifier: Programming Language :: Python :: 3.6

Classifier: License :: OSI Approved :: Apache Software License

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```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/PKG-INFO
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpcio_tools.egg-
info/PKG-INFO
```

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```
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```

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```

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```
*
```

```
*/
```

```
/// If set, grpc is free to use the HTTP GET verb for sending the request,
```

Found in path(s):

```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/client_context.h
```

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1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_x86_gcc.cc
```

```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/stubs/stringprintf.cc
```

```
*
```

```
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_x86_msvc.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/stringprintf_unittest.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_arm_qnx.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_arm_gcc.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_mips_gcc.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/stringprintf.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_x86_gcc.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_generic_c11_atomic.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_arm64_gcc.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/platform_macros.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_x86_msvc.h
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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/template_util_unittest.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/type_traits.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/mutex.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/template_util.h
```

```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/type_traits_unittest.cc
```

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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/stubs/atomicops_internals_ppc_gcc.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec_map_field.cc
*
```

```
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/objectivec/objectivec_map_field.h
```

```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/third_party/protobuf/src/google/protobuf/compiler/csharp/csharp_map_field.cc
```

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/*
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*
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*
```

```
*/
```

Found in path(s):

```
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc_root/src/compiler/node_plugin.cc
```

```

* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/proto_utils.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/security/auth_context.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/impl/codegen/byte_buffer.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/rpc_method.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/objective_c_generator_helpers.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/byte_buffer_reader.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/support/byte_buffer.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/stream.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/support/async_unary_call.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/alloc.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/metadata_map.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/compression.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/csharp_plugin.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/async_unary_call.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/server_interface.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/core_codegen_interface.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/protobuf_plugin.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/impl/codegen/atm.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/grpc_library.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/time.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/impl/codegen/atm_gcc_atomic.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/python_generator_helpers.h
*

```

```

/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/ruby_generator_string-inl.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/workaround_list.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/server.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/proto_buffer_reader.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/config.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/security/server_credentials.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/ruby_plugin.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/string_ref.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/cpp_generator.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/call_hook.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/csharp_generator_helpers.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/support/string_ref.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/support/channel_arguments.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/ext/proto_server_reflection_plugin.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/impl/codegen/slice.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/support/stream.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/ruby_generator_map-inl.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/sync_cxx11.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/log_windows.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/service_type.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/sync_generic.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/python_generator.cc
*

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/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/slice.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/atm.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/byte_buffer.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/objective_c_generator.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/support/async_stream.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/cpp_generator.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/client_unary_call.h
*
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1.14.1/grpc_root/include/grpcpp/server_context.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/cpp_plugin.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/port_platform.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/status.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/atm_gcc_atomic.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/server_context.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/support/config.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/method_handler_impl.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/time.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/completion_queue.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/server_builder_option.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/channel.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/impl/codegen/sync_windows.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/grpcpp.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/schema_interface.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-

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```

1.14.1/grpc_root/src/compiler/ruby_generator.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/ruby_generator.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/call.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/create_channel.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/objective_c_plugin.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/sync_no_cxx11.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/method_handler_impl.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/completion_queue_tag.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/grpc_security.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/src/compiler/csharp_generator.cc
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/slice_buffer.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/slice.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/sync_windows.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/log.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/generic/generic_stub.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/config_protobuf.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/serialization_traits.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/service_type.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/sync.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/impl/codegen/port_platform.h
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1.14.1/grpc_root/include/grpcpp/impl/rpc_method.h
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1.14.1/grpc_root/src/compiler/objective_c_generator.h

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\* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpcpp/support/status\_code\_enum.h  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpcpp/client\_context.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc/support/string\_util.h  
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 /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/client\_context.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/server\_context.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/completion\_queue.h  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/support/byte\_buffer.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/support/stream.h  
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 \*  
 /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/support/config.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/sync\_no\_cxx11.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpcpp/opencensus.h  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/alarm.h  
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 \*  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-

1.14.1/grpc\_root/include/grpc++/impl/codegen/completion\_queue\_tag.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpcpp/support/proto\_buffer\_writer.h  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpcpp/ext/server\_load\_reporting.h  
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 \*  
 /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/byte\_buffer.h  
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 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/client\_context.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/config.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/metadata\_map.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/server\_builder.h  
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 \*  
 /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/method\_handler\_impl.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/rpc\_method.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/test/server\_context\_test\_spouse.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/security/auth\_metadata\_processor.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/call.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/server\_builder\_plugin.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/client\_unary\_call.h  
 \*  
 /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/grpc\_library.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/impl/codegen/async\_stream.h  
 \* /opt/cola/permits/1168659419\_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-1.14.1/grpc\_root/include/grpc++/support/error\_details.h



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* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/generic/async_generic_service.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/ext/proto_server_reflection_plugin.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/config_protobuf.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/core_codegen.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/support/async_unary_call.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/stream.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc/support/thd_id.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/server_posix.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/support/slice.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/call.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/health_check_service_interface.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/security/server_credentials.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/server_initializer.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/server_builder_option.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/server_interface.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/time.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/security/auth_context.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/client_unary_call.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/serialization_traits.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/support/time.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/support/status_code_enum.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/channel.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-

```

```

1.14.1/grpc_root/include/grpc++/completion_queue.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/security/credentials.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/string_ref.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/support/channel_arguments.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/create_auth_context.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/sync_cxx11.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/generic/generic_stub.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/status_code_enum.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpcpp/impl/codegen/proto_buffer_writer.h
*
/opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/status.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/rpc_method.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/grpc++.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/create_channel.h
* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/grpc_root/include/grpc++/impl/codegen/channel_interface.h
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```

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```

Found in path(s):

```

* /opt/cola/permits/1168659419_1622048081.6/0/grpcio-tools-1-14-1-1-tar-gz/grpcio-tools-
1.14.1/third_party/protobuf/src/google/protobuf/compiler/javanano/javanano_params.h

```

# 1.498 pymonetdb 1.4.0

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

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Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above				
2.1.1	2001-now	PSF		yes

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### \* \*\*Triage tickets\*\*

If an `unreviewed ticket` reports a bug, try and reproduce it. If you can reproduce it and it seems valid, make a note that you confirmed the bug and accept the ticket. Make sure the ticket is filed under the correct component area. Consider writing a patch that adds a test for the bug's behavior, even if you don't fix the bug itself. See more at [:ref:`how-can-i-help-with-triaging`](#)

### \* \*\*Look for tickets that are accepted and review patches to build familiarity with the codebase and the process\*\*

Mark the appropriate flags if a patch needs docs or tests. Look through the changes a patch makes, and keep an eye out for syntax that is incompatible with older but still supported versions of Python. [:doc:`Run the tests </internals/contributing/writing-code/unit-tests>`](#) and make sure they pass. Where possible and relevant, try them out on a database other than SQLite. Leave comments and feedback!

### \* \*\*Keep old patches up to date\*\*

Oftentimes the codebase will change between a patch being submitted and the time it gets reviewed. Make sure it still applies cleanly and functions as expected. Simply updating a patch is both useful and important! See more on [:doc:`writing-code/submitting-patches`](#).

### \* \*\*Write some documentation\*\*

Django's documentation is great but it can always be improved. Did you find a typo? Do you think that something should be clarified? Go ahead and suggest a documentation patch! See also the guide on [:doc:`writing-documentation`](#).

.. note::



The `reports page`\_ contains links to many useful Trac queries, including several that are useful for triaging tickets and reviewing patches as suggested above.

.. \_reports page: <https://code.djangoproject.com/wiki/Reports>

.. \_CLA: <https://www.djangoproject.com/foundation/cla/>

.. \_Contributor License Agreement FAQ: <https://www.djangoproject.com/foundation/cla/faq/>

.. \_unreviewed ticket: <https://code.djangoproject.com/query?status=!closed&stage=Unreviewed>

## Guidelines

=====

As a newcomer on a large project, it's easy to experience frustration. Here's some advice to make your work on Django more useful and rewarding.

### \* \*\*Pick a subject

area that you care about, that you are familiar with, or that you want to learn about\*\*

You don't already have to be an expert on the area you want to work on; you become an expert through your ongoing contributions to the code.

### \* \*\*Analyze tickets' context and history\*\*

Trac isn't an absolute; the context is just as important as the words.

When reading Trac, you need to take into account who says things, and when they were said. Support for an idea two years ago doesn't necessarily mean that the idea will still have support. You also need to pay attention to who *hasn't* spoken -- for example, if an experienced contributor hasn't been recently involved in a discussion, then a ticket may not have the support required to get into Django.

### \* \*\*Start small\*\*

It's easier to get feedback on a little issue than on a big one. See the `easy pickings`\_.

### \* \*\*If you're going to engage in a big task, make sure that your idea has support first\*\*

This means getting someone else to confirm that a bug is real before you fix the issue, and ensuring that there's consensus on a proposed feature before you go implementing it.

### \* \*\*Be bold! Leave feedback!\*\*

Sometimes it can be scary to put your opinion out to the world and say "this ticket is correct" or "this patch needs work", but it's the only way the project moves forward. The contributions of the broad Django community ultimately have a much greater impact than that of any one person. We can't do it without **\*\*you\*\***!

**\*\*Err on the side of caution when marking things Ready For Check-in\*\***

If you're really not certain if a ticket is ready, don't mark it as such. Leave a comment instead, letting others know your thoughts. If you're mostly certain, but not completely certain, you might also try asking on IRC to see if someone else can confirm your suspicions.

**\*\*Wait for feedback, and respond to feedback that you receive\*\***

Focus on one or two tickets, see them through from start to finish, and repeat. The shotgun approach of taking on lots of tickets and letting some fall by the wayside ends up doing more harm than good.

**\*\*Be rigorous\*\***

When we say "pep:8", and must have docs and tests", we mean it. If a patch doesn't have docs and tests, there had better be a good reason. Arguments like "I couldn't find any existing tests of this feature" don't carry much weight--while it may be true, that means you have the extra-important job of writing the very first tests for that feature, not that you get a pass from writing tests altogether.

.. [\\_easy pickings: https://code.djangoproject.com/query?status=!closed&easy=1](https://code.djangoproject.com/query?status=!closed&easy=1)

.. [\\_new-contributors-faq:](#)

## FAQ

===

1. **\*\*This ticket I care about has been ignored for days/weeks/months! What can I do to get it committed?\***

First off, it's not personal. Django is entirely developed by volunteers (except the Django fellow), and sometimes folks just don't have time. The best thing to do is to send a gentle reminder to the `|django-developers|` mailing list asking for review on the ticket, or to bring it up in the ``#django-dev`` IRC channel.

2. **\*\*I'm sure my ticket is absolutely 100% perfect, can I mark it as RFC**

myself?:\*\*

Short answer: No. It's always better to get another set of eyes on a ticket. If you're having trouble getting that second set of eyes, see question 1, above.

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```

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```
/**
```

```
* JSONSchema Validator - Validates JavaScript objects using JSON Schemas
```

```
* (http://www.json.com/json-schema-proposal/)
```

```
*
```

```
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```

To use the validator call the validate function with an instance object and an optional schema object.

If a schema is provided, it will be used to validate. If the instance object refers to a schema (self-validating), that schema will be used to validate and the schema parameter is not necessary (if both exist, both validations will occur).

The validate method will return an array of validation errors. If there are no errors, then an empty list will be returned. A validation error will have two properties:

"property" which indicates which property had the error

"message" which indicates what the error was

```
*/
```

Found in path(s):

```
* /opt/cola/permits/1173677558_1623725378.39/0/kriszyp-json-schema-v0-2-3-0-g07ae2c6-1-tar-gz/kriszyp-json-schema-07ae2c6/lib/validate.js
```

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```
/**
```

```
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```

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## 1.513 idna 10.0.0

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## 1.514 procps 3.3.15

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\*  
\* curve25519-donna: Curve25519 elliptic curve, public key function  
\*  
\* <http://code.google.com/p/curve25519-donna/>  
\*  
\* Adam Langley <agl@imperialviolet.org>  
\*  
\* Derived from public domain C code by Daniel J. Bernstein <djb@cr.yp.to>  
\*  
\* More information about curve25519 can be found here  
\* <http://cr.yp.to/ecdh.html>  
\*  
\* djb's sample implementation of curve25519 is written in a special assembly  
\* language called qhasm and uses the floating point registers.  
\*  
\* This is, almost, a clean room reimplementaion from the curve25519 paper. It  
\* uses many of the tricks described therein. Only the crecip function is taken  
\* from the sample implementation.  
\*/

# 1.518 image-magick 7.0.11-2

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Found in path(s):

\* /opt/cola/permits/1237623621\_1638828111.96/0/fis-components-isarray-0-0-1-0-g1f8a1d4-tar-gz/fis-components-isarray-84d6fbc/README.md

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# 1.623 p-try 2.0.0

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# 1.624 spdx-license-ids 3.0.3

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```
root = true
```

```
[*]
```

```
charset = utf-8
```

```
end_of_line = lf
```

```
indent_style = tab
```

```
tab_width = 2
```

```
insert_final_newline = true
```

```
trim_trailing_whitespace = true
```

```
[*.{md,yml}]
```

```
indent_style = space
```

```
[*.md]
```

```
trim_trailing_whitespace = false
```

```
if: branch !~ ^\d
```

```
dist: xenial
```

```
language: node_js
```

```
node_js: node
```

```
* text=auto
# spdx-license-ids
```

```
[![npm version](https://img.shields.io/npm/v/spdx-license-ids.svg)](https://www.npmjs.org/package/spdx-license-ids)
[![Build Status](https://travis-ci.org/shinnn/spdx-license-ids.svg?branch=master)](https://travis-ci.org/shinnn/spdx-license-ids)
```

A list of [SPDX license](https://spdx.org/licenses/) identifiers

## ## Installation

[Download JSON directly](https://raw.githubusercontent.com/shinnn/spdx-license-ids/master/index.json), or [use](https://docs.npmjs.com/cli/install) [npm](https://docs.npmjs.com/getting-started/what-is-npm):

```
...
```

```
npm install spdx-license-ids
...
```

## ## [Node.js](https://nodejs.org/) API

```
### require('spdx-license-ids')
```

Type: `<Array<string>>`

All license IDs except for the currently deprecated ones.

```
```javascript
const ids = require('spdx-license-ids');
//=> ['0BSD', 'AAL', 'Abstyles', 'Adobe-2006', 'Adobe-Glyph', 'ADSL', 'AFL-1.1', 'AFL-1.2', ...]

ids.includes('BSD-3-Clause'); //=> true
ids.includes('CC-BY-1.0'); //=> true

ids.includes('GPL-3.0');
//=> false
```
```

```
### require('spdx-license-ids/deprecated')
```

Type: `<Array<string>>`

Deprecated license IDs.

```
```javascript
const deprecatedIds = require('spdx-license-ids/deprecated');
//=> ['AGPL-1.0', 'AGPL-3.0', 'eCos-2.0', 'GFDL-1.1', 'GFDL-1.2', 'GFDL-1.3', 'GPL-1.0', ...]
```

```
deprecatedIds.includes('BSD-3-Clause'); //=> false
```

```
deprecatedIds.includes('CC-BY-1.0'); //=> false
```

```
deprecatedIds.includes('GPL-3.0'); //=> true
```

```
...
```

```
## License
```

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```

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=====

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## 1.626 base-passwd 3.5.29

### 1.626.1 Available under license :

Format-Specification: <http://svn.debian.org/wsvn/dep/web/deps/dep5.mdwn?op=file&rev=135>

Name: base-passwd

Maintainer: Colin Watson <cjwatson@debian.org>

Files: update-passwd.c, man/\*

Copyright: Copyright 1999-2002 Wichert Akkerman <wichert@deephackmode.org>

Copyright 2002, 2003, 2004 Colin Watson <cjwatson@debian.org>

License: GPL-2

Files: passwd.master, group.master

License: PD

X-Notes: Originally written by Ian Murdock <imurdock@debian.org> and

Bruce Perens <bruce@pixar.com>.

Files: doc/\*

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```

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## 1.630 libatomic 8.2.0

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```

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```
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```
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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
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# 1.632 golang 1.12.12

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```
# This is the official list of people who can contribute
# (and typically have contributed) code to the Go repository.
# The AUTHORS file lists the copyright holders; this file
# lists people. For example, Google employees are listed here
# but not in AUTHORS, because Google holds the copyright.
#
# Names should be added to this file only after verifying that
# the individual or the individual's organization has agreed to
# the appropriate Contributor License Agreement, found here:
#
# http://code.google.com/legal/individual-cla-v1.0.html
# http://code.google.com/legal/corporate-cla-v1.0.html
#
# The agreement for individuals can be filled out on the web.

# Names should be added to this file like so:
# Individual's name <submission email address>
# Individual's name <submission email address> <email2> <emailN>
#
# An entry with multiple email addresses specifies that the
# first address should be used in the submit logs and
# that the other addresses should be recognized
# as the
# same person when interacting with Gerrit.

# Please keep the list sorted.
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## 1.638 docker 18.09.0

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package licensing

```
import (  
    "context"  
    "crypto/hmac"  
    "crypto/sha256"  
    "encoding/base64"  
    "encoding/json"  
    "fmt"  
    "time"  
  
    "github.com/docker/libtrust"  
    "github.com/docker/licensing/lib/errors"  
    "github.com/docker/licensing/lib/go-clientlib"  
    "github.com/docker/licensing/model"  
)  
  
func (c *client) getLicenseFile(ctx context.Context, subID string) (*model.IssuedLicense, error) {  
    url := c.baseURI  
    url.Path += fmt.Sprintf("/api/billing/v4/subscriptions/%s/license-file", subID)  
  
    license := new(model.IssuedLicense)  
    if _, _, err := c.doReq(ctx, "GET", &url, clientlib.RecvJSON(license)); err != nil {  
        return nil, err  
    }  
  
    return license, nil  
}  
  
// Check verifies that the license identified by the given key id is valid. Note that it does not  
// interrogate the contents of the license.  
func (c *client) check(ctx context.Context, license model.IssuedLicense) (*model.CheckResponse, error) {  
    keyID := license.KeyID  
    privateKey := license.PrivateKey  
  
    authorization, err := c.getAuthorization(ctx,  
        license)  
    if err != nil {  
        return nil, err  
    }  
  
    // TODO: Mason - replace this parseJWS with a non libtrust lib  
    signature, err := libtrust.ParseJWS(authorization)  
    if err != nil {
```

```

return nil, errors.Wrapf(err, errors.Fields{
    "key_id": keyID,
}, "license parse JWS failed")
}

keys, err := signature.Verify()
if err != nil {
return nil, errors.Wrapf(err, errors.Fields{
    "key_id": keyID,
}, "license signature verification failed")
}

keyCnt := len(keys)
if keyCnt != 1 {
err = fmt.Errorf("unexpected number of signing keys (%d)", keyCnt)
return nil, errors.WithStack(err).With(errors.Fields{
    "key_id": keyID,
})
}

key := keys[0]

if !c.recognizedSigningKey(key) {
return nil, errors.New("unrecognized signing key")
}

payload, err := signature.Payload()
if err != nil {
return nil, errors.Wrapf(err, errors.Fields{
    "key_id": keyID,
}, "malformed signature payload")
}

checkRes := new(model.CheckResponse)

err = json.Unmarshal(payload, &checkRes)
if
err != nil {
return nil, errors.Wrapf(err, errors.Fields{
    "key_id": keyID,
}, "license payload unmarshal failed")
}

msg := checkRes.Expiration.Format(time.RFC3339)
if err := checkToken(msg, checkRes.Token, privateKey); err != nil {
return nil, errors.Wrap(err, errors.Fields{
    "key_id": keyID,
})
}

```



```

}

return checkRes, nil
}

// recognizedSigningKey returns true if the given key is signed with a recognized signing key, false otherwise
func (c *client) recognizedSigningKey(key libtrust.PublicKey) bool {
for _, publicKey := range c.publicKeys {
if key.KeyID() == publicKey.KeyID() {
return true
}
}
return false
}

// getAuthorization returns the decoded license authorization
func (c *client) getAuthorization(ctx context.Context, license model.IssuedLicense) ([]byte, error) {
decoded, err := base64.StdEncoding.DecodeString(license.Authorization)
if err != nil {
return nil, errors.Wrapf(err, errors.Fields{
"key_id": license.KeyID,
}, "decoding license authorization
failed")
}
return decoded, nil
}

// All of the functions in this file assume that they are receiving a properly
// formatted private key.

// checkToken performs a MAC algorithm (where token is generated by hashing the
// message with the privateKey via GenerateToken) with the purpose of authenticating
// the validity of both the message and the private key of the person who generated
// the token.
func checkToken(message, token, privateKey string) error {
tokenBytes, err := base64.URLEncoding.DecodeString(token)
if err != nil {
return errors.Wrap(err, errors.Fields{"token": token})
}

generatedToken, err := generateToken(message, privateKey)
if err != nil {
return errors.Wrap(err, errors.Fields{"token": token})
}

generatedBytes, err := base64.URLEncoding.DecodeString(generatedToken)
if err != nil {
return errors.Wrap(err, errors.Fields{"token": token})
}

```

```

}

if !hmac.Equal(tokenBytes, generatedBytes) {
    return errors.Forbidden(errors.Fields{"token": token},
    "invalid token")
}

return nil
}

// generateToken generates a hash of the message with the privateKey via the
// sha256 algorithm.
func generateToken(message, privateKey string) (string, error) {
    key, err := base64.URLEncoding.DecodeString(privateKey)
    if err != nil {
        return "", errors.Wrap(err, errors.Fields{"msg": message})
    }

    h := hmac.New(sha256.New, key)
    h.Write([]byte(message))
    return base64.URLEncoding.EncodeToString(h.Sum(nil)), nil
}

```

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procfs provides functions to retrieve system, kernel and process metrics from the pseudo-filesystem proc.

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package model

```
import "time"
```

```
// A CheckResponse is the internal content of the PublicCheckResponse signed
```

```
// json blob.
```

```
type CheckResponse struct {  
    Expiration    time.Time `json:"expiration"`  
    Token         string   `json:"token"`  
    MaxEngines    int      `json:"maxEngines"`  
    ScanningEnabled bool     `json:"scanningEnabled"`  
    Type          string   `json:"licenseType"`  
    Tier          string   `json:"tier"`  
}
```

```
// IssuedLicense represents an issued license
```

```
type IssuedLicense struct {  
    KeyID         string `json:"key_id"`  
    PrivateKey    string `json:"private_key"`  
    Authorization string `json:"authorization"`  
}
```

```
// Valid returns true if the License is syntactically valid, false otherwise
```

```
func (l *IssuedLicense) Valid() (bool, string) {  
    if l.KeyID == "" {  
        return false, "empty key_id"  
    }  
}
```

```
    if l.PrivateKey == "" {  
        return false, "empty private_key"  
    }  
}
```

```
    if l.Authorization == "" {  
        return false, "empty authorization"  
    }  
}
```

```
    return true, ""  
}
```

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Common libraries shared by Prometheus Go components.

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package formatter

```
import (  
    "bytes"  
    "encoding/json"  
    "strings"  
    "testing"  
    "time"  
  
    "github.com/docker/cli/internal/licenseutils"  
    "github.com/docker/licensing/model"  
    "gotest.tools/assert"  
    is "gotest.tools/assert/cmp"  
)
```

```

func TestSubscriptionContextWrite(t *testing.T) {
cases := []struct {
context Context
expected string
}{
// Errors
{
Context{Format: "{{InvalidFunction}}"},
`Template parsing error: template: :1: function "InvalidFunction" not defined
`,
},
{
Context{Format: "{{nil}}"},
`Template parsing error: template: :1:2: executing "" at <nil>: nil is not a command
`,
},
// Table format
{
Context{Format: NewSubscriptionsFormat("table", false)},
`NUM          OWNER          PRODUCT ID    EXPIRES          PRICING COMPONENTS
1             owner1          productid1    2020-01-01 10:00:00 +0000 UTC compstring
2             owner2          productid2    2020-01-01 10:00:00 +0000
UTC compstring
`,
},
{
Context{Format: NewSubscriptionsFormat("table", true)},
`1:License Name: name1 Quantity: 10 nodes Expiration date: 2020-01-01
2:License Name: name2 Quantity: 20 nodes Expiration date: 2020-01-01
`,
},
{
Context{Format: NewSubscriptionsFormat("table {{.Owner}}", false)},
`OWNER
owner1
owner2
`,
},
{
Context{Format: NewSubscriptionsFormat("table {{.Owner}}", true)},
`OWNER
owner1
owner2
`,
},
// Raw Format
{
Context{Format: NewSubscriptionsFormat("raw", false)},

```

```

    `license: id1
name: name1
owner: owner1
components: compstring

license: id2
name: name2
owner: owner2
components: compstring

`,
},
{
    Context{Format: NewSubscriptionsFormat("raw", true)},
    `license: id1
license: id2
`,
},
// Custom Format
{
    Context{Format: NewSubscriptionsFormat("{{.Owner}}", false)},
    `owner1
owner2
`,
},
}

```

```

expiration, _ := time.Parse(time.RFC822, "01 Jan 20 10:00 UTC")

```

```

for _, testcase := range cases {
    subscriptions
:= []licenseutils.LicenseDisplay{
    {
        Num: 1,
        Owner: "owner1",
        Subscription: model.Subscription{
            ID: "id1",
            Name: "name1",
            ProductID: "productid1",
            Expires: &expiration,
            PricingComponents: model.PricingComponents{
                &model.SubscriptionPricingComponent{
                    Name: "nodes",
                    Value: 10,
                },
            },
        },
    },
},
ComponentsString: "compstring",

```

```

},
{
  Num: 2,
  Owner: "owner2",
  Subscription: model.Subscription{
    ID: "id2",
    Name: "name2",
    ProductID: "productid2",
    Expires: &expiration,
    PricingComponents: model.PricingComponents{
      &model.SubscriptionPricingComponent{
        Name: "nodes",
        Value: 20,
      },
    },
  },
  ComponentsString: "compstring",
},
}
out := &bytes.Buffer{}
testcase.context.Output = out
err := SubscriptionsWrite(testcase.context, subscriptions)
if err != nil {
  assert.Error(t, err, testcase.expected)
} else {
  assert.Check(t,
is.Equal(testcase.expected, out.String()))
}
}
}

func TestSubscriptionContextWriteJSON(t *testing.T) {
  expiration, _ := time.Parse(time.RFC822, "01 Jan 20 10:00 UTC")
  subscriptions := []licenseutils.LicenseDisplay{
    {
      Num: 1,
      Owner: "owner1",
      Subscription: model.Subscription{
        ID: "id1",
        Name: "name1",
        ProductID: "productid1",
        Expires: &expiration,
        PricingComponents: model.PricingComponents{
          &model.SubscriptionPricingComponent{
            Name: "nodes",
            Value: 10,
          },
        },
      },
    },
  },
}

```

```

    },
    ComponentsString: "compstring",
  },
  {
    Num: 2,
    Owner: "owner2",
    Subscription: model.Subscription{
      ID: "id2",
      Name: "name2",
      ProductID: "productid2",
      Expires: &expiration,
      PricingComponents: model.PricingComponents{
        &model.SubscriptionPricingComponent{
          Name: "nodes",
          Value: 20,
        },
      },
    },
    ComponentsString: "compstring",
  },
}
expectedJSONs := []map[string]interface{}{
  {
    "Owner":
      "owner1",
    "ComponentsString": "compstring",
    "Expires": "2020-01-01T10:00:00Z",
    "DockerID": "",
    "Eusa": nil,
    "ID": "id1",
    "Start": nil,
    "Name": "name1",
    "Num": float64(1),
    "PricingComponents": []interface{}{
      map[string]interface{}{
        "name": "nodes",
        "value": float64(10),
      },
    },
    "ProductID": "productid1",
    "ProductRatePlan": "",
    "ProductRatePlanID": "",
    "State": "",
    "Summary": "License Name: name1\tQuantity: 10 nodes\tExpiration date: 2020-01-01",
  },
  {
    "Owner": "owner2",
    "ComponentsString": "compstring",
  },
}

```

```

"Expires":      "2020-01-01T10:00:00Z",
"DockerID":    "",
"Eusa":        nil,
"ID":          "id2",
"Start":       nil,
"Name":        "name2",
"Num":         float64(2),
"PricingComponents": []interface{}{
  map[string]interface{}{
    "name":
"nodes",
    "value": float64(20),
  },
},
"ProductID":   "productid2",
"ProductRatePlan": "",
"ProductRatePlanID": "",
"State":       "",
"Summary":     "License Name: name2\tQuantity: 20 nodes\tExpiration date: 2020-01-01",
},
}

```

```

out := &bytes.Buffer{ }
err := SubscriptionsWrite(Context{Format: "{{json .}}", Output: out}, subscriptions)
if err != nil {
  t.Fatal(err)
}
for i, line := range strings.Split(strings.TrimSpace(out.String()), "\n") {
  var m map[string]interface{ }
  if err := json.Unmarshal([]byte(line), &m); err != nil {
    t.Fatal(err)
  }
  assert.Check(t, is.DeepEqual(expectedJSONs[i], m))
}
}

```

```

func TestSubscriptionContextWriteJSONField(t *testing.T) {
  subscriptions := []licenseutils.LicenseDisplay{
    {Num: 1, Owner: "owner1"},
    {Num: 2, Owner: "owner2"},
  }
  out := &bytes.Buffer{ }
  err := SubscriptionsWrite(Context{Format: "{{json .Owner}}", Output: out}, subscriptions)
  if
  err != nil {
    t.Fatal(err)
  }
  for i, line := range strings.Split(strings.TrimSpace(out.String()), "\n") {

```



```
var s string
if err := json.Unmarshal([]byte(line), &s); err != nil {
    t.Fatal(err)
}
assert.Check(t, is.Equal(subscriptions[i].Owner, s))
}
}
```

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Gocheck - A rich testing framework for Go

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package formatter

```
import (  
    "time"
```

```
    "github.com/docker/cli/internal/licenseutils"
```

```
    "github.com/docker/licensing/model"
```

```

)

const (
    defaultSubscriptionsTableFormat = "table
    {{{.Num}}}\t{{{.Owner}}}\t{{{.ProductID}}}\t{{{.Expires}}}\t{{{.ComponentsString}}}"
    defaultSubscriptionsQuietFormat = "{{{.Num}}};{{{.Summary}}}"

    numHeader          = "NUM"
    ownerHeader        = "OWNER"
    licenseNameHeader  = "NAME"
    idHeader           = "ID"
    dockerIDHeader     = "DOCKER ID"
    productIDHeader    = "PRODUCT ID"
    productRatePlanHeader = "PRODUCT RATE PLAN"
    productRatePlanIDHeader = "PRODUCT RATE PLAN ID"
    startHeader        = "START"
    expiresHeader      = "EXPIRES"
    stateHeader        = "STATE"
    eusaHeader         = "EUSA"
    pricingComponentsHeader = "PRICING COMPONENTS"
)

// NewSubscriptionsFormat returns a Format for rendering using a license Context
func NewSubscriptionsFormat(source string, quiet bool) Format {
    switch source {
    case TableFormatKey:
        if quiet
        {
            return defaultSubscriptionsQuietFormat
        }
        return defaultSubscriptionsTableFormat
    case RawFormatKey:
        if quiet {
            return `license: {{{.ID}}}`
        }
        return `license: {{{.ID}}}\nname: {{{.Name}}}\nowner: {{{.Owner}}}\ncomponents: {{{.ComponentsString}}}\n`
    }
    return Format(source)
}

// SubscriptionsWrite writes the context
func SubscriptionsWrite(ctx Context, subs []licenseutils.LicenseDisplay) error {
    render := func(format func(subContext subContext) error) error {
        for _, sub := range subs {
            licenseCtx := &licenseContext{trunc: ctx.Trunc, l: sub}
            if err := format(licenseCtx); err != nil {
                return err
            }
        }
    }
}

```

```

    }
    return nil
}
licenseCtx := licenseContext{}
licenseCtx.header = map[string]string{
    "Num":      numHeader,
    "Owner":    ownerHeader,
    "Name":     licenseNameHeader,
    "ID":       idHeader,
    "DockerID": dockerIDHeader,
    "ProductID": productIDHeader,
    "ProductRatePlan": productRatePlanHeader,
    "ProductRatePlanID":
productRatePlanIDHeader,
    "Start":    startHeader,
    "Expires":  expiresHeader,
    "State":    stateHeader,
    "Eusa":     eusaHeader,
    "ComponentsString": pricingComponentsHeader,
}
return ctx.Write(&licenseCtx, render)
}

type licenseContext struct {
    HeaderContext
    trunc bool
    l licenseutils.LicenseDisplay
}

func (c *licenseContext) MarshalJSON() ([]byte, error) {
    return marshalJSON(c)
}

func (c *licenseContext) Num() int {
    return c.l.Num
}

func (c *licenseContext) Owner() string {
    return c.l.Owner
}

func (c *licenseContext) ComponentsString() string {
    return c.l.ComponentsString
}

func (c *licenseContext) Summary() string {
    return c.l.String()
}

```



```

func (c *licenseContext) Name() string {
    return c.l.Name
}

func (c *licenseContext) ID() string {
    return c.l.ID
}

func (c *licenseContext) DockerID() string {
    return c.l.DockerID
}

func (c *licenseContext) ProductID() string {
    return c.l.ProductID
}

func (c *licenseContext)
ProductRatePlan() string {
    return c.l.ProductRatePlan
}

func (c *licenseContext) ProductRatePlanID() string {
    return c.l.ProductRatePlanID
}

func (c *licenseContext) Start() *time.Time {
    return c.l.Start
}

func (c *licenseContext) Expires() *time.Time {
    return c.l.Expires
}

func (c *licenseContext) State() string {
    return c.l.State
}

func (c *licenseContext) Eusa() *model.EusaState {
    return c.l.Eusa
}

func (c *licenseContext) PricingComponents() []model.SubscriptionPricingComponent {
    // Dereference the pricing component pointers in the pricing components
    // so it can be rendered properly with the template formatter

    var ret []model.SubscriptionPricingComponent
    for _, spc := range c.l.PricingComponents {

```

```
if spc == nil {
    continue
}
ret = append(ret, *spc)
}
return ret
}
```

CoreOS Project

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## 1.643 lvm2 2.02.180

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Version 2.1, February 1999

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# 1.648 libns1 2.28

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## 1.650 cups 2.2.8

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* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/reflect/MildValues.java  
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/scanners/index/SisuIndexFinder.java  
*  
/opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/inject/BeanScanning.java  
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/reflect/Weak.java  
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/binders/MergedProperties.java  
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/reflect/Soft.java  
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/scanners/index/AbstractSisuIndex.java  
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/scanners/index/SisuIndexAPT6.java  
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/scanners/ClassFinder.java  
*  
/opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
jar/org/sonatype/guice/bean/locators/Implicit.java
```

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/WildcardKey.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/StringProperties.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/MildKeys.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/MildElements.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/index/SisuIndex.java  
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\*  
/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/enterprise/inject/UnproxyableResolutionException.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/enterprise/inject/Typed.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/enterprise/inject/InjectionException.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/enterprise/inject/Instance.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/enterprise/inject/AmbiguousResolutionException.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/enterprise/inject/UnsatisfiedResolutionException.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/enterprise/inject/Any.java



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jar/javax/enterprise/inject/ResolutionException.java
*
 /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/javax/enterprise/inject/IllegalProductException.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/javax/enterprise/inject/Alternative.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/javax/enterprise/inject/Stereotype.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/javax/enterprise/inject/Disposes.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/javax/enterprise/inject/New.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/javax/enterprise/inject/Specializes.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/javax/enterprise/inject/Default.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
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- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/LocatorWiring.java
- \*
- /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/WatchedBeans.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/Streams.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/inject/Sisu.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/ImplicitBindings.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/RankingFunction.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/containers/SisuActivator.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/Wiring.java
- \*
- /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/ImplementationVisitor.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/containers/SisuGuice.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/BeanLocator.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/containers/Main.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/BeanProviders.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/spi/BindingPublisher.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/converters/URLTypeConverter.java
- \*
- /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/inject/Description.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/ElementAnalyzer.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/containers/InjectedTest.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-

jar/org/sonatype/guice/bean/scanners/EmptyClassVisitor.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
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 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/inject/Parameters.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/converters/package-info.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/locators/LazyBeanEntry.java  
 \*  
 /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/locators/EntryListAdapter.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/inject/Nullable.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/inject/Mediator.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/reflect/NamedClass.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/binders/WireModule.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/scanners/QualifierCache.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/locators/EntryMapAdapter.java  
 \*  
 /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/scanners/EmptyAnnotationVisitor.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/locators/RankedSequence.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/locators/spi/BindingDistributor.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
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 jar/org/sonatype/guice/bean/locators/NamedIterableAdapter.java  
 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/reflect/AbstractDeferredClass.java  
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 \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-  
 jar/org/sonatype/guice/bean/locators/QualifyingStrategy.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/LoadedClass.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/ChildWireModule.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/EntrySetAdapter.java

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\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/MergedModule.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/converters/AbstractTypeConverter.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/package-info.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/containers/package-info.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/spi/BindingSubscriber.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/inject/EagerSingleton.java

\*

/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/ParameterKeys.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/converters/FileTypeConverter.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/ClassSpaceScanner.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/ClassSpaceVisitor.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/MutableBeanLocator.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/locators/BeanCache.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/SpaceModule.java

\*

/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/GlobberStrategy.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/DependencyVerifier.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/binders/DependencyAnalyzer.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/inject/package-info.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/inject/BeanEntry.java

\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-

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jar/org/sonatype/guice/bean/locators/BeanDescription.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/Logs.java
*
/opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/spi/package-info.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/scanners/QualifiedTypeVisitor.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/RankedBindings.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/IgnoreSetters.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/DefaultBeanLocator.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/DefaultRankingFunction.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/InjectorPublisher.java
*
/opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/containers/InjectedTestCase.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/ProviderIterableAdapter.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/package-info.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/HiddenBinding.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/locators/LocatedBeans.java
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INF/maven/org.sonatype.sisu/sisu-inject-bean/pom.xml
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jar/org/sonatype/guice/bean/reflect/TypeParameters.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/DeferredProvider.java
*
/opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/BundleClassSpace.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/inject/PropertyBinding.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/DeferredClass.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/FileEntryIterator.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/URLClassSpace.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/ZipEntryIterator.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/inject/BeanBinder.java
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/opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/DeclaredMembers.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/BeanPropertyIterator.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/ResourceEnumeration.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/BeanPropertyField.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/inject/BeanListener.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/reflect/BeanProperty.java
* /opt/cola/permits/1377518169_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-
jar/org/sonatype/guice/bean/inject/BeanInjector.java
*
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/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/BeanProperties.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/BeanPropertySetter.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/inject/PropertyBinder.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/reflect/ClassSpace.java

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\*

/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/MethodWriter.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/Handler.java  
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\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/package-info.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/AnnotationWriter.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/Label.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/Item.java  
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/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/FieldVisitor.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/FieldWriter.java  
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\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/ByteVector.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/Attribute.java  
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\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/Opcodes.java  
\*  
/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/MethodVisitor.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/ClassReader.java  
\* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/org/sonatype/guice/bean/scanners/asm/Edge.java

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- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/inject/package-info.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/inject/Qualifier.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/inject/Provider.java
- \*
- \*/opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/inject/Named.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/inject/Inject.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/inject/Singleton.java
- \* /opt/cola/permits/1377518169\_1659371010.7589436/0/sisu-inject-bean-2-3-0-sources-2-jar/javax/inject/Scope.java

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- \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/logging/LoggerManager.java
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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/sonatype/guice/plexus/binders/PlexusAnnotatedBeanModule.java  
\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/sonatype/guice/plexus/binders/PlexusPropertyBinder.java  
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/opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/sonatype/guice/plexus/scanners/PlexusTypeRegistry.java  
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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/StartingException.java  
\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/repository/ComponentRequirementList.java  
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/opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/factory/AbstractComponentFactory.java  
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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-

jar/org/codehaus/plexus/component/factory/ComponentInstantiationException.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/Serviceable.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/component/repository/exception/ComponentLifecycleException.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/annotations/ComponentImpl.java  
 \*  
 /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/component/repository/exception/ComponentRepositoryException.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/binders/PlexusBeanBinder.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/binders/PlexusRequirements.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/converters/PlexusDateTypeConverter.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/PlexusContainerLocator.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/StoppingException.java  
 \*  
 /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/ContainerConfiguration.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/configuration/xml/XmlPlexusConfiguration.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/configuration/PlexusConfiguration.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/Suspendable.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/logging/Logger.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/component/factory/ComponentFactory.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/lifecycles/PlexusLifecycleManager.java  
 \*  
 /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/config/PlexusBeanMetadata.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/config/PlexusBeanLocator.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/codehaus/plexus/DefaultContainerConfiguration.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/scanners/PlexusXmlScanner.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/config/PlexusBeanSource.java  
 \* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-  
 jar/org/sonatype/guice/plexus/binders/OptionalPropertyBinding.java

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* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/configuration/PlexusConfigurationException.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/logging/AbstractLogger.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/binders/ProvidedPropertyBinding.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/MutablePlexusContainer.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/locators/HintedPlexusBeans.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/context/ContextMapAdapter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/InitializationException.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/config/Roles.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/binders/PlexusTypeBinder.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/locators/MissingPlexusBean.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/annotations/RequirementImpl.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/binders/PlexusBindingModule.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/Configurable.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/PlexusConstants.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/config/PlexusBeanModule.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/locators/DefaultPlexusBeanLocator.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/logging/AbstractLogEnabled.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/logging/BaseLoggerManager.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/scanners/CloningClassLoader.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/expression/ExpressionEvaluationException.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/logging/AbstractLoggerManager.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/config/Hints.java

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* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/logging/console/ConsoleLoggerManager.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/locators/LazyPlexusBean.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/scanners/PlexusAnnotatedMetadata.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/Initializable.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/Contextualizable.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/config/PlexusBean.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/ComponentDescriptorBeanModule.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/PlexusContainer.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/logging/console/ConsoleLogger.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/repository/ComponentSetDescriptor.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/scanners/PlexusTypeVisitor.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/binders/PlexusBeanManager.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/repository/ComponentDependency.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/configuration/DefaultPlexusConfiguration.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/converters/PlexusXmlBeanConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/repository/exception/ComponentLookupException.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/sonatype/guice/plexus/scanners/PlexusTypeListener.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/personality/plexus/lifecycle/phase/Startable.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/composition/CycleDetectedInComponentGraphException.java
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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/MapOrientedComponentConfigurator.java  
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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/META-INF/maven/org.sonatype.sisu/sisu-inject-plexus/pom.xml  
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jar/org/codehaus/plexus/component/configurator/ConfigurationListener.java

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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/sonatype/guice/plexus/shim/PseudoPlexusContainer.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/sonatype/guice/plexus/shim/PlexusSpaceModule.java

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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/expression/ExpressionEvaluator.java

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/opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-

jar/org/codehaus/plexus/component/configurator/expression/DefaultExpressionEvaluator.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-

jar/org/codehaus/plexus/PlexusTestCase.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-

jar/org/codehaus/plexus/component/configurator/expression/TypeAwareExpressionEvaluator.java



\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/converters/basic/ClassConverter.java

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\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/converters/ParameterizedConfigurationConverter.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/ComponentConfigurator.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/converters/ConfigurationConverter.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/converters/basic/LongConverter.java

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/opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/converters/basic/StringBufferConverter.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/converters/AbstractConfigurationConverter.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-jar/org/codehaus/plexus/component/configurator/converters/basic/BooleanConverter.java

\* /opt/cola/permits/1377518222\_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-

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jar/org/codehaus/plexus/component/configurator/converters/composite/ArrayConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/StringConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/CharConverter.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/ShortConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/composite/CollectionConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/composite/PropertiesConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/AbstractBasicConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/composite/MapConverter.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/AbstractComponentConfigurator.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/UrlConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/lookup/ConverterLookup.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/FileConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/DoubleConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/DateConverter.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/composite/PlexusConfigurationConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/BasicComponentConfigurator.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/EnumConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/ByteConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/Converter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/composite/ObjectWithFieldsConverter.java
*
/opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/composite/ComponentDefaultValueSetter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-
jar/org/codehaus/plexus/component/configurator/converters/basic/FloatConverter.java
* /opt/cola/permits/1377518222_1659371027.6921747/0/sisu-inject-plexus-2-3-0-sources-2-

```

# 1.654 futures 3.3.0

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Metadata-Version: 1.0



Name: wsgiref  
Version: 0.1.2  
Summary: WSGI (PEP 333) Reference Library  
Home-page: <http://cheeseshop.python.org/pypi/wsgiref>  
Author: Phillip J. Eby  
Author-email: [web-sig@python.org](mailto:web-sig@python.org)  
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Description: This is a standalone release of the ``wsgiref`` library to be included in Python 2.5. For the standalone version's documentation, see:

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Platform: UNKNOWN

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\* /opt/cola/permits/1403963770\_1661913703.6112542/0/wsgiref-0-1-2-2-zip/wsgiref-0.1.2/wsgiref.egg-info/PKG-INFO

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# 1.657 libpipeline 1.5.0

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```
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Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
This is free software, and you are welcome to redistribute
it
under certain conditions; type `show c' for details.
```

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```
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```

```
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Ty Coon, President of Vice
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## 1.662 pam-radius 1.3.17

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## 1.663 pam-ldap 184

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# 1.665 python3-pysocks 1.6.8

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```
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CP#vMOoYL?6]2z({CLYj0
LFIU<>Q& }7!C}e6]]e`M,J}.dE,4hVmp
RsTk!|r!Quo1OE|FfP+A }XBT9 \<
0<P9{>s\36R)m.S(bCb7S<DP("ka")^oy`r)7I%tU6@AS.SMOOf3whA!!WIMcK')e/eJ1F
g\BI'W|j>jf_{Jp]oMd3rfQ+}_3<%<6jx{)11D5eg;NtD+~R]w[xiue@F#Em0hu:,x{R7V2!Vq~AG{EX -
"0h*5x)*x(n)#!$*w!:499X1il:"P+=22cmr3J}/0o9nlB?\N&(q=$pPc!ab,6f&v/RS>O./OW[INy(BM~]~uf$Ng|"_W[0;
OXy[aB*"/_U~fQHO(3[b%o )+lq#+_d<QdLd=$!p!h0h6nfN=I+GNRk gKOL3\N3"uGxfIC
zCTJtjSN:$gE11QQ$7*5++V=4Xt9V?r3_Vd2o8h"F8~qM,ZI6=Qgtw|11np#_(+?)zp(;H!E2Nz'WW_WmA,
FSYZE*-exTWFt#|
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1%QsS|11np#_(~*uM%S61opMG`YfRXvY[R+t[ BS=)d ;*!;_>KfBqxY(F|0.Ve%S61opMG`YfRXvY[R+t[
BS=)d ;*!;_>KfB }&ea)F~H#@|DExb
Fw=|
;|8SPT"_p;27 *,D-sS|11np#_(~*uM%S61opMG`B=gD7-`rFTvDY(F|0.Ve%S61opMG`YfRXvY[R+t[ BS=)d
;*!;_>KfBqxY(F|0.Ve%S61opMG`YfRXx+sS|11np#_(~*uM%S61opMG`YfRXvY[R+t[ BS=)d
;*!;_>KfBqxY(F|0.Ve%S61opMG`YfRXvY[R+t[ BS=)d ;*!;_>KfBqxY(F|0.Ve%Q?f_+T@Uo)2fgYZ
```

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it  
under certain conditions; type `show c' for details.
```

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```
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```

```
<signature of Ty Coon>, 1 April 1989
```

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7zXZF!t/o."w[7gp<G

H:Oed 18uyMQ9|FO6

87I8.mhGl^eb\_X/UQKuB

)Cdk!B\_M/tw|11np#\_(~\*uM%S61opMG`YfRXvY[R+t[ BS=)d

;\*!;\_>KfBqxY(F|0.Ve%S61opMG`YfRXvY[R+t[ BS=)d

;\*!;\_>KfBqxYm+sS|11np#\_(~\*uM%S61opMG`YfRXvY[R+t[ BS=)d

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## 1.669 setserial 2.17

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Found in path(s):

- \* /opt/cola/permits/1606678443\_1679421531.3029604/0/matwey-setserial-2-17-0-ge4ab0db-1-tar-gz/matwey-setserial-e4ab0db/setserial.8.in
- \* /opt/cola/permits/1606678443\_1679421531.3029604/0/matwey-setserial-2-17-0-ge4ab0db-1-tar-gz/matwey-setserial-e4ab0db/setserial.8

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/\*

- \* version.h --- Defines the version number of setserial
- \*
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- \*/

Found in path(s):

- \* /opt/cola/permits/1606678443\_1679421531.3029604/0/matwey-setserial-2-17-0-ge4ab0db-1-tar-gz/matwey-setserial-e4ab0db/version.h



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```
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* include/linux/serial.h  
*  
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*/
```

Found in path(s):

```
* /opt/cola/permits/1606678443_1679421531.3029604/0/matwey-setserial-2-17-0-ge4ab0db-1-tar-gz/matwey-  
setserial-e4ab0db/linux/serial.h
```

# 1.670 sysv-init 2.88

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The of the start-stop-daemon

- \* A rewrite
- of the original Debian's start-stop-daemon Perl script
- \* in C (faster - it is executed many times during system startup).
- \*
- \* Written by Marek Michalkiewicz <[marekm@i17linuxb.ists.pwr.wroc.pl](mailto:marekm@i17linuxb.ists.pwr.wroc.pl)>,
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## 1.673 grub2 2.02

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\* imap\_gssapi.c is partially derived from sample code in:  
\* GSS-API Programming Guide  
\* Part No: 816-1331-11  
\* Sun Microsystems, Inc. 4150 Network Circle Santa Clara, CA 95054 U.S.A.

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Request for Comments: 2104     IBM  
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## 1.678 lvm2 1.02.149

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# 1.691 fribidi 1.0.5

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# 1.692 util-linux 2.32.1

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```
#!/usr/bin/env bash
# MIT licenses will each have a unique MD5 sum since they contain a unique copyright.
# This script will read the license file into memory, strip out the copyright, and then
# generate an MD5 that is not unique and can be matched against a known MIT MD5 sum.
set -e
```

```
calculate_md5_sum() {
  local FILE="$1"

  # Read the contents of the file into a variable
  local raw_license_text=$(<"$FILE")

  # Convert to lowercase
  local lowercase_license_text="${raw_license_text,,}"

  # Remove anything before the beginning of the license
  local stripped_license_text=$(awk '/permission is hereby granted,/{p=1} p' <<< "$lowercase_license_text")
```

```

# Replace line breaks (Windows or Linux) with a single space
local replaced_linebreaks=$(tr '\r\n' ' ' <<< "$stripped_license_text")

# Replace multiple spaces with a single space
local normalized_license_text=$(tr -s ' ' <<< "$replaced_linebreaks")

# Strip away any non-printable, non-whitespace characters
local clean_unprintable_license_text=$(tr
-cd '[:print:][:space:]' <<< "$normalized_license_text")

# Remove punctuation and special characters
local clean_license_text=$(echo "$clean_unprintable_license_text" | sed 's/[^a-zA-Z ]//g')

# Calculate the MD5 sum of the cleaned license text
local MD5SUM=$(echo -n "$clean_license_text" | md5sum | awk '{print $1}')

# Output the MD5 sum
echo "$MD5SUM"
}

```

```

# Check if the FILE argument is provided
if [ -z "$1" ]; then
    echo "Please provide a FILE as an argument."
    exit 1
fi

```

```

# Invoke the function with the provided FILE argument
calculate_md5_sum "$1"

```

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### A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the

software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

All

Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now	PSF	yes

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#### A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

All

Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes



1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3	2.1.2	2002	PSF	yes
2.2 and above	2.1.1	2001-now		
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Index: tdbsa/tdb.c

=====  
--- tdbsa.orig/tdb.c

+++ tdbsa/tdb.c

@@ -4,11 +4,11 @@ Rev: 23371

Last Changed Date: 2007-06-06 20:14:06 -0400 (Wed, 06 Jun 2007)

\*/

/\*

- Unix SMB/CIFS implementation.
- + trivial database library - standalone version

- trivial database library - private includes

-

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Gadi Oxman, August 1995

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Theodore Ts'o

23-June-2007

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Version 2, June 1991

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This is the Debian GNU/Linux prepackaged version of the EXT2 file system utilities (e2fsck, mke2fs, etc.). The EXT2 utilities were written by Theodore Ts'o <tytso@mit.edu> and Remy Card <card@masi.ibp.fr>.

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This package was added to the e2fsprogs debian source package by Theodore Ts'o <tytso@mit.edu> on Sat Mar 15 15:33:37 EST 2003

It is part of the main e2fsprogs distribution, which can be found at:

<http://sourceforge.net/projects/e2fsprogs>

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```
#
# This is a Makefile stub which handles the creation of BSD shared
# libraries.
#
# In order to use this stub, the following makefile variables must be defined.
#
# BSDLIB_VERSION = 1.0
# BSDLIB_IMAGE = libce
# BSDLIB_MYDIR = et
# BSDLIB_INSTALL_DIR = $(SHLIBDIR)
#
```

```
all:: image
```

```
real-subdirs:: Makefile
```

```
@echo " MKDIR pic"
```

```
@mkdir -p pic
```

```
BSD_LIB = $(BSDLIB_IMAGE).so.$(BSDLIB_VERSION)
```

```
BSDLIB_PIC_FLAG = -fpic
```

```
image: $(BSD_LIB)
```

```
$(BSD_LIB): $(OBJS)
```

```
(cd pic; ld -Bshareable -o $(BSD_LIB) $(LDFLAGS_SHLIB) $(OBJS))
```

```
$(MV) pic/$(BSD_LIB) .
```

```
$(RM) -f ../$(BSD_LIB)
```

```
(cd ..; $(LN) $(LINK_BUILD_FLAGS) \
```

```
`echo $(my_dir) | sed -e 's/lib/;'`/$(BSD_LIB) $(BSD_LIB))
```

```
install-shlibs install:: $(BSD_LIB)
```

```
@echo " INSTALL_PROGRAM $(BSDLIB_INSTALL_DIR)/$(BSD_LIB)"
```

```
@$(INSTALL_PROGRAM) $(BSD_LIB) \
```

```
$(DESTDIR)$$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
```

```
@-$(LDCONFIG)
```

```
install-strip: install
```

```
install-shlibs-strip: install-shlibs
```



```
uninstall-shlibs uninstall::
$(RM) -f $(DESTDIR)$(BSDLIB_INSTALL_DIR)/$(BSD_LIB)
```

```
clean::
$(RM)
-rf pic
$(RM) -f $(BSD_LIB)
$(RM) -f ../$(BSD_LIB)
```

This is the Debian GNU/Linux prepackaged version of the ss command-line interface parsing library. It is currently distributed together with the EXT2 file system utilities, which are otherwise packaged as "e2fsprogs".

This package was put together by Yann Dirson <dirson@debian.org>, from sources obtained from a mirror of:  
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# Jackson JSON processor

Jackson is a high-performance, Free/Open Source JSON processing library.

It was originally written by Tatu Saloranta (tatu.saloranta@iki.fi), and has been in development since 2007.

It is currently developed by a community of developers.

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```
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```

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```

```
{signature of Ty Coon}, 1 April 1989
Ty Coon, President of Vice
```

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## 1.712 qemu 2.4.0

### 1.712.1 Available under license :

```
/*
 * FreeBSD strace list
 *
 *
```



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```
{ TARGET_FREEBSD_NR__acl_aclcheck_fd, "__acl_aclcheck_fd", "%s(%d, %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_aclcheck_file, "__acl_aclcheck_file", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_aclcheck_link, "__acl_aclcheck_link", "%s(\"%s\", %d, %#x)", NULL, NULL
},
{ TARGET_FREEBSD_NR__acl_delete_fd,
  "__acl_delete_fd", "%s(%d, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_delete_file, "__acl_delete_file", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_delete_link, "__acl_delete_link", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_get_fd, "__acl_get_fd", "%s(%d, %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_get_file, "__acl_get_file", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_get_link, "__acl_get_link", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_set_fd, "__acl_set_fd", "%s(%d, %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_set_file, "__acl_set_file", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__acl_set_link, "__acl_set_link", "%s(\"%s\", %d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR__semctl, "__semctl", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR__syscall, "__syscall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR__sysctl, "__sysctl", NULL, print_sysctl, NULL },
{ TARGET_FREEBSD_NR__umtx_op,
  "_umtx_op", "%s(%#x, %d, %d, %#x, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_accept, "accept", "%s(%d,%#x,%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_access, "access", "%s(\"%s\",%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_acct, "acct", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_adjtime, "adjtime", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_bind, "bind", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_break, "break", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_chdir, "chdir", "%s(\"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_chflags, "chflags", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_chmod, "chmod", "%s(\"%s\",%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_chown, "chown", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_chroot, "chroot", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_clock_getres, "clock_getres", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_clock_gettime, "clock_gettime", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_clock_settime, "clock_settime", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_close, "close", "%s(%d)", NULL,
```



```

{ TARGET_FREEBSD_NR_geteuid, "geteuid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getfh, "getfh", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getfsstat, "getfsstat", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getgid, "getgid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getgroups, "getgroups", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getitimer, "getitimer", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getlogin, "getlogin", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getpeername, "getpeername", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getpgid, "getpgid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getpgrp, "getpgrp", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getpid, "getpid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getppid, "getppid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_getpriority, "getpriority", "%s(%#x,%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_getresgid, "getresgid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getresuid,
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{ TARGET_FREEBSD_NR_getrlimit, "getrlimit", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getrusage, "getrusage", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getsid, "getsid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getsockname, "getsockname", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getsockopt, "getsockopt", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_gettimeofday, "gettimeofday", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_getuid, "getuid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_ioctl, "ioctl", NULL, print_ioctl, NULL },
{ TARGET_FREEBSD_NR_issetugid, "issetugid", "%s()", NULL, NULL },
{ TARGET_FREEBSD_NR_kevent, "kevent", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_kill, "kill", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_kqueue, "kqueue", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_ktrace, "ktrace", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_lchown, "lchown", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_link, "link", "%s(\"%s\", \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_listen,
"listen", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_lpathconf, "lpathconf", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_lseek, "lseek", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_lstat, "lstat", "%s(\"%s\", %p)", NULL, NULL },
{ TARGET_FREEBSD_NR_madvise, "madvise", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mincore, "mincore", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_minherit, "minherit", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mkdir, "mkdir", "%s(\"%s\", %o)", NULL, NULL },
{ TARGET_FREEBSD_NR_mkfifo, "mkfifo", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mknod, "mknod", "%s(\"%s\", %o, %x)", NULL, NULL },
{ TARGET_FREEBSD_NR_mlock, "mlock", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mlockall, "mlockall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mmap, "mmap", NULL, NULL, print_syscall_ret_addr },
{ TARGET_FREEBSD_NR_mount, "mount", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_mprotect, "mprotect", "%s(%#x, %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_msgctl, "msgctl", NULL, NULL, NULL

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},
{ TARGET_FREEBSD_NR_msgget, "msgget", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_msgrcv, "msgrcv", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_msgsnd, "msgsnd", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_msync, "msync", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_munlock, "munlock", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_munlockall, "munlockall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_munmap, "munmap", "%s(%p,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_nanosleep, "nanosleep", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_nfssvc, "nfssvc", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_open, "open", "%s(\"%s\",%#x,%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_openat, "openat", "%s(%d,\"%s\",%#x,%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_pathconf, "pathconf", "%s(\"%s\", %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_pipe, "pipe", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_poll, "poll", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_pread, "pread", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_preadv, "preadv", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_profil,
"profil", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_ptrace, "ptrace", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_pwrite, "pwrite", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_pwritev, "pwritev", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_quotactl, "quotactl", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_read, "read", "%s(%d,%#x,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_readlink, "readlink", "%s(\"%s\",%p,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_readv, "readv", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_reboot, "reboot", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_recvfrom, "recvfrom", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_recvmsg, "recvmsg", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_rename, "rename", "%s(\"%s\", \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_revoke, "revoke", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_rfork, "rfork", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_rmdir, "rmdir", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_rtprio_thread, "rtprio_thread", "%s(%d, %d, %p)", NULL, NULL },
{ TARGET_FREEBSD_NR_sbrk,
"sbrk", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sched_yield, "sched_yield", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_select, "select", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_semget, "semget", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_semop, "semop", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sendmsg, "sendmsg", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sendto, "sendto", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setcontext, "setcontext", "%s(%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_setegid, "setegid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_seteuid, "seteuid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setgid, "setgid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setgroups, "setgroups", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setitimer, "setitimer", NULL, NULL, NULL },

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{ TARGET_FREEBSD_NR_setlogin, "setlogin", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setpgid, "setpgid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setpriority, "setpriority", NULL, NULL, NULL },
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"setregid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setresgid, "setresgid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setresuid, "setresuid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setreuid, "setreuid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setrlimit, "setrlimit", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setsid, "setsid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_setsockopt, "setsockopt", NULL, NULL, NULL },
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{ TARGET_FREEBSD_NR_setuid, "setuid", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shmat, "shmat", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shmctl, "shmctl", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shmdt, "shmdt", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shmget, "shmget", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_shutdown, "shutdown", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigaction, "sigaction", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigaltstack, "sigaltstack", "%s(%p,%p)", NULL, NULL },
{ TARGET_FREEBSD_NR_sigpending,
"sigpending", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigprocmask, "sigprocmask", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigreturn, "sigreturn", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sigsuspend, "sigsuspend", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_socket, "socket", "%s(%d,%d,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_socketpair, "socketpair", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sstk, "sstk", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_stat, "stat", "%s(\"%s\",%p)", NULL, NULL },
{ TARGET_FREEBSD_NR_statfs, "statfs", "%s(\"%s\",%p)", NULL, NULL },
{ TARGET_FREEBSD_NR_symlink, "symlink", "%s(\"%s\", \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_sync, "sync", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_sysarch, "sysarch", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_syscall, "syscall", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_thr_create, "thr_create", "%s(%#x, %#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_exit, "thr_exit", "%s(%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_kill, "thr_kill", "%s(%d,
%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_kill2, "thr_kill2", "%s(%d, %d, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_new, "thr_new", "%s(%#x, %d)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_self, "thr_self", "%s(%#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_set_name, "thr_set_name", "%s(%d, \"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_suspend, "thr_suspend", "%s(%d, %#x)", NULL, NULL },
{ TARGET_FREEBSD_NR_thr_wake, "thr_wake", "%s(%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_truncate, "truncate", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_umask, "umask", "%s(%#o)", NULL, NULL },
{ TARGET_FREEBSD_NR_unlink, "unlink", "%s(\"%s\")", NULL, NULL },
{ TARGET_FREEBSD_NR_unmount, "unmount", NULL, NULL, NULL },

```

```
{ TARGET_FREEBSD_NR_utimes, "utimes", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_vfork, "vfork", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_wait4, "wait4", NULL, NULL, NULL },
{ TARGET_FREEBSD_NR_write, "write", "%s(%d,%#x,%d)", NULL, NULL },
{ TARGET_FREEBSD_NR_writev, "writev", "%s(%d,%p,%#x)",
  NULL, NULL },
```

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Written by: Philip Hazel  
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## 1.718 libtasn 4.13

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## A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived from	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2		1991-1995	CWI	yes
1.3 thru 1.5.2	1.2	1995-1999	CNRI	yes
1.6	1.5.2	2000	CNRI	no
2.0	1.6	2000	BeOpen.com	no
1.6.1	1.6	2001	CNRI	yes (2)
2.1	2.0+1.6.1	2001	PSF	no
2.0.1	2.0+1.6.1	2001	PSF	yes
2.1.1	2.1+2.0.1	2001	PSF	yes
2.2	2.1.1	2001	PSF	yes
2.1.2	2.1.1	2002	PSF	yes
2.1.3				
2.1.2	2002	PSF	yes	
2.2.1	2.2	2002	PSF	yes
2.2.2	2.2.1	2002	PSF	yes
2.2.3	2.2.2	2003	PSF	yes
2.3	2.2.2	2002-2003	PSF	yes
2.3.1	2.3	2002-2003	PSF	yes

2.3.2	2.3.1	2002-2003	PSF	yes
2.3.3	2.3.2	2002-2003	PSF	yes
2.3.4	2.3.3	2004	PSF	yes
2.3.5	2.3.4	2005	PSF	yes
2.4	2.3	2004	PSF	yes
2.4.1	2.4	2005	PSF	yes
2.4.2	2.4.1	2005	PSF	yes
2.4.3	2.4.2	2006	PSF	yes
2.4.4	2.4.3	2006	PSF	yes
2.5	2.4	2006	PSF	yes
2.5.1	2.5	2007	PSF	yes
2.5.2	2.5.1	2008	PSF	yes
2.5.3	2.5.2	2008	PSF	yes
2.6	2.5	2008	PSF	yes
2.6.1	2.6	2008	PSF	yes
2.6.2	2.6.1	2009	PSF	yes
2.6.3	2.6.2	2009	PSF	yes
2.6.4	2.6.3	2009	PSF	yes
2.6.5	2.6.4	2010	PSF	yes
3.0	2.6	2008	PSF	yes
3.0.1	3.0	2009	PSF	yes
3.1	3.0.1	2009	PSF	yes
3.1.1	3.1	2009	PSF	yes
3.1.2	3.1	2010	PSF	yes
3.2	3.1	2010	PSF	yes

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Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

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ca-bundle.crt -- Bundle of CA Root Certificates

Certificate data from Mozilla as of: Thu Nov 3 19:04:19 2011#

This is a bundle of X.509 certificates of public Certificate Authorities (CA). These were automatically extracted from Mozilla's root certificates file (certdata.txt). This file can be found in the mozilla source tree:

<http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#>

It contains the certificates in PEM format and therefore can be directly used with curl / libcurl / php\_curl, or with an Apache+mod\_ssl webserver for SSL client authentication.

Just configure this file as the SSLCACertificateFile.#

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# 1.723 python-certifi 2018.08.13

## 1.723.1 Available under license :

This package contains a modified version of ca-bundle.crt:

ca-bundle.crt -- Bundle of CA Root Certificates

Certificate data from Mozilla as of: Thu Nov 3 19:04:19 2011#

This is a bundle of X.509 certificates of public Certificate Authorities (CA). These were automatically extracted from Mozilla's root certificates file (certdata.txt). This file can be found in the mozilla source tree:

<http://mxr.mozilla.org/mozilla/source/security/nss/lib/ckfw/builtins/certdata.txt?raw=1#>

It contains the certificates in PEM format and therefore can be directly used with curl / libcurl / php\_curl, or with



an Apache+mod\_ssl webserver for SSL client authentication.

Just configure this file as the SSLCACertificateFile.#

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@(#) \$RCSfile: certdata.txt,v \$

\$Revision: 1.80 \$ \$Date: 2011/11/03 15:11:58 \$

# 1.724 libsoup 2.62.3

## 1.724.1 Available under license :

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Version 2, June 1991

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However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

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<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

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## 1.725 memcached 1.5.10

### 1.725.1 Available under license :

No license file was found, but licenses were detected in source scan.

/opt/cola/permits/1826509746\_1697762696.0145621/0/nono303-memcached-1-5-10-0-g6429f54-1-tar-gz/nono303-

memcached-6429f54/cygwin/x64/memcached.exe: binary file matches  
/opt/cola/permits/1826509746\_1697762696.0145621/0/nono303-memcached-1-5-10-0-g6429f54-1-tar-gz/nono303-  
memcached-6429f54/cygwin/x86/memcached.exe: binary file matches

Found in path(s):

\* /bin/grep

# 1.726 7zip 16.02

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Version 2.1, February 1999

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

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be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.

Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any

executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

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```
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Alexander L. Roshal  
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For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into

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"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

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You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

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- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that,

in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

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License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

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This option is useful when you wish to copy part of the code of

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4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

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If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate

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For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally

distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

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## 1.734 delayed-stream 1.0.0

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# delayed-stream

Buffers events from a stream until you are ready to handle them.

## ## Installation

```
``` bash
npm install delayed-stream
```
```

## ## Usage

The following example shows how to write a http echo server that delays its response by 1000 ms.

```
``` javascript
var DelayedStream = require('delayed-stream');
var http = require('http');

http.createServer(function(req, res) {
  var delayed = DelayedStream.create(req);

  setTimeout(function() {
    res.writeHead(200);
    delayed.pipe(res);
  }, 1000);
});
```
```

If you are not using `Stream#pipe`, you can also manually release the buffered events by calling `delayedStream.resume()`:

```
``` javascript
var delayed = DelayedStream.create(req);

setTimeout(function() {
  // Emit all buffered events and resume underlying source
  delayed.resume();
}, 1000);
```
```

## ## Implementation

In order to use this meta stream properly, here are a few things you should know about the implementation.

### ###

#### Event Buffering / Proxying

All events of the `source` stream are hijacked by overwriting the `source.emit` method. Until node implements a catch-all event listener, this is the only way.



However, `delayed-stream` still continues to emit all events it captures on the ``source``, regardless of whether you have released the delayed stream yet or not.

Upon creation, `delayed-stream` captures all ``source`` events and stores them in an internal event buffer. Once `delayedStream.release()`` is called, all buffered events are emitted on the ``delayedStream``, and the event buffer is cleared. After that, `delayed-stream` merely acts as a proxy for the underlying source.

### ### Error handling

Error events on ``source`` are buffered / proxied just like any other events. However, `delayedStream.create`` attaches a no-op ``error`` listener to the ``source``. This way you only have to handle errors on the ``delayedStream`` object, rather than in two places.

### ### Buffer limits

`delayed-stream` provides a ``maxDataSize`` property that can be used to limit the amount of data being buffered. In order to protect you from bad ``source`` streams that don't react to `source.pause()``, this feature is enabled by default.

## ## API

### ### `DelayedStream.create(source, [options])`

Returns a new ``delayedStream``. Available options are:

- \* ``pauseStream``
- \* ``maxDataSize``

The description for those properties can be found below.

### ### `delayedStream.source`

The ``source`` stream managed by this object. This is useful if you are passing your ``delayedStream`` around, and you still want to access properties on the ``source`` object.

### ### `delayedStream.pauseStream = true`

Whether to pause the underlying ``source`` when calling `DelayedStream.create()``. Modifying this property afterwards has no effect.

```
### delayedStream.maxDataSize = 1024 * 1024
```

The amount of data to buffer before emitting an `error`.

If the underlying source is emitting `Buffer` objects, the `maxDataSize` refers to bytes.

If the underlying source is emitting JavaScript strings, the size refers to characters.

If you know what you are doing, you can set this property to `Infinity` to disable this feature. You can also modify this property during runtime.

```
### delayedStream.dataSize = 0
```

The amount of data buffered so far.

```
### delayedStream.readable
```

An ECMA5 getter that returns the value of `source.readable`.

```
### delayedStream.resume()
```

If the `delayedStream` has not been released so far, `delayedStream.release()` is called.

In either case, `source.resume()` is called.

```
### delayedStream.pause()
```

Calls `source.pause()`.

```
### delayedStream.pipe(dest)
```

Calls `delayedStream.resume()` and then proxies the arguments to `source.pipe`.

```
### delayedStream.release()
```

Emits and clears all events that have been buffered up so far. This does not resume the underlying source, use `delayedStream.resume()` instead.

```
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```

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Found in path(s):

```
* /opt/cola/permits/1830745388_1698153819.4839122/0/fis-components-delayed-stream-1-0-0-0-g42ac44e-1-tar-
```

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# 1.745 python-pip 18.0

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```
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\* from: @(#)ring.h 5.2 (Berkeley) 3/1/91

\* \$Id: ring.h,v 1.13 1996/08/13 08:43:28 dholland Exp \$

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path(s):

\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-

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 \*  
 /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/main.cc  
 \* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/terminal.cc  
 \* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/commands.cc  
 \* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/sys\_bsd.cc

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\* from: @(#)telnetd.h 5.3 (Berkeley) 3/1/91

\* \$Id: telnetd.h,v 1.2 1999/03/27 07:46:21 dholland Exp \$

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in path(s):

\*/opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/telnetd.h

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\* from: @(#)defs.h 5.10 (Berkeley) 3/1/91

\* \$Id: defs.h,v 1.7 1999/08/02 03:14:03 dholland Exp \$

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```

```
*
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```
/opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/state.c
```

```
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/slc.c
```

```
* /opt/cola/permits/1833549536_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-
```



telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/termstat.c  
\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/utility.c  
\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/telnetd.c  
\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/sys\_term.c  
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\* from: @(#)general.h 5.2 (Berkeley) 3/1/91  
\* \$Id: general.h,v 1.1 1996/07/16 05:17:22 dholland Exp \$\br/>\*/

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\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/telnetd.8

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\* from: @(#)types.h 5.1 (Berkeley) 9/14/90

\* \$Id: types.h,v 1.2 1996/07/27 00:45:54 dholland Exp \$

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in path(s):

\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-  
telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/types.h

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\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetlogin/telnetlogin.c

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\* from: @(#)fdset.h 5.1 (Berkeley) 9/14/90

\* \$Id: fdset.h,v 1.1 1996/07/16 05:17:22 dholland Exp \$

\*/

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in path(s):

\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/fdset.h

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\*

/opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/network.cc

\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/tn3270.cc

\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-

telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/utilities.cc

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\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/ptrarray.h

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 \*  
 \* from: @(#)externs.h 5.3 (Berkeley) 3/22/91  
 \* \$Id: externs.h,v 1.20 1999/08/19 09:34:15 dholland Exp \$  
 \*/

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\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/externs.h

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\* from: @(#)ext.h 5.7 (Berkeley) 3/1/91

\* \$Id: ext.h,v 1.9 1999/12/12 14:59:44 dholland Exp \$

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\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnetd/ext.h

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\* from: @(#)defines.h 5.1 (Berkeley) 9/14/90  
\* \$Id: defines.h,v 1.5 1996/08/04 23:44:43 dholland Exp \$  
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in path(s):

\* /opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-  
telnet-0-17-orig-1-tar-gz/netkit-telnet-0.17/telnet/defines.h

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/opt/cola/permits/1833549536\_1698381019.7945628/0/41213dedaf242126b54a3ac51b905a351eb22b15-netkit-  
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\* from: @(#)pathnames.h 5.5 (Berkeley) 6/28/90

\* \$Id: pathnames.h,v 1.3 1996/08/29 22:31:24 dholland Exp

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Found in path(s):

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

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If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also compile or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work

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b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,

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When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

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Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

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October 28, 1997

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Sam Lantinga (slouken@libsdl.org)

# 1.748 libgd 1.6.35

## 1.748.1 Available under license :

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# 1.752 traceroute 2.1.0

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Files: alocal.m4 package

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Files: install-sh

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Calling this script install-sh is preferred over install.sh, to prevent `make` implicit rules from creating a file called install from it when there is no Makefile.

This script is compatible with the BSD install script, but was written from scratch. It can only install one file at a time, a restriction shared with many OS's install programs.

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-- vile: txtmode file-encoding=utf-8

# 1.756 thin-provisioning-tools 0.7.6

## 1.756.1 Available under license :

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Version 3, 29 June 2007

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# 1.759 mingetty 1.08

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(See CHANGES and CHANGES.current and the bug tracker for a more complete list).

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The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The

"System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

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```
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# 1.765 gawk 4.2.1

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(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must

be optional: if the application does not supply it, the square root function must still compute square roots.)

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This option is useful when you wish to copy part of the code of the

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However, linking a "work that uses the Library" with the Library

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executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

- b) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- c) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
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END OF TERMS AND CONDITIONS

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<signature of Ty Coon>, 1 April 1990  
Ty Coon, President of Vice

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Version 3, 29 June 2007

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The

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The following list of people, sorted by last name, have contributed code or patches to this implementation of sudo since I began maintaining it in 1993. This list is known to be incomplete--if you believe you should be listed, please send a note to [sudo@sudo.ws](mailto:sudo@sudo.ws).

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Adler, Mark  
Allbery, Russ  
Anderson, Jamie  
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Andric, Dimitry  
Barron, Danny  
Bates, Tom  
Behan, Zdenk  
Bellis, Ray  
Benali, Elias  
Beverly, Jamie  
Boardman, Spider  
Bos, Sander  
Bostley, P.J.  
Bowes, Keith  
Boyce, Keith Garry  
Brantley, Michael  
Braun, Rob  
Bezina, Pavel  
Brooks, Piete  
Brown, Jerry  
Burr, Michael E  
Burton, Ross  
Bussjaeger, Andreas  
Calvin, Gary

Campbell, Aaron  
Chazelas, Stephane  
Cheloha, Scott  
ek, Vtislav  
Coleman, Chris  
Corzine, Deven T.  
Cusack, Frank  
Dai, Wei  
Dill, David  
Earickson, Jeff  
Eckhardt, Drew  
Edgington, Ben  
Esipovich, Marc  
Espie, Marc  
Faigon, Ariel  
Farrell, Brian  
Fobes, Steve  
Frysinger, Mike  
G., Daniel Richard  
Gailly, Jean-loup  
Gelman, Stephen  
Gerraty, Simon J.  
Graber, Stephane  
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Henke, Joachim  
Hideaki, Yoshifuji  
Hieb, Dave  
Holloway, Nick  
Hoover, Adam  
Hunter, Michael T.  
Hutchings, Ben  
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Jackson, Richard L., Jr.  
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Kikuchi, Ayamura  
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Kasal, Stepan  
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King, Dale  
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Knoble, Jim  
Knox, Tim  
Komarnitsky, Alek O.  
Kondrashov, Nikolai  
Kopeek, Daniel  
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Larsen, Case  
Levin, Dmitry V.  
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Lobbes, Phillip E.  
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MacKenzie, David J.  
McLaughlin, Tom  
Makey, Jeff  
Mallayya, Sangamesh  
Manner, Rbert  
Marchionna, Michael D.  
Markham, Paul  
Martinian, Emin  
Meskes, Michael  
Michael, David  
Miller, Todd C.  
Minier, Loc  
Moffat, Darren  
Moldung, Jan Thomas  
Morris, Charles  
Mueller, Andreas  
Mller, Dworkin  
Nieuwma, Jeff  
Nikitser, Peter A.  
Nussel, Ludwig  
Orbn, Lszl  
Ouellet, Jean-Philippe  
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Paradis, Chantal  
Pasteleurs, Frederic  
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Peron, Christian S.J.  
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Peslyak, Alexander  
Peterson, Toby  
Petten, Diego Elio  
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Rasch, Gudleik  
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Richards, Matt  
Rossum, Guido van  
Rouillard, John P.  
Rowe, William A., Jr.  
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Ryabinkin, Eygene  
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Saucier, Jean-Francois  
Schoenfeld, Patrick  
Schuring, Arno  
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Scott, Dougal

Sieger, Nick  
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Wetzel, Timm  
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Wood, David  
Zacarias, Gustavo  
Zolnowsky, John

The following people have worked to translate sudo into other languages as part of the Translation Project, see <https://translationproject.org> for more details.

Albuquerque, Pedro  
Blttermann, Mario  
Bogusz, Jakub  
Buo-ren, Lin  
Casagrande, Milo  
Castro, Felipe  
Cho, Seong-ho  
Chornoivan, Yuri  
Diguez, Francisco  
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Garca-Fontes, Walter  
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Hamasaki, Takeshi  
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Kozlov, Yuri  
Kramer, Jakob  
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Pan, Yi-Jyun

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Qun, Trn Ngc  
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erbnescu, Daniel  
Sikrom, ka  
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Wang, Wylmer  
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The following people designed the artwork used on the sudo website:

Shield logo: Badger, Trent  
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# 1.776 string\_decoder 1.1.1

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""""

## 1.777 ftpd 1.9.4

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# 1.783 fs.realpath 1.0.0

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## 1.797 retry 0.12.0

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## 1.798 humanize-ms 1.2.1

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## 1.803 console-control-strings 1.1.0

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Any executables

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That's all there is to it!

```
/* @(#)block.h 1.1 00/03/05 joerg */
```

```
/*
```

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```

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mkisofs/

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```
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## 1.811.1 Available under license :

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Written by: Don Libes, libes at nist.gov, NIST

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The hypothetical commands

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```
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+++++

Dean Elsner wrote the original gas for vax. [more details?]

Jay Fenlason maintained gas for a while, adding support for gdb-specific debug information and the 68k series machines, most of the preprocessing pass, and extensive changes in messages.c, input-file.c, write.c.

K. Richard Pixley maintained gas for a while, adding various enhancements and many bug fixes, including merging support for several processors, breaking gas up to handle multiple object file format backends (including heavy rewrite, testing, an integration of the coff and b.out backends), adding configuration including heavy testing and verification of cross assemblers and file splits and renaming,

converted gas to strictly ansi C including full prototypes, added support for m680[34]0 & cpu32, considerable work on i960 including a coff port (including considerable amounts of reverse engineering), a sparc opcode file rewrite, decstation, rs6000, and hp300hpux host ports, updated "know" assertions and made them work, much other reorganization, cleanup, and lint.

Ken Raeburn wrote the high-level BFD interface code to replace most of the code in format-specific I/O modules.

The original Vax-VMS support was contributed by David L. Kashtan. Eric Youngdale and Pat Rankin have done much work with it since.

The Intel 80386 machine description was written by Eliot Dresselhaus.

Minh Tran-Le at IntelliCorp contributed some AIX 386 support.

The Motorola 88k machine description was contributed by Devon Bowen of Buffalo University and Torbjorn Granlund of the Swedish Institute of Computer Science.

Keith

Knowles at the Open Software Foundation wrote the original MIPS back end (tc-mips.c, tc-mips.h), and contributed Rose format support that hasn't been merged in yet. Ralph Campbell worked with the MIPS code to support a.out format.

Support for the Zilog Z8k and Hitachi H8/300, H8/500 and SH processors (tc-z8k, tc-h8300, tc-h8500, tc-sh), and IEEE 695 object file format (obj-ieee), was written by Steve Chamberlain of Cygnus Solutions. Steve also modified the COFF back end (obj-coffbfd) to use BFD for some low-level operations, for use with the Hitachi, 29k and Zilog targets.

John Gilmore built the AMD 29000 support, added .include support, and simplified the configuration of which versions accept which pseudo-ops. He updated the 68k machine description so that Motorola's opcodes always produced fixed-size instructions (e.g. jsr), while synthetic instructions remained shrinkable (jbsr). John fixed many bugs, including true tested cross-compilation support, and one bug in relaxation that took a week and required the proverbial one-bit fix.

Ian Lance Taylor of Cygnus Solutions merged the Motorola and MIT syntaxes for the 68k, completed support for some COFF targets (68k, i386 SVR3, and SCO Unix), wrote the ECOFF support based on Michael Meissner's mips-tfile program, wrote the PowerPC and RS/6000 support, and made a few other minor patches. He handled the binutils releases



for versions 2.7 through 2.9.

David Edelsohn contributed fixes for the PowerPC and AIX support.

Steve Chamberlain made gas able to generate listings.

Support for the HP9000/300 was contributed by Glenn Engel of HP.

Support for ELF format files has been worked on by Mark Eichin of Cygnus Solutions (original, incomplete implementation), Pete Hoogenboom at the University of Utah (HPPA mainly), Michael Meissner of the Open Software Foundation (i386 mainly), and Ken Raeburn of Cygnus Solutions (sparc, initial 64-bit support).

Several engineers at Cygnus Solutions have also provided many small bug fixes and configuration enhancements.

The initial Alpha support was contributed by Carnegie-Mellon University. Additional work was done by Ken Raeburn of Cygnus Solutions. Richard Henderson then rewrote much of the Alpha support.

Ian Dall updated the support code for the National Semiconductor 32000 series, and added support for Mach 3 and NetBSD running on the PC532.

Klaus Kaempf ported the assembler and the binutils to openVMS/Alpha.

Steve Haworth contributed the support for the Texas Instruction c30 (tms320c30).

H.J. Lu has contributed many patches and much testing.

Alan Modra reworked much of the i386 backend, improving the error checking, updating the code, and improving the 16 bit support, using patches from the work of Martynas Kunigelis and H.J. Lu.

Many others have contributed large or small bugfixes and enhancements. If you've contributed significant work and are not mentioned on this list, and want to be, let us know. Some of the history has been lost; we aren't intentionally leaving anyone out.

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We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

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Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free

library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated

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Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the



application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves,

then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which

must be

distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License.

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When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6.

Any

executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse

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You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)
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- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

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normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

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[This is the first released version of the library GPL. It is  
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### Preamble

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Most GNU software, including some libraries, is covered by the ordinary GNU General Public License, which was designed for utility programs. This license, the GNU Library General Public License, applies to certain designated libraries. This license is quite different from the ordinary one; be sure to read it in full, and don't assume that anything in it is the same as in the ordinary license.

The reason we have a separate public license for some libraries is that they blur the distinction we usually make between modifying or adding to a program and simply using it. Linking a program with a library, without changing the library, is in some sense simply using the library, and is analogous to running a utility program or application program. However, in a textual and legal sense, the linked executable is a combined work, a derivative of the original library, and the ordinary General Public License treats it as such.

Because of this blurred distinction, using the ordinary General Public License for libraries did not effectively promote software sharing, because most developers did not use the libraries. We concluded that weaker conditions might promote sharing better.

However, unrestricted linking of non-free programs would deprive the users of those programs of all benefit from the free status of the libraries themselves. This Library General Public License is intended to permit developers of non-free programs to use free libraries, while preserving your freedom as a user of such programs to change the free libraries that are incorporated in them. (We have not seen how to achieve this as regards changes in header files, but we have achieved it as regards changes in the actual functions of the Library.) The hope is that this will lead to faster development of free libraries.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, while the latter only works together with the library.

Note that it is possible for a library to be covered by the ordinary General Public License rather than by this special one.

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2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

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b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

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d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must

be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of

this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

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This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

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However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

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The

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## 1.815 ethwireck 1.2

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# 1.818 python3-constantly 15.1.0

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## 1.819 python3-pyparsing 2.2.0

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#### A. HISTORY OF THE SOFTWARE

=====

Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

All

Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

| Release        | Derived from | Year      | Owner      | GPL-compatible? (1) |
|----------------|--------------|-----------|------------|---------------------|
| 0.9.0 thru 1.2 |              | 1991-1995 | CWI        | yes                 |
| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
| 1.6.1          | 1.6          | 2001      | CNRI       | yes (2)             |
| 2.1            | 2.0+1.6.1    | 2001      | PSF        | no                  |
| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
| 2.1.3          | 2.1.2        | 2002      | PSF        | yes                 |
| 2.2 and above  | 2.1.1        | 2001-now  | PSF        | yes                 |

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Upstream Author(s): Lars Fenneberg <lf@elemental.net>

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## 1.822 python3-idna 2.7

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Metadata-Version: 1.1

Name: idna

Version: 2.7

Summary: Internationalized Domain Names in Applications (IDNA)

Home-page: <https://github.com/kjd/idna>

Author: Kim Davies

Author-email: [kim@cynosure.com.au](mailto:kim@cynosure.com.au)

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Description: Internationalized Domain Names in Applications (IDNA)

=====

Support for the Internationalised Domain Names in Applications  
(IDNA) protocol as specified in `RFC 5891 <<http://tools.ietf.org/html/rfc5891>>`\_.

This is the latest version of the protocol and is sometimes referred to as “IDNA 2008”.

This library also provides support for Unicode Technical Standard 46, `Unicode IDNA Compatibility Processing <<http://unicode.org/reports/tr46/>>`.

This acts as a suitable replacement for the “encodings.idna” module that comes with the Python standard library, but only supports the old, deprecated IDNA specification (RFC 3490 <<http://tools.ietf.org/html/rfc3490>>).

Basic functions are simply executed:

```
.. code-block:: pycon

# Python 3
>>> import idna
>>> idna.encode('.')
b'xn--eckwd4c7c.xn--zckzah'
>>> print(idna.decode('xn--eckwd4c7c.xn--zckzah'))
.

# Python 2
>>> import idna
>>> idna.encode(u'.')
'xn--eckwd4c7c.xn--zckzah'
>>> print idna.decode('xn--eckwd4c7c.xn--zckzah')
.
```

Packages

-----

The latest tagged release version is published in the PyPI repository:

```
.. image:: https://badge.fury.io/py/idna.svg
:target: http://badge.fury.io/py/idna
```

Installation

-----

To install this library, you can use pip:

```
.. code-block:: bash

$ pip install idna
```

Alternatively, you can install the package using the bundled setup script:

```
.. code-block:: bash

$ python setup.py install
```

This library works with Python 2.6 or later, and Python 3.3 or later.

## Usage

-----

For typical usage, the `encode` and `decode` functions will take a domain name argument and perform a conversion to A-labels or U-labels respectively.

```
.. code-block:: pycon

# Python 3
>>> import idna
>>> idna.encode('.')
b'xn--eckwd4c7c.xn--zckzah'
>>> print(idna.decode('xn--eckwd4c7c.xn--zckzah'))
.
```

You may use the codec encoding and decoding methods using the `idna.codec` module:

```
.. code-block:: pycon

# Python 2
>>> import idna.codec
>>> print u'.'.encode('idna')
xn--80ahd1agd.xn--80akhbyknj4f
>>> print 'xn--80ahd1agd.xn--80akhbyknj4f'.decode('idna')
.
```

Conversions can be applied at a per-label basis using the `ulabel` or `alabel` functions if necessary:

```
.. code-block:: pycon

# Python 2
>>> idna.alabel(u")
'xn--0zwm56d'
```

## Compatibility Mapping (UTS #46)

```
+++++
```

As described in `RFC 5895 <<http://tools.ietf.org/html/rfc5895>>`, the IDNA specification no longer normalizes input from different potential ways a user may input a domain name. This functionality, known as a “mapping”, is now considered by the specification to be a local user-interface issue distinct from IDNA conversion functionality.

This library provides one such mapping, that was developed by the Unicode Consortium. Known as `Unicode IDNA Compatibility Processing <<http://unicode.org/reports/tr46/>>`, it provides for both a regular mapping for typical applications, as well as a transitional mapping to help migrate from older IDNA 2003 applications.

For example, “Königsgäßchen” is not a permissible label as \*LATIN CAPITAL LETTER K\* is not allowed (nor are capital letters in general). UTS 46 will convert this into lower case prior to applying the IDNA conversion.

.. code-block:: pycon

```
# Python 3
>>> import idna
>>> idna.encode(u'Königsgäßchen')
...
idna.core.InvalidCodepoint: Codepoint U+004B at position 1 of 'Königsgäßchen' not allowed
>>> idna.encode('Königsgäßchen', uts46=True)
b'xn--knigsgchen-b4a3dun'
>>> print(idna.decode('xn--knigsgchen-b4a3dun'))
königsgäßchen
```

Transitional processing provides conversions to help transition from the older 2003 standard to the current standard. For example, in the original IDNA specification, the \*LATIN SMALL LETTER SHARP S\* (ß) was converted into two \*LATIN SMALL LETTER S\* (ss), whereas in the current IDNA specification this conversion is not performed.

.. code-block:: pycon

```
# Python 2
>>> idna.encode(u'Königsgäßchen', uts46=True, transitional=True)
'xn--knigsgsschen-lcb0w'
```

Implementors should use transitional processing with caution, only in rare cases where conversion from legacy labels to current labels must be performed (i.e. IDNA implementations that pre-date 2008). For typical applications that just need to convert labels, transitional processing is unlikely to be beneficial and could produce unexpected incompatible results.

```
``encodings.idna`` Compatibility
+++++
```

Function calls from the Python built-in `encodings.idna` module are mapped to their IDNA 2008 equivalents using the `idna.compat` module. Simply substitute the `import` clause in your code to refer to the new module name.

## Exceptions

-----

All errors raised during the conversion following the specification should raise an exception derived from the `idna.IDNAError` base class.

More specific exceptions that may be generated as `idna.IDNABidiError` when the error reflects an illegal combination of left-to-right and right-to-left characters in a label; `idna.InvalidCodepoint` when a specific codepoint is an illegal character in an IDN label (i.e. INVALID); and `idna.InvalidCodepointContext` when the codepoint is illegal based on its positional context (i.e. it is CONTEXTO or CONTEXTJ but the contextual requirements are not satisfied.)

## Building and Diagnostics

-----

The IDNA and UTS 46 functionality relies upon pre-calculated lookup tables for performance. These tables are derived from computing against eligibility criteria in the respective standards. These tables are computed using the command-line script `tools/idna-data`.

This tool will fetch relevant tables from the Unicode Consortium and perform the required calculations to identify eligibility. It has three main modes:

- \* `idna-data make-libdata`. Generates `idnadata.py` and `uts46data.py`, the pre-calculated lookup tables using for IDNA and UTS 46 conversions. Implementors who wish to track this library against a different Unicode version may use this tool

to manually generate a different version of the `idnadata.py` and `uts46data.py` files.

- \* `idna-data make-table`. Generate a table of the IDNA disposition (e.g. PVALID, CONTEXTJ, CONTEXTO) in the format found in Appendix B.1 of RFC 5892 and the pre-computed tables published by IANA <<http://iana.org/>>\_.

- \* `idna-data U+0061`. Prints debugging output on the various properties associated with an individual Unicode codepoint (in this case, U+0061), that are used to assess the IDNA and UTS 46 status of a codepoint. This is helpful in debugging or analysis.

The tool accepts a number of arguments, described using `idna-data -h`. Most notably,



the ``--version`` argument allows the specification of the version of Unicode to use in computing the table data. For example, ``idna-data --version 9.0.0 make-libdata`` will generate library data against Unicode 9.0.0.

Note that this script requires Python 3, but all generated library data will work in Python 2.6+.

## Testing

-----

The library has a test suite based on each rule of the IDNA specification, as well as tests that are provided as part of the Unicode Technical Standard 46, `Unicode IDNA Compatibility Processing <<http://unicode.org/reports/tr46/>>` \_.

The tests are run automatically on each commit at Travis CI:

```
.. image:: https://travis-ci.org/kjd/idna.svg?branch=master
   :target: https://travis-ci.org/kjd/idna
```

Platform: UNKNOWN

Classifier: Development Status :: 5 - Production/Stable

Classifier: Intended Audience :: Developers

Classifier: Intended Audience :: System Administrators

Classifier: License :: OSI Approved :: BSD License

Classifier: Operating System :: OS Independent

Classifier: Programming Language :: Python

Classifier: Programming

Language :: Python :: 2.6

Classifier: Programming Language :: Python :: 2.7

Classifier: Programming Language :: Python :: 3

Classifier: Programming Language :: Python :: 3.3

Classifier: Programming Language :: Python :: 3.4

Classifier: Programming Language :: Python :: 3.5

Classifier: Programming Language :: Python :: 3.6

Classifier: Topic :: Internet :: Name Service (DNS)

Classifier: Topic :: Software Development :: Libraries :: Python Modules

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Found in path(s):

\* /opt/cola/permits/2062278481\_1718823640.1972234/0/idna-2-7-tar-gz/idna-2.7/PKG-INFO

\* /opt/cola/permits/2062278481\_1718823640.1972234/0/idna-2-7-tar-gz/idna-2.7/idna.egg-info/PKG-INFO

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```
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```

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""""

A library to support the Internationalised Domain Names in Applications (IDNA) protocol as specified in RFC 5890 et.al. This new methodology, known as IDNA 2008, can generate materially different results to the previous standard. The library can act as a drop-in replacement for the "encodings.idna" module.

""""

```
import io, sys
from setuptools import setup
```

```

def main():

    python_version = sys.version_info[:2]
    if python_version < (2,6):
        raise SystemExit("Sorry, Python 2.6 or newer required")

    package_data = {}
    exec(open('idna/package_data.py').read(), package_data)

    arguments = {
        'name': 'idna',
        'packages': ['idna'],
        'version': package_data['__version__'],
        'description': 'Internationalized Domain Names in Applications (IDNA)',
        'long_description': io.open("README.rst", encoding="UTF-8").read(),
        'author': 'Kim Davies',
        'author_email': 'kim@cynosure.com.au',
        'license': 'BSD-like',
        'url': 'https://github.com/kjd/idna',
        'classifiers': [
            'Development Status :: 5 - Production/Stable',
            'Intended Audience :: Developers',
            'Intended Audience :: System Administrators',
            'License :: OSI Approved :: BSD License',
            'Operating System :: OS Independent',
            'Programming Language :: Python',
            'Programming Language :: Python :: 2.6',
            'Programming Language :: Python :: 2.7',
            'Programming Language :: Python :: 3',
            'Programming Language :: Python :: 3.3',
            'Programming Language :: Python :: 3.4',
            'Programming Language :: Python :: 3.5',
            'Programming Language :: Python :: 3.6',
            'Topic :: Internet :: Name Service (DNS)',
            'Topic :: Software Development :: Libraries :: Python Modules',
            'Topic :: Utilities',
        ],
        'test_suite':
    'tests',
    }

    setup(**arguments)

if __name__ == '__main__':
    main()

```

Found in path(s):

# 1.823 bash-completion 2.8

## 1.823.1 Available under license :

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Version 2, June 1991

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## 1.825 python3-pycrypto 2.6.1

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~~~~~

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Last updated: 2009-02-28

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### A. HISTORY OF THE SOFTWARE

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.



In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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| Release        | Derived from | Year      | Owner      | GPL-compatible? (1) |
|----------------|--------------|-----------|------------|---------------------|
| 0.9.0 thru 1.2 |              | 1991-1995 | CWI        | yes                 |
| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
| 1.6.1          | 1.6          | 2001      | CNRI       | yes (2)             |
| 2.1            | 2.0+1.6.1    | 2001      | PSF        | no                  |
| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
| 2.1.3          | 2.1.2        | 2002      | PSF        | yes                 |
| 2.2 and above  | 2.1.1        | 2001-now  | PSF        | yes                 |

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| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
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| 2.1            | 2.0+1.6.1    | 2001      | PSF        | no                  |
| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
| 2.1.3          | 2.1.2        | 2002      | PSF        | yes                 |
| 2.2 and above  | 2.1.1        | 2001-now  |            |                     |
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## 1.828 python3-incremental 17.5.0

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

All

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| Release        | Derived from | Year      | Owner      | GPL-compatible? (1) |
|----------------|--------------|-----------|------------|---------------------|
| 0.9.0 thru 1.2 |              | 1991-1995 | CWI        | yes                 |
| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
| 1.6.1          | 1.6          | 2001      | CNRI       | yes (2)             |
| 2.1            | 2.0+1.6.1    | 2001      | PSF        | no                  |
| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
| 2.1.3          | 2.1.2        | 2002      | PSF        | yes                 |
| 2.2 and above  | 2.1.1        | 2001-now  |            |                     |
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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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|----------------|--------------|-----------|------------|---------------------|
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| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
| 1.6.1          | 1.6          | 2001      | CNRI       | yes (2)             |
| 2.1            | 2.0+1.6.1    | 2001      | PSF        | no                  |
| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
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|----------------|--------------|-----------|------------|---------------------|
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| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
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| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

All

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|                |           |           |            |         |
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| 0.9.0 thru 1.2 |           | 1991-1995 | CWI        | yes     |
| 1.3 thru 1.5.2 | 1.2       | 1995-1999 | CNRI       | yes     |
| 1.6            | 1.5.2     | 2000      | CNRI       | no      |
| 2.0            | 1.6       | 2000      | BeOpen.com | no      |
| 1.6.1          | 1.6       | 2001      | CNRI       | yes (2) |
| 2.1            | 2.0+1.6.1 | 2001      | PSF        | no      |
| 2.0.1          | 2.0+1.6.1 | 2001      | PSF        | yes     |
| 2.1.1          | 2.1+2.0.1 | 2001      | PSF        | yes     |
| 2.1.2          | 2.1.1     | 2002      | PSF        | yes     |
| 2.1.3          | 2.1.2     | 2002      | PSF        | yes     |
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# 1.833 python3-pyopenssl 18.0.0

## 1.833.1 Available under license :

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# 1.834 python3-pycparser 2.18

## 1.834.1 Available under license :

pycparser -- A C parser in Python

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## 1.835 tomcat-connectors 1.2.40

### 1.835.1 Available under license :

PGM

```
CRTCMOD MODULE(MOD_JK/MOD_JK) +
  SRCSTMF('/home/apache/jk/native/apache-2.0/mod_jk.c') +
  DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
    'USE_APACHE_MD5' '_REENTRANT') +
  TEXT('mod_jk.c') +
  OPTIMIZE(40) +
  LOCALETYPE(*LOCALE) +
  SYSIFCOPT(*IFSIO) +
  LANGLVL(*EXTENDED) +
  TGTRLS(*CURRENT) +
  INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/A/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_AJP_COM) +
  SRCSTMF('/home/apache/jk/native/common/jk_ajp_common.c') +
  DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
    'USE_APACHE_MD5' '_REENTRANT') +
  TEXT('jk_ajp_common.c') +
  OPTIMIZE(40) +
  LOCALETYPE(*LOCALE) +
```



```
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_AJP12_W) +
SRCSTMF(/home/apache/jk/native/common/jk_ajp12_worker.c) +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5'
'_REENTRANT') +
TEXT('jk_ajp12_worker.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_AJP13) +
SRCSTMF(/home/apache/jk/native/common/jk_ajp13.c) +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_ajp13.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_AJP13_W) +
SRCSTMF(/home/apache/jk/native/common/jk_ajp13_worker.c) +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_ajp13_worker.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
```

```
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_AJP14) +
SRCSTMF(/home/apache/jk/native/common/jk_ajp14.c) +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_ajp14.c') +
```

```

OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/A/Include')

CRTCMOD MODULE(MOD_JK/JK_AJP14_W) +
SRCSTMF('/home/apache/jk/native/common/jk_ajp14_worker.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_ajp14_worker.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/A/Include')

CRTCMOD MODULE(MOD_JK/JK_CONNECT) +
SRCSTMF('/home/apache/jk/native/common/jk_connect.c') +

DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT' 'USE_SO_RCVTIMEO' +
      'USE_SO_SNDTIMEO') +
TEXT('jk_connect.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/A/Include')

CRTCMOD MODULE(MOD_JK/JK_CONTEXT) +
SRCSTMF('/home/apache/jk/native/common/jk_context.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_context.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/A/Include')

CRTCMOD MODULE(MOD_JK/JK_LB_WORK) +
SRCSTMF('/home/apache/jk/native/common/jk_lb_worker.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +

```

```

    'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_lb_worker.c') +

OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common'/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_MAP) +
SRCSTMF(/home/apache/jk/native/common/jk_map.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
    'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_map.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common'/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_MD5) +
SRCSTMF(/home/apache/jk/native/common/jk_md5.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
    'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_md5.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common'/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_MSG_BUF)
+
SRCSTMF(/home/apache/jk/native/common/jk_msg_buff.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
    'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_msg_buff.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common'/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_POOL) +

```

```

SRCSTMF('/home/apache/jk/native/common/jk_pool.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_pool.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')

CRTCMOD MODULE(MOD_JK/JK_SOCKBUF) +
SRCSTMF('/home/apache/jk/native/common/jk_sockbuf.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_sockbuf.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')

CRTCMOD MODULE(MOD_JK/JK_URI_W_M) +
SRCSTMF('/home/apache/jk/native/common/jk_uri_worker_map.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_uri_worker_map.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')

CRTCMOD MODULE(MOD_JK/JK_URL) +
SRCSTMF('/home/apache/jk/native/common/jk_url.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_url.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common'
'/QIBM/ProdData/HTTPPA/Include')

```

```
CRTCMOD MODULE(MOD_JK/JK_UTIL) +
SRCSTMF('/home/apache/jk/native/common/jk_util.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_util.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_WORKER) +
SRCSTMF('/home/apache/jk/native/common/jk_worker.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_worker.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_STATUS) +
SRCSTMF('/home/apache/jk/native/common/jk_status.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520'
+
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_status.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_SHM) +
SRCSTMF('/home/apache/jk/native/common/jk_shm.c') +
DEFINE('AS400' 'HAVE_APR' '_XOPEN_SOURCE=520' +
      'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_shm.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALE) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')
```

```

CRTSRVPGM SRVPGM(MOD_JK/MOD_JK) +
  MODULE(MOD_JK/MOD_JK +
    MOD_JK/JK_AJP_COM MOD_JK/JK_AJP12_W +
    MOD_JK/JK_AJP13 MOD_JK/JK_AJP13_W +
    MOD_JK/JK_AJP14 MOD_JK/JK_AJP14_W +
    MOD_JK/JK_CONNECT MOD_JK/JK_CONTEXT +
    MOD_JK/JK_LB_WORK +
    MOD_JK/JK_MAP MOD_JK/JK_MD5
+
  MOD_JK/JK_MSG_BUF MOD_JK/JK_POOL +
  MOD_JK/JK_SOCKETBUF MOD_JK/JK_URI_W_M +
  MOD_JK/JK_URL +
  MOD_JK/JK_UTIL MOD_JK/JK_WORKER +
  MOD_JK/JK_STATUS MOD_JK/JK_SHM) +
EXPORT(*SRCFILE) +
BNDDIR() +
TGTRLS(*CURRENT) +
SRCFILE(MOD_JK/QSRVSR) +
SRCMBR(MOD_JK) +
USRPRF(*USER) +
BNDSRVPGM(QHTTSPVR/QZSRAPR QHTTSPVR/QZSRCORE +
  QHTTSPVR/QZSRXMLP QHTTSPVR/QZSRSDBM) +
TEXT('Apache Tomcat mod_jk connector module')

```

ENDPGM

```

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```

```

!IFDEF APACHE20_HOME
APR_LIB=libapr.lib
APU_LIB=libaprutil.lib
OUTDIR=.\Release20
INTDIR=.\Release20
APACHE2_HOME=$(APACHE20_HOME)
!ELSE

```

```

!IFDEF APACHE24_HOME
APACHE2_HOME=$(APACHE24_HOME)
OUTDIR=.\Release24
INTDIR=.\Release24
!ELSE
!IFDEF
APACHE22_HOME
APACHE2_HOME=$(APACHE22_HOME)
OUTDIR=.\Release22
INTDIR=.\Release22
!ENDIF
!ENDIF
APR_LIB=libapr-1.lib
APU_LIB=libaprutil-1.lib
!ENDIF
!IFDEF APACHE2_HOME
!ERROR Missing APACHE2_HOME environment variable.
!ENDIF

TARGET=mod_jk$(SO_VERSION)$(SO_HTTPD_VERSION)
CPP=cl.exe
MTL=midl.exe
RSC=rc.exe
ARCH=X86

ALL : "$(OUTDIR)\$(TARGET).so"

CLEAN :
-@erase "$(INTDIR)\jk.res"
-@erase "$(INTDIR)\jk_ajp12_worker.obj"
-@erase "$(INTDIR)\jk_ajp13.obj"
-@erase "$(INTDIR)\jk_ajp13_worker.obj"
-@erase "$(INTDIR)\jk_ajp14.obj"
-@erase "$(INTDIR)\jk_ajp14_worker.obj"
-@erase "$(INTDIR)\jk_ajp_common.obj"
-@erase "$(INTDIR)\jk_connect.obj"
-@erase "$(INTDIR)\jk_context.obj"
-@erase "$(INTDIR)\jk_lb_worker.obj"
-@erase "$(INTDIR)\jk_map.obj"
-@erase "$(INTDIR)\jk_md5.obj"
-@erase "$(INTDIR)\jk_msg_buff.obj"
-@erase "$(INTDIR)\jk_pool.obj"
-@erase "$(INTDIR)\jk_shm.obj"
-@erase "$(INTDIR)\jk_sockbuf.obj"
-@erase "$(INTDIR)\jk_status.obj"
-@erase "$(INTDIR)\jk_uri_worker_map.obj"
-@erase

```

```

"$(INTDIR)\jk_url.obj"
-@erase "$(INTDIR)\jk_util.obj"
-@erase "$(INTDIR)\jk_worker.obj"
-@erase "$(INTDIR)\mod_jk.obj"
-@erase "$(INTDIR)\mod_jk_src.idb"
-@erase "$(INTDIR)\mod_jk_src.pdb"
-@erase "$(OUTDIR)\mod_jk.exp"
-@erase "$(OUTDIR)\mod_jk.lib"
-@erase "$(OUTDIR)\$(TARGET).pdb"
-@erase "$(OUTDIR)\$(TARGET).so"

```

```

"$(OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

```

```

BSC32=bscmake.exe
BSC32_FLAGS=/nologo /o"$(OUTDIR)\$(TARGET).bsc"
BSC32_SBRS= \

```

```

LINK32=link.exe
LINK32_FLAGS=libhttpd.lib $(APR_LIB) $(APU_LIB) kernel32.lib user32.lib advapi32.lib mswsock.lib
ws2_32.lib $(EXTRA_LIBS) /nologo /base:"0x6A6B0000" /subsystem:windows /dll /incremental:no
/pdb:"$(OUTDIR)\$(TARGET).pdb" /debug /machine:$(ARCH) /out:"$(OUTDIR)\$(TARGET).so"
/implib:"$(OUTDIR)\mod_jk.lib" /libpath:"$(APACHE2_HOME)\lib" /opt:ref
LINK32_OBJS= \
"$(INTDIR)\jk_ajp12_worker.obj" \
"$(INTDIR)\jk_ajp13.obj" \
"$(INTDIR)\jk_ajp13_worker.obj" \
"$(INTDIR)\jk_ajp14.obj" \
\
"$(INTDIR)\jk_ajp14_worker.obj" \
"$(INTDIR)\jk_ajp_common.obj" \
"$(INTDIR)\jk_connect.obj" \
"$(INTDIR)\jk_context.obj" \
"$(INTDIR)\jk_lb_worker.obj" \
"$(INTDIR)\jk_map.obj" \
"$(INTDIR)\jk_md5.obj" \
"$(INTDIR)\jk_msg_buff.obj" \
"$(INTDIR)\jk_pool.obj" \
"$(INTDIR)\jk_shm.obj" \
"$(INTDIR)\jk_sockbuf.obj" \
"$(INTDIR)\jk_status.obj" \
"$(INTDIR)\jk_uri_worker_map.obj" \
"$(INTDIR)\jk_url.obj" \
"$(INTDIR)\jk_util.obj" \
"$(INTDIR)\jk_worker.obj" \
"$(INTDIR)\jk.res" \
"$(INTDIR)\mod_jk.obj"

```



```

"$(OUTDIR)\$(TARGET).so" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
$(LINK32) @<<
$(LINK32_FLAGS) $(LINK32_OBJS)
<<
@if exist $(OUTDIR)\$(TARGET).manifest \
mt -nologo -manifest $(OUTDIR)\$(TARGET).manifest -outputresource:$(OUTDIR)\$(TARGET).so;2

CPP_PROJ=-nologo -MD -W3 -O2 -Ob2 -Oy- -Zi -EHsc /I "..\common" /I "$(APACHE2_HOME)\include" /D
"NDEBUG" /D "WIN32" /D "_WINDOWS" $(CFLAGS) /Fo"$(INTDIR)\\" /Fd"$(INTDIR)\mod_jk_src" /FD /c

.c{$(INTDIR)}.obj::
$(CPP) @<<
$(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.obj::
$(CPP) @<<
$(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.obj::
$(CPP) @<<
$(CPP_PROJ) $<
<<

.c{$(INTDIR)}.sbr::
$(CPP) @<<
$(CPP_PROJ) $<
<<

.cpp{$(INTDIR)}.sbr::
$(CPP) @<<
$(CPP_PROJ) $<
<<

.cxx{$(INTDIR)}.sbr::
$(CPP) @<<
$(CPP_PROJ) $<
<<

MTL_PROJ=/nologo /D "NDEBUG" /mktyplib203 /win32
RSC_PROJ=/1 0x409 /fo"$(INTDIR)\jk.res" /i "..\common" /d BASENAME="mod_jk" /d "NDEBUG"

SOURCE=..\common\jk.rc

"$(INTDIR)\jk.res" : $(SOURCE) "$(INTDIR)"
$(RSC) $(RSC_PROJ) $(SOURCE)

```

SOURCE=..\common\jk\_ajp12\_worker.c

"\$(INTDIR)\jk\_ajp12\_worker.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_ajp13.c

"\$(INTDIR)\jk\_ajp13.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_ajp13\_worker.c

"\$(INTDIR)\jk\_ajp13\_worker.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_ajp14.c

"\$(INTDIR)\jk\_ajp14.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP)  
\$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_ajp14\_worker.c

"\$(INTDIR)\jk\_ajp14\_worker.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_ajp\_common.c

"\$(INTDIR)\jk\_ajp\_common.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_connect.c

"\$(INTDIR)\jk\_connect.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_context.c

"\$(INTDIR)\jk\_context.obj" : \$(SOURCE) "\$(INTDIR)"

\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_lb\_worker.c

"\$(INTDIR)\jk\_lb\_worker.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_map.c

"\$(INTDIR)\jk\_map.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_md5.c

"\$(INTDIR)\jk\_md5.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_msg\_buff.c

"\$(INTDIR)\jk\_msg\_buff.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_pool.c

"\$(INTDIR)\jk\_pool.obj"  
: \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_shm.c

"\$(INTDIR)\jk\_shm.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_sockbuf.c

"\$(INTDIR)\jk\_sockbuf.obj" : \$(SOURCE) "\$(INTDIR)"  
\$(CPP) \$(CPP\_PROJ) \$(SOURCE)

SOURCE=..\common\jk\_status.c

```
"$(INTDIR)\jk_status.obj" : $(SOURCE) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)
```

```
SOURCE=..\common\jk_uri_worker_map.c
```

```
"$(INTDIR)\jk_uri_worker_map.obj" : $(SOURCE) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)
```

```
SOURCE=..\common\jk_url.c
```

```
"$(INTDIR)\jk_url.obj" : $(SOURCE) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)
```

```
SOURCE=..\common\jk_util.c
```

```
"$(INTDIR)\jk_util.obj" : $(SOURCE) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)
```

```
SOURCE=..\common\jk_worker.c
```

```
"$(INTDIR)\jk_worker.obj" : $(SOURCE) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)
```

```
SOURCE=.\mod_jk.c
```

```
"$(INTDIR)\mod_jk.obj" : $(SOURCE) "$(INTDIR)"
$(CPP) $(CPP_PROJ) $(SOURCE)
```

Apache Tomcat Connectors

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Written by: Philip Hazel <ph10@cam.ac.uk>

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From native/common/ap\_snprintf.c:

```
*  
* cvt - IEEE floating point formatting routines.  
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*
```

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#

#

# NetWare Makefile for mod\_jk (uses build system of Apache 2.x - gnu make)  
# created by Guenter Knauf <fuankg@apache.org>

#

#

# Declare the sub-directories to be built here

#

SUBDIRS = \  
\$(EOLIST)

#

# Get the  
# 'head' of the build environment. This includes default targets and  
# paths to tools

#

```

include $(AP_WORK)/build/NWGNUhead.inc

#
# build this level's files

#
# Make sure all needed macro's are defined
#

JKCOMMON = ../common

#
# These directories will be at the beginning of the include list, followed by
# INCDIRS
#
XINCDIRS += \
    $(JKCOMMON) \
    $(APR)/include \
    $(APRUTIL)/include \
    $(AP_WORK)/include \
    $(NWOS) \
    $(EOLIST)

#
# These flags will come after CFLAGS
#
XCFLAGS += \
    $(EOLIST)

#
# These defines will come after DEFINES
#
XDEFINES += \
    -D__NOVELL_LIBC__ \
    -D_POSIX_SOURCE \
    $(EOLIST)

#
# These flags will be added to the link.opt file
#
XLFLAGS += \
    $(EOLIST)

#
# These values will be appended to the correct variables based on the value of
# RELEASE
#
ifeq "$(RELEASE)" "debug"

```

```
XINCDIRS += \  
$(EOLIST)
```

```
XCFLAGS += \  
$(EOLIST)
```

```
XDEFINES += \  
$(EOLIST)
```

```
XLFLAGS += \  
$(EOLIST)
```

```
endif
```

```
ifeq "$(RELEASE)" "noopt"  
XINCDIRS += \  
$(EOLIST)
```

```
XCFLAGS += \  
\  
$(EOLIST)
```

```
XDEFINES += \  
$(EOLIST)
```

```
XLFLAGS += \  
$(EOLIST)
```

```
endif
```

```
ifeq "$(RELEASE)" "release"  
XINCDIRS += \  
$(EOLIST)
```

```
XCFLAGS += \  
$(EOLIST)
```

```
XDEFINES += \  
$(EOLIST)
```

```
XLFLAGS += \  
$(EOLIST)
```

```
endif
```

```
#
```

```
# These are used by the link target if an NLM is being generated
```

```
# This is used by the link 'name' directive to name the nlm. If left blank
```

```
# TARGET_nlm (see below) will be used.
```

```
#
```

```
NLM_NAME = mod_jk
```

```
#
# This is used by the link '-desc ' directive.
# If left blank, NLM_NAME will be used.
#
NLM_DESCRIPTION = Apache $(VERSION_STR) plugin for Tomcat $(JK_VERSION_STR)

#
# This is used by the link '-copy ' directive.
# If left blank, the ASF copyright defined in NWGNUtail.inc will be used.
#
NLM_COPYRIGHT =

#
# This is used by the '-threadname' directive. If left blank,
# NLM_NAME Thread will be used.
#
NLM_THREAD_NAME = JK Module

#
# If this is specified, it will override VERSION value in
# $(AP_WORK)\build\NWGNUenvironment.inc
#
NLM_VERSION = $(JK_VERSION)

#
#
# If this is specified, it will override the default of 64K
#
NLM_STACK_SIZE = 49152

#
# If this is specified it will be used by the link '-entry' directive
#
NLM_ENTRY_SYM = _LibCPrelude

#
# If this is specified it will be used by the link '-exit' directive
#
NLM_EXIT_SYM = _LibCPostlude

#
# If this is specified it will be used by the link '-check' directive
#
NLM_CHECK_SYM =

#
```

```

# If these are specified it will be used by the link '-flags' directive
#
NLM_FLAGS = AUTOUNLOAD, PSEUDOPREEMPTION

#
# If this is specified it will be linked in with the XDCData option in the def
# file instead of the default of $(NWOS)/apache.xdc. XDCData can be disabled
# by setting APACHE_UNIPROC in the environment
#
XDCDATA =

#
# If there is an NLM target, put it here
#
TARGET_nlm = \
$(OBJDIR)/$(NLM_NAME).nlm \
$(EOLIST)

#
# If there is an LIB target, put it here
#
TARGET_lib = \
$(EOLIST)

#
# These are the OBJ files needed to create the NLM target above.
# Paths must all use the
#' character
#
FILES_nlm_objs = \
$(OBJDIR)/jk_nwmain.o \
$(OBJDIR)/jk_ajp12_worker.o \
$(OBJDIR)/jk_ajp13.o \
$(OBJDIR)/jk_ajp13_worker.o \
$(OBJDIR)/jk_ajp14.o \
$(OBJDIR)/jk_ajp14_worker.o \
$(OBJDIR)/jk_ajp_common.o \
$(OBJDIR)/jk_connect.o \
$(OBJDIR)/jk_context.o \
$(OBJDIR)/jk_lb_worker.o \
$(OBJDIR)/jk_map.o \
$(OBJDIR)/jk_md5.o \
$(OBJDIR)/jk_msg_buff.o \
$(OBJDIR)/jk_pool.o \
$(OBJDIR)/jk_shm.o \
$(OBJDIR)/jk_sockbuf.o \
$(OBJDIR)/jk_status.o \
$(OBJDIR)/jk_uri_worker_map.o \

```

```

$(OBJDIR)/jk_url.o \
$(OBJDIR)/jk_util.o \
$(OBJDIR)/jk_worker.o \
$(OBJDIR)/mod_jk.o \
$(EOLIST)

#
# These are the LIB files needed to create the NLM target above.
# These will be added as a library command in the link.opt file.
#
FILES_nlm_libs = \
$(NOVELLIBC)/imports/libcpre.o \
$(EOLIST)

#
# These are the modules that the above NLM target depends on to load.
# These will be added as a module command in the link.opt file.
#
FILES_nlm_modules = \
aprlib \
libc \
$(EOLIST)

#
#
# If the nlm has a msg file, put it's path here
#
FILE_nlm_msg =

#
# If the nlm has a hlp file put it's path here
#
FILE_nlm_hlp =

#
# If this is specified, it will override $(NWOS)\copyright.txt.
#
FILE_nlm_copyright =

#
# Any additional imports go here
#
FILES_nlm_Ximports = \
@aprlib.imp \
@httpd.imp \
@libc.imp \
@ws2nlm.imp \
$(EOLIST)

```



```

#
# Any symbols exported to here
#
FILES_nlm_exports = \
jk_module \
$(EOLIST)

#
# These are the OBJ files needed to create the LIB target above.
# Paths must all use the '/' character
#
FILES_lib_objs = \
$(EOLIST)

#
# implement targets and dependancies (leave this section alone)
#

libs :: $(OBJDIR) $(TARGET_lib)

nlms :: libs $(TARGET_nlm)

#
# Updated this target to create necessary directories and copy files to the
# correct place. (See $(AP_WORK)\build\NWGNUhead.inc for examples)
#
install :: nlms FORCE
copy $(OBJDIR)\*.nlm $(INSTALL)\Apache2\modules\*.

#
# Any specialized rules here
#

vpath %.c $(JKCOMMON)

$(OBJDIR)/version.inc:
$(JKCOMMON)/jk_version.h $(OBJDIR)
@echo Creating $@
@awk -f ../../support/get_ver.awk $< > $@

#
# Include the version info retrieved from jk_version.h
#

-include $(OBJDIR)/version.inc

```

```
#  
# Include the 'tail' makefile that has targets that depend on variables defined  
# in this makefile  
#
```

```
include $(AP_WORK)/build/NWGNUtail.inc  
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```

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PGM

```
CRTCMOD MODULE(MOD_JK/MOD_JK) +
SRCSTMF('/home/apache/jk/native/apache-2.0/mod_jk.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
'_XOPEN_SOURCE=520' + 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('mod_jk.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_AJP_COM) +
SRCSTMF('/home/apache/jk/native/common/jk_ajp_common.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
'_XOPEN_SOURCE=520' + 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_ajp_common.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
```

```

INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_AJP12_W) +
  SRCSTMF('/home/apache/jk/native/common/jk_ajp12_worker.c')
+
  DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
    '_XOPEN_SOURCE=520' + 'USE_APACHE_MD5' '_REENTRANT') +
  TEXT('jk_ajp12_worker.c') +
  OPTIMIZE(40) +
  LOCALETYPE(*LOCALEUTF) +
  SYSIFCOPT(*IFSIO) +
  LANGLVL(*EXTENDED) +
  TERASPACE(*YES) +
  TGTRLS(*CURRENT) +
  INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_AJP13) +
  SRCSTMF('/home/apache/jk/native/common/jk_ajp13.c') +
  DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
    '_XOPEN_SOURCE=520' + 'USE_APACHE_MD5' '_REENTRANT') +
  TEXT('jk_ajp13.c') +
  OPTIMIZE(40) +
  LOCALETYPE(*LOCALEUTF) +
  SYSIFCOPT(*IFSIO) +
  LANGLVL(*EXTENDED) +
  TERASPACE(*YES) +
  TGTRLS(*CURRENT) +
  INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_AJP13_W) +
  SRCSTMF('/home/apache/jk/native/common/jk_ajp13_worker.c') +
  DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
    '_XOPEN_SOURCE=520' 'USE_APACHE_MD5'
'_REENTRANT') +
  TEXT('jk_ajp13_worker.c') +
  OPTIMIZE(40) +
  LOCALETYPE(*LOCALEUTF) +
  SYSIFCOPT(*IFSIO) +
  LANGLVL(*EXTENDED) +
  TERASPACE(*YES) +
  TGTRLS(*CURRENT) +
  INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_AJP14) +
  SRCSTMF('/home/apache/jk/native/common/jk_ajp14.c') +
  DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
    '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
  TEXT('jk_ajp14.c') +

```

```

OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common'/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_AJP14_W) +
SRCSTMF(/home/apache/jk/native/common/jk_ajp14_worker.c) +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
        '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_ajp14_worker.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF)
+
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common'/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_CONNECT) +
SRCSTMF(/home/apache/jk/native/common/jk_connect.c) +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
        '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT' +
        'USE_SO_RCVTIMEO' + 'USE_SO_SNDTIMEO') +
TEXT('jk_connect.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR(/home/apache/jk/native/common'/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_CONTEXT) +
SRCSTMF(/home/apache/jk/native/common/jk_context.c) +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
        '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_context.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED)
+
TERASPACE(*YES) +
TGTRLS(*CURRENT) +

```



```
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_LB_WORK) +  
SRCSTMF(/home/apache/jk/native/common/jk_lb_worker.c') +  
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +  
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +  
TEXT('jk_lb_worker.c') +  
OPTIMIZE(40) +  
LOCALETYPE(*LOCALEUTF) +  
SYSIFCOPT(*IFSIO) +  
LANGLVL(*EXTENDED) +  
TERASPACE(*YES) +  
TGTRLS(*CURRENT) +  
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_MAP) +  
SRCSTMF(/home/apache/jk/native/common/jk_map.c') +  
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +  
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +  
TEXT('jk_map.c') +  
OPTIMIZE(40) +  
LOCALETYPE(*LOCALEUTF) +  
SYSIFCOPT(*IFSIO) +  
LANGLVL(*EXTENDED) +  
TERASPACE(*YES) +  
TGTRLS(*CURRENT) +  
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD  
MODULE(MOD_JK/JK_MD5) +  
SRCSTMF(/home/apache/jk/native/common/jk_md5.c') +  
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +  
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +  
TEXT('jk_md5.c') +  
OPTIMIZE(40) +  
LOCALETYPE(*LOCALEUTF) +  
SYSIFCOPT(*IFSIO) +  
LANGLVL(*EXTENDED) +  
TERASPACE(*YES) +  
TGTRLS(*CURRENT) +  
INCDIR(/home/apache/jk/native/common' /QIBM/ProdData/HTTPPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_MSG_BUF) +  
SRCSTMF(/home/apache/jk/native/common/jk_msg_buff.c') +  
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +  
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +  
TEXT('jk_msg_buff.c') +  
OPTIMIZE(40) +
```

```

LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_POOL) +
SRCSTMF('/home/apache/jk/native/common/jk_pool.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
'_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_pool.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_SOCKBUF) +
SRCSTMF('/home/apache/jk/native/common/jk_sockbuf.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
'_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_sockbuf.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_URI_W_M) +
SRCSTMF('/home/apache/jk/native/common/jk_uri_worker_map.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
'_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT')
+
TEXT('jk_uri_worker_map.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/Include')

CRTCMOD MODULE(MOD_JK/JK_URL) +

```

```
SRCSTMF('/home/apache/jk/native/common/jk_url.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_url.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_UTIL) +
SRCSTMF('/home/apache/jk/native/common/jk_util.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_util.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +

LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_WORKER) +
SRCSTMF('/home/apache/jk/native/common/jk_worker.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_worker.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTPA/Include')
```

```
CRTCMOD MODULE(MOD_JK/JK_STATUS) +
SRCSTMF('/home/apache/jk/native/common/jk_status.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
      '_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_status.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
```

```

TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common'
'/QIBM/ProdData/HTTP/A/Include')

CRTCMOD MODULE(MOD_JK/JK_SHM) +
SRCSTMF('/home/apache/jk/native/common/jk_shm.c') +
DEFINE('AS400' 'AS400_UTF8' 'HAVE_APR' +
'_XOPEN_SOURCE=520' 'USE_APACHE_MD5' '_REENTRANT') +
TEXT('jk_shm.c') +
OPTIMIZE(40) +
LOCALETYPE(*LOCALEUTF) +
SYSIFCOPT(*IFSIO) +
LANGLVL(*EXTENDED) +
TERASPACE(*YES) +
TGTRLS(*CURRENT) +
INCDIR('/home/apache/jk/native/common' '/QIBM/ProdData/HTTP/A/Include')

CRTSRVPGM SRVPGM(MOD_JK/MOD_JK) +
MODULE(MOD_JK/MOD_JK +
MOD_JK/JK_AJP_COM MOD_JK/JK_AJP12_W +
MOD_JK/JK_AJP13 MOD_JK/JK_AJP13_W +
MOD_JK/JK_AJP14 MOD_JK/JK_AJP14_W +
MOD_JK/JK_CONNECT MOD_JK/JK_CONTEXT +
MOD_JK/JK_LB_WORK +
MOD_JK/JK_MAP MOD_JK/JK_MD5 +
MOD_JK/JK_MSG_BUF MOD_JK/JK_POOL +
MOD_JK/JK_SOCKETBUF MOD_JK/JK_URI_W_M +
MOD_JK/JK_URL +
MOD_JK/JK_UTIL MOD_JK/JK_WORKER +

MOD_JK/JK_STATUS MOD_JK/JK_SHM) +
EXPORT(*SRCFILE) +
BNDDIR() +
TGTRLS(*CURRENT) +
SRCFILE(MOD_JK/QSRVSRV) +
SRCMBR(MOD_JK) +
USRPRF(*USER) +
BNDSRVPGM(QHTTPSVR/QZSRAPR QHTTPSVR/QZSRCORE +
QHTTPSVR/QZSRXMLP QHTTPSVR/QZSRSDBM) +
TEXT('Apache Tomcat mod_jk connector module')

ENDPGM

```

## 1.836 watchdog-config 1.0

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Watchdog was written by Michael Meskes <meskes@debian.org>

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\* Michael Meskes <meskes@debian.org> Fri 24 Apr 2020 10:29:55 AM CEST

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## 1.837 python3-meld3 2.0.1

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Contributors

-----

- Chris McDonough, 2005-12-18

- Tres Seaver, 2006-02-09

- Jorge Puente Sarrn, 2012-11-27

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# 1.838 python3-pymonetdb 1.4.0

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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

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| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
| 1.6.1          | 1.6          | 2001      | CNRI       | yes (2)             |
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| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
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## 1.843 python3-async 0.6.2

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/\* nicstar.c v0.22 Jawaid Bazyar (bazyar@hypermall.com)

\* nicstar.c, M. Welsh (matt.welsh@cl.cam.ac.uk)

\*

\* Hacked October, 1997 by Jawaid Bazyar, Interlink Advertising Services Inc.

\* <http://www.hypermall.com/>

\* 10/1/97 - commented out CFG\_PHYIE bit - we don't care when the PHY

\* interrupts us (except possibly for removal/insertion of the cable?)

\* 10/4/97 - began heavy inline documentation of the code. Corrected typos

\* and spelling mistakes.

\* 10/5/97 - added code to handle PHY interrupts, disable PHY on

\* loss of link, and correctly re-enable PHY when link is

\* re-established. (put back CFG\_PHYIE)

\*

\* Modified to work with the IDT7721 nicstar -- AAL5 (tested) only.

\*



\* R. D. Rechenmacher <ron@fnal.gov>, Aug. 6, 1997  
\*  
\* Linux driver for the IDT77201 NICStAR PCI ATM controller.  
\* PHY component is expected to be 155 Mbps S/UNI-Lite or IDT 77155;  
\* see init\_nicstar() for PHY initialization to change this. This driver  
\* expects the Linux ATM stack to support scatter-gather  
lists  
\* (skb->atm.iovcnt != 0) for Rx skb's passed to vcc->push.  
\*  
\* Implementing minimal-copy of received data:  
\* IDT always receives data into a small buffer, then large buffers  
\* as needed. This means that data must always be copied to create  
\* the linear buffer needed by most non-ATM protocol stacks (e.g. IP)  
\* Fix is simple: make large buffers large enough to hold entire  
\* SDU, and leave <small\_buffer\_data> bytes empty at the start. Then  
\* copy small buffer contents to head of large buffer.  
\* Trick is to avoid fragmenting Linux, due to need for a lot of large  
\* buffers. This is done by 2 things:  
\* 1) skb->destructor / skb->atm.recycle\_buffer  
\* combined, allow nicstar\_free\_rx\_skb to be called to  
\* recycle large data buffers  
\* 2) skb\_clone of received buffers  
\* See nicstar\_free\_rx\_skb and linearize\_buffer for implementation  
\* details.  
\*  
\*  
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\*  
\* M. Welsh, 6 July 1996  
\*  
\*  
\*/

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## 1.845 python3-certifi 2018.8.13

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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| Release        | Derived from | Year      | Owner | GPL-compatible? (1) |
|----------------|--------------|-----------|-------|---------------------|
| 0.9.0 thru 1.2 |              | 1991-1995 | CWI   | yes                 |
| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI  | yes                 |

|               |           |          |            |         |
|---------------|-----------|----------|------------|---------|
| 1.6           | 1.5.2     | 2000     | CNRI       | no      |
| 2.0           | 1.6       | 2000     | BeOpen.com | no      |
| 1.6.1         | 1.6       | 2001     | CNRI       | yes (2) |
| 2.1           | 2.0+1.6.1 | 2001     | PSF        | no      |
| 2.0.1         | 2.0+1.6.1 | 2001     | PSF        | yes     |
| 2.1.1         | 2.1+2.0.1 | 2001     | PSF        | yes     |
| 2.1.2         | 2.1.1     | 2002     | PSF        | yes     |
| 2.1.3         | 2.1.2     | 2002     | PSF        | yes     |
| 2.2 and above | 2.1.1     | 2001-now |            |         |
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## 1.847 python3-protobuf 3.6.1

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

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| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
| 1.6.1          | 1.6          | 2001      | CNRI       | yes (2)             |
| 2.1            | 2.0+1.6.1    | 2001      | PSF        | no                  |
| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
| 2.1.3          | 2.1.2        | 2002      | PSF        | yes                 |
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| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |
| 2.1.3          | 2.1.2        | 2002      | PSF        | yes                 |
| 2.2 and above  | 2.1.1        | 2001-now  | PSF        | yes                 |

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- \* Solaris 10 + Sun Studio fixes.

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- \* Slicing support for repeated scalar fields for the Python API.

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- \* MS Visual Studio error format option.
- \* Detect unordered\_map in stl\_hash.m4.

Brian Olson <brianolson@google.com>

- \* gzip/zlib I/O support.

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- \* Fixed warnings about generated constructors not explicitly initializing all fields (only present with certain compiler settings).
- \* Added generation of field number constants.

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- \* Fixed initialization ordering problem in logging code.

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- \* Small patch improving performance of in Python serialization.

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- \* Emacs mode for Protocol Buffers (editors/protobuf-mode.el).

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- \* Added Swap(), SwapElements(), and RemoveLast() to Reflection interface.

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- \* HPUX support.

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- \* Detect whether zlib is new enough in configure script.
- \* Fixes for Solaris 10 32/64-bit confusion.

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- \* Optimize Java serialization code when writing a small message to a stream.
- \* Optimize Java serialization of strings so that UTF-8 encoding happens only once per string per serialization call.
- \* Clean up some Java warnings.
- \* Fix bug with permanent callbacks that delete themselves when run.

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- \* Added CodedInputStream.getTotalBytesRead().

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- \* Fixed m4/acx\_pthread.m4 problem for some Linux distributions.

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- \* Fixed detection of sched\_yield on Solaris.
- \* Added atomicops for Solaris

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- \* Fixed minor IBM xLC compiler build issues
- \* Added atomicops for AIX (POWER)

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```
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under certain conditions; type `show c' for details.
```

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```
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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
```

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## 1.853.1 Available under license :

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The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a ``work based on the library" and a ``work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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@page

@subheading How to Apply These Terms to Your New Libraries

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@smallexample

@var{one line to give the library's name and an idea of what it does.}

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@end

smallexample

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@smallexample

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`Frob' (a library for tweaking knobs) written by James Random Hacker.

@var{signature of Ty Coon}, 1 April 1990

Ty Coon, President of Vice

@end smallexample

That's all there is to it!

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Version 2.1, February 1999

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Otherwise, if the work is a derivative of the Library, you may distribute the

object code for the work under the terms of Section 6.

Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

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cmd/krb5/slave/kpropd_rpc.c
lib/gss_mechs/mech_krb5/et/kdb5_err.c
lib/gss_mechs/mech_spnego/mech/gssapiP_spnego.h
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lib/krb5/kadm5/kadm_host_srv_names.c
lib/krb5/kdb/kdb_convert.c
lib/krb5/kdb/kdb_hdr.h
lib/krb5/kdb/kdb_log.c
lib/krb5/kdb/kdb_log.h
lib/libgss/g_accept_sec_context.c
lib/libgss/g_acquire_cred.c
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lib/libgss/g_compare_name.c
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lib/libgss/g_inquire_cred.c
lib/libgss/g_inquire_names.c
lib/libgss/g_process_context.c
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lib/libgss/g\_rel\_buffer.c  
lib/libgss/g\_rel\_cred.c  
lib/libgss/g\_rel\_name.c  
lib/libgss/g\_rel\_oid\_set.c  
lib/libgss/g\_seal.c  
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lib/libgss/g\_store\_cred.c  
lib/libgss/g\_unseal.c  
lib/libgss/g\_userok.c  
lib/libgss/g\_utils.c  
lib/libgss/g\_verify.c  
lib/libgss/gssd\_pname\_to\_uid.c  
uts/common/gssapi/include/gssapi\_err\_generic.h  
uts/common/gssapi/include/mechglueP.h

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lib/gssapi/mechglue/g\_accept\_sec\_context.c  
lib/gssapi/mechglue/g\_acquire\_cred.c  
lib/gssapi/mechglue/g\_canon\_name.c  
lib/gssapi/mechglue/g\_compare\_name.c  
lib/gssapi/mechglue/g\_context\_time.c  
lib/gssapi/mechglue/g\_delete\_sec\_context.c  
lib/gssapi/mechglue/g\_dsp\_name.c  
lib/gssapi/mechglue/g\_dsp\_status.c  
lib/gssapi/mechglue/g\_dup\_name.c  
lib/gssapi/mechglue/g\_exp\_sec\_context.c  
lib/gssapi/mechglue/g\_export\_name.c  
lib/gssapi/mechglue/g\_glue.c  
lib/gssapi/mechglue/g\_imp\_name.c  
lib/gssapi/mechglue/g\_imp\_sec\_context.c  
lib/gssapi/mechglue/g\_init\_sec\_context.c  
lib/gssapi/mechglue/g\_initialize.c  
lib/gssapi/mechglue/g\_inquire\_context.c  
lib/gssapi/mechglue/g\_inquire\_cred.c  
lib/gssapi/mechglue/g\_inquire\_names.c  
lib/gssapi/mechglue/g\_process\_context.c  
lib/gssapi/mechglue/g\_rel\_buffer.c  
lib/gssapi/mechglue/g\_rel\_cred.c  
lib/gssapi/mechglue/g\_rel\_name.c  
lib/gssapi/mechglue/g\_rel\_oid\_set.c  
lib/gssapi/mechglue/g\_seal.c  
lib/gssapi/mechglue/g\_sign.c  
lib/gssapi/mechglue/g\_store\_cred.c  
lib/gssapi/mechglue/g\_unseal.c  
lib/gssapi/mechglue/g\_userok.c  
lib/gssapi/mechglue/g\_utils.c  
lib/gssapi/mechglue/g\_verify.c  
lib/gssapi/mechglue/gssd\_pname\_to\_uid.c  
lib/gssapi/mechglue/mglueP.h  
lib/gssapi/mechglue/oid\_ops.c  
lib/gssapi/spnego/gssapiP\_spnego.h  
lib/gssapi/spnego/spnego\_mech.c

and the initial implementation of incremental propagation,  
including  
the following new or changed files:

include/ipropr\_hdr.h  
kadmin/server/ipropr\_svc.c  
lib/kdb/ipropr.x  
lib/kdb/kdb\_convert.c  
lib/kdb/kdb\_log.c

lib/kdb/kdb\_log.h  
lib/krb5/error\_tables/kdb5\_err.et  
kprop/kpropd\_rpc.c  
kprop/kproplog.c

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From strings/apr\_fnmatch.c, include/apr\_fnmatch.h, misc/unix/getopt.c,  
file\_io/unix/mktemp.c, strings/apr\_strings.c:

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From network\_io/unix/inet\_ntop.c, network\_io/unix/inet\_pton.c:

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From dso/aix/dso.c:

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From strings/apr\_strnatcmp.c,  
include/apr\_strings.h:

strnatcmp.c -- Perform 'natural order' comparisons of strings in C.

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From  
strings/apr\_sprintf.c:

```
*  
* cvt - IEEE floating point formatting routines.  
*   Derived from UNIX V7, Copyright(C) Caldera International Inc.  
*
```

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### 1.3.1+gitAUTOINC+269771b4b4

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\* imap\_gssapi.c is partially derived from sample code in:  
\* GSS-API Programming Guide  
\* Part No: 816-1331-11  
\* Sun Microsystems, Inc. 4150 Network Circle Santa Clara, CA 95054 U.S.A.

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\* hmac.c is derived from:

Network Working Group     H. Krawczyk

Request for Comments: 2104     IBM

Category: Informational     M. Bellare

UCSD

R. Canetti

IBM

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# 1.862 python3-markupsafe 1.0

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SINGULAR version 3-0-0



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- == CVS&mdash;Concurrent Versions System v4.2 ==

```
<div id="Top"></div>
<div class="header">
<p>
Next: [[cvs: Overview#Overview|Overview]], Up: [../dir/index.#Top (dir)] &nbsp;| [[cvs:
Index#SEC_Contents|Contents]]| [[cvs: Index#Index|Index]]</p>
</div>
```

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```
<div id="SEC_Top"></div>
```

This info manual describes how to use and administer  
<small>CVS</small> version 4.2.

- [[cvs: Overview#Overview|&bull; Overview]]::           An introduction to CVS
- [[cvs: The Repository#The Repository|&bull; Repository]]::           Where all your sources are stored
- [[cvs: Starting a project with CVS#Starting a project with CVS|&bull; Starting a new project]]::   Starting a project with CVS
- [[cvs: Revisions#Revisions|&bull; Revisions]]::           Numeric and symbolic names for revisions
- [[cvs: Branching and merging#Branching and merging|&bull; Branching and merging]]::   Diverging/rejoining branches of development
- [[cvs: Recursive behavior#Recursive behavior|&bull; Recursive behavior]]::       CVS descends directories
- [[cvs: Adding, removing, and renaming files and directories#Adding, removing, and renaming files and directories|&bull; Adding and removing]]::   Adding/removing/renaming files/directories
- [[cvs: History browsing#History browsing|&bull; History browsing]]::       Viewing the history of files in various ways

CVS and the Real World.

- 
- [[cvs: Handling binary files#Handling binary files|&bull; Binary files]]::           CVS can handle binary files
  - [[cvs: Multiple developers#Multiple developers|&bull; Multiple developers]]::       How CVS helps a group of developers
  - [[cvs: Revision management#Revision management|&bull; Revision management]]::       Policy questions for

revision management

[[cvs: Keyword substitution#Keyword substitution|&bull; Keyword substitution]]:: CVS can include the revision inside the file

[[cvs: Tracking third-party sources#Tracking third-party sources|&bull; Tracking sources]]:: Tracking third-party sources

[[cvs: How your build system interacts with CVS#How your build system interacts with CVS|&bull; Builds]]:: Issues related to CVS and builds

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References.

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[[cvs: Guide to CVS commands#Guide to CVS commands|&bull; CVS commands]]:: CVS commands share some things

[[cvs: Quick reference to CVS commands#Quick reference to CVS commands|&bull; Invoking CVS]]:: Quick reference to CVS commands

[[cvs: Reference manual for Administrative files#Reference manual for Administrative files|&bull; Administrative files]]:: Reference manual for the Administrative files

[[cvs: All environment variables which affect CVS#All environment variables which affect CVS|&bull; Environment variables]]:: All environment variables which affect CVS

[[cvs: Compatibility between CVS Versions#Compatibility between CVS Versions|&bull; Compatibility]]:: Upgrading CVS versions

[[cvs: Troubleshooting#Troubleshooting|&bull; Troubleshooting]]:: Some tips when nothing works

[[cvs: Credits#Credits|&bull; Credits]]:: Some of the contributors to this manual

[[cvs: Dealing with bugs in CVS or this manual#Dealing with bugs in CVS or this manual|&bull; BUGS]]:: Dealing with bugs in CVS or this manual

[[cvs: Index#Index|&bull; Index]]:: Index

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@heading Acknowledgements

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m4/feature\_macros.m4

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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python releases have also been GPL-compatible; the table below summarizes the various releases.

| Release        | Derived from | Year      | Owner      | GPL-compatible? (1) |
|----------------|--------------|-----------|------------|---------------------|
| 0.9.0 thru 1.2 |              | 1991-1995 | CWI        | yes                 |
| 1.3 thru 1.5.2 | 1.2          | 1995-1999 | CNRI       | yes                 |
| 1.6            | 1.5.2        | 2000      | CNRI       | no                  |
| 2.0            | 1.6          | 2000      | BeOpen.com | no                  |
| 1.6.1          | 1.6          | 2001      | CNRI       | yes (2)             |
| 2.1            | 2.0+1.6.1    | 2001      | PSF        | no                  |
| 2.0.1          | 2.0+1.6.1    | 2001      | PSF        | yes                 |
| 2.1.1          | 2.1+2.0.1    | 2001      | PSF        | yes                 |
| 2.2            | 2.1.1        | 2001      | PSF        | yes                 |
| 2.1.2          | 2.1.1        | 2002      | PSF        | yes                 |

|       |       |           |     |     |
|-------|-------|-----------|-----|-----|
| 2.1.3 | 2.1.2 | 2002      | PSF | yes |
| 2.2.1 | 2.2   | 2002      | PSF | yes |
| 2.2.2 | 2.2.1 | 2002      | PSF | yes |
| 2.2.3 | 2.2.2 | 2003      | PSF | yes |
| 2.3   | 2.2.2 | 2002-2003 | PSF | yes |
| 2.3.1 | 2.3   | 2002-2003 | PSF | yes |
| 2.3.2 | 2.3.1 | 2002-2003 | PSF | yes |
| 2.3.3 | 2.3.2 | 2002-2003 | PSF | yes |
| 2.3.4 | 2.3.3 | 2004      | PSF | yes |
| 2.3.5 | 2.3.4 | 2005      | PSF | yes |
| 2.4   | 2.3   | 2004      | PSF |     |
| yes   |       |           |     |     |
| 2.4.1 | 2.4   | 2005      | PSF | yes |
| 2.4.2 | 2.4.1 | 2005      | PSF | yes |
| 2.4.3 | 2.4.2 | 2006      | PSF | yes |
| 2.4.4 | 2.4.3 | 2006      | PSF | yes |
| 2.5   | 2.4   | 2006      | PSF | yes |
| 2.5.1 | 2.5   | 2007      | PSF | yes |
| 2.5.2 | 2.5.1 | 2008      | PSF | yes |
| 2.5.3 | 2.5.2 | 2008      | PSF | yes |
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| 2.6.1 | 2.6   | 2008      | PSF | yes |

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~~~~~

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jloup@gzip.org      madler@alumni.caltech.edu

---

# 1.865 chrpath 0.16

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* /opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/Makefile
*
```

```
/opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/lib/Makefile
* /opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/lib/Makefile.orig
* /opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/gnuefi/Makefile
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```
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```

```
* /opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/lib/arm/llsr.S
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```

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```



```

#

TOPDIR := $(shell if [ "$$PWD" != "" ]; then echo $$PWD; else pwd; fi)

#
# Variables below overridable from command-line:
# make VARNAME=value
...
#

#
# Where to install the package. GNU-EFI will create and access
# lib and include under the root
#
INSTALLROOT := /
PREFIX      := /usr/local
LIBDIR      := $(PREFIX)/lib
INSTALL     := install

# Compilation tools
HOSTCC      := $(prefix)gcc
CC          := $(prefix)$(CROSS_COMPILE)gcc
AS          := $(prefix)$(CROSS_COMPILE)as
LD          := $(prefix)$(CROSS_COMPILE)ld
AR          := $(prefix)$(CROSS_COMPILE)ar
RANLIB      := $(prefix)$(CROSS_COMPILE)ranlib
OBJCOPY     := $(prefix)$(CROSS_COMPILE)objcopy

# Host/target identification
OS          := $(shell uname -s)
HOSTARCH    := $(shell $(HOSTCC) -dumpmachine | cut -f1 -d- | sed s,i[3456789]86,ia32,)
ARCH        := $(HOSTARCH)

# Get ARCH from the compiler if cross compiling
ifneq ($(CROSS_COMPILE),)
  override ARCH := $(shell $(CC) -dumpmachine | cut -f1 -d- | sed s,i[3456789]86,ia32,)
endif

# FreeBSD (and possibly others) reports amd64 instead of x86_64
ifeq ($(ARCH),amd64)
  override ARCH := x86_64
endif

#
#
# Where to build the package
#

```

```

OBJDIR := $(TOPDIR)/$(ARCH)

#
# Variables below derived from variables above
#

# Arch-specific compilation flags
CPPFLAGS += -DCONFIG_$(ARCH)

ifeq ($(ARCH),ia64)
    CFLAGS += -mfixed-range=f32-f127
endif

ifeq ($(ARCH),ia32)
    CFLAGS += -mno-mmx -mno-sse
    ifeq ($(HOSTARCH),x86_64)
        ARCH3264 = -m32
    endif
endif

ifeq ($(ARCH),x86_64)
    GCCVERSION := $(shell $(CC) -dumpversion | cut -f1 -d.)
    GCCMINOR := $(shell $(CC) -dumpversion | cut -f2 -d.)
    USING_CLANG := $(shell $(CC) -v 2>&1 | grep -q 'clang version' && echo clang)

# Rely on GCC MS ABI support?
GCCNEWENOUGH := $(shell ( [ $(GCCVERSION) -gt "4" ] \
    || ( [ $(GCCVERSION) -eq "4" ] \
        && [ $(GCCMINOR) -ge "7" ] ) ) \
    && echo 1)
ifeq ($(GCCNEWENOUGH),1)
    CPPFLAGS += -DGNU_EFI_USE_MS_ABI -maccumulate-outgoing-args --std=c11
else ifeq ($(USING_CLANG),clang)
    CPPFLAGS
    += -DGNU_EFI_USE_MS_ABI --std=c11
endif

CFLAGS += -mno-red-zone
ifeq ($(HOSTARCH),ia32)
    ARCH3264 = -m64
endif

ifeq ($(ARCH),mips64el)
    CFLAGS += -march=mips64r2
    ARCH3264 = -mabi=64
endif

```

```

#
# Set HAVE_EFI_OBJCOPY if objcopy understands --target efi-[app|bsdrv|rtdrv],
# otherwise we need to compose the PE/COFF header using the assembler
#
ifneq ($(ARCH),aarch64)
ifneq ($(ARCH),arm)
ifneq ($(ARCH),mips64el)
export HAVE_EFI_OBJCOPY=y
endif
endif
endif

ifneq ($(ARCH),arm)
export LIBGCC=$(shell $(CC) $(ARCH3264) -print-libgcc-file-name)
endif

ifeq ($(ARCH),arm)
CFLAGS += -marm
endif

# Generic compilation flags
INCDIR += -I$(SRCDIR) -I$(TOPDIR)/inc -I$(TOPDIR)/inc/$(ARCH) \
        -I$(TOPDIR)/inc/protocol

# Only enable -fpic for non MinGW compilers (unneeded on MinGW)
GCCMACHINE := $(shell $(CC) -dumpmachine)
ifneq (mingw32,$(findstring mingw32, $(GCCMACHINE)))
CFLAGS += -fpic
endif

ifeq (FreeBSD, $(findstring FreeBSD, $(OS)))
CFLAGS += $(ARCH3264) -g -O2
-Wall -Wextra -Werror \
        -fshort-wchar -fno-strict-aliasing \
        -ffreestanding -fno-stack-protector
else
CFLAGS += $(ARCH3264) -g -O2 -Wall -Wextra -Werror \
        -fshort-wchar -fno-strict-aliasing \
        -fno-merge-all-constants -ffreestanding -fno-stack-protector \
        -fno-stack-check
endif

ARFLAGS += -U
ASFLAGS += $(ARCH3264)
LDFLAGS += -nostdlib --warn-common --no-undefined --fatal-warnings \
        --build-id=sha1

```

Found in path(s):

\* /opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/Make.defaults

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\*/

.text

.arm

.globl setjmp

.type setjmp, %function

setjmp:

mov r3, r13

stmia r0, {r3-r12,r14}

eor r0, r0, r0

bx lr

.globl longjmp

.type longjmp, %function

longjmp:

ldmia r0, {r3-r12,r14}

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/opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/inc/protocol/ia64/eficontext.h

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\* Convert SysV calling convention to EFI x86\_64 calling convention

\*

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\* /opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/lib/aarch64/setjmp.S  
\* /opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/lib/mips64el/setjmp.S  
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\* /opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/gnuefi/crt0-efi-arm.S  
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From 39ce220cb6fde14bedf2ef61695f3d20726e41ef Mon Sep 17 00:00:00 2001

From: Nigel Croxon <ncroxon@redhat.com>

Date: Mon, 6 Nov 2017 09:26:05 -0500

Subject: [PATCH 04/25] Make sure stdint.h is always used with MSVC on  
ARM/ARM64, since all the versions of Visual Studio that support ARM or ARM64  
have that header. Without this, uint64\_t would be defined to unsigned long,  
which is 32-bits in the Microsoft world.

Also fix aarch64/initplat.c so that memset/memcpy only apply  
to gcc. Otherwise MSVC throws an error for \_\_SIZE\_TYPE\_\_.

Updating this patch to v2, since it turns out MSVC will also emit  
memset and memcpy intrinsics that we can use an implementation for.  
This is true for both ARM and ARM64.  
To make this work, I'm defining \_\_SIZE\_TYPE\_\_ to UINTN if not  
already defined.

Signed-off-by: Pete Batard <pete@akeo.ie>

Signed-off-by: Nigel Croxon <ncroxon@redhat.com>



---

lib/aarch64/initplat.c | 4 ++++

lib/arm/initplat.c

| 6 +++++-

inc/aarch64/efibind.h | 2 +-  
inc/arm/efibind.h | 2 +-  
4 files changed, 11 insertions(+), 3 deletions(-)

diff --git a/lib/aarch64/initplat.c b/lib/aarch64/initplat.c

index 4b118656d7c..25207f42c8f 100644

--- a/lib/aarch64/initplat.c

+++ b/lib/aarch64/initplat.c

@@ -25,6 +25,10 @@ InitializeLibPlatform (

```
{  
}
```

+#ifndef \_\_SIZE\_TYPE\_\_

+#define \_\_SIZE\_TYPE\_\_ UINTN

+#endif

+

/\*

\* Calls to these functions may be emitted implicitly by GCC even when

\* -ffreestanding is in effect.

diff --git a/lib/arm/initplat.c b/lib/arm/initplat.c

index 09f06a9c871..c77d26d9045 100644

--- a/lib/arm/initplat.c

+++ b/lib/arm/initplat.c

@@ -25,7 +25,10 @@ InitializeLibPlatform (

```
{  
}
```

+#ifndef \_\_GNUC\_\_

+#ifndef \_\_SIZE\_TYPE\_\_

+#define \_\_SIZE\_TYPE\_\_ UINTN

+#endif

+

/\*

\* Calls to these functions may be emitted implicitly by GCC even when

\* -ffreestanding is in effect.

@@ -51,6 +54,7 @@ void \*memcpy(void \*dest, const void \*src, \_\_SIZE\_TYPE\_\_ n)

return dest;

```
}
```

+#ifdef

\_\_GNUC\_\_

void \_\_div0(void)

```
{
```

// TODO handle divide by zero fault

```

diff --git a/inc/aarch64/efibind.h b/inc/aarch64/efibind.h
index ef7148d5312..182a2109062 100644
--- a/inc/aarch64/efibind.h
+++ b/inc/aarch64/efibind.h
@@ -15,7 +15,7 @@
 * either version 2 of the License, or (at your option) any later version.
 */

-#if !defined(__STDC_VERSION__) || (__STDC_VERSION__ < 199901L )
+#if !defined(_MSC_VER) && (!defined(__STDC_VERSION__) || (__STDC_VERSION__ < 199901L ))

// ANSI C 1999/2000 stdint.h integer width declarations

diff --git a/inc/arm/efibind.h b/inc/arm/efibind.h
index 06f6ea1aeb8..40a5a9cd428 100644
--- a/inc/arm/efibind.h
+++ b/inc/arm/efibind.h
@@ -15,7 +15,7 @@
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 */

-#if !defined(__STDC_VERSION__) || (__STDC_VERSION__ < 199901L )
+#if !defined(_MSC_VER) && (!defined(__STDC_VERSION__) || (__STDC_VERSION__ < 199901L ))

// ANSI C 1999/2000 stdint.h integer width declarations

```

--

2.15.0

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\*/

/\*

\* This is written in assembly because the entire code needs to be position  
\* independent. Note that the compiler does not generate code that's position  
\* independent by itself because it relies  
on the global offset table being  
\* relocated.

\*/

```
.text  
.psr abi64  
.psr lsb  
.lsb
```

/\*

\* This constant determines how many R\_IA64\_FPTR64LSB relocations we  
\* can deal with. If you get EFI\_BUFFER\_TOO\_SMALL errors, you may  
\* need to increase this number.

\*/

```
#define MAX_FUNCTION_DESCRIPTOR 750
```

```
#define ST_VALUE_OFF 8 /* offset of st_value in elf sym */
```

```
#define EFI_SUCCESS 0
```

```
#define EFI_LOAD_ERROR 1
```

```
#define EFI_BUFFER_TOO_SMALL 5
```

```
#define DT_NULL 0 /* Marks end of dynamic section */
```

```
#define DT_RELA 7 /* Address of Rela relocs */
```

```
#define DT_RELASZ 8 /* Total size of Rela relocs */
```

```
#define DT_RELAENT 9 /* Size of one Rela reloc */
```

```
#define DT_SYMTAB 6 /* Address of symbol table */
```

```
#define DT_SYMENT 11 /* Size of one symbol table entry */
```

```
#define R_IA64_NONE 0
```

```
#define R_IA64_REL64MSB 0x6e
```

```
#define R_IA64_REL64LSB 0x6f
```

```
#define R_IA64_DIR64MSB 0x26
```

```
#define R_IA64_DIR64LSB 0x27
```

```
#define R_IA64_FPTR64MSB 0x46
```

```
#define R_IA64_FPTR64LSB 0x47
```

```
#define ldbase in0 /* load address
```

```
(address of .text) */
```

```
#define dyn in1 /* address of _DYNAMIC */
```

```
#define d_tag r16
```

```
#define d_val r17
```

```
#define rela r18
```

```
#define relasz r19
```

```
#define relaent r20
```

```

#define addr r21
#define r_info r22
#define r_offset r23
#define r_addend r24
#define r_type r25
#define r_sym r25 /* alias of r_type ! */
#define fptr r26
#define fptr_limit r27
#define symtab f8
#define syment f9
#define ftmp f10

#define target r16
#define val r17

#define NLOC 0

#define Pnull p6
#define Prela p7
#define Prelasz p8
#define Prelaent p9
#define Psymtab p10
#define Psyment p11

#define Pnone p6
#define Prel p7
#define Pfptr p8

#define Pmore p6

#define Poom p6 /* out-of-memory */

.global _relocate
.proc _relocate
_relocate:
alloc r2=ar.pfs,2,0,0,0
movl fptr = @gprel(fptr_mem_base)
;;
add fptr = fptr, gp
movl fptr_limit = @gprel(fptr_mem_limit)
;;
add fptr_limit = fptr_limit, gp

search_dynamic:
ld8 d_tag = [dyn],8
;;
ld8 d_val = [dyn],8
cmp.eq Pnull,p0 = DT_NULL,d_tag

```

```

(Pnull) br.cond.sptk.few
apply_relocs
cmp.eq Prela,p0 = DT_RELA,d_tag
cmp.eq Prelasz,p0 = DT_RELASZ,d_tag
cmp.eq Psymtab,p0 = DT_SYMTAB,d_tag
cmp.eq Psyment,p0 = DT_SYMENT,d_tag
cmp.eq Prelaent,p0 = DT_RELAENT,d_tag
;;
(Prela) add rela = d_val, ldbase
(Prelasz) mov relasz = d_val
(Prelaent) mov relaent = d_val
(Psymtab) add val = d_val, ldbase
;;
(Psyment) setf.sig syment = d_val
;;
(Psymtab) setf.sig symtab = val
br.sptk.few search_dynamic

apply_loop:
ld8 r_offset = [rela]
add addr = 8,rela
sub relasz = relasz,relaent
;;

ld8 r_info = [addr],8
;;
ld8 r_addend = [addr]
add target = ldbase, r_offset

add rela = rela,relaent
extr.u r_type = r_info, 0, 32
;;
cmp.eq Pnone,p0 = R_IA64_NONE,r_type
cmp.eq Prel,p0 = R_IA64_REL64LSB,r_type
cmp.eq Pfptra,p0 = R_IA64_FPTR64LSB,r_type
(Prel) br.cond.sptk.few apply_REL64
;;
cmp.eq Prel,p0 = R_IA64_DIR64LSB,r_type // treat DIR64 just like REL64

(Pnone) br.cond.sptk.few apply_relocs
(Prel) br.cond.sptk.few apply_REL64
(Pfptra) br.cond.sptk.few
apply_FPTR64

mov r8 = EFI_LOAD_ERROR
br.ret.sptk.few rp

apply_relocs:

```

```

cmp.ltu Pmore,p0=0,relasz
(Pmore) br.cond.sptk.few apply_loop

mov r8 = EFI_SUCCESS
br.ret.sptk.few rp

apply_REL64:
ld8 val = [target]
;;
add val = val,ldbase
;;
st8 [target] = val
br.cond.sptk.few apply_relocs

// FPTR relocs are a bit more interesting: we need to lookup
// the symbol's value in symtab, allocate 16 bytes of memory,
// store the value in [target] in the first and the gp in the
// second dword.
apply_FPTR64:
st8 [target] = fptr
extr.u r_sym = r_info,32,32
add target = 8,fptr
;;

setf.sig ftmp = r_sym
mov r8=EFI_BUFFER_TOO_SMALL
;;
cmp.geu Poom,p0 = fptr,fptr_limit

xma.lu ftmp = ftmp,syment,symtab
(Poom) br.ret.sptk.few rp
;;
getf.sig addr = ftmp
st8 [target] = gp
;;
add addr = ST_VALUE_OFF, addr
;;
ld8 val = [addr]
;;
add val = val,ldbase
;;
st8 [fptr] = val,16
br.cond.sptk.few apply_relocs

.endp _relocate

.data
.align 16

```

fptr\_mem\_base:  
.space MAX\_FUNCTION\_DESCRIPTOR\*16  
fptr\_mem\_limit:

Found

in path(s):

\* /opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/gnuefi/reloc\_ia64.S

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Building EFI Applications Using the GNU Toolchain  
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23 September 1999

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\* Introduction

This document has two parts: the first part describes how to develop EFI applications for IA-64,x86 and x86\_64 using the GNU toolchain and the EFI development environment contained in this directory. The second part describes some of the more subtle aspects of how this development environment works.

\* Part 1: Developing EFI Applications

\*\* Prerequisites:

To develop x86 and x86\_64 EFI applications, the following tools are needed:

- gcc-3.0 or newer (gcc 2.7.2 is NOT sufficient!)  
As of gnu-efi-3.0b, the Redhat 8.0 toolchain is known to work,  
but the Redhat 9.0 toolchain  
is not currently supported.

- A version of "objcopy" that supports EFI applications. To  
check if your version includes EFI support, issue the



command:

```
objcopy --help
```

Verify that the line "supported targets" contains the string "efi-app-ia32" and "efi-app-x86\_64" and that the "-j" option accepts wildcards. The binutils release binutils-2.24 supports Intel64 EFI and accepts wildcard section names.

- For debugging purposes, it's useful to have a version of "objdump" that supports EFI applications as well. This allows inspect and disassemble EFI binaries.

To develop IA-64 EFI applications, the following tools are needed:

- A version of gcc newer than July 30th 1999 (older versions had problems with generating position independent code). As of gnu-efi-3.0b, gcc-3.1 is known to work well.
- A version of "objcopy" that supports EFI applications. To check if your version includes EFI support, issue the command:

```
objcopy --help
```

Verify that the line "supported targets" contains the string "efi-app-ia64" and that the "-j" option accepts wildcards.

- For debugging purposes, it's useful to have a version of "objdump" that supports EFI applications as well. This allows inspect and disassemble EFI binaries.

## \*\* Directory Structure

This EFI development environment contains the following subdirectories:

inc: This directory contains the EFI-related include files. The files are taken from Intel's EFI source distribution, except that various fixes were applied to make it compile with the GNU toolchain.

lib: This directory contains the source code for Intel's EFI library. Again, the files are taken from Intel's EFI source distribution, with changes to make them compile with the GNU toolchain.

gnumefi: This directory contains the glue necessary to convert ELF64 binaries to EFI binaries. Various runtime code bits, such as a self-relocator are included as well. This code has been contributed by the Hewlett-Packard Company and is distributed under the GNU GPL.

apps: This directory contains a few simple EFI test apps.

## \*\* Setup

It is necessary to edit the Makefile in the directory containing this README file before EFI applications can be built. Specifically, you should verify that macros CC, AS, LD, AR, RANLIB, and OBJCOPY point to the appropriate compiler, assembler, linker, ar, and ranlib binaries, respectively.

If you're working in a cross-development environment, be sure to set macro ARCH to the desired target architecture ("ia32" for x86, "x86\_64" for x86\_64 and "ia64" for IA-64). For convenience, this can also be done from the make command line (e.g., "make ARCH=ia64").

## \*\* Building

To build the sample EFI applications provided in subdirectory "apps", simply invoke "make" in the toplevel directory (the directory containing this README file). This should build lib/libefi.a and gnumefi/libgnumefi.a first and then all the EFI applications such as a apps/t6.efi.

## \*\* Running

Just

copy the EFI application (e.g., apps/t6.efi) to the EFI filesystem, boot EFI, and then select "Invoke EFI application" to run the application you want to test. Alternatively, you can invoke the Intel-provided "nshell" application and then invoke your test binary via the command line interface that "nshell" provides.

## \*\* Writing Your Own EFI Application

Suppose you have your own EFI application in a file called "apps/myefiapp.c". To get this application built by the GNU EFI build environment, simply add "myefiapp.efi" to macro TARGETS in

apps/Makefile. Once this is done, invoke "make" in the top level directory. This should result in EFI application apps/myefiapp.efi, ready for execution.

The GNU EFI build environment allows to write EFI applications as described in Intel's EFI documentation, except for two differences:

- The EFI application's entry point is always called "efi\_main". The declaration of this routine is:

```
EFI_STATUS efi_main (EFI_HANDLE image,  
EFI_SYSTEM_TABLE *systab);
```

- UNICODE string literals must be written as W2U(L"Sample String") instead of just L"Sample String". The W2U() macro is defined in <efilib.h>. This header file also declares the function W2UCpy() which allows to convert a wide string into a UNICODE string and store the result in a programmer-supplied buffer.

- Calls to EFI services should be made via uefi\_call\_wrapper(). This ensures appropriate parameter passing for the architecture.

#### \* Part 2: Inner Workings

WARNING: This part contains all the gory detail of how the GNU EFI toolchain works. Normal users do not have to worry about such details. Reading this part incurs a definite risk of inducing severe headaches or other maladies.

The basic idea behind the GNU EFI build environment is to use the GNU toolchain to build a normal ELF binary that, at the end, is converted to an EFI binary. EFI binaries are really just PE32+ binaries. PE stands for "Portable Executable" and is the object file format

Microsoft is using on its Windows platforms. PE is basically the COFF object file format with an MS-DOS2.0 compatible header slapped on in front of it. The "32" in PE32+ stands for 32 bits, meaning that PE32 is a 32-bit object file format. The plus in "PE32+" indicates that this format has been hacked to allow loading a 4GB binary anywhere in a 64-bit address space (unlike ELF64, however, this is not a full 64-bit object file format because the entire binary cannot span more than 4GB of address space). EFI binaries are plain PE32+ binaries except that the "subsystem id" differs from normal Windows binaries. There are two flavors of EFI binaries: "applications" and "drivers" and each has their own subsystem id and are identical otherwise. At present, the GNU EFI build environment supports the building of EFI applications only, though it would be trivial to generate drivers, as

the only difference is the subsystem id. For more details on PE32+, see the spec at

[http://msdn.microsoft.com/library/specs/msdn\\_pecoff.htm](http://msdn.microsoft.com/library/specs/msdn_pecoff.htm).

In

theory, converting a suitable ELF64 binary to PE32+ is easy and could be accomplished with the "objcopy" utility by specifying option `--target=efi-app-ia32 (x86)` or `--target=efi-app-ia64 (IA-64)`. But life never is that easy, so here some complicating factors:

(1) COFF sections are very different from ELF sections.

ELF binaries distinguish between program headers and sections. The program headers describe the memory segments that need to be loaded/initialized, whereas the sections describe what constitutes those segments. In COFF (and therefore PE32+) no such distinction is made. Thus, COFF sections need to be page aligned and have a size that is a multiple of the page size (4KB for EFI), whereas ELF allows sections at arbitrary addresses and with arbitrary sizes.

(2) EFI binaries should be relocatable.

Since EFI binaries are executed in physical mode, EFI cannot guarantee that a given binary can be loaded at its preferred address. EFI does `_try_` to load a binary at its preferred address, but if it can't do so, it will load it at another address and then relocate the binary using the contents of the `.reloc` section.

(3) On IA-64, the EFI entry point needs to point to a function descriptor, not to the code address of the entry point.

(4) The EFI specification assumes that wide characters use UNICODE encoding.

ANSI C does not specify the size or encoding that a wide character uses. These choices are "implementation defined". On most UNIX systems, the GNU toolchain uses a `wchar_t` that is 4 bytes in size. The encoding used for such characters is (mostly) UCS4.

In the following sections, we address how the GNU EFI build environment addresses each of these issues.

## \*\* (1) Accommodating COFF Sections

In order to satisfy the COFF constraint of page-sized and page-aligned sections, the GNU EFI build environment uses the special linker script in `gnuEFI/elf_$(ARCH)_efi.lds`

where `$(ARCH)` is the target architecture

("ia32" for x86, "x86\_64" for x86\_64 and "ia64" for IA-64).

This script is set up to create only eight COFF section, each page aligned and page sized. These eight sections are used to group together the much greater number of sections that are typically present in ELF object files.

Specifically:

`.hash`

Collects the ELF `.hash` info (this section `_must_` be the first section in order to build a shared object file; the section is not actually loaded or used at runtime).

`.text`

Collects all sections containing executable code.

`.data`

Collects read-only and read-write data, literal string data, global offset tables, the uninitialized data segment (bss) and various other sections containing data.

The reason read-only data is placed here instead of the `.text` is to make it possible to disassemble the `.text` section without getting garbage due to read-only data. Besides, since EFI binaries execute in physical mode, differences in page protection do not matter.

The reason the uninitialized data is placed in this section is that the EFI loader appears to be unable to handle sections that are allocated but not loaded from the binary.

`.dynamic`, `.dysym`, `.rela`, `.rel`, `.reloc`

These sections contains the dynamic information necessary to self-relocate the binary (see below).

A couple of more points worth noting about the linker script:

- o On IA-64, the global pointer symbol (`__gp`) needs to be placed such that the `_entire_` EFI binary can be addressed using the signed 22-bit offset that the "addl" instruction affords. Specifically, this means that `__gp` should be placed at `ImageBase + 0x200000`. Strictly speaking, only a couple of symbols need to be addressable in this fashion, so with some care it should be possible to build

binaries much larger than 4MB. To get a list of symbols that need to be addressable in this fashion, grep the assembly files in directory gnuEFI for the string "@gprel".

- o The link address (ImageBase) of the binary is (arbitrarily) set to zero. This could be set to something larger to increase the chance of EFI being able to load the binary without requiring relocation. However, a start address of 0 makes debugging a wee bit easier (great for those of us who can add, but not subtract... ;-).
- o The relocation related sections (.dynamic, .rel, .rela, .reloc) cannot be placed inside .data because some tools in the GNU toolchain rely on the existence of these sections.
- o Some sections in the ELF binary intentionally get dropped when building the EFI binary. Particularly noteworthy are the dynamic relocation sections for the .plabel and .reloc sections. It would be wrong to include these sections in the EFI binary because it would result in .reloc and .plabel being relocated twice (once by the EFI loader and once by the self-relocator; see below for a description of the latter). Specifically, only the sections mentioned with the -j option in the final "objcopy" command are retained in the EFI binary (see Make.rules).

## \*\* (2) Building Relocatable Binaries

ELF binaries are normally linked for a fixed load address and are thus not relocatable. The only kind of ELF object that is relocatable are shared objects ("shared libraries"). However, even those objects are usually not completely position independent and therefore require runtime relocation by the dynamic loader. For example, IA-64 binaries normally require relocation of the global offset table.

The approach to building relocatable binaries in the GNU EFI build environment is to:

- (a) build an ELF shared object
- (b) link it together with a self-relocator that takes care of applying the dynamic relocations that may be present in the ELF shared object
- (c) convert the resulting image to an EFI binary

The self-relocator is of course architecture dependent. The x86 version can be found in gnuEFI/reloc\_ia32.c, the x86\_64

version

can be found in `gnumefi/reloc_x86_64.c` and the IA-64 version can be found in `gnumefi/reloc_ia64.S`.

The self-relocator operates as follows: the startup code invokes it right after EFI has handed off control to the EFI binary at symbol `"_start"`. Upon activation, the self-relocator searches the `.dynamic` section (whose starting address is given by symbol `_DYNAMIC`) for the dynamic relocation information, which can be found in the `DT_REL`, `DT_RELSZ`, and `DT_RELENT` entries of the dynamic table (`DT_RELA`, `DT_RELASZ`, and `DT_RELAENT` in the case of `rela` relocations, as is the case for IA-64). The dynamic relocation information points to the ELF relocation table. Once this table is found, the self-relocator walks through it, applying each relocation one by one. Since the EFI binaries are fully resolved shared objects, only a subset of all possible relocations need to be supported. Specifically, on x86 only the `R_386_RELATIVE` relocation is needed. On IA-64, the relocations `R_IA64_DIR64LSB`,

`R_IA64_REL64LSB`, and `R_IA64_FPTR64LSB` are needed.

Note that the `R_IA64_FPTR64LSB` relocation requires access to the dynamic symbol table. This is why the `.dynsym` section is included in the EFI binary. Another complication is that this relocation requires memory to hold the function descriptors (aka "procedure labels" or "plabels"). Each function descriptor uses 16 bytes of memory. The IA-64 self-relocator currently reserves a static memory area that can hold 100 of these descriptors. If the self-relocator runs out of space, it causes the EFI binary to fail with error code 5 (`EFI_BUFFER_TOO_SMALL`). When this happens, the manifest constant `MAX_FUNCTION_DESCRIPTOR` in `gnumefi/reloc_ia64.S` should be increased and the application recompiled. An easy way to count the number of function descriptors required by an EFI application is to run the command:

```
objdump --dynamic-reloc example.so | fgrep FPTR64 | wc -l
```

assuming "example" is the name of the desired EFI application.

\*\* (3)

Creating the Function Descriptor for the IA-64 EFI Binaries

As mentioned above, the IA-64 PE32+ format assumes that the entry point of the binary is a function descriptor. A function descriptor consists of two double words: the first one is the code entry point and the second is the global pointer that should be loaded before calling the entry point. Since the ELF toolchain doesn't know how to generate a function descriptor for the entry point, the startup code in `gnumefi/crt0-efi-ia64.S` crafts one manually by with the code:

```
.section .plabel, "a"
_start_plabel:
    data8 _start
    data8 __gp
```

this places the procedure label for entry point `_start` in a section called `".plabel"`. Now, the only problem is that `_start` and `__gp` need to be relocated `_before_` EFI hands control over to the EFI binary. Fortunately, PE32+ defines a section called `".reloc"` that can achieve this. Thus, in addition to manually crafting the function descriptor, the startup code also crafts a `".reloc"` section that will cause the EFI loader to relocate the function descriptor before handing over control to the EFI binary (again, see the PECOFF spec mentioned above for details).

A final question may be why `.plabel` and `.reloc` need to go in their own COFF sections. The answer is simply: we need to be able to discard the relocation entries that are generated for these sections. By placing them in these sections, the relocations end up in sections `".rela.plabel"` and `".rela.reloc"` which makes it easy to filter them out in the filter script. Also, the `".reloc"` section needs to be in its own section so that the `objcopy` program can recognize it and can create the correct directory entries in the PE32+ binary.

#### \*\* (4) Convenient and Portable Generation of UNICODE String Literals

As of `gnu-efi-3.0`, we make use (and somewhat abuse) the `gcc` option that forces wide characters (`WCHAR_T`) to use short integers (2 bytes) instead of integers (4 bytes). This way we match the Unicode character size. By abuse, we mean that we rely on the fact that the regular ASCII characters are encoded the same way between (short) wide characters and Unicode and basically only use the first byte. This allows us to just use them interchangeably.

The `gcc` option to force short wide characters is : `-fshort-wchar`

\* \* \* The End \* \* \*

Found in path(s):

```
* /opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.e17.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/README.gnuefi
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```

#



```

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# SUCH DAMAGE.
#

%.efi: %.so
$(OBJCOPY) -j .text -j .sdata -j .data -j .dynamic -j .dynsym -j .rel \
-j .rela -j .rel.* -j .rela.* -j .rel* -j .rela* \
-j .reloc $(FORMAT) $*.so $@

%.efi.debug:
%.so
$(OBJCOPY) -j .debug_info -j .debug_abbrev -j .debug_aranges \
-j .debug_line -j .debug_str -j .debug_ranges \
-j .note.gnu.build-id \
$(FORMAT) $*.so $@

```

%.so: %.o

\$(LD) \$(LDFLAGS) \$^ -o \$@ \$(LOADLIBES)

%.o: %.c

\$(CC) \$(INCDIR) \$(CFLAGS) \$(CPPFLAGS) -c \$< -o \$@

%.S: %.c

\$(CC) \$(INCDIR) \$(CFLAGS) \$(CPPFLAGS) -S \$< -o \$@

%.E: %.c

\$(CC) \$(INCDIR) \$(CFLAGS) \$(CPPFLAGS) -E \$< -o \$@

Found in path(s):

\* /opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/Make.rules

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/\*\* @file

SHELL\_INTERFACE\_PROTOCOL from EDK shell (no spec).

Shell Interface - additional information (over image\_info) provided to an application started by the shell.

ConIo provides a file-style interface to the console.

The shell interface's and data (including ConIo) are only valid during the applications Entry Point. Once the application returns from it's entry point the data is freed by the invoking shell.

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\*\*/

Found

in path(s):

\* /opt/cola/permits/2074183535\_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/inc/efishellintf.h

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/\* crt0-efi-x86\_64.S - x86\_64 EFI startup code.

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\*/

.text

.align 4

.globl \_start

\_start:

subq \$8, %rsp

pushq %rcx

pushq %rdx

0:

lea ImageBase(%rip), %rdi

lea \_DYNAMIC(%rip), %rsi

```

popq
%rcx
popq %rdx
pushq %rcx
pushq %rdx
call _relocate

popq %rdi
popq %rsi

call efi_main
addq $8, %rsp

.exit:
ret

```

// hand-craft a dummy .reloc section so EFI knows it's a relocatable executable:

```

.data
dummy: .long 0

#define IMAGE_REL_ABSOLUTE 0
.section .reloc, "a"
label1:
.long dummy-label1 // Page RVA
.long 10 // Block Size (2*4+2)
.word (IMAGE_REL_ABSOLUTE<<12) + 0 // reloc for dummy

```

Found in path(s):

```

* /opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-
TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/gnuefi/crt0-efi-x86_64.S
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```

```

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```

Found in path(s):

```

* /opt/cola/permits/2074183535_1719584925.776133/0/gnu-efi-3.0.8-2.el7.src.rpm-cosi-expand-archive-
TEbQhi5G/gnu-efi-3.0.6.tar.bz2-cosi-expand-archive-fi4jmvqk/gnu-efi-3.0.6/lib/arm/mullu.S
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```

/\*

```

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\*/

.text

.globl setjmp

.type setjmp, @function

setjmp:

alloc loc = ar.pfs, 1, 2, 1, 0

::

mov r14 = ar.unat

mov r15 = ar.bsp

add r10 = 0x10 \* 20, in0

::

stf.spill.nta [in0] = f2, 0x10

st8.spill.nta [r10] = r4, 8

mov r21 = b1

::

stf.spill.nta [in0] = f3, 0x10

st8.spill.nta [r10] = r5, 8

mov r22 = b2

::

stf.spill.nta [in0] = f4, 0x10

st8.spill.nta [r10] = r6, 8

mov r23 = b3

::

stf.spill.nta [in0]

= f5, 0x10

st8.spill.nta [r10] = r7, 8

mov r24 = b4

::

stf.spill.nta [in0] = f16, 0x10

st8.spill.nta [r10] = sp, 8

mov r25 = b5

::

stf.spill.nta [in0] = f17, 0x10

st8.nta [r10] = loc1, 8

mov r16 = pr

::

stf.spill.nta [in0] = f18, 0x10

st8.nta [r10] = r21, 8

mov r17 = ar.lc

::

```

stf.spill.nta [in0] = f19, 0x10
st8.nta [r10] = r22, 8
;;
stf.spill.nta [in0] = f20, 0x10
st8.nta [r10] = r23, 8
;;
stf.spill.nta [in0] = f21, 0x10
st8.nta [r10] = r24, 8
;;
stf.spill.nta [in0] = f22, 0x10
st8.nta [r10] = r25, 8
;;
stf.spill.nta [in0] = f23, 0x10
mov r18 = ar.unat
;;
stf.spill.nta [in0] = f24, 0x10
st8.nta [r10] = r14, 8
;;
stf.spill.nta [in0] = f25, 0x10
st8.nta [r10] = r18, 8
;;
stf.spill.nta [in0] = f26, 0x10
st8.nta [r10] = loc0, 8
;;
stf.spill.nta [in0] = f27, 0x10
st8.nta [r10] = r15, 8
mov r8 = 0
;;
stf.spill.nta [in0] = f28, 0x10
mov r19 = ar.fpsr
;;
stf.spill.nta [in0] = f29, 0x10
st8.nta [r10] = r16, 8
mov ar.pfs
= loc0
;;
stf.spill.nta [in0] = f30, 0x10
st8.nta [r10] = r17, 8
mov b0 = loc1
;;
stf.spill.nta [in0] = f31, 0x10
st8.nta [r10] = r19
;;
mov ar.unat = r14
br.ret.sptk b0
;;

.globl longjmp

```

```

.type longjmp, @function
.regstk
longjmp:
add r10 = 0x10 * 20 + 8*14, in0
movl r2 = ~(((1<<14) - 1) << 16) | 3)
;;
ld8.nt1 r14 = [r10], -8*2
mov r15 = ar.bspstore
;;
ld8.nt1 r17 = [r10], -8
mov r16 = ar.rsc
cmp.leu p6 = r14, r15
;;
ld8.nt1 r18 = [r10], -8
ld8.nt1 r25 = [r10], -8
and r2 = r16, r2
;;
ldf.fill.nt1 f2 = [in0], 0x10
ld8.nt1 r24 = [r10], -8
mov b5 = r25
;;
mov ar.rsc = r2
ld8.nt1 r23 = [r10], -8
mov b5 = r25
;;
mov ar.rsc = r2
ld8.nt1 r23 = [r10], -8
mov b4 = r24
;;
ldf.fill.nt1 f3 = [in0], 0x10
mov ar.unat = r17
(p6) br.spnt.many _skip_flushrs
;;
flushrs
mov r15 = ar.bsp
;;
_skip_flushrs:
mov r31 = ar.rnat
loadrs
;;
ldf.fill.nt1 f4 = [in0], 0x10
ld8.nt1 r22 = [r10], -8
dep r2 = -1, r14, 3, 6
;;
ldf.fill.nt1 f5
= [in0], 0x10
ld8.nt1 f21 = [r10], -8
cmp p6 = r2, r15

```

```

;;
ld8.nt1 r20 = [r10], -0x10
(p6) ld8.nta r31 = [r2]
mov b3 = r23
;;
ldf.fill.nt1 f16 = [in0], 0x10
ld8.fill.nt1 r7 = [r10], -8
mov b2 = r22
;;
ldf.fill.nt1 f17 = [in0], 0x10
ld8.fill.nt1 r6 = [r10], -8
mov b1 = r21
;;
ldf.fill.nt1 f18 = [in0], 0x10
ld8.fill.nt1 r5 = [r10], -8
mov b0 = r20
;;
ldf.fill.nt1 f19 = [in0], 0x10
ld8.fill.nt1 r4 = [r10], 8*13
;;
ldf.fill.nt1 f20 = [in0], 0x10
ld8.nt1 r19 = [r10], 0x10
;;
ldf.fill.nt1 f21 = [in0], 0x10
ldf.nt1 f26 = [r10], 8
mov ar.pfs = r19
;;
ldf.fill.nt1 f22 = [in0], 0x10
ld8.nt1 r27 = [r10], 8
mov pr = r26, -1
;;
ldf.fill.nt1 r23 = [in0], 0x10
ld8.nt1 r28 = [r10], -17*8 - 0x10
mov ar.lc = r27
;;
ldf.fill.nt1 f24 = [in0], 0x10
ldf.fill.nt1 f25 = [in0], 0x10
mov r8 = in1
;;
ldf.fill.nt1 f26 = [in0], 0x10
ldf.fill.nt1 f31 = [r10], -0x10
;;
ldf.fill.nt1 f27 = [in0], 0x10
ldf.fill.nt1 f30 = [r10], -0x10
;;
ldf.fill.nt1 f28
= [in0]
ldf.fill.nt1 f29 = [r10], 0x10*3 + 8*4

```



```
::
ld8.fill.nt1 sp = [r10]
mov ar.unat = r18
::
mov ar.bspstore = r14
mov ar.rnat = r31
::
```

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```
*/
```

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\*

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\* crt0-efi-mips64el.S - PE/COFF header for MIPS64 EFI applications

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\*/

.section .text.head

```

/*
 * Magic "MZ" signature for PE/COFF
 */
.globl ImageBase
ImageBase:
.ascii "MZ"
.skip 58 //
'MZ' + pad + offset == 64
.long pe_header - ImageBase // Offset to the PE header.
pe_header:
.ascii "PE"
.short 0
coff_header:
.short 0x166 // MIPS little endian
.short 2 // nr_sections
.long 0 // TimeDateStamp
.long 0 // PointerToSymbolTable
.long 1 // NumberOfSymbols
.short section_table - optional_header // SizeOfOptionalHeader
.short 0x206 // Characteristics.
// IMAGE_FILE_DEBUG_STRIPPED |
// IMAGE_FILE_EXECUTABLE_IMAGE |
// IMAGE_FILE_LINE_NUMS_STRIPPED
optional_header:
.short 0x20b // PE32+ format
.byte 0x02 // MajorLinkerVersion
.byte 0x14 // MinorLinkerVersion
.long _edata - _start // SizeOfCode
.long 0 // SizeOfInitializedData
.long 0 // SizeOfUninitializedData
.long _start - ImageBase // AddressOfEntryPoint
.long _start - ImageBase // BaseOfCode

extra_header_fields:
.quad 0 // ImageBase
.long 0x20 // SectionAlignment
.long 0x8 // FileAlignment
.short 0 //
MajorOperatingSystemVersion
.short 0 // MinorOperatingSystemVersion
.short 0 // MajorImageVersion
.short 0 // MinorImageVersion
.short 0 // MajorSubsystemVersion
.short 0 // MinorSubsystemVersion
.long 0 // Win32VersionValue

.long _edata - ImageBase // SizeOfImage

```

```

// Everything before the kernel image is considered part of the header
.long _start - ImageBase // SizeOfHeaders
.long 0 // CheckSum
.short EFI_SUBSYSTEM // Subsystem
.short 0 // DllCharacteristics
.quad 0 // SizeOfStackReserve
.quad 0 // SizeOfStackCommit
.quad 0 // SizeOfHeapReserve
.quad 0 // SizeOfHeapCommit
.long 0 // LoaderFlags
.long 0x6 // NumberOfRvaAndSizes

.quad 0 // ExportTable
.quad 0 // ImportTable
.quad 0 // ResourceTable
.quad 0 // ExceptionTable
.quad 0 // CertificationTable
.quad 0 // BaseRelocationTable

// Section table
section_table:

/*
 * The EFI application loader requires a relocation section
 * because EFI applications must be relocatable. This is a
 * dummy section as far as we are concerned.
 */
.ascii ".reloc"
.byte 0
.byte 0 // end of 0 padding of section name
.long 0
.long 0
.long 0 // SizeOfRawData
.long 0 // PointerToRawData
.long 0 // PointerToRelocations
.long 0 // PointerToLineNumbers
.short 0 // NumberOfRelocations
.short 0 // NumberOfLineNumbers
.long 0x42100040 // Characteristics (section flags)

.ascii ".text"
.byte 0
.byte 0
.byte 0 // end of 0 padding of section name
.long _edata - _start // VirtualSize

```

```

.long _start - ImageBase // VirtualAddress
.long _edata - _start // SizeOfRawData
.long _start - ImageBase // PointerToRawData

.long 0 // PointerToRelocations (0 for executables)
.long 0 // PointerToLineNumbers (0 for executables)
.short 0 // NumberOfRelocations (0 for executables)
.short 0 // NumberOfLineNumbers (0 for executables)
.long 0xe0500020 // Characteristics (section flags)

.set push
.set noreorder
.align 4

.globl _start
.ent _start
.type _start,
@function
_start:
daddiu $sp, -32
sd $ra, ($sp)

// Get pc & gp
.align 3
bal 1f
sd $gp, 8($sp)
_pc:
.dword _gp
.dword _DYNAMIC
.dword _relocate
1:
// pc in ra
ld $gp, ($ra)
dli $t0, _pc
dsubu $gp, $t0
daddu $gp, $ra

sd $a0, 16($sp)
sd $a1, 24($sp)

// a2: ImageHandle
move $a2, $a0
// a3: SystemTable
move $a3, $a1
// a0: ImageBase
dli $t1, ImageBase - _pc
daddu $a0, $ra, $t1
// a1: DynamicSection

```

```
ld $t1, 8($ra)
dsubu $t1, $t0
daddu $a1, $ra, $t1
// call _relocate
ld $t1, 16($ra)
dsubu $t1, $t0
daddu $t9, $ra, $t1
jalr $t9
nop
bnez $v0, 1b
nop
```

```
// a0: ImageHandle
ld $a0, 16($sp)
// call efi_main
dla $t9, efi_main
jalr $t9
// a1: SystemTable
ld $a1, 24($sp)
```

```
1:
ld $gp, 8($sp)
ld $ra, ($sp)
jr $ra
daddiu $sp, 32
.end _start
```

```
.set pop
```

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```
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*
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\*

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## 1.871 rtl8723bs-bt git

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\*

\*Module Name:

\* hciattach\_rtk.c

\*

\*Description:

\* H4/H5 specific initialization

\*

\*Revision History:

* Date	Version	Author	Comment
* -----	-----	-----	-----
* 2013-06-06	1.0.0	gordon_yang	Create
* 2013-06-18	1.0.1	lory_xu	add support for multi fw
* 2013-06-21	1.0.2	gordon_yang	add timeout for get version cmd
* 2013-07-01	1.0.3	lory_xu	close file handle
* 2013-07-01	2.0	champion_chen	add IC check
* 2013-12-16	2.1	champion_chen	fix bug in Additional packet number
* 2013-12-25	2.2	champion_chen	open host flow control after send last fw packet

\*/

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\*

\* Bluetooth HCI UART driver

\*

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# 1.872 python3-babel 2.6.0

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#
```

```

#
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```
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```

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```

```
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Ty Coon, President of Vice
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Upstream-Name: iuicode\_tool

Upstream-Contact: Henrique de Moraes Holschuh <hnh@hnh.eng.br>  
<https://gitlab.com/iuicode-tool/iuicode-tool/issues>

Source: <https://gitlab.com/iuicode-tool>

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## 1.876 util-macros 1.19.2

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# 20130209+gitAUTOINC+3ebe0e54c5

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```
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```

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```
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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
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-----  
2015-12-03 12:10:08 +0000 Tony Finch <dot@dotat.at> (HEAD -> master, tag: undef-2.11)

Bump copyright dates

COPYING | 2 +-  
undef.1 | 4 +++  
undef.c | 2 +-  
3 files changed, 4 insertions(+), 4 deletions(-)

-----  
2015-12-03 12:06:33 +0000 Tony Finch <dot@dotat.at>

undef-2.11

README | 3 +++  
web/index.html | 6 +++--  
2 files changed, 6 insertions(+), 3 deletions(-)

-----  
2015-12-03 11:50:46 +0000 Tony Finch <dot@dotat.at> (github/master)

Fix uninitialized variable in evaluator.

Inner expressions typically return LT\_IF without setting their value pointer when they encounter an unknown value. Binary operators then blindly use these inner values before checking if they are unknown - before checking for LT\_IF. This is undefined behaviour, but we usually dodge the bullet - except division can cause things to explode and expose the bug.

Initializing the value to zero avoids undefined behaviour. But this means that instead of avoiding division when the denominator is definitely zero (because it might be unknown and zero) we now only divide if it is definitely non-zero.

undef.c | 4 +++  
1 file changed, 2 insertions(+), 2 deletions(-)

2015-12-03 11:42:04 +0000 Tony Finch <dot@dotat.at>

test: unexpected /0 exception happening in another part of the test

tests/div.sh | 4 +++-

1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2015-12-03 11:37:56 +0000 Tony Finch <dot@dotat.at>

travis: clone deeply, so version tags are included

.travis.yml | 3 ---

1 file changed, 3 deletions(-)

-----  
2015-12-03 11:37:23 +0000 Tony Finch <dot@dotat.at>

test: clearer div test, and try to diagnose unexpected  
/0 exception

tests/div.expout | 5 ++++-

tests/div.sh | 9 ++++++--

2 files changed, 11 insertions(+), 3 deletions(-)

-----  
2015-12-03 11:17:20 +0000 Tony Finch <dot@dotat.at>

win32: suppress warnings about POSIX functions

win32/unifdef.h | 5 +++++

1 file changed, 5 insertions(+)

-----  
2015-12-03 11:15:29 +0000 Tony Finch <dot@dotat.at>

travis: clone with a nonzero depth

.travis.yml | 2 +-  
-----

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2015-12-03 11:08:24 +0000 Tony Finch <dot@dotat.at>

Document the buggy effect of the dumb lexer on the -f option.

unifdef.1 | 11 ++++++

1 file changed, 11 insertions(+)

-----  
2015-12-03 10:59:28 +0000 Tony Finch <dot@dotat.at>

Avoid redundant renames with a -M " empty backup suffix.

Submitted-by: Michael McConville <mmcco@mykolab.com>

unifdef.1 | 5 +++++  
unifdef.c | 3 ++-  
2 files changed, 7 insertions(+), 1 deletion(-)

-----  
2015-12-03 10:50:49 +0000 Tony Finch <dot@dotat.at>

Handle division by zero gracefully.

Reported-by: Michael McConville <mmcco@mykolab.com>

tests/div.c | 3 +++  
tests/div.experr | 0  
tests/div.expout | 7 +++++++  
tests/div.exprc | 1 +  
tests/div.sh | 3 +++  
unifdef.1 | 1 +  
unifdef.c | 4 +++++  
7 files changed, 19 insertions(+)

-----  
2014-10-24 16:43:51 +0100 Tony Finch <dot@dotat.at>

Replace hardcoded operator lexing with table-driven code.

unifdef.c | 31 ++++++-----  
1 file changed, 15 insertions(+), 16 deletions(-)

-----  
2014-10-24 15:02:53 +0000 Brian Ginsbach <ginsbach@netbsd.org>

Add support for additional #if/#elif operators

Add support for additional operators in a #if/#elif statement.

- unary bitwise NOT (one's complement): ~
- unary negative: -
- left shift: <<
- right shift: >>
- bitwise AND: &
- bitwise exclusive OR: ^

- bitwise inclusive OR: |
- addition: +
- subtraction: -
- multiplication: \*
- division: /
- modulo: %

```
tests/if7.c      | 94 ++++++
tests/if7.experr | 0
tests/if7.expout | 46 ++++++
tests/if7.exprc  | 1 +
tests/if7.sh     | 1 +
tests/recursive.experr | 24 ++++++
unifdef.1       | 6 +-
unifdef.c       | 81 ++++++
8 files changed, 244 insertions(+), 9 deletions(-)
```

-----  
 2014-10-24 15:01:11 +0000 Brian Ginsbach <ginsbach@netbsd.org>

Add all comparisons to tests

Add tests for <, <=, >, and >= comparisons.

```
tests/if5-a.expout | 12 ++++++
tests/if5.c       | 28 ++++++
tests/if5.expout  | 12
+++++
3 files changed, 52 insertions(+)
```

-----  
 2014-10-20 21:45:20 +0100 Tony Finch <dot@dotat.at>

Ensure that newlines change the linestate when skipping junk.

Sometimes skipline() would skip meaningful characters without letting skipcomment() look at them.

Reported-By: Christoph Schied <Christoph.Schied@kit.edu>

```
tests/error.c    | 4 ++++
tests/error.experr | 0
tests/error.expout | 2 ++
tests/error.exprc | 1 +
tests/error.sh   | 1 +
unifdef.c       | 8 ++++++
6 files changed, 14 insertions(+), 2 deletions(-)
```

-----  
2014-10-20 21:29:13 +0100 Tony Finch <dot@dotat.at>

tests: update for capitalized diagnostics

tests/defundef-broken2.experr | 4 +++-  
tests/defundef-broken3.experr | 4 +++-  
tests/defundef-broken4.experr | 2 +-  
tests/whitespace-1.experr | 2 +-  
4 files changed, 6 insertions(+), 6 deletions(-)

-----  
2014-10-20  
21:24:35 +0100 Tony Finch <dot@dotat.at>

DIAGNOSTICS do not have full stops.

unifdef.1 | 10 +++++-----  
1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2014-10-20 21:23:50 +0100 Tony Finch <dot@dotat.at>

Add some missing DIAGNOSTICS

unifdef.1 | 6 ++++++  
1 file changed, 6 insertions(+)

-----  
2014-10-20 21:21:00 +0100 Tony Finch <dot@dotat.at>

Capitalize error messages

unifdef.c | 12 +++++-----  
1 file changed, 6 insertions(+), 6 deletions(-)

-----  
2014-10-20 21:19:37 +0100 Tony Finch <dot@dotat.at>

Alphabetize DIAGNOSTICS

unifdef.1 | 6 +++-  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2014-10-20 21:16:34 +0100 Tony Finch <dot@dotat.at>

Check there is a filename argument for inplace editing.

Reported-by: Philip Guenther <guenther@openbsd.org>

Submitted-By: Stuart

Henderson <sthen@openbsd.org>

unifdef.c | 2 ++

1 file changed, 2 insertions(+)

-----  
2014-01-08 15:03:36 +0000 Tony Finch <dot@dotat.at>

travis: restore missing semicolon

.travis.yml | 2 +-  
-----

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2014-01-08 14:59:46 +0000 Tony Finch <dot@dotat.at>

win32: do not use Unix Makefile for testing on MinGW

.travis.yml | 3 +--

win32/Makefile.mingw | 3 +++

2 files changed, 4 insertions(+), 2 deletions(-)

-----  
2014-01-08 14:16:13 +0000 Tony Finch <dot@dotat.at>

win32: avoid deprecated -I- compiler option in MinGW build

win32/Makefile.mingw | 6 +++++-

1 file changed, 5 insertions(+), 1 deletion(-)

-----  
2014-01-08 14:15:39 +0000 Tony Finch <dot@dotat.at>

win32: need prototype for snprintf()

win32/unifdef.h | 1 +

1 file changed, 1 insertion(+)

-----  
2014-01-08

13:51:53 +0000 Tony Finch <dot@dotat.at>

unifdef: typo in comment

Reported-by: Bernhard Reutner-Fischer <rep.dot.nop@gmail.com>

unifdef.h | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2014-01-08 13:39:10 +0000 Tony Finch <dot@dotat.at>

win32: avoid "secure" string functions - troublesome on MinGW

win32/win32.c | 54 ++++++-----  
1 file changed, 26 insertions(+), 28 deletions(-)

-----  
2014-01-08 00:15:18 +0000 Tony Finch <dot@dotat.at>

win32: or maybe stdint.h? MinGW seems to disagree with Windows :-(

win32/unifdef.h | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2014-01-08 00:06:22 +0000 Tony Finch <dot@dotat.at>

win32: need stddef.h

win32/unifdef.h | 1 +  
1 file changed, 1 insertion(+)

-----  
2014-01-07  
23:57:36 +0000 Tony Finch <dot@dotat.at>

win32: another try at working around lack of \_TRUNCATE

win32/unifdef.h | 2 --  
win32/win32.c | 16 ++++++-----  
2 files changed, 15 insertions(+), 3 deletions(-)

-----  
2014-01-07 23:42:00 +0000 Tony Finch <dot@dotat.at>

win32: need crtdefs.h?

win32/unifdef.h | 2 ++  
1 file changed, 2 insertions(+)

-----  
2014-01-07 22:45:47 +0000 Tony Finch <dot@dotat.at>

win32: correct variable name in snprintf()

win32/win32.c | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2014-01-07 22:32:21 +0000 Tony Finch <dot@dotat.at>

unifdef: cleaner exit status handling

unifdef.c | 16 ++++++-----

1 file changed, 6 insertions(+), 10 deletions(-)

-----  
2014-01-07 20:41:07 +0000 Tony Finch <dot@dotat.at>

unifdef:

do not needlessly modify files when updating in place

If unifdef made no changes, leave the original input file  
in place and delete the temporary working copy.

Inspired by <http://trac.webkit.org/changeset/156877>

tests/overunchanged.experr | 0

tests/overunchanged.expout | 0

tests/overunchanged.exprc | 1 +

tests/overunchanged.sh | 8 ++++++++

unifdef.1 | 2 ++

unifdef.c | 13 ++++++++-----

6 files changed, 23 insertions(+), 1 deletion(-)

-----  
2014-01-07 20:24:11 +0000 Tony Finch <dot@dotat.at>

unifdef: correct exit status when lines are modified but not deleted

tests/exitstat.c | 3 +++

tests/exitstat.experr | 0

tests/exitstat.expout | 3 +++

tests/exitstat.exprc | 1 +

tests/exitstat.sh | 1 +

unifdef.c | 1 +

6 files changed, 9 insertions(+)

-----  
2014-01-07 20:02:18 +0000 Tony Finch <dot@dotat.at>



tests:

NetBSD pr#47068

tests/NetBSD-47068.c | 2 ++  
tests/NetBSD-47068.experr | 0  
tests/NetBSD-47068.expout | 2 ++  
tests/NetBSD-47068.exprc | 1 +  
tests/NetBSD-47068.sh | 1 +  
5 files changed, 6 insertions(+)

-----  
2014-01-07 19:16:02 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.10)

web: update for unifdef-2.10 release

web/index.html | 14 +++-----  
1 file changed, 3 insertions(+), 11 deletions(-)

-----  
2014-01-07 19:12:35 +0000 Tony Finch <dot@dotat.at>

bump more copyright dates

scripts/copycheck.sh | 4 +++-  
unifdef.1 | 2 +-  
unifdef.c | 2 +-  
3 files changed, 5 insertions(+), 3 deletions(-)

-----  
2014-01-07 19:00:39 +0000 Tony Finch <dot@dotat.at>

unifdef: do not mark the line as dirty when there is no dirt

This caused problems for #undef directives in -f header files:  
the following line was  
ignored because the line state got  
incorrectly updated.

Thanks to the uClibc project for reporting the bug and providing a  
sample test case and a proposed fix.

Reported-by: Bernhard Reutner-Fischer <rep.dot.nop@gmail.com>

tests/defundef-undefdef.experr | 0  
tests/defundef-undefdef.expout | 1 +  
tests/defundef-undefdef.exprc | 1 +  
tests/defundef-undefdef.sh | 1 +

tests/if6.h | 2 ++  
unifdef.c | 5 +++--  
6 files changed, 7 insertions(+), 3 deletions(-)

-----  
2014-01-06 10:51:56 +0000 Tony Finch <dot@dotat.at>

scripts: make release more verbose

scripts/release.sh | 2 ++  
1 file changed, 2 insertions(+)

-----  
2014-01-06 10:51:17 +0000 Tony Finch <dot@dotat.at>

web: link to pre-release

web/index.html | 8 ++++++++  
1 file changed, 8 insertions(+)

-----  
2014-01-06 10:42:01 +0000 Tony Finch <dot@dotat.at>

Bump  
some copyright dates

COPYING | 2 +-  
win32/unifdef.h | 2 +-  
win32/win32.c | 2 +-  
3 files changed, 3 insertions(+), 3 deletions(-)

-----  
2014-01-06 10:38:00 +0000 Tony Finch <dot@dotat.at>

win32: a more correct snprintf() portability shim

Based on  
<http://stackoverflow.com/questions/2915672/snprintf-and-visual-studio-2010>

win32/unifdef.h | 1 -  
win32/win32.c | 22 +++++++++++++++++++++++++++++++++++++  
2 files changed, 22 insertions(+), 1 deletion(-)

-----  
2013-06-12 15:50:39 +0100 Tony Finch <dot@dotat.at>

INSTALL: use GitHub for Windows to run Unix shell scripts

README: update FreshMeat -> FreeCode and note that GitHub zip file downloads are broken.

Suggested-by: Lee M. Hamel <lee.m.hamel@intel.com>

INSTALL | 12 ++++++-----  
README | 6 +++++-  
2 files changed, 12 insertions(+), 6 deletions(-)

-----  
2013-06-11 22:10:31  
+0100 Tony Finch <dot@dotat.at>

unifdef: refactor keyword and symbol matching

The generic strcmp() is replaced by the more specific matchsym() and findsym() now includes the effect of skipsym().

This is to prepare for case-insensitive keyword matching, as part of foreign language support.

unifdef.c | 155 ++++++-----  
1 file changed, 84 insertions(+), 71 deletions(-)

-----  
2013-06-07 23:21:03 +0100 Tony Finch <dot@dotat.at>

unifdef.1: bump date and add link to home page

unifdef.1 | 5 +++++-  
1 file changed, 4 insertions(+), 1 deletion(-)

-----  
2013-06-07 23:10:14 +0100 Tony Finch <dot@dotat.at>

copycheck: check date in manual

scripts/copycheck.sh | 2 ++  
1 file changed, 2 insertions(+)

-----  
2013-06-07 12:09:20 +0100 Tony Finch <dot@dotat.at>

web: update for unifdef-2.9 release

web/index.html  
| 13 +++-----  
1 file changed, 3 insertions(+), 10 deletions(-)

-----  
2013-06-07 11:53:51 +0100 Tony Finch <dot@dotat.at> (tag: unifdef-2.9)

INSTALL: more portability notes.

INSTALL | 22 ++++++-----  
1 file changed, 15 insertions(+), 7 deletions(-)

-----  
2013-06-06 12:24:30 +0100 Tony Finch <dot@dotat.at>

Makefile: correct dependencies and portability to GNU make.

My aim was previously to rely on make's built-in rules to build unifdef, on the assumption that this would be the easiest way to do the right thing on unknown systems.

The right way to specify the dependencies for unifdef is:

unifdef: unifdef.c unifdef.h version.h

However GNU make has an incorrect implicit rule:

```
.c:  
$(LINK.c) $^ $(LOADLIBES) $(LDLIBS) -o $@
```

This puts all of the prerequisites on the command line, which causes things to break. POSIX specifies the implicit rule as

```
.c:  
$(CC) $(CFLAGS) $(LDFLAGS) -o $@ $<
```

And POSIX says "In an inference rule, the \$< macro shall evaluate to the filename whose existence allowed the inference rule to be chosen for the target". In our case \$< expands to just unifdef.c which is what we want.

Putting .POSIX in the Makefile does not cause GNU make to use the posixly-correct implicit rule definition.

The previous version of the Makefile had incorrect dependencies which meant that GNU make (and probably other versions of make) would not rebuild unifdef if the header files were touched. So to fix that bug, and to work around the buggy implicit rule in GNU make, the Makefile now has an expanded version of the standard POSIX build rule for unifdef.

Makefile | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2013-06-06 11:50:19 +0100 Tony Finch <dot@dotat.at>

web: bump pre-release

web/index.html | 12 ++++++-----

1 file changed, 6 insertions(+), 6 deletions(-)

-----  
2013-06-06

11:48:43 +0100 Tony Finch <dot@dotat.at>

unifdef: Avoid ssize\_t for portability

unifdef.c | 10 +++++-----

1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2013-05-10 00:16:01 +0200 Ruediger Meier <ruediger.meier@ga-group.nl>  
(github/pull/4)

travis-ci: fix release traget by git cloning with infinite depth

git describe needs at least the last tag available. This is never sure  
when using git clone --depth=50 which is done by travis per default.

.travis.yml | 3 +++

1 file changed, 3 insertions(+)

-----  
2013-05-09 21:42:31 +0200 Ruediger Meier <ruediger.meier@ga-group.nl>

scripts: avoid gzip option --keep for compatibility

"-k|--keeps" is not available yet in officially released gzip.

scripts/release.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2013-05-15

13:22:56 +0100 Tony Finch <dot@dotat.at>

scripts: fetch Github pull requests

scripts/git.config | 1 +  
1 file changed, 1 insertion(+)

-----  
2013-05-09 20:44:29 +0100 Tony Finch <dot@dotat.at>

web: bump pre-release

web/index.html | 12 ++++++-----  
1 file changed, 6 insertions(+), 6 deletions(-)

-----  
2013-05-09 20:38:24 +0100 Tony Finch <dot@dotat.at>

unifdef: avoid strndup() for non-standard C implementations

unifdef.c | 8 ++++++--  
1 file changed, 6 insertions(+), 2 deletions(-)

-----  
2013-05-09 20:08:26 +0100 Tony Finch <dot@dotat.at>

scripts: copycheck fixes

! must go at the start of a pipeline in portable sh  
Use a default author if git doesn't know who you are.

scripts/copycheck.sh | 11 ++++-----  
1 file changed, 4 insertions(+), 7 deletions(-)

-----  
2013-05-09 20:00:19 +0100  
Tony Finch <dot@dotat.at>

tests: avoid non-portable error message in multimissing

tests/multi-generic-sh | 2 +-  
tests/multimissing.experr | 1 -  
2 files changed, 1 insertion(+), 2 deletions(-)

-----  
2013-05-09 19:55:37 +0100 Tony Finch <dot@dotat.at>

web: bump pre-release

web/index.html | 12 ++++++-----  
1 file changed, 6 insertions(+), 6 deletions(-)

-----  
2013-05-09 19:54:28 +0100 Tony Finch <dot@dotat.at>

tests: shell . command needs path in argument

tests/multi.sh | 2 +-  
tests/multilnnum.sh | 2 +-  
tests/multimissing.sh | 2 +-  
tests/multinewline.sh | 2 +-  
4 files changed, 4 insertions(+), 4 deletions(-)

-----  
2013-05-09 19:47:56 +0100 Tony Finch <dot@dotat.at>

web: bump pre-release

web/index.html | 12 ++++++-----  
1 file changed, 6 insertions(+), 6 deletions(-)

-----  
2013-05-09  
19:44:58 +0100 Tony Finch <dot@dotat.at>

tests: leave the source files alone in the multi-file tests

tests/multi-generic-sh | 15 ++++++  
tests/multi.expout | 8 +++++-  
tests/multi.sh | 10 +++-----  
tests/multilnnum.expout | 20 ++++++  
tests/multilnnum.sh | 10 +++-----  
tests/multimissing.experr | 7 +++++-  
tests/multimissing.expout | 4 +++-  
tests/multimissing.sh | 15 +++-----  
tests/multinewline.expout | 8 +++++-  
tests/multinewline.sh | 10 +++-----  
10 files changed, 52 insertions(+), 55 deletions(-)

-----  
2013-05-09 14:41:53 +0100 Tony Finch <dot@dotat.at>

Makefile: release fixes

Must include version.h for non-unix builds. Re-jig the version dependencies to avoid running reversion.sh twice.

Makefile | 5 +++-  
1 file changed, 3 insertions(+), 2 deletions(-)

-----  
2013-05-08 16:51:11 +0100  
Tony Finch <dot@dotat.at>

web: bump pre-release

web/index.html | 12 ++++++-----  
1 file changed, 6 insertions(+), 6 deletions(-)

-----  
2013-05-08 16:48:49 +0100 Tony Finch <dot@dotat.at>

tests: clean away more xterm gubbins

Makefile | 3 +-  
tests/xterm.experr | 2 +-  
tests/xterm.expout | 2671 -----  
tests/xterm.sh | 7 +-  
4 files changed, 6 insertions(+), 2677 deletions(-)

-----  
2013-05-08 16:30:35 +0100 Tony Finch <dot@dotat.at>

tests: do not ship vast chunks of XTerm

By default the xterm test does nothing; if required it will download and upack xterm in order to run the full test. It is likely to break when a new version of xterm is released since the download URL is not versioned.

COPYING | 8 -  
tests/xterm-292-main.c | 5239 -----  
tests/xterm-defs.h | 6423

-----  
tests/xterm.sh | 38 +-  
4 files changed, 33 insertions(+), 11675 deletions(-)

-----  
2013-05-08 16:08:49 +0100 Tony Finch <dot@dotat.at>

scripts: fold long lines in the Changelog

scripts/gitlog2changelog.sh | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-05-08 15:58:15 +0100 Tony Finch <dot@dotat.at>



scripts: compress releases with xz as well as gzip

```
scripts/release.sh | 6 ++++--
web/index.html    | 2 ++
2 files changed, 6 insertions(+), 2 deletions(-)
```

-----  
2013-05-08 15:02:06 +0100 Tony Finch <dot@dotat.at>

web: bump pre-release

```
web/index.html | 8 ++++----
1 file changed, 4 insertions(+), 4 deletions(-)
```

-----  
2013-05-08 15:01:17 +0100 Tony Finch <dot@dotat.at>

COPYING: note part of XTerm is used in the tests

```
COPYING | 8 ++++++++
1 file changed, 8 insertions(+)
```

-----  
2013-05-08 14:56:23 +0100 Tony Finch <dot@dotat.at>

tests: check recursive definitions, and unifdefall xterm

The xterm test is my original motivation for unifdef.  
The OPT\_PTY\_HANDSHAKE definition relies on indirection  
and without that feature unifdefall cannot remove all  
preprocessor conditional directives.

```
tests/recursive.experr | 102 +
tests/recursive.expout | 26 +
tests/recursive.exprc | 1 +
tests/recursive.sh    | 1 +
tests/xterm-292-main.c | 5239 ++++++
tests/xterm-defs.h    | 6423 ++++++
tests/xterm.experr    | 3 +
tests/xterm.expout    | 2754 ++++++
tests/xterm.exprc     | 1 +
tests/xterm.sh        | 8 +
10 files changed, 14558 insertions(+)
```

-----  
2013-05-08 14:46:53 +0100 Tony Finch <dot@dotat.at>

unifdef:  
further debugging improvements

unifdef.c | 16 ++++++-----  
1 file changed, 11 insertions(+), 5 deletions(-)

-----  
2013-05-08 13:47:07 +0100 Tony Finch <dot@dotat.at>

unifdef: improve indirect macro definitions

Note in the debug output when a macro value is updated.

Do not change a macro from defined to undefined.

Recursive definitions no longer cause a loop.

unifdef.c | 29 ++++++-----  
1 file changed, 19 insertions(+), 10 deletions(-)

-----  
2013-05-08 13:30:37 +0100 Tony Finch <dot@dotat.at>

web: pre-release

web/index.html | 6 ++++++  
1 file changed, 6 insertions(+)

-----  
2013-05-08 13:19:31 +0100 Tony Finch <dot@dotat.at>

scripts: include release tags and renames in Changelog

Makefile | 2 +-  
scripts/gitlog2changelog.sh | 2 +-  
2 files changed, 2 insertions(+), 2 deletions(-)

-----  
2013-05-08  
13:10:11 +0100 Tony Finch <dot@dotat.at>

web: improve example uses, and add UIT

web/index.html | 16 ++++++-----  
1 file changed, 10 insertions(+), 6 deletions(-)

-----  
2013-05-08 12:56:45 +0100 Tony Finch <dot@dotat.at>

unifdef.1: document indirection, and refer to macros not symbols

Trying to be more consistent with terminology from the C standard.

unifdef.1 | 76 ++++++-----

1 file changed, 38 insertions(+), 38 deletions(-)

-----  
2013-05-08 12:39:53 +0100 Tony Finch <dot@dotat.at>

tests: test indirect macro definitions

tests/indirect.experr | 0  
tests/indirect.expout | 16 ++++++  
tests/indirect.exprc | 1 +  
tests/indirect.sh | 1 +  
4 files changed, 18 insertions(+)

-----  
2013-05-08 12:39:03 +0100 Tony Finch  
<dot@dotat.at>

scripts: add missing release script

scripts/release.sh | 14 ++++++  
1 file changed, 14 insertions(+)

-----  
2013-05-08 12:31:39 +0100 Tony Finch <dot@dotat.at>

unifdef: support for simple macro value indirection

unifdef.c | 23 ++++++  
1 file changed, 23 insertions(+)

-----  
2013-05-08 11:45:53 +0100 Tony Finch <dot@dotat.at>

Makefile: delete control characters from manual with col instead of sed

Makefile | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-05-08 11:21:31 +0100 Tony Finch <dot@dotat.at>

scripts: move support gubbins into a subdirectory

```
Makefile          | 26 ++++++-----
authors.svn => scripts/authors.svn | 0
copycheck.sh => scripts/copycheck.sh | 0
fixtests.sh => scripts/fixtests.sh | 0
git.config => scripts/git.config
| 3 ---
scripts/gitlog2changelog.sh      | 8 ++++++++
reversion.sh => scripts/reversion.sh | 0
runtests.sh => scripts/runtests.sh | 0
svnup => scripts/svnup.sh        | 4 +---
upload => scripts/upload.sh      | 0
10 files changed, 16 insertions(+), 25 deletions(-)
```

-----  
2013-05-08 11:03:38 +0100 Tony Finch <dot@dotat.at>

Bump copyright dates.

```
COPYING          | 4 +++-
unifdef.h        | 2 +-
win32/unifdef.h | 2 +-
win32/win32.c    | 2 +-
4 files changed, 5 insertions(+), 5 deletions(-)
```

-----  
2013-05-08 10:49:28 +0100 Tony Finch <dot@dotat.at>

copyckeck: ensure copyright dates are correct on release

```
copycheck.sh | 20 ++++++-----
1 file changed, 20 insertions(+)
```

-----  
2013-05-06 18:08:08 +0100 Tony Finch <dot@dotat.at>

web: update for 2.8 release; clearer links to COPYRIGHT and INSTALL

```
web/index.html |
16 ++++++-----
1 file changed, 5 insertions(+), 11 deletions(-)
```

-----  
2013-05-06 18:07:21 +0100 Tony Finch <dot@dotat.at> (tag: unifdef-2.8)

INSTALL: be clearer about dependencies up front

```
INSTALL | 6 +++++-
```

1 file changed, 5 insertions(+), 1 deletion(-)

-----  
2013-05-06 17:47:58 +0100 Tony Finch <dot@dotat.at>

unifdef: fix #undef parser

Previously the parser state was incorrect following a #undef which caused the following line to be ignored. Found when testing unifdefall on xterm/main.c.

unifdef.c | 4 +++-

1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2013-05-06 17:40:16 +0100 Tony Finch <dot@dotat.at>

unifdef: remove spurious \n in debug output

unifdef.c | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-05-06 17:36:34 +0100 Tony Finch <dot@dotat.at>

unifdef:  
increase max number of symbols to 16K

This is so that it can cope with the output of  
cc -E -dM xterm/main.c

unifdef.c | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-05-06 17:35:08 +0100 Tony Finch <dot@dotat.at>

unifdefall: use unifdef -f and delete lots of arcane shell hackery

unifdefall.sh | 34 ++++++-----  
1 file changed, 8 insertions(+), 26 deletions(-)

-----  
2013-04-29 21:10:55 +0100 Tony Finch <dot@dotat.at>

web: bump pre-release version

web/index.html | 8 +++++--

1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2013-04-29 21:02:53 +0100 Tony Finch <dot@dotat.at>

unifdef: support function-like macro definitions

This is a fairly half-arsed implementation that treats function-like macros the same as object-like macros that have been set to 1. It is reasonably consistent with the existing half-arsed treatment of function-like macro invocations in #if and #elif control expressions.

The manual now explains this half-arsedness more clearly.

```
tests/broken1.h          | 1 -
tests/defundef-broken1.experr      | 2 -
tests/defundef-broken1.exprc      | 1 -
tests/defundef-broken1.sh         | 1 -
...ndef-broken1.expout => defundef-funlike.experr} | 0
tests/defundef-funlike.expout      | 13 ++++++
tests/defundef-funlike.exprc      | 1 +
tests/defundef-funlike.sh         | 1 +
tests/funlike.h                | 1 +
unifdef.1                      | 51 ++++++-----
unifdef.c                      | 14 +++---
11 files changed, 58 insertions(+), 28 deletions(-)
```

-----  
2013-04-29 20:37:08 +0100 Tony Finch <dot@dotat.at>

unifdef.1:  
typo: function-like arguments -> macros

unifdef.1 | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-04-27 17:28:18 +0100 Tony Finch <dot@dotat.at>

web: advertise pre-release

web/index.html | 7 ++++++  
1 file changed, 7 insertions(+)

-----  
2013-04-27 17:22:50 +0100 Tony Finch <dot@dotat.at>

tests: broken #define/#undef files

```
tests/broken1.h      | 1 +
tests/broken2.h      | 1 +
tests/broken3.h      | 1 +
tests/broken4.h      | 2 ++
tests/defundef-broken1.experr | 2 ++
tests/defundef-broken1.expout | 0
tests/defundef-broken1.exprc | 1 +
tests/defundef-broken1.sh   | 1 +
tests/defundef-broken2.experr | 2 ++
tests/defundef-broken2.expout | 0
tests/defundef-broken2.exprc | 1 +
tests/defundef-broken2.sh   | 1 +
tests/defundef-broken3.experr | 2 ++
tests/defundef-broken3.expout | 0
tests/defundef-broken3.exprc |
1 +
tests/defundef-broken3.sh   | 1 +
tests/defundef-broken4.experr | 2 ++
tests/defundef-broken4.expout | 0
tests/defundef-broken4.exprc | 1 +
tests/defundef-broken4.sh   | 1 +
20 files changed, 21 insertions(+)
```

-----  
2013-04-27 17:21:15 +0100 Tony Finch <dot@dotat.at>

unifdef: correct check for multi-line #define/#undef directives

```
unifdef.c | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

-----  
2013-04-27 16:57:50 +0100 Tony Finch <dot@dotat.at>

unifdef.1: explain #define restrictions

```
unifdef.1 | 7 +++++++
1 file changed, 7 insertions(+)
```

-----  
2013-04-27 16:52:26 +0100 Tony Finch <dot@dotat.at>

unifdef: no need to edit keywords in defundef()

```
unifdef.c | 14 ++++++-----
1 file changed, 6 insertions(+), 8 deletions(-)
```

-----  
2013-04-27 16:44:58 +0100 Tony Finch <dot@dotat.at>

unifdef:  
rewrite the #define/#undef file parser

unifdef.c | 158 ++++++-----  
1 file changed, 52 insertions(+), 106 deletions(-)

-----  
2013-04-27 16:41:31 +0100 Tony Finch <dot@dotat.at>

unifdef: 64 bit evaluator, and quell type conversion warnings

unifdef.c | 66 ++++++-----  
1 file changed, 43 insertions(+), 23 deletions(-)

-----  
2013-04-27 16:38:00 +0100 Tony Finch <dot@dotat.at>

tests: display progress

runtests.sh | 3 +++  
1 file changed, 3 insertions(+)

-----  
2013-04-26 17:48:14 +0100 Tony Finch <dot@dotat.at>

unifdef: more refactoring in -f mode

Moving towards sharing more of the parsing code between -f header files and normal source files.

unifdef.c | 28 ++++++-----  
1 file changed, 15 insertions(+), 13 deletions(-)

-----  
2013-04-26  
17:43:54 +0100 Tony Finch <dot@dotat.at>

unifdef: Fix the behaviour of #define without a value

On the command line, ``-DFOO`` is a short-hand for ``-DFOO=1`` whereas ``#define FOO`` is like ``-DFOO=.``.

tests/if1.h | 2 +-  
unifdef.c | 30 ++++++-----



2 files changed, 13 insertions(+), 19 deletions(-)

-----  
2013-04-26 16:13:48 +0100 Tony Finch <dot@dotat.at>

reversion: avoid spurious rebuilds in a dirty tree

reversion.sh | 3 +++  
1 file changed, 3 insertions(+)

-----  
2013-04-26 16:13:22 +0100 Tony Finch <dot@dotat.at>

Makefile: need a dependency on unifdef.h

Makefile | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-04-26 15:51:56 +0100 Tony Finch <dot@dotat.at>

unifdef: count lines correctly when processing multiple files

tests/multilnnum.experr  
| 0  
tests/multilnnum.expout | 42 +++++  
tests/multilnnum.exprc | 1 +  
tests/multilnnum.sh | 7 +++++  
unifdef.c | 1 +  
5 files changed, 51 insertions(+)

-----  
2013-04-17 21:44:38 +0100 Tony Finch <dot@dotat.at>

tests: check handling of weird whitespace

tests/whitespace-1.experr | 2 ++  
tests/whitespace-1.expout | 1 +  
tests/whitespace-1.exprc | 1 +  
tests/whitespace-1.sh | 1 +  
tests/whitespace-2.experr | 0  
tests/whitespace-2.expout | 5 +++++  
tests/whitespace-2.exprc | 1 +  
tests/whitespace-2.sh | 1 +  
tests/whitespace.c | 7 +++++  
9 files changed, 19 insertions(+)

2013-04-17 21:44:02 +0100 Tony Finch <dot@dotat.at>

tests: add missing if1.h

tests/if1.h | 3 +++

1 file changed, 3 insertions(+)

-----

2013-04-17 21:39:15 +0100 Tony Finch <dot@dotat.at>

unifdef:

improve handling of weird whitespace

This fixes the handling of lots of whitespace on a line,  
and restores proper handling of final lines without newlines.

unifdef.c | 20 ++++++

1 file changed, 17 insertions(+), 3 deletions(-)

-----

2013-04-17 20:51:25 +0100 Tony Finch <dot@dotat.at>

unifdef: refactor parseline()

Create functions for finding preprocessor directives and for skipping  
trailing junk and non-preprocessor text. This simplifies parseline()  
and it will also be useful in defundef().

unifdef.c | 182 ++++++

1 file changed, 98 insertions(+), 84 deletions(-)

-----

2013-04-16 22:43:24 +0100 Tony Finch <dot@dotat.at>

unifdef: trace -f activity only in debug mode

tests/if1-f.experr | 3 ---

unifdef.c | 4 ++--

2 files changed, 2 insertions(+), 5 deletions(-)

-----

2013-04-16

22:40:16 +0100 Tony Finch <dot@dotat.at>

tests: check basics of -f

tests/if1-f.experr | 3 +++

tests/if1-f.expout | 16 ++++++

tests/if1-f.exprc | 1 +  
tests/if1-f.sh | 1 +  
4 files changed, 21 insertions(+)

-----  
2013-04-16 22:34:11 +0100 Tony Finch <dot@dotat.at>

unifdef: better error handling and style for defundef()

unifdef.c | 24 ++++++-----  
1 file changed, 11 insertions(+), 13 deletions(-)

-----  
2013-04-16 22:17:49 +0100 Tony Finch <dot@dotat.at>

unifdef: correctly handle multiple input files with differing newline styles

tests/multinewline.experr | 0  
tests/multinewline.expout | 39 ++++++-----  
tests/multinewline.exprc | 1 +  
tests/multinewline.sh | 7 ++++++  
unifdef.c | 1 +  
5 files changed, 48 insertions(+)

-----  
2013-04-16  
22:09:16 +0100 Tony Finch <dot@dotat.at>

unifdef: stylish undefile()

unifdef.c | 133 ++++++-----  
1 file changed, 67 insertions(+), 66 deletions(-)

-----  
2013-04-16 21:52:41 +0100 Tony Finch <dot@dotat.at>

README: credit Steve Underwood

README | 3 +++  
1 file changed, 3 insertions(+)

-----  
2013-04-16 21:50:45 +0100 Tony Finch <dot@dotat.at>

unifdef: cleanup addsym() code duplication and name undefile()

unifdef.c | 70 ++++++-----  
1 file changed, 31 insertions(+), 39 deletions(-)

-----  
2013-04-16 21:28:53 +0100 Tony Finch <dot@dotat.at>

unifdef: use -f option for definitions files, and add documentation

unifdef.1 | 22 ++++++  
unifdef.c | 14 ++++++-----  
2 files changed, 29 insertions(+), 7 deletions(-)

-----  
2013-04-16  
20:51:34 +0100 Tony Finch <dot@dotat.at>

unifdef: read definitions and undefinitions from a file

Submitted-by: Steve Underwood <steveu@coppice.org>

unifdef.c | 167 ++++++  
1 file changed, 165 insertions(+), 2 deletions(-)

-----  
2013-04-07 11:07:46 +0100 Tony Finch <dot@dotat.at>

win32: report intermediate errors in replace()

win32/win32.c | 3 +-  
1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2013-04-07 11:04:10 +0100 Tony Finch <dot@dotat.at>

unifdef: slightly cleaner backup filename handling

unifdef.c | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-04-07 10:57:48 +0100 Tony Finch <dot@dotat.at>

unifdef: close input when processing is complete

This avoids leaking input file handles when processing multiple files, and it should help with the temporary file handling problems on Windows.

unifdef.c | 19 ++++++-----

1 file changed, 10 insertions(+), 9 deletions(-)

-----  
2013-04-07 10:55:13 +0100 Tony Finch <dot@dotat.at>

unifdef: add a comment to explain the newline handling

unifdef.c | 9 ++++++++  
1 file changed, 9 insertions(+)

-----  
2013-04-06 13:51:10 +0100 Tony Finch <dot@dotat.at>

win32: ReplaceFile() is not the right thing either.

Sometimes unifdef calls replace() when the target filename does not exist, in which situation ReplaceFile() fails. So it is easier to call remove() and rename() and not worry about atomic replacement.

win32/win32.c | 29 ++++-----  
1 file changed, 4 insertions(+), 25 deletions(-)

-----  
2013-04-04 12:46:09 +0200 Ruediger Meier <ruediger.meier@ga-group.nl>

travis-ci: import  
travis yaml controller

.travis.yml is used for automatic builds on travis build farm (<https://travis-ci.org/>) if the travis service hook is enabled for the repo on github.

This initial yaml controller will run 3 different compilers (gcc, clang, mingw). Mingw builds will use wine for running the test suite, which currently fails for some tests to be fixed (or skipped) later.

Builds are enabled for two branches "master" and "tmp" where the tmp branch may be used to try something out without polluting the master history (specially when changing/testing .travis.yml itself).

.travis.yml | 36 +++  
1 file changed, 36 insertions(+)

-----  
2013-04-06 13:24:03 +0100 Tony Finch <dot@dotat.at>

win32: use ReplaceFile() instead of rename()

The Windows implementation of rename() fails if the new filename already exists. When processing the input file in place, undef uses ReplaceFile() instead.

```
undef.c
| 2 +-
undef.h    | 2 ++
win32/undef.h | 1 +
win32/win32.c | 33 ++++++
4 files changed, 37 insertions(+), 1 deletion(-)
```

-----  
2013-04-04 13:28:31 +0200 Ruediger Meier <ruediger.meier@ga-group.nl>

Makefile: specify path to version.sh in release target.

Some shells only source from \$PATH not the current directory.

```
Makefile | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

-----  
2013-04-04 13:11:20 +0200 Ruediger Meier <ruediger.meier@ga-group.nl>

Tell git to ignore .exe target.

```
.gitignore | 1 +
1 file changed, 1 insertion(+)
```

-----  
2013-04-04 12:45:05 +0200 Ruediger Meier <ruediger.meier@ga-group.nl>

INSTALL: fix typo

```
INSTALL | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

-----  
2013-04-02 21:51:39 +0100 Tony Finch <dot@dotat.at>

tests/multimissing:  
avoid platform-dependent error message

Reported-by: Ruediger Meier <ruediger.meier@ga-group.nl>

```
tests/multimissing.experr | 3 +-
tests/multimissing.sh    | 9 ++++++
2 files changed, 8 insertions(+), 4 deletions(-)
```

-----  
2013-04-02 14:07:20 +0200 Ruediger Meier <ruediger.meier@ga-group.nl>

tests: locale-independent diffs in multi-file tests

We want to sed away file mtimes from the diff output but date/time format may depend on platform and locale.

(Noticed on OpenBSD 5.1)

tests/multi.sh | 4 ++--  
tests/multimissing.sh | 4 ++--  
2 files changed, 4 insertions(+), 4 deletions(-)

-----  
2013-04-02 21:27:17 +0100 Tony Finch <dot@dotat.at>

unifdefall: use cc -E -dM instead of cpp -dM

This is a workaround for Mac OS X, in which ccp invokes gcc with the -traditional-cpp option which disables C99 variadic macros. Unfortunately stdio.h requires variadic macro support so real programs, as well as the tests, are likely to break.

I am not sure if this is the right fix. It is marginally closer to POSIX, since it has c99 -E but not cpp. But POSIX also lacks cc and the -dM option.

unifdefall.sh | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-04-02 21:25:14 +0100 Tony Finch <dot@dotat.at>

tests: fix a typo in a type name, caught by clang

tests/if5-a.expout | 2 +-  
tests/if5.c | 2 +-  
tests/if5.expout | 2 +-  
3 files changed, 3 insertions(+), 3 deletions(-)

-----  
2013-03-31 16:00:36 +0100 Tony Finch <dot@dotat.at>

reversion: deal with a git regression when the tree is clean

Some time between git-1.7.3 and git-1.7.10 `git show --quiet`

stopped working. Apparently the official way to suppress the diff output is now with the -s option. Neither of these options is documented in the `git show` man page; `git diff` documents the --quiet option for this purpose and `git log` documents the -s option.

See also <http://thread.gmane.org/gmane.comp.version-control.git/174665>

Reported-by: Bruce Korb <bruce.korb@gmail.com>

reversion.sh | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-03-28 19:05:30 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.7)

bump copyright dates

unifdef.1 | 2 +-  
unifdef.c | 2 +-  
unifdefall.sh | 2 +-  
3 files changed, 3 insertions(+), 3 deletions(-)

-----  
2013-03-28 19:04:50 +0000 Tony Finch <dot@dotat.at>

web: freshmeat iis now freecode

web/index.html | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2013-03-28 18:50:12 +0000 Tony Finch <dot@dotat.at>

Release unifdef-2.7

web/index.html | 8 ++++----  
1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2013-03-28 18:43:36 +0000  
Tony Finch <dot@dotat.at>

web: bump prerelease version again

web/index.html | 4 +++-  
1 file changed, 2 insertions(+), 2 deletions(-)



-----  
2013-03-28 18:37:41 +0000 Tony Finch <dot@dotat.at>

unifdef.1: Remove superfluous paragraph macro.

Obtained-from: Joel Dahl <joel@FreeBSD.org>

unifdef.1 | 1 -  
1 file changed, 1 deletion(-)

-----  
2013-03-28 18:35:10 +0000 Tony Finch <dot@dotat.at>

unifdefall: No need to use `basename`.

Obtained-from: David O'Brien <obrien@FreeBSD.org>

unifdefall.sh | 3 +--  
1 file changed, 1 insertion(+), 2 deletions(-)

-----  
2013-03-28 18:18:48 +0000 Tony Finch <dot@dotat.at>

unifdef: fix type mismatch in debug() calls.

Adapted from a similar fix by Jörg Sonnenberger <joerg@NetBSD.org>

unifdef.c | 28 ++++++-----  
1 file changed, 17 insertions(+), 11 deletions(-)

-----  
2013-03-28  
17:36:25 +0000 Tony Finch <dot@dotat.at>

win32: Makefile for MinGW.

Suggested by: Mateusz Czaplinski <czapkofan@gmail.com>

INSTALL | 8 +++++-  
win32/Makefile.mingw | 7 ++++++  
2 files changed, 12 insertions(+), 3 deletions(-)

-----  
2013-03-28 17:24:37 +0000 Tony Finch <dot@dotat.at>

unifdef.c: quell warnings

unifdef.c | 9 +++++----  
1 file changed, 5 insertions(+), 4 deletions(-)

-----  
2013-03-28 16:47:06 +0000 Tony Finch <dot@dotat.at>

web: bump prerelease version

web/index.html | 3 +-  
1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2013-03-28 16:38:34 +0000 Tony Finch <dot@dotat.at>

Include the input file name on #line directives.

Suggested by: Bob Lewis <bobl@tricity.wsu.edu>

tests/overlnnum.expout | 8 +++++----  
unifdef.c | 26 ++++++-----  
2 files  
changed, 27 insertions(+), 7 deletions(-)

-----  
2013-03-28 16:08:00 +0000 Tony Finch <dot@dotat.at>

Configurable exit mode, to be more friendly to make files.

Suggested by: Bob Lewis <bobl@tricity.wsu.edu>

tests/exitmode0a.experr | 0  
tests/exitmode0a.expout | 16 ++++++-----  
tests/exitmode0a.exprc | 1 +  
tests/exitmode0a.sh | 1 +  
tests/exitmode0b.experr | 0  
tests/exitmode0b.expout | 26 ++++++-----  
tests/exitmode0b.exprc | 1 +  
tests/exitmode0b.sh | 1 +  
tests/exitmode1a.experr | 0  
tests/exitmode1a.expout | 16 ++++++-----  
tests/exitmode1a.exprc | 1 +  
tests/exitmode1a.sh | 1 +  
tests/exitmode1b.experr | 0  
tests/exitmode1b.expout | 26 ++++++-----  
tests/exitmode1b.exprc | 1 +  
tests/exitmode1b.sh | 1 +  
tests/exitmode2a.experr | 0  
tests/exitmode2a.expout | 16 ++++++-----

```
tests/exitmode2a.exprc | 1 +
tests/exitmode2a.sh   | 1 +
tests/exitmode2b.experr
| 0
tests/exitmode2b.expout | 26 ++++++
tests/exitmode2b.exprc | 1 +
tests/exitmode2b.sh   | 1 +
unifdef.l             | 40 ++++++-----
unifdef.c             | 23 ++++++-----
26 files changed, 190 insertions(+), 11 deletions(-)
```

-----  
2012-09-06 17:58:59 +0100 Tony Finch <dot@dotat.at>

web: fix the anchor text too!

```
web/index.html | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

-----  
2012-09-06 17:57:07 +0100 Tony Finch <dot@dotat.at>

web: correct link to Windows .zip file

Reported by: Mateusz Czaplinski <czapkofan@gmail.com>

```
web/index.html | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

-----  
2012-02-22 14:04:31 +0000 Tony Finch <dot@dotat.at>

web: bump pre-release version

```
web/index.html | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

-----  
2012-02-22  
13:52:47 +0000 Tony Finch <dot@dotat.at>

win32: build fixes

Submitted by: <veblush@neople.co.kr>

```
win32/unifdef.h   | 2 ++
win32/unifdef.vcxproj | 19 ++++++-----
2 files changed, 14 insertions(+), 7 deletions(-)
```

-----  
2012-02-21 18:45:52 +0000 Tony Finch <dot@dotat.at>

web: advertise pre-release with Windows support

web/index.html | 2 ++  
1 file changed, 2 insertions(+)

-----  
2012-02-21 18:42:22 +0000 Tony Finch <dot@dotat.at>

reversion: more verbose when updating. Changelog depends on version.h.

Makefile | 2 +-  
reversion.sh | 3 ++-  
2 files changed, 3 insertions(+), 2 deletions(-)

-----  
2012-02-21 18:08:23 +0000 Tony Finch <dot@dotat.at>

release: build zip file as well as tarball.

Makefile | 5 ++++-  
1 file changed, 4 insertions(+), 1 deletion(-)

-----  
2012-02-21  
18:00:44 +0000 Tony Finch <dot@dotat.at>

release: include the portability stuff in release tarballs.

We now also include version.h so the Windows build doesn't  
need to run version.sh.

INSTALL | 10 ++++++-----  
Makefile | 24 ++++++-----  
win32/unifdef.vcxproj | 1 +  
3 files changed, 14 insertions(+), 21 deletions(-)

-----  
2012-02-21 17:21:29 +0000 Tony Finch <dot@dotat.at>

win32: Visual Studio 2010 build files.

Submitted by: <veblush@neople.co.kr>

win32/unifdef.sln | 20 ++++++

win32/unifdef.vcxproj | 90 ++++++  
2 files changed, 110 insertions(+)

-----  
2012-02-21 16:45:19 +0000 Tony Finch <dot@dotat.at>

port: Windows support.

I have already committed copies of the err.c and getopt.c library code from FreeBSD.

Another trouble

spot is the temporary file used when modifying in place. I have pulled this out into a support function with different implementations on Unix and Windows. Windows lacks mkstemp(), so there we just use mktemp() and for simplicity leave the permissions as the default set by fopen() rather than copying from another file.

Unifdef does its own newline handling in order to work correctly with files that use CRLF or bare LF regardless of the system's native preference. It therefore opens streams in binary mode. On Windows we also need to put stdin and stdout into binary mode for consistency.

More trivially, there is no stdbool support and a couple of library functions have gratuitous underscores appended to their names.

This is based on submissions from the following people, to whom I am grateful since I lack Windows development experience.

Submitted by: <veblush@neopole.co.kr>

Submitted by: Alexander Mohr <thehesiod@gmail.com>

COPYING | 18 ++++++-----  
unifdef.c | 21 ++++-----  
unifdef.h | 48 ++++++  
win32/unifdef.h | 69 ++++++  
win32/win32.c | 40 ++++++  
5 files changed, 171 insertions(+), 25 deletions(-)

-----  
2012-02-21 16:02:48 +0000 Tony Finch <dot@dotat.at>

unifdef: Update copyright dates.

COPYING | 4 +++-

unifdef.1 | 4 +++-

unifdef.c | 2 +-  
3 files changed, 5 insertions(+), 5 deletions(-)

-----  
2012-02-21 15:41:46 +0000 Tony Finch <dot@dotat.at>

port: clean up err.c and getopt.c

Move headers out to shared unifdef.h  
Make getopt use prototypes and const correctly.  
Remove err\_set\_file and err\_set\_exit support.

FreeBSD/err.c | 93 ++++++-----  
FreeBSD/getopt.c | 27 +++-----  
2 files changed, 23 insertions(+), 97 deletions(-)

-----  
2012-02-21  
13:27:28 +0000 Tony Finch <dot@dotat.at>

unifdef.c: use memcpy() instead of the dodgy strncpy().

This makes it clearer that I do not want a '\0' terminator.

Submitted by: Carsten Hey <carsten@debian.org>

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2012-02-21 12:34:35 +0000 Tony Finch <dot@dotat.at>

unifdef.c: prefer remove() to unlink() for portability.

Submitted by: Carsten Hey <carsten@debian.org>

unifdef.c | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2012-02-21 12:27:55 +0000 Tony Finch <dot@dotat.at>

unifdef.c: Fix memory leaks in temporary and backup file handling.

unifdef.c | 9 ++++++--  
1 file changed, 7 insertions(+), 2 deletions(-)

2012-02-20 18:58:01 +0000 Tony Finch <dot@dotat.at>

port: Copy err.c and getopt.c from FreeBSD.

FreeBSD/err.c

| 195 ++

FreeBSD/getopt.c | 135 ++++++++++++++++++++++++++++++++++++++

2 files changed, 330 insertions(+)

-----

2012-02-20 17:09:55 +0000 Tony Finch <dot@dotat.at>

tests: multi-file, error handling, output permissions.

Also: the fixtests script updates the test suite after it has been changed and passed a manual check.

The runtests script now runs each test in a subshell so that tests have greater control over their exit status.

```
fixtests.sh      | 9 ++++++++
runtests.sh     | 2 +-
tests/multi.experr | 0
tests/multi.expout | 36 ++++++++++++++++++++++++++++++++++++++
tests/multi.exprc | 1 +
tests/multi.sh   | 7 ++++++
tests/multimissing.experr | 3 +++
tests/multimissing.expout | 22 ++++++++++++++++++++++++++++++++++++++
tests/multimissing.exprc | 1 +
tests/multimissing.sh | 7 ++++++
tests/outdir.exprc | 2 +-
tests/outdir.sh   | 2 ++
tests/outeperm.experr | 1 +
tests/outeperm.expout | 0
tests/outeperm.exprc | 1 +
tests/outeperm.sh   | 6 ++++++
tests/outfile.exprc | 2 +-
tests/outfile.sh    | 2 ++
tests/outperms.experr | 1 +
tests/outperms.expout | 16 ++++++++++++++++++++++++++++++++++++++
tests/outperms.exprc | 1 +
tests/outperms.sh   | 7 ++++++
tests/overdir.exprc | 2 +-
tests/overdir.sh    | 2 ++
tests/overenoent.experr | 1 +
tests/overenoent.expout | 0
tests/overenoent.exprc | 1 +
```

```
tests/overenoent.sh | 5 +++++
tests/overin.exprc | 2 +-
tests/overin.sh | 2 ++
tests/overlnnum.exprc | 2 +-
tests/overlnnum.sh | 2 ++
tests/overperms.experr | 2 ++
tests/overperms.expout | 16 ++++++
tests/overperms.exprc | 1 +
tests/overperms.sh | 9 ++++++
tests/overwrite.exprc | 2 +-
tests/overwrite.sh | 2 ++
38 files changed, 173 insertions(+),
7 deletions(-)
```

-----  
2012-02-20 15:54:17 +0000 Tony Finch <dot@dotat.at>

unifdef.c: Sensible permissions on output files.

This fixes a regression in the multiple files support.

```
unifdef.c | 12 ++++++
1 file changed, 12 insertions(+)
```

-----  
2012-02-19 19:42:11 +0000 Tony Finch <dot@dotat.at>

unifdef.c: Some C89 and C++ compatibility.

Suggested by: Carsten Hey <carsten@debian.org>

```
unifdef.c | 27 ++++++-----
1 file changed, 16 insertions(+), 11 deletions(-)
```

-----  
2012-02-18 20:15:27 +0000 Tony Finch <dot@dotat.at>

Add a -h (print help) option.

```
unifdef.1 | 5 +++++-
unifdef.c | 54 ++++++-----
2 files changed, 53 insertions(+), 6 deletions(-)
```

-----  
2012-02-17 22:47:24 +0000 Tony Finch <dot@dotat.at>

unifdef.c: trim unnecessary



header includes

We now avoid using errno.h, because on some glibc systems it is the only header that depends on the kernel headers. This makes it possible to install the Linux kernel headers from source to fix a broken system with incomplete headers.

Suggested by: Mike Frysinger <vapier@gentoo.org>

unifdef.c | 8 ++-----  
1 file changed, 2 insertions(+), 6 deletions(-)

-----  
2012-02-17 22:31:19 +0000 Tony Finch <dot@dotat.at>

Support for processing multiple files in place, with or without backups.

Suggested by: Joergen Edelbo <joergen.edelbo@nokia.com>

unifdef.1 | 46 ++++++-----  
unifdef.c | 219 ++++++-----  
2 files changed, 155 insertions(+), 110 deletions(-)

-----  
2012-02-17 18:18:26 +0000 Tony Finch <dot@dotat.at>

unifdef.1: alphabetize options; better phrasing and concision.

unifdef.1 | 98 ++++++-----  
1 file changed, 39 insertions(+), 59 deletions(-)

-----  
2011-11-07 17:14:54 +0000 Tony Finch <dot@dotat.at>

unifdef.1: Split some macros with many arguments.

Improves compatibility with non-GNU troff.

Obtained from: Jason McIntyre <jmc@OpenBSD.org>

unifdef.1 | 7 +++++--  
1 file changed, 5 insertions(+), 2 deletions(-)

-----  
2011-11-07 17:00:13 +0000 Tony Finch <dot@dotat.at>

Make copyright string static to please static analysers.

Obtained-from: Ed Schouten <ed@FreeBSD.org>

unifdef.c | 2 +-  
-----

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2011-05-23 10:53:20 +0100 Tony Finch <dot@dotat.at>

reversion.sh: Less verbose in normal cases, more verbose on error.

reversion.sh | 9 ++++++---  
-----

1 file changed, 6 insertions(+), 3 deletions(-)

-----  
2011-05-23 10:45:47

+0100 Tony Finch <dot@dotat.at>

test: Use the PATH to find unifdef.

runtests.sh | 1 +  
tests/NetBSD-42628.sh | 2 +-  
tests/args1.sh | 2 +-  
tests/args2.sh | 2 +-  
tests/blank0d.sh | 2 +-  
tests/blank0u.sh | 2 +-  
tests/blank1d.sh | 2 +-  
tests/blank1u.sh | 2 +-  
tests/blank2d.sh | 2 +-  
tests/blank2u.sh | 2 +-  
tests/blank3d.sh | 2 +-  
tests/blank3u.sh | 2 +-  
tests/blank4d.sh | 2 +-  
tests/blank4u.sh | 2 +-  
tests/crlf-a.sh | 2 +-  
tests/crlf-b.sh | 2 +-  
tests/crlf-c.sh | 2 +-  
tests/crlf-d.sh | 2 +-  
tests/debian-603860.sh | 2 +-  
tests/empty.sh | 2 +-  
tests/if1-a.sh | 2 +-  
tests/if1-k.sh | 2 +-  
tests/if1-kDU.sh | 2 +-  
tests/if1.sh | 2 +-  
tests/if1a.sh | 2 +-  
tests/if2-a.sh | 2 +-  
tests/if2-k.sh | 2 +-  
tests/if2-kDU.sh | 2 +-  
tests/if2.sh | 2 +-  
-----

```
tests/if3-a.sh
| 2 +-
tests/if3-k.sh      | 2 +-
tests/if3-kDU.sh   | 2 +-
tests/if3.sh       | 2 +-
tests/if4-a.sh     | 2 +-
tests/if4-k.sh     | 2 +-
tests/if4-kDU.sh   | 2 +-
tests/if4.sh       | 2 +-
tests/if5-a.sh     | 2 +-
tests/if5-k.sh     | 2 +-
tests/if5-kDU.sh   | 2 +-
tests/if5.sh       | 2 +-
tests/if6a.sh      | 2 +-
tests/if6b.sh      | 2 +-
tests/if6c.sh      | 2 +-
tests/if6d.sh      | 2 +-
tests/none.sh      | 2 +-
tests/outdir.sh    | 2 +-
tests/outfile.sh   | 2 +-
tests/overdir.sh   | 2 +-
tests/overin.sh    | 2 +-
tests/overlnnum.sh | 2 +-
tests/overwrite.sh | 2 +-
tests/small1.sh    | 2 +-
tests/small2.sh    | 2 +-
tests/spaces1.sh   | 2 +-
tests/spaces2.sh   | 2 +-
tests/spaces3.sh   | 2 +-
tests/spaces4.sh   | 2 +-
58 files changed, 58 insertions(+), 57 deletions(-)
```

-----  
2011-05-23 10:18:59  
+0100 Tony Finch <dot@dotat.at>

tests: Add a test case from NetBSD PR 42628.

This is adapted from the NetBSD automated testing framework, to  
which the test case was added by Jukka Ruohonen <jruoho@NetBSD.org>.

Obtained-from: <http://cvsweb.netbsd.org/bsdweb.cgi/src/tests/usr.bin/unifdef/>

```
tests/NetBSD-42628.c | 25 ++++++
tests/NetBSD-42628.experr | 0
tests/NetBSD-42628.expout | 6 ++++++
tests/NetBSD-42628.exprc | 1 +
tests/NetBSD-42628.sh | 1 +
```

5 files changed, 33 insertions(+)

-----  
2011-04-20 12:14:46 +0100 Tony Finch <dot@dotat.at>

.htaccess: remove gzip encoding

This should discourage HTTP clients from auto-decompressing .tar.gz files and causing higher-level tools to get checksum mismatches.

web/.htaccess | 2 ++

1 file changed, 2 insertions(+)

-----  
2011-02-22 16:53:10 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.6)

Release unifdef-2.6

web/index.html | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2011-02-21 17:20:13 +0000 Tony Finch <dot@dotat.at>

unifdef: -s and -o are mutually exclusive

unifdef.c | 2 ++

1 file changed, 2 insertions(+)

-----  
2011-01-21 17:45:45 +0000 Tony Finch <dot@dotat.at>

unifdef.c: detect output errors promptly

This ensures that errno has a meaningful value when we come to print the error message.

unifdef.c | 17 ++++++++-----

1 file changed, 10 insertions(+), 7 deletions(-)

-----  
2011-01-21 17:27:39 +0000 Tony Finch <dot@dotat.at>

unifdef.c: Use ferror() to detect IO errors better.

unifdef.c | 14 ++++++++-----

1 file changed, 10 insertions(+), 4 deletions(-)

-----  
2011-01-20 17:31:28 +0000 Tony Finch <dot@dotat.at>

unifdef.c: Write line numbers to -o output file.

I must have missed  
this because NetBSD doesn't have the -n feature.

tests/overlnnum.experr | 0  
tests/overlnnum.expout | 20 ++++++  
tests/overlnnum.exprc | 1 +  
tests/overlnnum.sh | 4 ++++  
unifdef.c | 2 +-  
5 files changed, 26 insertions(+), 1 deletion(-)

-----  
2011-01-20 17:20:57 +0000 Tony Finch <dot@dotat.at>

unifdef.c: further error message improvements

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2011-01-20 16:27:06 +0000 Tony Finch <dot@dotat.at>

unifdef.c: more output filename correctness.

Submitted-by: Brian Ginsbach <ginsbach@netbsd.org>

unifdef.c | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2011-01-18 19:51:40 +0000 Tony Finch <dot@dotat.at>

Update copyright date.

COPYING | 4 ++--  
unifdef.1 | 4 ++--  
unifdef.c | 2 +-  
3 files changed, 5 insertions(+), 5 deletions(-)

-----  
2011-01-18  
18:48:45 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.5)

Release unifdef-2.5

web/index.html | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2011-01-18 18:39:52 +0000 Tony Finch <dot@dotat.at>

admin: no need to keep old import script visible

authors.cvs | 2 --

import-script | 76 -----  
2 files changed, 78 deletions(-)

-----  
2011-01-18 18:11:24 +0000 Tony Finch <dot@dotat.at>

authors.svn: add joel

authors.svn | 1 +

1 file changed, 1 insertion(+)

-----  
2011-01-18 17:50:58 +0000 Tony Finch <dot@dotat.at>

unifdef.c: correct output filename when overwriting stdin

The bug occurs in cases like `unifdef -o file < file`

tests/overin.experr | 0

tests/overin.expout | 16 ++++++

tests/overin.exprc

| 1 +

tests/overin.sh | 4 ++++

unifdef.c | 4 +++-

5 files changed, 23 insertions(+), 2 deletions(-)

-----  
2011-01-18 17:37:58 +0000 Tony Finch <dot@dotat.at>

unifdef.c: neater overwrite check, inspired by ginsbach@NetBSD.org

unifdef.c | 14 ++++-----

1 file changed, 4 insertions(+), 10 deletions(-)

-----  
2011-01-17 11:16:21 +0000 Tony Finch <dot@dotat.at>

unifdef.c: explain in comments that strncpy() is used correctly.

unifdef.c | 5 +++--

1 file changed, 3 insertions(+), 2 deletions(-)

-----  
2010-11-18 16:51:40 +0000 Tony Finch <dot@dotat.at>

tests: add one taken from Debian bug #603860

tests/debian-603860.c | 8 ++++++++

tests/debian-603860.experr | 0

tests/debian-603860.expout | 2 ++

tests/debian-603860.exprc | 1 +

tests/debian-603860.sh | 1 +

5 files changed, 12 insertions(+)

-----  
2010-11-09

11:28:11 +0000 Tony Finch <dot@dotat.at>

web/index.html: Add a link to my homepage in the header.

web/index.html | 13 ++++++++--

1 file changed, 11 insertions(+), 2 deletions(-)

-----  
2010-09-13 12:14:15 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.4)

Re-roll release of unifdef-2.4

-----  
2010-09-13 12:00:04 +0000 Tony Finch <dot@dotat.at>

Makefile: omit merge commits from the Changelog

Makefile | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-09-13 12:03:10 +0000 Tony Finch <dot@dotat.at>

svnup: switch to admin branch so git svn fetch can read authors file.

svnup | 2 ++

1 file changed, 2 insertions(+)

2010-09-13 11:52:48 +0000 Tony Finch <dot@dotat.at>

Release unifdef-2.4

web/index.html | 2 +-  
1 file changed,  
1 insertion(+), 1 deletion(-)

-----  
2010-09-13 11:13:43 +0000 Tony Finch <dot@dotat.at>

reversion.sh: do not search \$PATH for version.sh

The "." keyword for sourcing files searches \$PATH when its argument does not contain a slash. If you want to load a file from \$PWD, you have to prefix the filename with "./".

Signed-off-by: Mike Frysinger <vapier@gentoo.org>

reversion.sh | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-08-03 15:58:22 +0100 Tony Finch <dot@dotat.at>

unifdef.1: fix typo (degugging -> debugging)

Obtained from: Joel Dahl <joel@NetBSD.org>

unifdef.1 | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-05-01 20:49:47 +0000 Tony Finch <dot@dotat.at>

upload: seems we need separate pushes for heads and tags.

upload | 3 ++-  
1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2010-05-01  
20:47:08 +0000 Tony Finch <dot@dotat.at>

upload tags to github

upload | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)



-----  
2010-04-12 16:38:19 +0000 Tony Finch <dot@dotat.at>

COPYING: explain the deleted advertising clause more clearly.

COPYING | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2010-04-05 03:00:24 +0100 Tony Finch <dot@dotat.at>

reversion.sh: put hyphen in unifdef-N.N

reversion.sh | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-04-04 21:22:05 +0000 Tony Finch <dot@dotat.at>

upload: git gc --aggressively

upload | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-31 13:57:08 +0000 Tony Finch <dot@dotat.at>

web: Advertise repository using native git protocol

web/index.html | 2

+-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-18 16:28:14 +0000 Tony Finch <dot@dotat.at>

Makefile: reinstate realclean's double negative logic

The positive logic causes make to bomb out when there is no .git directory.

Reported-by: Colin Watson <cjwatson@chiark.greenend.org.uk>

Makefile | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

2010-03-16 10:14:31 +0000 Tony Finch <dot@dotat.at>

web/.htaccess: fix the redirects for the old test URLs.

This requires a disgusting double redirect hack because Apache-1.3 percent-encodes ? and ; in URLs generated by RedirectMatch, but not with plain Redirect.

web/.htaccess | 6 ++++--

1 file changed, 4 insertions(+), 2 deletions(-)

-----  
2010-03-15 19:05:10 +0000 Tony Finch <dot@dotat.at>

upload: Changelog file not needed for website

upload | 5 +++--

1 file changed, 2 insertions(+),  
3 deletions(-)

-----  
2010-03-15 19:00:06 +0000 Tony Finch <dot@dotat.at>

Makefile: remove double negative logic in realclean target

Makefile | 2 +-  
-----

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-15 18:56:36 +0000 Tony Finch <dot@dotat.at>

upload: Ensure all generated web site files are in the right place

upload | 5 ++++--

1 file changed, 4 insertions(+), 1 deletion(-)

-----  
2010-03-15 18:54:03 +0000 Tony Finch <dot@dotat.at>

Makefile: do not remove any `${DISTFILES}` in the clean target.

Makefile | 4 +++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-03-15 14:53:30 +0000 Tony Finch <dot@dotat.at>

Makefile: add missing blank line at end of Changelog

Makefile | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-12  
21:50:14 +0000 Tony Finch <dot@dotat.at>

upload: Add a README.html for gitweb.

upload | 6 +++++-  
1 file changed, 5 insertions(+), 1 deletion(-)

-----  
2010-03-12 19:42:53 +0000 Tony Finch <dot@dotat.at>

Save a copy of my main .git/config

git.config | 12 ++++++++  
1 file changed, 12 insertions(+)

-----  
2010-03-12 19:37:19 +0000 Tony Finch <dot@dotat.at>

upload: ensure unifdef.txt exists

upload | 1 +  
1 file changed, 1 insertion(+)

-----  
2010-03-12 19:36:26 +0000 Tony Finch <dot@dotat.at>

Remove the upload script to the admin branch.

Makefile | 9 -----  
1 file changed, 9 deletions(-)

-----  
2010-03-12 19:34:06 +0000 Tony Finch <dot@dotat.at>

Move the upload script into the admin area.

upload | 11 ++++++++  
1 file changed, 11 insertions(+)

-----  
2010-03-12

19:06:39 +0000 Tony Finch <dot@dotat.at>

README: include an introductory paragraph

README | 5 +++++

1 file changed, 5 insertions(+)

-----  
2010-03-12 18:57:52 +0000 Tony Finch <dot@dotat.at>

Make import-script un-runnable but keep it for reference

import-script | 3 +++

1 file changed, 3 insertions(+)

-----  
2010-03-12 18:55:34 +0000 Tony Finch <dot@dotat.at>

Add a little script for re-syncing with FreeBSD's svn repo.

svnup | 12 ++++++

1 file changed, 12 insertions(+)

-----  
2010-03-12 18:50:35 +0000 Tony Finch <dot@dotat.at>

git-svn turns out not to work very well with non-default names.

import-script | 11 +++++-----

1 file changed, 5 insertions(+), 6 deletions(-)

-----  
2010-03-12 17:34:56 +0000 Tony Finch <dot@dotat.at>

reversion.sh:

tidier version numbers for modified sources

reversion.sh | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-03-12 16:27:30 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.3)

Release unifdef-2.3

web/index.html | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-12 16:23:35 +0000 Tony Finch <dot@dotat.at>

Makefile: upload to github before chiark

Makefile | 2 +-  
-----

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-12 16:21:27 +0000 Tony Finch <dot@dotat.at>

Tweak the home page.

Add the .htaccess file which keeps old URLs working.

web/.htaccess | 11 ++++++++  
-----

web/index.html | 11 ++++++-----

2 files changed, 17 insertions(+), 5 deletions(-)

-----  
2010-03-12 15:43:19 +0000 Tony Finch <dot@dotat.at>

Make the home page and gitweb titles consistent.

Makefile | 2 +-  
-----

web/index.html | 4 +++-

2 files changed, 3 insertions(+), 3 deletions(-)

-----  
2010-03-12 15:29:12 +0000 Tony Finch <dot@dotat.at>

Rename get-version.sh to reversion.sh for fun.

Makefile | 4 +++-

get-version.sh => reversion.sh | 0

2 files changed, 2 insertions(+), 2 deletions(-)

-----  
2010-03-12 15:23:40 +0000 Tony Finch <dot@dotat.at>

Makefile: do not try to build unifdef.txt by default.

DISTFILES shouldn't be in non-release targets.

Makefile | 2 +-  
-----

1 file changed, 1 insertion(+), 1 deletion(-)

2010-03-12 12:22:51 +0000 Tony Finch <dot@dotat.at>

Add -V and -S flags to synopses

unifdef.1 | 2 +-  
unifdef.c | 2 +-  
2 files changed, 2 insertions(+), 2 deletions(-)

-----  
2010-03-12 11:07:35 +0000 Tony Finch <dot@dotat.at>

web/index.html:

link to github

web/index.html | 5 +++--

1 file changed, 3 insertions(+), 2 deletions(-)

-----  
2010-03-12 11:07:35 +0000 Tony Finch <dot@dotat.at>

web/index.html: link to github

web/index.html | 3 +-  
1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2010-03-12 11:03:03 +0000 Tony Finch <dot@dotat.at>

README: add information about obtaining unifdef using git.

README | 9 ++++++---

1 file changed, 6 insertions(+), 3 deletions(-)

-----  
2010-03-12 11:01:15 +0000 Tony Finch <dot@dotat.at>

Makefile: tweak upload target

Remove unsafe `git prune`. Push a copy to github.

Makefile | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-12 11:00:26 +0000 Tony Finch <dot@dotat.at>

web/index.html: Fix git clone URL.

web/index.html | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-12  
10:15:18 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.2)

Release unifdef-2.2

web/index.html | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-12 10:08:04 +0000 Tony Finch <dot@dotat.at>

unifdefall: print debugging output to stderr

unifdefall.sh | 6 +++---  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2010-03-12 10:04:14 +0000 Tony Finch <dot@dotat.at>

unifdefall: correct exit status if the clean-up rm fails

Reported-by: Bob Proulx <bob@proulx.com>

unifdefall.sh | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-12 09:52:46 +0000 Tony Finch <dot@dotat.at>

get-version.sh: fix build in clean git working tree

`git show` exited non-zero which aborted the build.

get-version.sh | 4 +++-  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-03-12  
09:34:18 +0000 Tony Finch <dot@dotat.at>

Makefile: fix version.h -> unifdef.c -> unifdef dependencies.

Makefile | 10 +++++-----  
1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2010-03-12 09:28:02 +0000 Tony Finch <dot@dotat.at>

get-version.sh fixes

Test for the existence of version.sh (not version.h) before sourcing it.

Cat the version files after re-writing them.

Use printf(1) to create version.h for portability.

get-version.sh | 8 +++++--

1 file changed, 5 insertions(+), 3 deletions(-)

-----  
2010-03-11 21:41:45 +0000 Tony Finch <dot@dotat.at>

Makefile: safer "realclean" target

Makefile | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-11 21:17:58 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.1)

Release unifdef-2.1

web/index.html | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-11 21:12:03 +0000 Tony Finch <dot@dotat.at>

Add a -V option to print the embedded version details.

unifdef.1 | 5 ++++-

unifdef.c | 19 ++++++++-----

2 files changed, 22 insertions(+), 2 deletions(-)

-----  
2010-03-11 21:01:23 +0000 Tony Finch <dot@dotat.at>

Makefile: remove release.sh from DISTFILES

Makefile | 1 -

1 file changed, 1 deletion(-)

-----  
2010-03-11 20:59:11 +0000 Tony Finch <dot@dotat.at>



Makefile: prune .git before uploading

Makefile | 1 +

1 file changed, 1 insertion(+)

-----  
2010-03-11 20:56:29 +0000 Tony Finch <dot@dotat.at>

index.html: mention the git clone command

web/index.html | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2010-03-11 20:52:26  
+0000 Tony Finch <dot@dotat.at>

Re-do the website handling and add an upload target.

Makefile | 15 ++++++++-----

index.html.in => web/index.html | 17 ++-----

2 files changed, 13 insertions(+), 19 deletions(-)

-----  
2010-03-11 20:28:13 +0000 Tony Finch <dot@dotat.at>

Tell git to ignore release files.

.gitignore | 1 +

1 file changed, 1 insertion(+)

-----  
2010-03-11 20:27:04 +0000 Tony Finch <dot@dotat.at>

Move release script into Makefile.

Makefile | 45 ++++++++-----

release.sh | 37 -----

2 files changed, 36 insertions(+), 46 deletions(-)

-----  
2010-03-11 20:08:03 +0000 Tony Finch <dot@dotat.at>

Tell git to ignore output files.

.gitignore | 5 +++++

1 file changed, 5 insertions(+)

-----  
2010-03-11  
20:04:35 +0000 Tony Finch <dot@dotat.at>

Makefile: do not clean inside .git directory.

Makefile | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-11 18:57:37 +0000 Tony Finch <dot@dotat.at>

Embed version information from git into the unifdef binary.

Makefile | 9 ++++++---  
get-version.sh | 32 ++++++  
unifdef.c | 9 ++++++---  
3 files changed, 43 insertions(+), 7 deletions(-)

-----  
2010-03-11 18:57:15 +0000 Tony Finch <dot@dotat.at>

Makefile: clean trailing whitespace.

Makefile | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2010-03-11 18:56:58 +0000 Tony Finch <dot@dotat.at>

INSTALL: Note the CFLAGS and LDFLAGS make variables.

INSTALL | 3 ++-  
1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2010-03-11 18:56:34  
+0000 Tony Finch <dot@dotat.at>

Remove sccs, cvs, and svn revision tags.

INSTALL | 2 +-  
Makefile | 2 +-  
README | 3 +--  
index.html.in | 1 -  
release.sh | 2 --  
runtests.sh | 2 --

unifdef.l | 4 ----  
unifdef.c | 5 ++---  
unifdefall.sh | 2 --  
9 files changed, 5 insertions(+), 18 deletions(-)

-----  
2010-03-11 18:52:37 +0000 Tony Finch <dot@dotat.at>

combine admin repo too

import-script | 2 ++  
1 file changed, 2 insertions(+)

-----  
2010-03-11 18:43:15 +0000 Tony Finch <dot@dotat.at>

A reminder of how this repository was created.

authors.cvs | 2 ++  
authors.svn | 14 ++++++++  
import-script | 72 ++++++++  
3 files changed, 88 insertions(+)

-----  
2010-03-10 17:42:54 +0000 Tony Finch <dot@dotat.at> (tag: unifdef-2.0,  
dotat-cvs)

Improved debugging  
support.

Add line numbers to unifdef's debugging output. Flush the output stream  
on each line when debugging to ensure stdout and stderr are properly  
interleaved. Add a debugging mode to unifdefall.sh which outputs its  
intermediate working files.

unifdef.c | 12 ++++++----  
unifdefall.sh | 20 ++++++-----  
2 files changed, 23 insertions(+), 9 deletions(-)

-----  
2010-03-07 18:11:07 +0000 Tony Finch <dot@dotat.at>

Forced commit to note change to test suite.

runtests.sh | 2 +-  
1 file changed, 1 insertion(+), 1 deletion(-)

-----

2010-03-07 17:56:06 +0000 Tony Finch <dot@dotat.at>

Adjust tests for change in license header.

The extra line at the beginning of if1.c caused the line numbers in 'diff' output to change. Rather than playing catch-up, simplify the relevant tests to keep working if if1.c changes in other ways in the future.

Submitted by: Jonathan Nieder <jrnieder@gmail.com>

```
tests/outdir.expout | 30 ++++++-----
tests/outdir.sh     | 2 +-
tests/outfile.expout | 30 ++++++-----
tests/outfile.sh    | 2 +-
tests/overdir.expout | 30 ++++++-----
tests/overdir.sh    | 2 +-
tests/overwrite.expout | 30 ++++++-----
tests/overwrite.sh  | 2 +-
8 files changed, 68 insertions(+), 60 deletions(-)
```

-----  
2010-03-06 14:40:15 +0000 Tony Finch <dot@dotat.at>

Add the COPYING file to the release.

```
release.sh | 3 ++-
1 file changed, 2 insertions(+), 1 deletion(-)
```

-----  
2010-03-06 14:38:50 +0000 Tony Finch <dot@dotat.at>

Fix HTML markup snafu.

```
index.html.in | 4 ++-
1 file changed, 2 insertions(+), 2 deletions(-)
```

-----  
2010-03-06 14:37:14 +0000 Tony Finch <dot@dotat.at>

Put the tests under the two-clause BSD copyright licence for consistency.

```
tests/crlf-a.expout | 2 +-
tests/crlf-b.expout | 2 +-
tests/crlf-c.expout | 2 +-
tests/crlf-d.expout | 2 +-
tests/crlf.c        | 2 +-

```

tests/if1-a.expout | 3 ++-  
tests/if1-k.c | 3 ++-  
tests/if1-k.expout | 3 ++-  
tests/if1-kDU.c | 3 ++-  
tests/if1-kDU.expout | 3 ++-  
tests/if1.c | 3 ++-  
tests/if1.expout | 3 ++-  
tests/if1a.expout | 3 ++-  
tests/if2-a.expout | 3 ++-  
tests/if2-k.c | 3 ++-  
tests/if2-k.expout | 3 ++-  
tests/if2-kDU.c | 3 ++-  
tests/if2-kDU.expout | 3 ++-  
tests/if2.c | 3 ++-  
tests/if2.expout | 3 ++-  
tests/if3-a.expout | 3 ++-  
tests/if3-k.c | 3 ++-  
tests/if3-k.expout | 3 ++-  
tests/if3-kDU.c | 3 ++-  
tests/if3-kDU.expout | 3 ++-  
tests/if3.c | 3 ++-  
tests/if3.expout | 3 ++-  
tests/if4-a.expout | 3 ++-  
tests/if4-k.c | 3 ++-  
tests/if4-k.expout | 3 ++-  
tests/if4-kDU.c | 3 ++-  
tests/if4-kDU.expout | 3 ++-  
tests/if4.c  
| 3 ++-  
tests/if4.expout | 3 ++-  
tests/if5-a.expout | 3 ++-  
tests/if5-k.c | 3 ++-  
tests/if5-k.expout | 3 ++-  
tests/if5-kDU.c | 3 ++-  
tests/if5-kDU.expout | 3 ++-  
tests/if5.c | 3 ++-  
tests/if5.expout | 3 ++-  
tests/none.c | 3 ++-  
tests/none.expout | 3 ++-  
tests/small1.c | 3 ++-  
tests/small1.expout | 3 ++-  
tests/small2.c | 3 ++-  
tests/small2.expout | 3 ++-  
tests/spaces1.c | 3 ++-  
tests/spaces1.expout | 3 ++-  
tests/spaces2.c | 3 ++-  
tests/spaces2.expout | 3 ++-  
tests/spaces3.c | 3 ++-

tests/spaces3.expout | 3 ++-  
tests/spaces4.c | 3 ++-  
tests/spaces4.expout | 3 ++-  
55 files changed, 105 insertions(+), 55 deletions(-)

-----  
2010-03-06 14:30:26 +0000 Tony Finch <dot@dotat.at>

Add a COPYING file to consolidate licence terms in one place.

Remove the public domain declaration from runtests.sh so it is under the same licence as the other files.

Improve  
the wording about the licensing of contributions.

COPYING | 83 +++  
README | 8 +++++  
index.html.in | 9 +++++  
runtests.sh | 6 +----  
4 files changed, 93 insertions(+), 13 deletions(-)

-----  
2010-03-05 13:05:38 +0000 Tony Finch <dot@dotat.at>

Adjust man page document title for backwards compatibility.

Reported by: Bob Proulx <bob@proulx.com>

unifdef.1 | 6 +----  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2010-02-23 12:27:11 +0000 Tony Finch <dot@dotat.at>

Actually, don't drop the 1. from the version number.

Keeping it gives us more flexibility to change the numbering scheme while ensuring it continues to go up.

release.sh | 4 +---  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-02-22 18:58:50 +0000 Tony Finch <dot@dotat.at>

Drop

1. from the version number

release.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-02-22 18:58:30 +0000 Tony Finch <dot@dotat.at>

Improve output of -S mode (list symbols with depths) Symbols tested in the same #if are listed on the same line.

unifdef.c | 17 ++++++-----

1 file changed, 13 insertions(+), 4 deletions(-)

-----  
2010-02-21 16:55:04 +0000 Tony Finch <dot@dotat.at>

We don't need to compile unifdef when preparing the release.

release.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-02-21 16:53:20 +0000 Tony Finch <dot@dotat.at>

Fix the release build to ensure that junk files are not included.

We were failing to properly clean the tests directory.

Reported-by: Jonathan Nieder <jrnieder@gmail.com>

Makefile | 14 ++++++-----

release.sh | 7 +++++--

2 files changed, 12

insertions(+), 9 deletions(-)

-----  
2010-02-19 20:43:13 +0000 Tony Finch <dot@dotat.at>

Use -mdoc macro package when invoking nroff.

Makefile | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2010-02-19 20:25:50 +0000 Tony Finch <dot@dotat.at>

Add a -S option for listing the nesting depth of symbols.

Suggested by <http://stackoverflow.com/questions/2012496>

unifdef.1 | 23 ++++++-----  
unifdef.c | 19 ++++++-----  
2 files changed, 27 insertions(+), 15 deletions(-)

-----  
2010-02-19 20:08:37 +0000 Tony Finch <dot@dotat.at>

A small tidy-up in process()

unifdef.c | 8 +++-----  
1 file changed, 3 insertions(+), 5 deletions(-)

-----  
2010-02-19 19:46:41 +0000 Tony Finch <dot@dotat.at>

Expand ACCESSPERMS rather than conditionally #defining it.

unifdef.c | 8 ++-----  
1 file changed, 2 insertions(+), 6 deletions(-)

-----  
2010-02-19 18:35:26 +0000 Tony Finch <dot@dotat.at>

Define ACCESSPERMS on systems (like Cygwin) that lack it.

Suggested by Mark Rushakoff.

unifdef.c | 6 +++++-  
1 file changed, 5 insertions(+), 1 deletion(-)

-----  
2010-02-19 17:30:50 +0000 Tony Finch <dot@dotat.at>

Link to [freshmeat.net](http://freshmeat.net) for release announcements.

README | 5 +++++-  
index.html.in | 9 ++++++---  
2 files changed, 10 insertions(+), 4 deletions(-)

-----  
2010-02-19 17:15:44 +0000 Tony Finch <dot@dotat.at>

Improve portability to systems with native CRLF newlines.

unifdef.c | 8 +++++-----



1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2010-02-19 17:11:39 +0000 Tony Finch <dot@dotat.at>

Remove FreeBSD from manual page rubric, and update its date.

unifdef.1 | 10 +++++-----  
1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2010-02-19 16:44:02 +0000 Tony Finch <dot@dotat.at>

List INSTALL file on homepage

index.html.in | 3 ++-  
1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2010-02-19 16:37:05 +0000 Tony Finch <dot@dotat.at>

Fix a long-standing cpp compatibility bug.

The -DFOO argument (without an explicit value) should define FOO to 1 not to the empty string.

tests/crlf-a.sh | 2 +-  
tests/crlf-b.sh | 2 +-  
tests/crlf-c.sh | 2 +-  
tests/crlf-d.sh | 2 +-  
tests/if6a.sh | 2 +-  
tests/if6b.sh | 2 +-  
tests/if6c.sh | 2 +-  
tests/if6d.sh | 2 +-  
unifdef.1 | 14 ++++++-----  
unifdef.c | 4 ++-  
10 files changed, 18 insertions(+), 16 deletions(-)

-----  
2010-02-19 16:31:08 +0000 Tony Finch <dot@dotat.at>

Add support for CRLF newlines.

As a side-effect, remove the dependency on strlcpy().

Based on a suggestion from Mark Rushakoff.

```

INSTALL          | 5 +++--
tests/crlf-a.experr | 0
tests/crlf-a.expout | 10 ++++++++
tests/crlf-a.exprc | 1 +
tests/crlf-a.sh   | 1 +
tests/crlf-b.experr | 0
tests/crlf-b.expout | 14 ++++++++
tests/crlf-b.exprc | 1 +
tests/crlf-b.sh   | 1 +
tests/crlf-c.experr | 0
tests/crlf-c.expout | 16 ++++++++
tests/crlf-c.exprc | 1 +
tests/crlf-c.sh   | 1 +
tests/crlf-d.experr | 0
tests/crlf-d.expout | 18 ++++++++
tests/crlf-d.exprc | 1 +
tests/crlf-d.sh   | 1 +
tests/crlf.c      | 20 ++++++++
unifdef.c        | 54 ++++++++-----
19 files changed, 125 insertions(+), 20 deletions(-)

```

```

-----
2010-02-19 16:29:59 +0000 Tony Finch <dot@dotat.at>

```

Fix tests to not rely on an uncommitted change.

```

tests/if6a.sh | 2 +-
tests/if6b.sh | 2 +-
tests/if6c.sh | 2 +-
tests/if6d.sh
| 2 +-
4 files changed, 4 insertions(+), 4 deletions(-)

```

```

-----
2010-02-19 16:03:44 +0000 Tony Finch <dot@dotat.at>

```

More tests of keyword edits

```

tests/if6.c      | 11 ++++++++
tests/if6a.experr | 0
tests/if6a.expout | 1 +
tests/if6a.exprc | 1 +
tests/if6a.sh    | 1 +
tests/if6b.experr | 0
tests/if6b.expout | 5 +++++
tests/if6b.exprc | 1 +
tests/if6b.sh    | 1 +
tests/if6c.experr | 0

```

```
tests/if6c.expout | 7 +++++++
tests/if6c.exprc | 1 +
tests/if6c.sh | 1 +
tests/if6d.experr | 0
tests/if6d.expout | 9 ++++++++
tests/if6d.exprc | 1 +
tests/if6d.sh | 1 +
17 files changed, 41 insertions(+)
```

-----  
2010-02-19 15:50:26 +0000 Tony Finch <dot@dotat.at>

Test #elif -> #if edit

```
tests/if1a.experr | 0
tests/if1a.expout | 23 ++++++
tests/if1a.exprc | 1 +
tests/if1a.sh | 1 +
4 files changed, 25 insertions(+)
```

-----  
2010-01-20  
00:48:26 +0000 Tony Finch <dot@dotat.at>

unifdef.c: better diagnostics on write failure

```
unifdef.c | 5 +++-
1 file changed, 3 insertions(+), 2 deletions(-)
```

-----  
2010-01-19 20:33:00 +0000 Tony Finch <dot@dotat.at>

unifdef.c: fix portability to 64 bit platforms.

printf("%.\*s",i,s) expects an int not a ptrdiff\_t

```
unifdef.c | 4 +++-
1 file changed, 2 insertions(+), 2 deletions(-)
```

-----  
2010-01-19 18:22:53 +0000 Tony Finch <dot@dotat.at>

Fix English usage in wishlist comment

```
unifdef.c | 6 +++-
1 file changed, 3 insertions(+), 3 deletions(-)
```

2010-01-19 18:03:02 +0000 Tony Finch <dot@dotat.at>

unifdef.c: re-arrange the introductory comment, #include lines, and embedded copyright strings so that the FreeBSD version of the code is tidier.

```
unifdef.c | 18 ++++++-----
1 file
changed, 8 insertions(+), 10 deletions(-)
```

-----  
2010-01-19 17:33:53 +0000 Tony Finch <dot@dotat.at>

Update manual date and copyright.

```
unifdef.1 | 6 +++---
1 file changed, 3 insertions(+), 3 deletions(-)
```

-----  
2010-01-19 16:23:35 +0000 Tony Finch <dot@dotat.at>

Add -o outfile option, which can be used to specify an output file. The file can even be the same as the input file. Idea from IRIX unifdef(1). This version also fixes a bug in the NetBSD unifdef which refuses to write to a -o outfile which does not exist.

Obtained from: Brian Ginsbach <ginsbach@NetBSD.org> via NetBSD

```
tests/outdir.experr | 0
tests/outdir.expout | 14 ++++++
tests/outdir.exprc | 1 +
tests/outdir.sh | 4 ++
tests/outfile.experr | 0
tests/outfile.expout | 14 ++++++
tests/outfile.exprc | 1 +
tests/outfile.sh | 3 ++
tests/overdir.experr | 0
tests/overdir.expout
| 14 ++++++
tests/overdir.exprc | 1 +
tests/overdir.sh | 5 +++
tests/overwrite.experr | 0
tests/overwrite.expout | 14 ++++++
tests/overwrite.exprc | 1 +
tests/overwrite.sh | 4 ++
unifdef.1 | 17 ++++++--
unifdef.c | 106 ++++++-----
18 files changed, 185 insertions(+), 14 deletions(-)
```

-----  
2010-01-19 16:09:50 +0000 Tony Finch <dot@dotat.at>

unifdefall: tidy copyright notice to match unifdef.c

unifdefall.sh | 7 +++----

1 file changed, 3 insertions(+), 4 deletions(-)

-----  
2010-01-19 13:37:00 +0000 Tony Finch <dot@dotat.at>

release.sh: Add INSTALL to list of tarball contents.

release.sh | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2010-01-19 13:36:22 +0000 Tony Finch <dot@dotat.at>

Add Jonathan Nieder to unifdefall's copyright declaration.

unifdefall.sh | 6 ++++--

1 file changed, 4 insertions(+), 2 deletions(-)

-----  
2010-01-15 18:37:39 +0000 Tony Finch <dot@dotat.at>

Clean up the Makefile.

Makefile | 27 ++++++-----

1 file changed, 14 insertions(+), 13 deletions(-)

-----  
2010-01-15 18:33:05 +0000 Tony Finch <dot@dotat.at>

Automatic install support.

Add an install target to the Makefile. Using separate `$(prefix)` and `$(DESTDIR)` variables opens the door to hardcoding the path to unifdef in unifdefall if we ever need to.

Move the installation instructions from the README to a new INSTALL file to make it easier for packagers to omit irrelevant compilation instructions from the binary package's documentation.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

INSTALL | 18 ++++++  
Makefile | 20 ++++++  
README | 13 ++-----  
3 files changed, 39 insertions(+),  
12 deletions(-)

-----  
2010-01-15 17:43:17 +0000 Tony Finch <dot@dotat.at>

Makefile: do not remove Changelog on clean

Regenerating the Changelog requires access to the unifdef CVS repository.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

Makefile | 6 +++---  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2010-01-15 17:41:21 +0000 Tony Finch <dot@dotat.at>

unifdefall: look for unifdef in \$(dirname \$0)

For debugging and for the test suite it is convenient if unifdefall can be run in place without relying on unifdef being installed elsewhere. So change unifdefall to look for unifdef in the containing directory.

For compatibility, if unifdef is not present in the directory containing unifdefall, fall back to searching the \$PATH for it. Some one might have installed unifdef and unifdefall to different directories.

With this change, 'make test' no longer fails in if1-a.sh when unifdef is not present on the \$PATH. Also, the test suite will be a little better at catching new regressions if an old version of unifdef is installed, since the unifdefall tests will no longer be testing the installed unifdef.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 16 ++++++-----  
1 file changed, 12 insertions(+), 4 deletions(-)

-----  
2009-12-02 15:21:22 +0000 Tony Finch <dot@dotat.at>

Fix ident string -- gcc optimised it away.

unifdef.c | 9 ++++-----

1 file changed, 4 insertions(+), 5 deletions(-)

-----  
2009-11-27 17:30:39 +0000 Tony Finch <dot@dotat.at>

Include full CVS log in the Changelog.

Makefile | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-27 17:24:25 +0000 Tony Finch <dot@dotat.at>

release.sh: remove tests/CVS from tarball, and upload files faster.

release.sh

| 5 +++--

1 file changed, 3 insertions(+), 2 deletions(-)

-----  
2009-11-27 17:21:26 +0000 Tony Finch <dot@dotat.at>

fix invalid array access when nesting limit exceeded

If the number of nested #if blocks exceeds 64, nest() increments the nesting depth and then reports an error. The message includes the line number for the start of the current #if block, which is read from past the end of the relevant array.

Avoid the out-of-bounds read by reporting the error and exiting before the nesting depth has a chance to increase.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdef.c | 8 +++++---

1 file changed, 5 insertions(+), 3 deletions(-)

-----  
2009-11-27 17:14:32 +0000 Tony Finch <dot@dotat.at>

runtests.sh: portability: . does not search current directory

POSIX.1-2008 dot searches only the \$PATH and not the current directory for pathnames with no / in them. Accordingly, since

version

4.0-alpha, bash does not search the current directory  
when in posix (sh) mode. The fix is to specify ./ explicitly.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

runtests.sh | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-27 15:40:10 +0000 Tony Finch <dot@dotat.at>

Include a link to the web page in a comment in unifdef.c

This is mainly for the benefit of the Linux kernel's stand-alone version.

unifdef.c | 6 ++++--

1 file changed, 4 insertions(+), 2 deletions(-)

-----  
2009-11-27 14:35:51 +0000 Tony Finch <dot@dotat.at>

Consistent ordering of \${got} and \${exp} in the test script

runtests.sh | 6 ++++--

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2009-11-27 14:34:09 +0000 Tony Finch <dot@dotat.at>

Include the tests in the web page

index.html.in | 4 +++-

release.sh | 4 ++--

2 files changed,  
5 insertions(+), 3 deletions(-)

-----  
2009-11-27 14:32:49 +0000 Tony Finch <dot@dotat.at>

Improve phrasing on web page

index.html.in | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-27 14:30:02 +0000 Tony Finch <dot@dotat.at>



Run the tests in the correct directory

```
Makefile | 4 +++-
runtests.sh | 3 +-
2 files changed, 4 insertions(+), 3 deletions(-)
```

-----  
2009-11-27 14:21:36 +0000 Tony Finch <dot@dotat.at>

Add some unifdefall test cases.

```
tests/if1-a.experr | 0
tests/if1-a.exprc | 1 +
tests/if1-a.sh | 1 +
tests/if2-a.experr | 0
tests/if2-a.exprc | 1 +
tests/if2-a.sh | 1 +
tests/if3-a.experr | 0
tests/if3-a.exprc | 1 +
tests/if3-a.sh | 1 +
tests/if4-a.experr | 0
tests/if4-a.exprc | 1 +
tests/if4-a.sh | 1 +
tests/if5-a.experr | 0
tests/if5-a.exprc | 1 +
tests/if5-a.sh | 1
+
15 files changed, 10 insertions(+)
```

-----  
2009-11-27 14:20:59 +0000 Tony Finch <dot@dotat.at>

Ensure we clean up after a successful test.

```
runtests.sh | 3 +-
1 file changed, 2 insertions(+), 1 deletion(-)
```

-----  
2009-11-27 14:08:08 +0000 Tony Finch <dot@dotat.at>

Simplify the test suite so that runtests.sh is not specific to unifdef.

```
Makefile | 5 +++--
runtests.sh | 65 ++++++-----
tests/args1.sh | 1 +
tests/args2.sh | 1 +
tests/blank0d.args | 1 -
tests/blank0d.sh | 1 +
```

tests/blank0u.args | 1 -  
tests/blank0u.sh | 1 +  
tests/blank1d.args | 1 -  
tests/blank1d.sh | 1 +  
tests/blank1u.args | 1 -  
tests/blank1u.sh | 1 +  
tests/blank2d.args | 1 -  
tests/blank2d.sh | 1 +  
tests/blank2u.args | 1 -  
tests/blank2u.sh | 1 +  
tests/blank3d.args | 1 -  
tests/blank3d.sh | 1 +  
tests/blank3u.args  
| 1 -  
tests/blank3u.sh | 1 +  
tests/blank4d.args | 1 -  
tests/blank4d.sh | 1 +  
tests/blank4u.args | 1 -  
tests/blank4u.sh | 1 +  
tests/empty.sh | 1 +  
tests/if1-k.args | 1 -  
tests/if1-k.sh | 1 +  
tests/if1-kDU.args | 1 -  
tests/if1-kDU.sh | 1 +  
tests/if1.sh | 1 +  
tests/if2-k.args | 1 -  
tests/if2-k.sh | 1 +  
tests/if2-kDU.args | 1 -  
tests/if2-kDU.sh | 1 +  
tests/if2.sh | 1 +  
tests/if3-k.args | 1 -  
tests/if3-k.sh | 1 +  
tests/if3-kDU.args | 1 -  
tests/if3-kDU.sh | 1 +  
tests/if3.sh | 1 +  
tests/if4-k.args | 1 -  
tests/if4-k.sh | 1 +  
tests/if4-kDU.args | 1 -  
tests/if4-kDU.sh | 1 +  
tests/if4.sh | 1 +  
tests/if5-k.args | 1 -  
tests/if5-k.sh | 1 +  
tests/if5-kDU.args | 1 -  
tests/if5-kDU.sh | 1 +  
tests/if5.sh | 1 +  
tests/none.sh | 1 +  
tests/small1.sh | 1 +  
tests/small2.sh | 1 +

tests/spaces1.sh | 1 +  
tests/spaces2.sh | 1 +  
tests/spaces3.sh  
| 1 +  
tests/spaces4.sh | 1 +  
57 files changed, 60 insertions(+), 65 deletions(-)

-----  
2009-11-27 13:36:39 +0000 Tony Finch <dot@dotat.at>

Test suite tweaks.

Move the runtests script into the main source directory.  
Remove the redundant .c. from the expected output filenames.  
Run the tests in a separate working directory.  
Include the tests in the release.

Makefile | 8 +++++--  
release.sh | 7 +++++--  
runtests.sh | 17 ++++++-----  
tests/args1.c.experr | 0  
tests/args1.c.expout | 1 -  
tests/args1.c.exprc | 1 -  
tests/args2.c.experr | 0  
tests/args2.c.expout | 3 ---  
tests/args2.c.exprc | 1 -  
tests/blank0d.c.experr | 0  
tests/blank0d.c.expout | 23 -----  
tests/blank0d.c.exprc | 1 -  
tests/blank0u.c.experr | 0  
tests/blank0u.c.expout | 22 -----  
tests/blank0u.c.exprc | 1 -  
tests/blank1d.c.experr | 0  
tests/blank1d.c.expout | 23 -----  
tests/blank1d.c.exprc | 1 -  
tests/blank1u.c.experr | 0  
tests/blank1u.c.expout | 21 -----  
tests/blank1u.c.exprc | 1 -  
tests/blank2d.c.experr | 0  
tests/blank2d.c.expout | 23 -----  
tests/blank2d.c.exprc | 1 -  
tests/blank2u.c.experr | 0  
tests/blank2u.c.expout | 20 -----  
tests/blank2u.c.exprc | 1 -  
tests/blank3d.c.experr | 0  
tests/blank3d.c.expout | 23 -----  
tests/blank3d.c.exprc | 1 -  
tests/blank3u.c.experr | 0

```

tests/blank3u.c.expout | 19 -----
tests/blank3u.c.exprc | 1 -
tests/blank4d.c.experr | 0
tests/blank4d.c.expout | 23 -----
tests/blank4d.c.exprc | 1 -
tests/blank4u.c.experr | 0
tests/blank4u.c.expout | 18 -----
tests/blank4u.c.exprc | 1 -
tests/empty.c.experr | 0
tests/empty.c.expout | 0
tests/empty.c.exprc | 1 -
tests/if1-a.c.expout | 15 -----
tests/if1-k.c.experr | 0
tests/if1-k.c.expout
| 29 -----
tests/if1-k.c.exprc | 1 -
tests/if1-kDU.c.experr | 0
tests/if1-kDU.c.expout | 19 -----
tests/if1-kDU.c.exprc | 1 -
tests/if1.c.experr | 0
tests/if1.c.expout | 15 -----
tests/if1.c.exprc | 1 -
tests/if2-a.c.expout | 12 -----
tests/if2-k.c.experr | 0
tests/if2-k.c.expout | 20 -----
tests/if2-k.c.exprc | 1 -
tests/if2-kDU.c.experr | 0
tests/if2-kDU.c.expout | 16 -----
tests/if2-kDU.c.exprc | 1 -
tests/if2.c.experr | 0
tests/if2.c.expout | 12 -----
tests/if2.c.exprc | 1 -
tests/if3-a.c.expout | 12 -----
tests/if3-k.c.experr | 0
tests/if3-k.c.expout | 20 -----
tests/if3-k.c.exprc | 1 -
tests/if3-kDU.c.experr | 0
tests/if3-kDU.c.expout | 16 -----
tests/if3-kDU.c.exprc | 1 -
tests/if3.c.experr | 0
tests/if3.c.expout | 12 -----
tests/if3.c.exprc | 1 -
tests/if4-a.c.expout
| 21 -----
tests/if4-k.c.experr | 0
tests/if4-k.c.expout | 41 -----
tests/if4-k.c.exprc | 1 -
tests/if4-kDU.c.experr | 0

```

```

tests/if4-kDU.c.expout | 25 -----
tests/if4-kDU.c.exprc | 1 -
tests/if4.c.experr | 0
tests/if4.c.expout | 21 -----
tests/if4.c.exprc | 1 -
tests/if5-a.c.expout | 27 -----
tests/if5-k.c.experr | 0
tests/if5-k.c.expout | 55 -----
tests/if5-k.c.exprc | 1 -
tests/if5-kDU.c.experr | 0
tests/if5-kDU.c.expout | 31 -----
tests/if5-kDU.c.exprc | 1 -
tests/if5.c.experr | 0
tests/if5.c.expout | 27 -----
tests/if5.c.exprc | 1 -
tests/none.c.experr | 0
tests/none.c.expout | 4 ----
tests/none.c.exprc | 1 -
tests/runtests | 51 -----
tests/small1.c.experr
| 0
tests/small1.c.expout | 12 -----
tests/small1.c.exprc | 1 -
tests/small2.c.experr | 0
tests/small2.c.expout | 12 -----
tests/small2.c.exprc | 1 -
tests/spaces1.c.experr | 0
tests/spaces1.c.expout | 12 -----
tests/spaces1.c.exprc | 1 -
tests/spaces2.c.experr | 0
tests/spaces2.c.expout | 12 -----
tests/spaces2.c.exprc | 1 -
tests/spaces3.c.experr | 0
tests/spaces3.c.expout | 12 -----
tests/spaces3.c.exprc | 1 -
tests/spaces4.c.experr | 0
tests/spaces4.c.expout | 12 -----
tests/spaces4.c.exprc | 1 -
114 files changed, 18 insertions(+), 841 deletions(-)

```

-----  
2009-11-27 13:08:58 +0000 Tony Finch <dot@dotat.at>

Additional tests from Bob Proulx <bob@proulx.com> Add his copyright notice to all the old tests.

```

runtests.sh | 6 ++++
tests/if1-a.c.expout | 15 ++++++

```

```

tests/if1-a.expout | 15 ++++++++
tests/if1-k.args | 1 +
tests/if1-k.c
| 37 ++++++++
tests/if1-k.c.experr | 0
tests/if1-k.c.expout | 29 ++++++++
tests/if1-k.c.exprc | 1 +
tests/if1-k.experr | 0
tests/if1-k.expout | 29 ++++++++
tests/if1-k.exprc | 1 +
tests/if1-kDU.args | 1 +
tests/if1-kDU.c | 37 ++++++++
tests/if1-kDU.c.experr | 0
tests/if1-kDU.c.expout | 19 ++++++++
tests/if1-kDU.c.exprc | 1 +
tests/if1-kDU.experr | 0
tests/if1-kDU.expout | 19 ++++++++
tests/if1-kDU.exprc | 1 +
tests/if1.c | 3 +++
tests/if1.c.expout | 3 +++
tests/if1.expout | 3 +++
tests/if2-a.c.expout | 12 ++++++++
tests/if2-a.expout | 12 ++++++++
tests/if2-k.args | 1 +
tests/if2-k.c | 28 ++++++++
tests/if2-k.c.experr | 0
tests/if2-k.c.expout | 20 ++++++++
tests/if2-k.c.exprc | 1 +
tests/if2-k.experr | 0
tests/if2-k.expout
| 20 ++++++++
tests/if2-k.exprc | 1 +
tests/if2-kDU.args | 1 +
tests/if2-kDU.c | 28 ++++++++
tests/if2-kDU.c.experr | 0
tests/if2-kDU.c.expout | 16 ++++++++
tests/if2-kDU.c.exprc | 1 +
tests/if2-kDU.experr | 0
tests/if2-kDU.expout | 16 ++++++++
tests/if2-kDU.exprc | 1 +
tests/if2.c | 3 +++
tests/if2.c.expout | 3 +++
tests/if2.expout | 3 +++
tests/if3-a.c.expout | 12 ++++++++
tests/if3-a.expout | 12 ++++++++
tests/if3-k.args | 1 +
tests/if3-k.c | 28 ++++++++
tests/if3-k.c.experr | 0

```

```

tests/if3-k.c.expout | 20 ++++++
tests/if3-k.c.exprc | 1 +
tests/if3-k.experr | 0
tests/if3-k.expout | 20 ++++++
tests/if3-k.exprc | 1 +
tests/if3-kDU.args | 1 +
tests/if3-kDU.c | 28 ++++++
tests/if3-kDU.c.experr | 0
tests/if3-kDU.c.expout | 16 ++++++
tests/if3-kDU.c.exprc |
1 +
tests/if3-kDU.experr | 0
tests/if3-kDU.expout | 16 ++++++
tests/if3-kDU.exprc | 1 +
tests/if3.c | 3 +++
tests/if3.c.expout | 3 +++
tests/if3.expout | 3 +++
tests/if4-a.c.expout | 21 ++++++
tests/if4-a.expout | 21 ++++++
tests/if4-k.args | 1 +
tests/if4-k.c | 49 ++++++
tests/if4-k.c.experr | 0
tests/if4-k.c.expout | 41 ++++++
tests/if4-k.c.exprc | 1 +
tests/if4-k.experr | 0
tests/if4-k.expout | 41 ++++++
tests/if4-k.exprc | 1 +
tests/if4-kDU.args | 1 +
tests/if4-kDU.c | 49 ++++++
tests/if4-kDU.c.experr | 0
tests/if4-kDU.c.expout | 25 ++++++
tests/if4-kDU.c.exprc | 1 +
tests/if4-kDU.experr | 0
tests/if4-kDU.expout | 25 ++++++
tests/if4-kDU.exprc | 1 +
tests/if4.c | 3 +++
tests/if4.c.expout
| 3 +++
tests/if4.expout | 3 +++
tests/if5-a.c.expout | 27 ++++++
tests/if5-a.expout | 27 ++++++
tests/if5-k.args | 1 +
tests/if5-k.c | 63 ++++++
tests/if5-k.c.experr | 0
tests/if5-k.c.expout | 55 ++++++
tests/if5-k.c.exprc | 1 +
tests/if5-k.experr | 0
tests/if5-k.expout | 55 ++++++

```

```
tests/if5-k.exprc | 1 +
tests/if5-kDU.args | 1 +
tests/if5-kDU.c | 63 ++++++
tests/if5-kDU.c.experr | 0
tests/if5-kDU.c.expout | 31 ++++++
tests/if5-kDU.c.exprc | 1 +
tests/if5-kDU.experr | 0
tests/if5-kDU.expout | 31 ++++++
tests/if5-kDU.exprc | 1 +
tests/if5.c | 3 +++
tests/if5.c.expout | 3 +++
tests/if5.expout | 3 +++
tests/none.c
| 3 +++
tests/none.c.expout | 3 +++
tests/none.expout | 3 +++
tests/runtests | 6 ++++
tests/small1.c | 3 +++
tests/small1.c.expout | 3 +++
tests/small1.expout | 3 +++
tests/small2.c | 3 +++
tests/small2.c.expout | 3 +++
tests/small2.expout | 3 +++
tests/spaces1.c | 3 +++
tests/spaces1.c.expout | 3 +++
tests/spaces1.expout | 3 +++
tests/spaces2.c | 3 +++
tests/spaces2.c.expout | 3 +++
tests/spaces2.expout | 3 +++
tests/spaces3.c | 3 +++
tests/spaces3.c.expout | 3 +++
tests/spaces3.expout | 3 +++
tests/spaces4.c | 3 +++
tests/spaces4.c.expout | 3 +++
tests/spaces4.expout | 3 +++
128 files changed, 1276 insertions(+), 2 deletions(-)
```

-----  
2009-11-27 12:48:13 +0000 Tony Finch <dot@dotat.at>

List significant contributions in the README

```
README | 28 ++++++-----
1 file changed, 21 insertions(+), 7 deletions(-)
```

-----  
2009-11-27



12:36:54 +0000 Tony Finch <dot@dotat.at>

Improve the blurb on the web page, based on the Debian package's description by Jonathan Nieder <jrnieder@gmail.com>.

index.html.in | 16 ++++++-----  
1 file changed, 12 insertions(+), 4 deletions(-)

-----  
2009-11-26 14:12:30 +0000 Tony Finch <dot@dotat.at>

Fix web page markup

index.html.in | 14 ++++++-----  
1 file changed, 8 insertions(+), 6 deletions(-)

-----  
2009-11-26 14:01:26 +0000 Tony Finch <dot@dotat.at>

Makefile: clean index.html generated by release.sh

Makefile | 4 +++-  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-26 13:56:22 +0000 Tony Finch <dot@dotat.at>

Do not edit index.html in place

index.html.in | 4 +++-  
release.sh | 4 +++-  
2 files changed, 4 insertions(+), 4 deletions(-)

-----  
2009-11-26  
13:54:10 +0000 Tony Finch <dot@dotat.at>

Try again to prevent CVS keyword expansion in the wrong part of release.sh

release.sh | 4 +++-  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-26 13:52:09 +0000 Tony Finch <dot@dotat.at>

Do not expand CVS keywords in the wrong part of release.sh

release.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-26 13:50:10 +0000 Tony Finch <dot@dotat.at>

Improved release process.

Calculate the version number from the sum of the CVS ids.  
Adjust the version number in the web page.

release.sh | 12 ++++++-----  
1 file changed, 7 insertions(+), 5 deletions(-)

-----  
2009-11-26 13:48:45 +0000 Tony Finch <dot@dotat.at>

Add a web page. Use the same title in the README and index.html.

README | 4 +---  
index.html.in | 46 ++++++  
2 files changed, 48 insertions(+), 2 deletions(-)

-----  
2009-11-26 12:54:39 +0000 Tony Finch <dot@dotat.at>

unifdefall: optimise the loop that builds the unifdef command.

The old code used a shell loop to convert each controlling macro definition into a command-line argument, reading the macro definitions file each time. The new code converts the list of controlling macros into a sed script which can run through the list of macro definitions in one go.

Add some explanatory comments, since the code is quite meta.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 24 ++++++  
1 file changed, 16 insertions(+), 8 deletions(-)

-----  
2009-11-26 02:22:24 +0000 Tony Finch <dot@dotat.at>

unifdefall: Use { } instead of () for redirecting a group of commands.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2009-11-26 02:14:47 +0000 Tony Finch <dot@dotat.at>

unifdefall: remove debugging remnants.

unifdefall.sh | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2009-11-25 19:54:34 +0000 Tony Finch <dot@dotat.at>

unifdefall: update copyright dates.

unifdefall.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-25 19:33:51 +0000 Tony Finch <dot@dotat.at>

Makefile: really clean more.

Makefile | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-25 19:32:40 +0000 Tony Finch <dot@dotat.at>

unifdefall: portability: do not try to use EREs with sed

BSD sed uses -E and GNU sed uses -r to specify that extended regular expressions should be used instead of BREs.

Some of the sed scripts have been simplified by relying on 'cpp -dM' to produce lines of the form '#define MACRO value', with a single space as delimiting whitespace.

While we're modifying the sed scripts, also change the shell quoting script to correctly capture more characters when they appear in the right-hand sides of macro definitions (e.g., \$).

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 17 ++++++++-----

1 file changed, 8 insertions(+), 9 deletions(-)

-----  
2009-11-25 19:24:59 +0000 Tony Finch <dot@dotat.at>

unifdefall: fix mktemp invocation

Actually remove the -t that should have gone in rev. 1.14

unifdefall.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-25 19:23:12 +0000 Tony Finch <dot@dotat.at>

unifdefall: simplify redirections to the temporary script

unifdefall.sh | 19 ++++++++-----

1 file changed, 10

insertions(+), 9 deletions(-)

-----  
2009-11-25 18:05:11 +0000 Tony Finch <dot@dotat.at>

unifdefall: force the "C" locale to avoid braindamage

Reported-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 4 +++-

1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2009-11-25 18:02:41 +0000 Tony Finch <dot@dotat.at>

unifdefall: clean up temporary files on failure

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 5 +++--

1 file changed, 2 insertions(+), 3 deletions(-)

-----  
2009-11-25 18:00:54 +0000 Tony Finch <dot@dotat.at>

unifdefall: allow spaces in \$TMPDIR

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 28 ++++++++-----

1 file changed, 14 insertions(+), 14 deletions(-)

-----  
2009-11-25 17:56:10 +0000 Tony Finch <dot@dotat.at>

unifdefall:  
portability: avoid mktemp -t

GNU mktemp interprets the argument after -t as the entire template and errors out if it contains no XXXX substring. BSD systems, on the other hand, treat the argument as a prefix for the mktemp template and use it verbatim, resulting in long, ugly filenames like foo.XXXXXX.e30GuhHVzU if the string contains embedded Xs.

So avoid -t and use TMPDIR explicitly.

Submitted-by: Jonathan Nieder <jrnieder@gmail.com>

unifdefall.sh | 4 +++  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-25 17:54:13 +0000 Tony Finch <dot@dotat.at>

Use \$() instead of `` in unifdefall.

unifdefall.sh | 6 +++--  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2009-11-25 00:11:02 +0000 Tony Finch <dot@dotat.at>

Improve the behaviour of the -B option.

Submitted-by: Anders H Kaseorg <andersk@mit.edu>

tests/blank1d.c.expout | 1 +  
tests/blank1d.expout | 1  
+  
tests/blank2d.c.expout | 2 ++  
tests/blank2d.expout | 2 ++  
tests/blank3d.c.expout | 3 +++  
tests/blank3d.expout | 3 +++  
tests/blank4d.c.expout | 4 ++++  
tests/blank4d.expout | 4 ++++  
unifdef.1 | 4 +++-  
unifdef.c | 17 ++++++++-----  
10 files changed, 33 insertions(+), 8 deletions(-)

-----  
2009-11-25 00:03:44 +0000 Tony Finch <dot@dotat.at>

Add some test cases for blank line squashing.

```
tests/blank0d.args | 1 +
tests/blank0d.c | 25 ++++++
tests/blank0d.c.experr | 0
tests/blank0d.c.expout | 23 ++++++
tests/blank0d.c.exprc | 1 +
tests/blank0d.experr | 0
tests/blank0d.expout | 23 ++++++
tests/blank0d.exprc | 1 +
tests/blank0u.args | 1 +
tests/blank0u.c | 25 ++++++
tests/blank0u.c.experr | 0
tests/blank0u.c.expout | 22 ++++++
tests/blank0u.c.exprc | 1 +
tests/blank0u.experr
| 0
tests/blank0u.expout | 22 ++++++
tests/blank0u.exprc | 1 +
tests/blank1d.args | 1 +
tests/blank1d.c | 25 ++++++
tests/blank1d.c.experr | 0
tests/blank1d.c.expout | 22 ++++++
tests/blank1d.c.exprc | 1 +
tests/blank1d.experr | 0
tests/blank1d.expout | 22 ++++++
tests/blank1d.exprc | 1 +
tests/blank1u.args | 1 +
tests/blank1u.c | 25 ++++++
tests/blank1u.c.experr | 0
tests/blank1u.c.expout | 21 ++++++
tests/blank1u.c.exprc | 1 +
tests/blank1u.experr | 0
tests/blank1u.expout | 21 ++++++
tests/blank1u.exprc | 1 +
tests/blank2d.args | 1 +
tests/blank2d.c | 25 ++++++
tests/blank2d.c.experr | 0
tests/blank2d.c.expout | 21 ++++++
tests/blank2d.c.exprc | 1 +
tests/blank2d.experr | 0
tests/blank2d.expout | 21 ++++++
tests/blank2d.exprc | 1 +
tests/blank2u.args | 1 +
```

```

tests/blank2u.c      | 25 ++++++
tests/blank2u.c.experr | 0
tests/blank2u.c.expout | 20 ++++++
tests/blank2u.c.exprc | 1 +
tests/blank2u.experr | 0
tests/blank2u.expout | 20 ++++++
tests/blank2u.exprc | 1 +
tests/blank3d.args | 1 +
tests/blank3d.c      | 25 ++++++
tests/blank3d.c.experr | 0
tests/blank3d.c.expout | 20 ++++++
tests/blank3d.c.exprc | 1 +
tests/blank3d.experr | 0
tests/blank3d.expout | 20 ++++++
tests/blank3d.exprc | 1 +
tests/blank3u.args | 1 +
tests/blank3u.c      | 25 ++++++
tests/blank3u.c.experr | 0
tests/blank3u.c.expout | 19 ++++++
tests/blank3u.c.exprc | 1 +
tests/blank3u.experr | 0
tests/blank3u.expout | 19 ++++++
tests/blank3u.exprc | 1 +
tests/blank4d.args | 1 +
tests/blank4d.c
    | 25 ++++++
tests/blank4d.c.experr | 0
tests/blank4d.c.expout | 19 ++++++
tests/blank4d.c.exprc | 1 +
tests/blank4d.experr | 0
tests/blank4d.expout | 19 ++++++
tests/blank4d.exprc | 1 +
tests/blank4u.args | 1 +
tests/blank4u.c      | 25 ++++++
tests/blank4u.c.experr | 0
tests/blank4u.c.expout | 18 ++++++
tests/blank4u.c.exprc | 1 +
tests/blank4u.experr | 0
tests/blank4u.expout | 18 ++++++
tests/blank4u.exprc | 1 +
80 files changed, 690 insertions(+)

```

-----  
2009-11-24 23:46:36 +0000 Tony Finch <dot@dotat.at>

Further test script clean-ups.

```

runtests.sh | 27 ++++++-----

```

tests/runtests | 27 ++++++-----  
2 files changed, 24 insertions(+), 30 deletions(-)

-----  
2009-11-24 22:40:01 +0000 Tony Finch <dot@dotat.at>

Add a couple  
of tests for macro argument handling

tests/args1.c | 3 +++  
tests/args1.c.experr | 0  
tests/args1.c.expout | 1 +  
tests/args1.c.exprc | 1 +  
tests/args1.experr | 0  
tests/args1.expout | 1 +  
tests/args1.exprc | 1 +  
tests/args2.c | 3 +++  
tests/args2.c.experr | 0  
tests/args2.c.expout | 3 +++  
tests/args2.c.exprc | 1 +  
tests/args2.experr | 0  
tests/args2.expout | 3 +++  
tests/args2.exprc | 1 +  
14 files changed, 18 insertions(+)

-----  
2009-11-24 22:39:36 +0000 Tony Finch <dot@dotat.at>

Automatically run newly-added tests.

runtests.sh | 7 +++----  
tests/runtests | 7 +++----  
2 files changed, 6 insertions(+), 8 deletions(-)

-----  
2009-11-24 22:32:35 +0000 Tony Finch <dot@dotat.at>

Fix detection of missing test output files.

runtests.sh | 3 +--  
tests/runtests | 3 +--  
2 files changed, 2 insertions(+), 4 deletions(-)

-----  
2009-11-24  
22:25:55 +0000 Tony Finch <dot@dotat.at>

Move tests/Makefile into the main Makefile.



Makefile | 6 ++++++  
tests/Makefile | 5 ----  
2 files changed, 5 insertions(+), 6 deletions(-)

-----  
2009-11-24 22:20:26 +0000 Tony Finch <dot@dotat.at>

Support non-standard test command arguments.

runtests.sh | 7 ++++++  
tests/runtests | 7 ++++++  
2 files changed, 12 insertions(+), 2 deletions(-)

-----  
2009-11-24 22:13:15 +0000 Tony Finch <dot@dotat.at>

Remove redundancy from the test scripts.

runtests.sh | 47 ++++++  
tests/Makefile | 11 +-  
tests/empty.c.exprc | 1 +  
tests/empty.exprc | 1 +  
tests/if1.c.exprc | 1 +  
tests/if1.exprc | 1 +  
tests/if2.c.exprc | 1 +  
tests/if2.exprc | 1 +  
tests/if3.c.exprc | 1 +  
tests/if3.exprc | 1 +  
tests/if4.c.exprc |  
1 +  
tests/if4.exprc | 1 +  
tests/if5.c.exprc | 1 +  
tests/if5.exprc | 1 +  
tests/none.c.exprc | 1 +  
tests/none.exprc | 1 +  
tests/runtests | 47 ++++++  
tests/simple1 | 58 -----  
tests/simple2 | 60 -----  
tests/small1.c.exprc | 1 +  
tests/small1.exprc | 1 +  
tests/small2.c.exprc | 1 +  
tests/small2.exprc | 1 +  
tests/spaces1.c.exprc | 1 +  
tests/spaces1.exprc | 1 +  
tests/spaces2.c.exprc | 1 +  
tests/spaces2.exprc | 1 +  
tests/spaces3.c.exprc | 1 +

```
tests/spaces3.exprc | 1 +
tests/spaces4.c.exprc | 1 +
tests/spaces4.exprc | 1 +
31 files changed, 122 insertions(+), 127 deletions(-)
```

-----  
2009-11-24 21:32:53 +0000 Tony Finch <dot@dotat.at>

Make the simple3 test script redundant.

```
tests/Makefile | 2 +-
tests/simple2 | 6 +++++-
tests/simple3
| 58 -----
3 files changed, 5 insertions(+), 61 deletions(-)
```

-----  
2009-11-24 21:27:29 +0000 Tony Finch <dot@dotat.at>

Reduce repetition of the test command in the scripts.

```
tests/simple1 | 14 ++++++-----
tests/simple2 | 14 ++++++-----
tests/simple3 | 14 ++++++-----
3 files changed, 24 insertions(+), 18 deletions(-)
```

-----  
2009-11-24 21:23:30 +0000 Tony Finch <dot@dotat.at>

Fix relative path from tests to unifdef executable.

```
tests/simple1 | 2 +-
tests/simple2 | 2 +-
tests/simple3 | 2 +-
3 files changed, 3 insertions(+), 3 deletions(-)
```

-----  
2009-11-24 21:21:47 +0000 Tony Finch <dot@dotat.at>

Import Bob Proulx's test suite from the Debian package.

```
tests/Makefile | 12 ++++++++
tests/empty.c | 0
tests/empty.c.experr | 0
tests/empty.c.expout
| 0
tests/empty.experr | 0
tests/empty.expout | 0
```

```

tests/if1.c      | 22 ++++++
tests/if1.c.experr | 0
tests/if1.c.expout | 12 ++++++
tests/if1.experr | 0
tests/if1.expout | 12 ++++++
tests/if2.c      | 13 ++++++
tests/if2.c.experr | 0
tests/if2.c.expout | 9 ++++++
tests/if2.experr | 0
tests/if2.expout | 9 ++++++
tests/if3.c      | 13 ++++++
tests/if3.c.experr | 0
tests/if3.c.expout | 9 ++++++
tests/if3.experr | 0
tests/if3.expout | 9 ++++++
tests/if4.c      | 34 ++++++
tests/if4.c.experr | 0
tests/if4.c.expout | 18 ++++++
tests/if4.experr | 0
tests/if4.expout | 18 ++++++
tests/if5.c      | 48 ++++++
tests/if5.c.experr | 0
tests/if5.c.expout | 24 ++++++
tests/if5.experr |
0
tests/if5.expout | 24 ++++++
tests/none.c     | 1 +
tests/none.c.experr | 0
tests/none.c.expout | 1 +
tests/none.experr | 0
tests/none.expout | 1 +
tests/simple1    | 56 ++++++
tests/simple2    | 56 ++++++
tests/simple3    | 56 ++++++
tests/small1.c   | 13 ++++++
tests/small1.c.experr | 0
tests/small1.c.expout | 9 ++++++
tests/small1.experr | 0
tests/small1.expout | 9 ++++++
tests/small2.c   | 13 ++++++
tests/small2.c.experr | 0
tests/small2.c.expout | 9 ++++++
tests/small2.experr | 0
tests/small2.expout | 9 ++++++
tests/spaces1.c  | 13 ++++++
tests/spaces1.c.experr | 0
tests/spaces1.c.expout | 9 ++++++
tests/spaces1.experr | 0

```

```
tests/spaces1.expout | 9 ++++++++
tests/spaces2.c      |
13 ++++++++
tests/spaces2.c.experr | 0
tests/spaces2.c.expout | 9 ++++++++
tests/spaces2.experr | 0
tests/spaces2.expout | 9 ++++++++
tests/spaces3.c      | 13 ++++++++
tests/spaces3.c.experr | 0
tests/spaces3.c.expout | 9 ++++++++
tests/spaces3.experr | 0
tests/spaces3.expout | 9 ++++++++
tests/spaces4.c      | 13 ++++++++
tests/spaces4.c.experr | 0
tests/spaces4.c.expout | 9 ++++++++
tests/spaces4.experr | 0
tests/spaces4.expout | 9 ++++++++
69 files changed, 643 insertions(+)
```

-----  
2009-11-24 17:50:35 +0000 Tony Finch <dot@dotat.at>

Less stilted English in the man page.

```
unifdef.1 | 4 ++--
1 file changed, 2 insertions(+), 2 deletions(-)
```

-----  
2009-11-24 17:49:13 +0000 Tony Finch <dot@dotat.at>

Handle macros with arguments.

Submitted-by: Anders H Kaseorg <andersk@mit.edu>

```
unifdef.1 | 13 ++++++++
unifdef.c | 32 ++++++++
2 files changed, 42 insertions(+), 3 deletions(-)
```

-----  
2009-11-24 16:51:38 +0000 Tony Finch <dot@dotat.at>

Use isalnum() instead of isalpha() + isdigit().

```
unifdef.c | 4 ++--
1 file changed, 2 insertions(+), 2 deletions(-)
```

-----  
2009-11-24 12:14:37 +0000 Tony Finch <dot@dotat.at>

Run the release script verbosely.

release.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2009-11-24 12:12:31 +0000 Tony Finch <dot@dotat.at>

Add a non-portability note to the README.

README | 8 ++++++--

1 file changed, 7 insertions(+), 1 deletion(-)

-----  
2009-11-24 11:58:41 +0000 Tony Finch <dot@dotat.at>

Rename getline() to parseline() to avoid clashing with a glibc function.

unifdef.c | 8 ++++----

1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2009-11-23  
19:15:42 +0000 Tony Finch <dot@dotat.at>

Add a realclean target

Makefile | 5 ++++-

1 file changed, 4 insertions(+), 1 deletion(-)

-----  
2009-11-23 19:14:02 +0000 Tony Finch <dot@dotat.at>

Add a README file

Makefile | 4 +++-

README | 21 ++++++

release.sh | 3 ++-

3 files changed, 25 insertions(+), 3 deletions(-)

-----  
2009-11-23 19:07:17 +0000 Tony Finch <dot@dotat.at>

Further improvements to the release scripts.

Make the generated filenames more standard.

Makefile | 16 ++++++-----  
release.sh | 16 ++++++-----  
2 files changed, 19 insertions(+), 13 deletions(-)

-----  
2009-11-23 18:54:52 +0000 Tony Finch <dot@dotat.at>

Include the Release script in the release.

release.sh | 1 +  
1 file changed, 1 insertion(+)

-----  
2009-11-23  
18:53:35 +0000 Tony Finch <dot@dotat.at>

Revamp Makefile and add a separate Release script.

Makefile | 20 ++++++-----  
release.sh | 22 ++++++-----  
2 files changed, 29 insertions(+), 13 deletions(-)

-----  
2009-11-23 18:37:17 +0000 Tony Finch <dot@dotat.at>

Document -d flag and update copyright notices.

unifdef.1 | 11 ++++++-----  
unifdef.c | 6 +-----  
2 files changed, 10 insertions(+), 7 deletions(-)

-----  
2009-11-23 18:24:55 +0000 Tony Finch <dot@dotat.at>

Fix regression in ! operator.

Since revision 1.180, unifdef is ignoring negations in the outermost expression of an #if conditional. Fix the regression, and add a debug statement to help if any similar problems ever need to be tracked down.

Submitted by: Jonathan Nieder <jrnieder@gmail.com>

unifdef.c | 7 ++++++--  
1 file changed, 5 insertions(+), 2 deletions(-)

-----  
2009-11-23

17:59:33 +0000 Tony Finch <dot@dotat.at>

Correct the HISTORY section and add an AUTHORS section.

Obtained from FreeBSD.

unifdef.1 | 10 ++++++--

1 file changed, 8 insertions(+), 2 deletions(-)

-----  
2009-11-23 17:58:27 +0000 Tony Finch <dot@dotat.at>

Add a "release" target

Makefile | 12 ++++++--

1 file changed, 11 insertions(+), 1 deletion(-)

-----  
2008-03-10 16:15:52 +0000 Tony Finch <dot@dotat.at>

update synopsis

unifdef.1 | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2008-03-10 16:08:47 +0000 Tony Finch <dot@dotat.at>

backwards compatibility option

unifdef.1 | 12 ++++++--

unifdef.c | 14 ++++++-----

2 files changed, 20 insertions(+), 6 deletions(-)

-----  
2008-03-10 15:56:15 +0000 Tony Finch <dot@dotat.at>

Fix the state transition  
table.

unifdef.c | 37 ++++++-----

1 file changed, 18 insertions(+), 19 deletions(-)

-----  
2008-03-10 15:24:29 +0000 Tony Finch <dot@dotat.at>

Lenient evaluation of && and || based on an idea from Ben Hutchings at  
Solarflare Communications.

unifdef.1 | 74 ++++++-----  
unifdef.c | 136 ++++++-----  
2 files changed, 139 insertions(+), 71 deletions(-)

-----  
2008-03-10 13:01:40 +0000 Tony Finch <dot@dotat.at>

Compress blank lines, based on an idea from Ben Hutchings at Solarflare Communications.

unifdef.1 | 28 ++++++-----  
unifdef.c | 37 ++++++-----  
2 files changed, 44 insertions(+), 21 deletions(-)

-----  
2008-03-02 22:23:32 +0000 Tony Finch <dot@dotat.at>

Typo in comment spotted by Hasso Tepper at DragonFlyBSD.

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2008-02-29 13:17:37 +0000 Tony Finch <dot@dotat.at>

Ah, I have worked out another way of triggering the abort. I think this fix covers all the cases.

unifdef.c | 21 ++++++-----  
1 file changed, 12 insertions(+), 9 deletions(-)

-----  
2008-02-29 12:44:25 +0000 Tony Finch <dot@dotat.at>

Remove a bit of copyright crap.

unifdef.c | 10 +++-----  
1 file changed, 3 insertions(+), 7 deletions(-)

-----  
2008-02-29 12:30:36 +0000 Tony Finch <dot@dotat.at>

Sync usage with synopsis in man page

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)



-----  
2008-02-29 12:29:34 +0000 Tony Finch <dot@dotat.at>

Ensure man page is ASCII.

Makefile | 4 ++--  
1 file changed, 2 insertions(+),  
2 deletions(-)

-----  
2008-02-29 12:26:04 +0000 Tony Finch <dot@dotat.at>

Fix an abort caused by files that have #endif and no newline on the last line  
(reported by Joe Karthaus). Also fix a benign uninitialized variable bug.

unifdef.c | 19 ++++++-----  
1 file changed, 14 insertions(+), 5 deletions(-)

-----  
2007-04-30 07:37:17 +0000 Tony Finch <dot@dotat.at>

Fix explanation of copyright history.

unifdef.c | 20 ++++++-----  
1 file changed, 11 insertions(+), 9 deletions(-)

-----  
2005-08-12 10:59:21 +0000 Tony Finch <dot@dotat.at>

Allow #if defined SYM as well as #if defined(SYM)

unifdef.c | 14 ++++++-----  
1 file changed, 9 insertions(+), 5 deletions(-)

-----  
2005-03-08 12:39:01 +0000 Tony Finch <dot@dotat.at>

sync with upstream

unifdef.1 | 32 ++++++-----  
1 file changed, 16 insertions(+), 16 deletions(-)

-----  
2005-03-08 12:38:48 +0000 Tony Finch <dot@dotat.at>

copyright dates

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2005-03-08 12:07:27 +0000 Tony Finch <dot@dotat.at>

Update the copyright notice to the FreeBSD standard. Do not recognize comment markers inside string and character literals.

unifdef.c | 59 ++++++-----

1 file changed, 44 insertions(+), 15 deletions(-)

-----  
2003-08-12 20:51:30 +0000 Tony Finch <dot@dotat.at>

simpler declaration of copyright[]

unifdef.c | 6 +++--

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2003-08-12 20:33:59 +0000 Tony Finch <dot@dotat.at>

Make the embedded copyright and version information more portable. Remove NetBSD cvs id because it is no longer relevant. Remove FreeBSD cvs id because it isn't relevant upstream. Keep Berkeley runes because they go with the original licence.

unifdef.c | 23 +++++-----

1 file changed, 6 insertions(+), 17 deletions(-)

-----  
2003-08-12 20:32:39 +0000 Tony Finch <dot@dotat.at>

FreeBSD cvs id isn't relevant in this file in the upstream version.

unifdefall.sh | 3 +--

1 file changed, 1 insertion(+), 2 deletions(-)

-----  
2003-08-12 20:32:12 +0000 Tony Finch <dot@dotat.at>

Current FreeBSD cvs id

unifdef.1 | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2003-08-12 20:12:24 +0000 Tony Finch <dot@dotat.at>

optionally add #line directives to the output

unifdef.1 | 11 ++++++---  
unifdef.c | 20 ++++++-----  
2 files changed, 23 insertions(+), 8 deletions(-)

-----  
2003-08-12  
19:39:53 +0000 Tony Finch <dot@dotat.at>

Add a little sanity checking to the state transition table code.

unifdef.c | 16 ++++++---  
1 file changed, 13 insertions(+), 3 deletions(-)

-----  
2003-08-12 19:35:31 +0000 Tony Finch <dot@dotat.at>

a minor style improvement

unifdef.c | 8 ++++---  
1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2003-08-12 19:23:12 +0000 Tony Finch <dot@dotat.at>

Allow the user to run unifdef without defining any symbols. This is useful in conjunction with the -k flag. Fix a bug in the -s handling code that would have caused out-of-bounds array accesses.

unifdef.c | 15 ++++++-----  
1 file changed, 7 insertions(+), 8 deletions(-)

-----  
2003-08-07 16:01:10 +0000 Tony Finch <dot@dotat.at>

Sync with FreeBSD

unifdef.1 | 3 +-  
1 file changed, 2 insertions(+),  
1 deletion(-)

-----  
2003-07-31 08:21:00 +0000 Tony Finch <dot@dotat.at>

All rights reserved

unifdef.l | 4 ++--

unifdef.c | 4 ++--

2 files changed, 4 insertions(+), 4 deletions(-)

-----  
2003-07-31 08:20:47 +0000 Tony Finch <dot@dotat.at>

add FreeBSD-style copyright & licence

unifdefall.sh | 27 ++++++-----

1 file changed, 25 insertions(+), 2 deletions(-)

-----  
2003-07-31 08:10:39 +0000 Tony Finch <dot@dotat.at>

Sync copyright and licence with the code. I've put my copyright line below Berkeley's since a lot of the old man page still remains.

unifdef.l | 11 ++++-----

1 file changed, 4 insertions(+), 7 deletions(-)

-----  
2003-07-31 07:59:15 +0000 Tony Finch <dot@dotat.at>

Remove clause three of the licence, as permitted by Berkeley. OpenBSD have done this globally, but

Net- and Free- haven't. I've had two questions about this recently, and since I don't distribute Berkeley's licence change statement this is a good way to be clear.

unifdef.c | 8 ++-----

1 file changed, 2 insertions(+), 6 deletions(-)

-----  
2003-07-01 15:32:48 +0000 Tony Finch <dot@dotat.at>

FreeBSD ident string

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2003-07-01 15:21:25 +0000 Tony Finch <dot@dotat.at>

style tweak

unifdef.c | 7 ++++---

1 file changed, 4 insertions(+), 3 deletions(-)

-----  
2003-07-01 15:13:49 +0000 Tony Finch <dot@dotat.at>

Make the handling of EOF a little more elegant.

unifdef.c | 36 ++++++++-----

1 file changed, 16 insertions(+), 20 deletions(-)

-----  
2003-07-01 14:53:50 +0000 Tony Finch <dot@dotat.at>

clean

Makefile | 9 ++++++--

1 file changed, 7 insertions(+), 2 deletions(-)

-----  
2003-07-01 08:34:43 +0000 Tony Finch <dot@dotat.at>

a comment about line continuations

unifdef.c | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2003-07-01 08:19:58 +0000 Tony Finch <dot@dotat.at>

Improve the expression evaluator's debugging output.

unifdef.c | 7 ++++--

1 file changed, 5 insertions(+), 2 deletions(-)

-----  
2003-06-30 14:30:54 +0000 Tony Finch <dot@dotat.at>

More improvements to comments regarding global variables.

unifdef.c | 12 ++++++-----

1 file changed, 7 insertions(+), 5 deletions(-)

-----  
2003-06-30 14:26:48 +0000 Tony Finch <dot@dotat.at>

Make a note in a comment about the relationship between `getline()` and `skipcomment()` w.r.t. the `linestate`.

unifdef.c | 6 +++---

1 file

changed, 3 insertions(+), 3 deletions(-)

-----  
2003-06-30 14:22:40 +0000 Tony Finch <dot@dotat.at>

When in text mode, or when ignoring a symbol, skipcomment needs to adjust the  
linestate when it hits a newline.

unifdef.c | 7 ++++---

1 file changed, 4 insertions(+), 3 deletions(-)

-----  
2003-06-30 14:03:56 +0000 Tony Finch <dot@dotat.at>

Sync with FreeBSD.

unifdef.c | 12 ++++++-----

1 file changed, 7 insertions(+), 5 deletions(-)

-----  
2003-01-20 14:43:55 +0000 Tony Finch <dot@dotat.at>

makefile for unifdef

Makefile | 11 ++++++-----

1 file changed, 11 insertions(+)

-----  
2003-01-20 14:37:08 +0000 Tony Finch <dot@dotat.at>

Slightly more correct SYNOPSIS

unifdef.1 | 14 ++++++-----

unifdef.c | 4 +++-

2 files changed, 8 insertions(+), 10 deletions(-)

-----  
2003-01-20  
14:01:47 +0000 Tony Finch <dot@dotat.at>

add a note about probalems caused by division

unifdef.c | 6 ++++---

1 file changed, 4 insertions(+), 2 deletions(-)

-----  
2003-01-20 13:48:06 +0000 Tony Finch <dot@dotat.at>

typo

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2003-01-20 12:46:08 +0000 Tony Finch <dot@dotat.at>

Sync \$FreeBSD\$ after downstream commit

unifdef.1 | 4 ++--

unifdef.c | 4 ++--

2 files changed, 4 insertions(+), 4 deletions(-)

-----  
2003-01-20 12:05:41 +0000 Tony Finch <dot@dotat.at>

clean up some -o remnants

unifdef.c | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2003-01-20 12:03:48 +0000 Tony Finch <dot@dotat.at>

terminological consistency: s/modify/edit/

unifdef.c | 4 ++--

1 file changed,

2 insertions(+), 2 deletions(-)

-----  
2003-01-20 12:03:10 +0000 Tony Finch <dot@dotat.at>

Compactify the Mfoo functions.

unifdef.c | 15 ++++++-----

1 file changed, 6 insertions(+), 9 deletions(-)

-----  
2003-01-20 11:46:53 +0000 Tony Finch <dot@dotat.at>

more idiomatic strlcpy usage

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2003-01-20 11:45:32 +0000 Tony Finch <dot@dotat.at>

Correct dodgy handling -- line continuations in keywords are always an error.

unifdef.c | 22 ++++++-----  
1 file changed, 10 insertions(+), 12 deletions(-)

-----  
2003-01-20 11:36:12 +0000 Tony Finch <dot@dotat.at>

Rename -o to -e, i.e. "less errors" instead of "allow obfuscation".

unifdef.1 | 40 ++++++-----  
unifdef.c | 12 +++++-----  
2 files  
changed, 26 insertions(+), 26 deletions(-)

-----  
2003-01-20 11:22:44 +0000 Tony Finch <dot@dotat.at>

remove another spurious space

unifdef.c | 4 ++-  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2003-01-20 02:58:11 +0000 Tony Finch <dot@dotat.at>

Improve the handling of multiline preprocessor directives. Don't complain when they don't affect the output. Add a switch that causes us to fudge it instead of complaining when it is possible to do so.

Prompted by an error report from Poul-Henning Kamp <phk@FreeBSD.org>

unifdef.1 | 24 ++++++--  
unifdef.c | 142 ++++++-----  
2 files changed, 123 insertions(+), 43 deletions(-)

-----  
2003-01-20 02:53:27 +0000 Tony Finch <dot@dotat.at>

replace accidentally zapped #endif

unifdef.c | 3 ++-  
1 file changed, 2 insertions(+), 1 deletion(-)



-----  
2003-01-20  
02:50:36 +0000 Tony Finch <dot@dotat.at>

Sync \$FreeBSD\$

unifdef.c | 5 ++---  
1 file changed, 2 insertions(+), 3 deletions(-)

-----  
2003-01-20 01:51:11 +0000 Tony Finch <dot@dotat.at>

Deconfuse ignore[] (which is a per-symbol flag) and ignoring[] (which is the stack of ignore states).

unifdef.c | 10 +++++-----  
1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2003-01-20 01:32:23 +0000 Tony Finch <dot@dotat.at>

Whitespace fixes from OpenBSD.

unifdef.c | 8 +++++----  
1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2003-01-20 00:59:36 +0000 Tony Finch <dot@dotat.at>

Be more explicit about the failure mode.

Reported by: Poul-Henning Kamp <phk@FreeBSD.org>

unifdef.c | 7 +++++---  
1 file changed, 4 insertions(+), 3 deletions(-)

-----  
2003-01-20  
00:50:06 +0000 Tony Finch <dot@dotat.at>

typo: maintin -> maintain

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2003-01-20 00:01:49 +0000 Tony Finch <dot@dotat.at>

Purge strcpy() to appease OpenBSD. Consistently use the term "edit" when talking about changing preprocessor keywords in the output.

Suggested by: Ted Unangst <tedu@stanford.edu>

unifdef.c | 26 ++++++-----  
1 file changed, 19 insertions(+), 7 deletions(-)

-----  
2003-01-17 19:19:13 +0000 Tony Finch <dot@dotat.at>

mdoc pedantry from FreeBSD

unifdef.1 | 8 ++++---  
1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2003-01-17 19:04:36 +0000 Tony Finch <dot@dotat.at>

Style fix: brackets around the argument to return. From OpenBSD.

unifdef.c | 68 ++++++-----  
1 file changed, 34 insertions(+), 34 deletions(-)

-----  
2003-01-17 19:03:02 +0000 Tony Finch <dot@dotat.at>

Add a necessary cast to an argument of printf. From OpenBSD.

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2003-01-17 19:01:59 +0000 Tony Finch <dot@dotat.at>

Whitespace fixes from OpenBSD.

unifdef.c | 6 +++---  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2002-12-13 15:26:41 +0000 Tony Finch <dot@dotat.at>

Damnit, it makes sense for flushline() to be near the #if machine, and the diff is doomed to be vast anyway.

unifdef.c | 37 ++++++-----

1 file changed, 18 insertions(+), 19 deletions(-)

-----  
2002-12-13 15:20:05 +0000 Tony Finch <dot@dotat.at>

make warns-clean in an evil manner

unifdef.c | 6 +++---

1 file changed,  
3 insertions(+), 3 deletions(-)

-----  
2002-12-13 13:58:00 +0000 Tony Finch <dot@dotat.at>

factor out an error message

unifdef.c | 7 ++++---

1 file changed, 4 insertions(+), 3 deletions(-)

-----  
2002-12-13 11:44:25 +0000 Tony Finch <dot@dotat.at>

remove an XXX that has been addressed

unifdef.c | 4 +---

1 file changed, 1 insertion(+), 3 deletions(-)

-----  
2002-12-13 11:42:37 +0000 Tony Finch <dot@dotat.at>

sort getopt cases

unifdef.c | 8 ++++----

1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2002-12-13 11:40:08 +0000 Tony Finch <dot@dotat.at>

Use ISO/IEC 9899:1999 minimum translation limits

unifdef.c | 13 ++++++-----

1 file changed, 8 insertions(+), 5 deletions(-)

-----  
2002-12-13 11:33:34 +0000 Tony Finch <dot@dotat.at>

expand

on undef's understanding of C

undef.1 | 4 +++-

1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2002-12-13 11:24:26 +0000 Tony Finch <dot@dotat.at>

note the appearance of ANSI support

undef.1 | 5 ++++-

1 file changed, 4 insertions(+), 1 deletion(-)

-----  
2002-12-13 11:24:08 +0000 Tony Finch <dot@dotat.at>

describe the limitation on preprocessor lines better

undef.1 | 6 ++++--

1 file changed, 4 insertions(+), 2 deletions(-)

-----  
2002-12-13 11:15:20 +0000 Tony Finch <dot@dotat.at>

spot backslash-newline in a preprocessor keyword

undef.c | 4 +++-

1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2002-12-13 11:13:02 +0000 Tony Finch <dot@dotat.at>

fix an error message

undef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-12-13  
11:11:11 +0000 Tony Finch <dot@dotat.at>

less obfuscated ifdef/ifndef handling

undef.c | 10 ++++-----

1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2002-12-13 11:04:43 +0000 Tony Finch <dot@dotat.at>

comment the state enums

unifdef.c | 50 ++++++-----  
1 file changed, 25 insertions(+), 25 deletions(-)

-----  
2002-12-12 19:53:53 +0000 Tony Finch <dot@dotat.at>

move the forward declaration of struct ops to a better place

unifdef.c | 6 +++--  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2002-12-12 19:52:26 +0000 Tony Finch <dot@dotat.at>

move flushline() back where it used to be

unifdef.c | 38 ++++++-----  
1 file changed, 19 insertions(+), 19 deletions(-)

-----  
2002-12-12 19:50:15  
+0000 Tony Finch <dot@dotat.at>

more commentary on strcmp()

unifdef.c | 3 ++-  
1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2002-12-12 19:46:44 +0000 Tony Finch <dot@dotat.at>

comment all globals

unifdef.c | 8 ++++----  
1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2002-12-12 19:45:29 +0000 Tony Finch <dot@dotat.at>

terminological consistency for pass states

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----

2002-12-12 19:43:04 +0000 Tony Finch <dot@dotat.at>

fix some comments

unifdef.c | 8 ++++++--

1 file changed, 6 insertions(+), 2 deletions(-)

-----

2002-12-12 19:42:23 +0000 Tony Finch <dot@dotat.at>

re-order enums to reduce diffs with FreeBSD

unifdef.c | 50 ++++++-----

1 file changed, 25 insertions(+),  
25 deletions(-)

-----

2002-12-12 19:38:45 +0000 Tony Finch <dot@dotat.at>

remove some c&p garbage

unifdef.c | 24 +-----

1 file changed, 1 insertion(+), 23 deletions(-)

-----

2002-12-12 19:36:23 +0000 Tony Finch <dot@dotat.at>

move flushline closer to its usage point

unifdef.c | 60 ++++++-----

1 file changed, 41 insertions(+), 19 deletions(-)

-----

2002-12-12 19:35:17 +0000 Tony Finch <dot@dotat.at>

rename a variable in process() to reduce diffs with FreeBSD

unifdef.c | 10 +++++----

1 file changed, 5 insertions(+), 5 deletions(-)

-----

2002-12-12 19:29:02 +0000 Tony Finch <dot@dotat.at>

move the tables closer to their interpreters

unifdef.c | 317 ++++++-----

1 file

changed, 160 insertions(+), 157 deletions(-)

-----  
2002-12-12 19:15:24 +0000 Tony Finch <dot@dotat.at>

reduce the space used by the state transition functions

unifdef.c | 146 ++++++-----  
1 file changed, 57 insertions(+), 89 deletions(-)

-----  
2002-12-12 19:04:56 +0000 Tony Finch <dot@dotat.at>

note another diagnostic

unifdef.1 | 4 +++-  
1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2002-12-12 19:04:56 +0000 Tony Finch <dot@dotat.at>

make everything static, and improve the order of declarations

unifdef.c | 328 ++++++-----  
1 file changed, 175 insertions(+), 153 deletions(-)

-----  
2002-12-12 17:59:51 +0000 Tony Finch <dot@dotat.at>

Improve the state table commentary.

unifdef.c | 14  
+++++-----  
1 file changed, 7 insertions(+), 7 deletions(-)

-----  
2002-12-12 17:41:39 +0000 Tony Finch <dot@dotat.at>

reduce state transition table line lengths below 80

unifdef.c | 24 ++++++-----  
1 file changed, 12 insertions(+), 12 deletions(-)

-----  
2002-12-12 17:30:55 +0000 Tony Finch <dot@dotat.at>

reduce state function line lengths below 80

unifdef.c | 28 ++++++-----  
1 file changed, 16 insertions(+), 12 deletions(-)

-----  
2002-12-12 17:24:26 +0000 Tony Finch <dot@dotat.at>

Exit 1 if the output differs from the input.

unifdef.c | 9 ++++++---  
1 file changed, 6 insertions(+), 3 deletions(-)

-----  
2002-12-12 17:21:22 +0000 Tony Finch <dot@dotat.at>

Exit 2 on error.

unifdef.c | 6 +++---  
1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2002-12-12  
17:21:04 +0000 Tony Finch <dot@dotat.at>

Bring the DIAGNOSTICS in line with reality.

unifdef.1 | 12 ++++++-----  
1 file changed, 8 insertions(+), 4 deletions(-)

-----  
2002-12-12 17:17:52 +0000 Tony Finch <dot@dotat.at>

restore the complaint about EOF in comments

unifdef.1 | 5 ++++-  
unifdef.c | 6 ++++--  
2 files changed, 8 insertions(+), 3 deletions(-)

-----  
2002-12-12 17:12:57 +0000 Tony Finch <dot@dotat.at>

skipsym doesn't need a separate test for '\0'

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-12-12 17:11:28 +0000 Tony Finch <dot@dotat.at>



rename constexpr back to keepthis to reduce diffs

unifdef.c | 14 ++++++-----

1 file changed, 7 insertions(+), 7 deletions(-)

-----

2002-12-12 17:06:15 +0000 Tony

Finch <dot@dotat.at>

stcomline isn't used any more

unifdef.c | 3 +--

1 file changed, 1 insertion(+), 2 deletions(-)

-----

2002-12-12 17:05:00 +0000 Tony Finch <dot@dotat.at>

Note that NO\_COMMENT is false, as before.

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----

2002-12-12 17:03:37 +0000 Tony Finch <dot@dotat.at>

Move the error function back to the end

unifdef.c | 21 ++++++++-----

1 file changed, 11 insertions(+), 10 deletions(-)

-----

2002-12-12 17:02:08 +0000 Tony Finch <dot@dotat.at>

Better error messages outside #if groups

unifdef.c | 9 ++++++---

1 file changed, 6 insertions(+), 3 deletions(-)

-----

2002-12-12 17:01:50 +0000 Tony Finch <dot@dotat.at>

Note a new diagnostic for preprocessor lines we can't handle.

unifdef.1 | 4 +++-

1 file changed,

3 insertions(+), 1 deletion(-)

-----

2002-12-12 17:00:04 +0000 Tony Finch <dot@dotat.at>

Instead of quietly ballsing up the output, bitch if we encounter a preprocessor line we can't handle.

unifdef.c | 30 ++++++-----  
1 file changed, 17 insertions(+), 13 deletions(-)

-----  
2002-12-12 16:04:04 +0000 Tony Finch <dot@dotat.at>

Rename checkline() to getline() and move the fgets() inside it.

unifdef.c | 13 +++++-----  
1 file changed, 6 insertions(+), 7 deletions(-)

-----  
2002-12-11 20:46:06 +0000 Tony Finch <dot@dotat.at>

Add a missing unignore()

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-12-11 20:42:47 +0000 Tony Finch <dot@dotat.at>

Handle #ifs nested inside a false block correctly.

unifdef.c | 16 ++++++-----  
1 file changed,  
9 insertions(+), 7 deletions(-)

-----  
2002-12-11 20:15:57 +0000 Tony Finch <dot@dotat.at>

remove nul character comment

unifdef.c | 4 +---  
1 file changed, 1 insertion(+), 3 deletions(-)

-----  
2002-12-11 20:05:52 +0000 Tony Finch <dot@dotat.at>

Overhaul the #if state machine. It's now table-driven rather than hand-coded, and it doesn't have the old version's bugs. The debugging messages have also been improved.

unifdef.c | 452 ++++++-----

1 file changed, 205 insertions(+), 247 deletions(-)

-----

2002-12-11 20:04:40 +0000 Tony Finch <dot@dotat.at>

some more bugs

unifdef.1 | 9 ++++++-

1 file changed, 8 insertions(+), 1 deletion(-)

-----

2002-12-11 02:28:22 +0000 Tony Finch <dot@dotat.at>

Rename keepthis to constexpr which is easier to think about. Re-comment and re-arrange some globals.

unifdef.c | 24 ++++++-----

1 file changed, 11 insertions(+), 13 deletions(-)

-----

2002-12-11 02:22:44 +0000 Tony Finch <dot@dotat.at>

Add a note about trigraphs.

unifdef.1 | 4 +++-

1 file changed, 3 insertions(+), 1 deletion(-)

-----

2002-12-11 02:13:04 +0000 Tony Finch <dot@dotat.at>

Use fgets instead of getline() because the latter gets EOF wrong.

unifdef.c | 77 ++-----

1 file changed, 2 insertions(+), 75 deletions(-)

-----

2002-12-11 02:07:02 +0000 Tony Finch <dot@dotat.at>

Overhaul the comment and preprocessor line parsers.

unifdef.1 | 4 +-  
unifdef.c | 232 ++++++-----

2 files changed, 137 insertions(+), 99 deletions(-)

-----

2002-12-11

01:44:04 +0000 Tony Finch <dot@dotat.at>

Add an asymmetric variant of strcmp() called strlcmp().

unifdef.c | 20 ++++++-----  
1 file changed, 17 insertions(+), 3 deletions(-)

-----  
2002-12-11 00:00:47 +0000 Tony Finch <dot@dotat.at>

handle end-of-string in skipsym()

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-12-10 23:20:14 +0000 Tony Finch <dot@dotat.at>

A neater way of handling #elif

unifdef.c | 14 ++++-----  
1 file changed, 4 insertions(+), 10 deletions(-)

-----  
2002-12-10 23:02:11 +0000 Tony Finch <dot@dotat.at>

Fix findsym()'s comment.

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-12-10 23:01:04 +0000 Tony Finch <dot@dotat.at>

Improve findsym().

unifdef.c | 19 ++++++-----  
1 file changed, 7 insertions(+), 12 deletions(-)

-----  
2002-12-10 21:11:58 +0000 Tony Finch <dot@dotat.at>

Remove quote handling.

unifdef.c | 70 ++++++-----  
1 file changed, 9 insertions(+), 61 deletions(-)

-----

2002-12-10 21:11:19 +0000 Tony Finch <dot@dotat.at>

Update the spec to relate better to ANSI C. Strings no longer affect the preprocessor, but line continuations do.

unifdef.1 | 19 ++++++-----  
1 file changed, 7 insertions(+), 12 deletions(-)

-----  
2002-12-10 17:28:09 +0000 Tony Finch <dot@dotat.at>

Note that string parsing needs to be fixed. Actually it just needs to be ripped out and replaced with backslash line continuation handling since strings can't contain newlines any more.

unifdef.1 | 4 +++-  
1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2002-12-10  
17:23:54 +0000 Tony Finch <dot@dotat.at>

Sync with FreeBSD

unifdef.1 | 8 ++++----  
1 file changed, 4 insertions(+), 4 deletions(-)

-----  
2002-12-10 17:12:58 +0000 Tony Finch <dot@dotat.at>

Handle inquote more elegantly

unifdef.c | 14 ++++-----  
1 file changed, 4 insertions(+), 10 deletions(-)

-----  
2002-12-10 17:00:39 +0000 Tony Finch <dot@dotat.at>

Make the symbol table zero-based, and remove an incorrect comment.

unifdef.c | 29 ++++++-----  
1 file changed, 15 insertions(+), 14 deletions(-)

-----  
2002-12-10 16:22:12 +0000 Tony Finch <dot@dotat.at>

Terminological consistency: only use the word "ignore" to mean non-C parsing.

unifdef.c | 6 +++--  
1 file changed, 3 insertions(+), 3 deletions(-)

-----

2002-12-10 16:10:51  
+0000 Tony Finch <dot@dotat.at>

Ensure that cursym is always set by checkline().

unifdef.c | 5 +++--  
1 file changed, 2 insertions(+), 3 deletions(-)

-----

2002-09-24 19:52:11 +0000 Tony Finch <dot@dotat.at>

update FreeBSD IDs

unifdef.1 | 4 +++--  
unifdef.c | 4 +++--  
unifdefall.sh | 4 +++--  
3 files changed, 6 insertions(+), 6 deletions(-)

-----

2002-09-24 19:44:12 +0000 Tony Finch <dot@dotat.at>

improve language

unifdef.1 | 20 ++++++-----  
1 file changed, 10 insertions(+), 10 deletions(-)

-----

2002-09-24 19:43:57 +0000 Tony Finch <dot@dotat.at>

conform to the spec -- the -k option to unifdef is now needed

unifdefall.sh | 4 +++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----

2002-09-24 19:16:29 +0000 Tony Finch <dot@dotat.at>

Pass through constant #ifs unless  
invoked with -k.

unifdef.1 | 26 ++++++-----  
unifdef.c | 24 ++++++-----  
2 files changed, 40 insertions(+), 10 deletions(-)

-----  
2002-05-30 11:50:13 +0000 Tony Finch <dot@dotat.at>

add freebsd version string

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-05-30 11:47:26 +0000 Tony Finch <dot@dotat.at>

Sync with FreeBSD's mdoc markup fixes.

unifdef.1 | 84 ++++++-----  
1 file changed, 39 insertions(+), 45 deletions(-)

-----  
2002-05-21 17:33:41 +0000 Tony Finch <dot@dotat.at>

style(9) whitespace

unifdef.c | 10 +++++-----  
1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2002-05-15 19:37:50 +0000 Tony Finch <dot@dotat.at>

consistent spacing in the function declarations

unifdef.c  
| 16 ++++++-----  
1 file changed, 8 insertions(+), 8 deletions(-)

-----  
2002-05-15 19:36:10 +0000 Tony Finch <dot@dotat.at>

cast away qualifiers less evilly

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-05-15 19:34:40 +0000 Tony Finch <dot@dotat.at>

Replace h0h0opt with getopt.

unifdef.c | 135 ++++++-----  
1 file changed, 78 insertions(+), 57 deletions(-)

-----  
2002-05-15 18:55:14 +0000 Tony Finch <dot@dotat.at>

Don't run off the end of command-line options inside findsym().

unifdef.c | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2002-05-15 15:43:14 +0000 Tony Finch <dot@dotat.at>

a typo and a formatting fix from dwmalone

unifdef.c | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2002-05-15

10:31:20 +0000 Tony Finch <dot@dotat.at>

FreeBSD CVS ID correctness

unifdefall.sh | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2002-05-14 22:15:03 +0000 Tony Finch <dot@dotat.at>

be more optimistic about the level of expression support

unifdef.1 | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-05-14 22:13:21 +0000 Tony Finch <dot@dotat.at>

the #ifdef and #if on the .Nd line should be .Li but this doesn't seem to be possible, so write "preprocessor conditionals" instead.

unifdef.1 | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-05-14 21:14:30 +0000 Tony Finch <dot@dotat.at>

Correct the ordering and indentation of the CVS IDs according to FreeBSD style.



unifdef.1 | 2 +-  
-----

1 file changed, 1 insertion(+), 1  
deletion(-)

2002-05-14 21:11:50 +0000 Tony Finch <dot@dotat.at>

add a missing comma to the SEE ALSO list

unifdef.1 | 4 +++  
-----

1 file changed, 2 insertions(+), 2 deletions(-)

2002-05-14 21:11:14 +0000 Tony Finch <dot@dotat.at>

Document unifdefall and the -I option.

unifdef.1 | 40 ++++++-----

1 file changed, 37 insertions(+), 3 deletions(-)

2002-05-02 12:38:29 +0000 Tony Finch <dot@dotat.at>

Better function names -- doif() -> process() and doif\_1() -> doif()

unifdef.c | 22 +++++-----

1 file changed, 11 insertions(+), 11 deletions(-)

2002-05-02 12:36:22 +0000 Tony Finch <dot@dotat.at>

consistent commenting

unifdef.c | 69 ++++++-----

1 file changed, 48 insertions(+), 21 deletions(-)

2002-05-02  
12:17:31 +0000 Tony Finch <dot@dotat.at>

Consistent spacing in declaration of local variables, and simplified  
flushline().

unifdef.c | 41 +++++-----

1 file changed, 18 insertions(+), 23 deletions(-)

2002-05-02 00:03:41 +0000 Tony Finch <dot@dotat.at>

note #line wish

unifdef.c | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2002-04-29 16:41:08 +0000 Tony Finch <dot@dotat.at>

Handle symbols that are defined without a value correctly, again.

unifdefall.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-29 16:17:39 +0000 Tony Finch <dot@dotat.at>

output of cpp needs to be sorted

unifdefall.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-29  
03:08:10 +0000 Tony Finch <dot@dotat.at>

clean up tmp dir

unifdefall.sh | 4 +++-

1 file changed, 3 insertions(+), 1 deletion(-)

-----  
2002-04-29 03:07:20 +0000 Tony Finch <dot@dotat.at>

tidy up

unifdefall.sh | 32 ++++++-----

1 file changed, 8 insertions(+), 24 deletions(-)

-----  
2002-04-29 03:00:58 +0000 Tony Finch <dot@dotat.at>

Don't get confused by symbols that are the prefix of other symbols.

unifdefall.sh | 4 +++-

1 file changed, 2 insertions(+), 2 deletions(-)

2002-04-29 02:55:15 +0000 Tony Finch <dot@dotat.at>

mention support for the comparison operators

unifdef.1 | 8 ++++++-

1 file changed, 7 insertions(+), 1 deletion(-)

-----

2002-04-29 02:53:58 +0000 Tony Finch <dot@dotat.at>

Overhaul the expression evaluator. The integer value of an expression is now calculated, rather than just the boolean value, and the evaluation of binary operators is now table-driven. These two things combine to make it easier to add support for new operators, such as comparisons.

unifdef.c | 215 ++++++-----

1 file changed, 123 insertions(+), 92 deletions(-)

-----

2002-04-29 00:20:42 +0000 Tony Finch <dot@dotat.at>

Handle symbols that are defined without a value correctly.

unifdefall.sh | 4 +--

1 file changed, 2 insertions(+), 2 deletions(-)

-----

2002-04-29 00:18:06 +0000 Tony Finch <dot@dotat.at>

-d -> --debug

unifdef.c | 6 +++--

1 file changed, 3 insertions(+), 3 deletions(-)

-----

2002-04-29 00:17:11 +0000 Tony Finch <dot@dotat.at>

Fix handling of bracketed expressions -- we didn't pass over the )

unifdef.c | 4 ++--

1 file changed,  
2 insertions(+), 2 deletions(-)

-----

2002-04-28 23:42:36 +0000 Tony Finch <dot@dotat.at>

A script for stripping out as many #if's from a file as possible.

unifdefall.sh | 42 ++++++

1 file changed, 42 insertions(+)

-----  
2002-04-28 22:32:30 +0000 Tony Finch <dot@dotat.at>

Ignore -Ifoo options so that the same options can be used with cpp -dM

unifdef.c | 14 +++++-----

1 file changed, 10 insertions(+), 4 deletions(-)

-----  
2002-04-28 22:15:26 +0000 Tony Finch <dot@dotat.at>

allow a - on the command line to mean "input from stdin"

unifdef.c | 6 ++++--

1 file changed, 4 insertions(+), 2 deletions(-)

-----  
2002-04-28 22:14:07 +0000 Tony Finch <dot@dotat.at>

say explicitly that at least one -D or -U is needed

unifdef.c | 6 ++++--

1 file changed,  
4 insertions(+), 2 deletions(-)

-----  
2002-04-27 17:27:14 +0000 Tony Finch <dot@dotat.at>

allow longer lines in the input

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-27 17:26:53 +0000 Tony Finch <dot@dotat.at>

avoid a potential buffer overflow

unifdef.c | 9 +++++----

1 file changed, 5 insertions(+), 4 deletions(-)

-----  
2002-04-27 17:23:47 +0000 Tony Finch <dot@dotat.at>

spell getlin() with an e

unifdef.c | 10 +++++-----

1 file changed, 5 insertions(+), 5 deletions(-)

-----

2002-04-26 20:44:33 +0000 Tony Finch <dot@dotat.at>

remove redundant function

unifdef.c | 15 +++-----

1 file changed, 3 insertions(+), 12 deletions(-)

-----

2002-04-26 20:32:23 +0000 Tony Finch <dot@dotat.at>

Multiple \_\_RCSID(s)

is not portable, so use \_\_IDSTRING() instead.

unifdef.c | 8 +++++----

1 file changed, 4 insertions(+), 4 deletions(-)

-----

2002-04-26 20:23:09 +0000 Tony Finch <dot@dotat.at>

move a #define to a better place

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----

2002-04-26 20:18:07 +0000 Tony Finch <dot@dotat.at>

add a couple of missing [=val] phrases

unifdef.1 | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----

2002-04-26 20:17:35 +0000 Tony Finch <dot@dotat.at>

use .Li for #if directives

unifdef.1 | 33 ++++++-----

1 file changed, 26 insertions(+), 7 deletions(-)

-----

2002-04-26 20:09:37 +0000 Tony Finch <dot@dotat.at>

change the #if bug into an expression handling bug

unifdef.1 | 4 ++--

1 file changed, 2 insertions(+), 2  
deletions(-)

-----  
2002-04-26 20:08:45 +0000 Tony Finch <dot@dotat.at>

mention the elif diagnostic

unifdef.1 | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 20:07:49 +0000 Tony Finch <dot@dotat.at>

see also cpp(1)

unifdef.1 | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2002-04-26 20:07:29 +0000 Tony Finch <dot@dotat.at>

remove spurious historical note

unifdef.1 | 7 +++----

1 file changed, 3 insertions(+), 4 deletions(-)

-----  
2002-04-26 20:05:12 +0000 Tony Finch <dot@dotat.at>

explain the -s option

unifdef.1 | 18 ++++++

1 file changed, 17 insertions(+), 1 deletion(-)

-----  
2002-04-26 20:01:06 +0000 Tony Finch <dot@dotat.at>

Improve the explanation of the -D and -U options.

unifdef.1 |

28 ++++++

1 file changed, 13 insertions(+), 15 deletions(-)

-----  
2002-04-26 19:54:54 +0000 Tony Finch <dot@dotat.at>

better introductory paragraph

unifdef.1 | 10 ++++++-----

1 file changed, 6 insertions(+), 4 deletions(-)

-----  
2002-04-26 19:51:20 +0000 Tony Finch <dot@dotat.at>

remove -compact from the flag list

unifdef.1 | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 19:50:54 +0000 Tony Finch <dot@dotat.at>

expand the introduction to explain the new functionality

unifdef.1 | 27 ++++++-----

1 file changed, 22 insertions(+), 5 deletions(-)

-----  
2002-04-26 19:26:10 +0000 Tony Finch <dot@dotat.at>

add a paragraph gap between -l and -t

unifdef.1 | 3 ++-

1 file changed, 2 insertions(+), 1 deletion(-)

-----  
2002-04-26  
19:24:47 +0000 Tony Finch <dot@dotat.at>

Add the optional symbol value to the various places -Dsym is mentioned, and add the -s flag to the synopsis.

unifdef.1 | 12 ++++++-----

1 file changed, 6 insertions(+), 6 deletions(-)

-----  
2002-04-26 19:20:34 +0000 Tony Finch <dot@dotat.at>

update document date and one-line description

unifdef.1 | 6 +++---

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2002-04-26 19:15:55 +0000 Tony Finch <dot@dotat.at>

add \$dotat\$

unifdef.1 | 1 +

1 file changed, 1 insertion(+)

-----  
2002-04-26 19:15:14 +0000 Tony Finch <dot@dotat.at>

add my name to the copyright section

unifdef.1 | 2 +-

1 file changed, 1 insertion(+), 1 deletion(-)

-----  
2002-04-26 19:14:35 +0000 Tony Finch <dot@dotat.at>

add unifdef manual page  
from FreeBSD

unifdef.1 | 173 +++++

1 file changed, 173 insertions(+)

-----  
2002-04-26 19:12:22 +0000 Tony Finch <dot@dotat.at>

Add a new option for printing a list of the symbols found in #if expressions.

unifdef.c | 16 ++++++-----

1 file changed, 13 insertions(+), 3 deletions(-)

-----  
2002-04-26 19:03:48 +0000 Tony Finch <dot@dotat.at>

option variables in alphabetical order

unifdef.c | 6 +++--

1 file changed, 3 insertions(+), 3 deletions(-)

-----  
2002-04-26 19:02:45 +0000 Tony Finch <dot@dotat.at>

parse options in alphabetical order



unifdef.c | 10 +++++-----

1 file changed, 5 insertions(+), 5 deletions(-)

-----  
2002-04-26 18:56:55 +0000 Tony Finch <dot@dotat.at>

fix some h0h0 formatting

unifdef.c | 8 ++-----

1 file  
changed, 2 insertions(+), 6 deletions(-)

-----  
2002-04-26 18:51:19 +0000 Tony Finch <dot@dotat.at>

Fix the handling of #elif.

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 18:13:43 +0000 Tony Finch <dot@dotat.at>

put my name in the copyright section

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 17:42:31 +0000 Tony Finch <dot@dotat.at>

Move all the global stuff to the start of the program in the order types,  
variables, function declarations, and ensure that all functions are declared.  
The program now compiles cleanly with \$FANFCFLAGS.

unifdef.c | 141 ++++++-----

1 file changed, 72 insertions(+), 69 deletions(-)

-----  
2002-04-26 17:33:47 +0000 Tony Finch <dot@dotat.at>

use  
enums where appropriate

unifdef.c | 64 ++++++-----

1 file changed, 36 insertions(+), 28 deletions(-)

-----

2002-04-26 17:25:50 +0000 Tony Finch <dot@dotat.at>

blank lines after functions

unifdef.c | 14 ++++++++--

1 file changed, 13 insertions(+), 1 deletion(-)

-----  
2002-04-26 17:23:57 +0000 Tony Finch <dot@dotat.at>

const correctness

unifdef.c | 110 ++++++++-----

1 file changed, 53 insertions(+), 57 deletions(-)

-----  
2002-04-26 17:05:23 +0000 Tony Finch <dot@dotat.at>

more bool correctness

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 17:02:17 +0000 Tony Finch <dot@dotat.at>

Since MAXSYMS is bigger than CHAR\_MAX, nsyms has to be an int.

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 17:01:38 +0000 Tony Finch <dot@dotat.at>

ANSI function definitions

unifdef.c | 62 ++++++++-----

1 file changed, 19 insertions(+), 43 deletions(-)

-----  
2002-04-26 16:56:34 +0000 Tony Finch <dot@dotat.at>

Replace the homegrown Bool/YES/NO with stdbool.h things, and ensure that boolean variables are declared consistently.

unifdef.c | 110 ++++++++-----

1 file changed, 53 insertions(+), 57 deletions(-)

-----  
2002-04-26 16:49:11 +0000 Tony Finch <dot@dotat.at>

Add \_\_FBSDID and conditionalize the \_\_RCSIDs

unifdef.c | 7 ++++++-  
1 file changed, 6 insertions(+), 1 deletion(-)

-----  
2002-04-26 16:47:53 +0000 Tony  
Finch <dot@dotat.at>

add some debugging code

unifdef.c | 35 ++++++-----  
1 file changed, 33 insertions(+), 2 deletions(-)

-----  
2002-04-26 15:47:04 +0000 Tony Finch <dot@dotat.at>

fix the line number reporting in the last change

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 15:38:59 +0000 Tony Finch <dot@dotat.at>

Improve error reporting -- include the start line of the current #if.

unifdef.c | 16 ++++++-----  
1 file changed, 13 insertions(+), 3 deletions(-)

-----  
2002-04-26 15:34:44 +0000 Tony Finch <dot@dotat.at>

Remove some slight punning between comment types and booleans.

unifdef.c | 12 ++++++-----  
1 file changed, 7 insertions(+), 5 deletions(-)

-----  
2002-04-26 15:06:30 +0000 Tony Finch <dot@dotat.at>

Avoid reparsing  
the line that causes doif() to return to doif\_1().

unifdef.c | 17 ++++++-----  
1 file changed, 8 insertions(+), 9 deletions(-)

-----  
2002-04-26 13:54:16 +0000 Tony Finch <dot@dotat.at>

put the newline on the #endif that replaces #elif lines

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-26 13:51:41 +0000 Tony Finch <dot@dotat.at>

Finish implementation of #elif and nesting. This version passes some initial tests.

unifdef.c | 133 ++++++-----  
1 file changed, 94 insertions(+), 39 deletions(-)

-----  
2002-04-25 23:46:55 +0000 Tony Finch <dot@dotat.at>

partial implementation of #elif and properly nesting #ifs.

unifdef.c | 216 ++++++-----  
1 file changed, 130 insertions(+), 86 deletions(-)

-----  
2002-04-25  
23:27:40 +0000 Tony Finch <dot@dotat.at>

remove redundant stline variable

unifdef.c | 4 +---  
1 file changed, 1 insertion(+), 3 deletions(-)

-----  
2002-04-25 23:25:31 +0000 Tony Finch <dot@dotat.at>

simplify error line number handling

unifdef.c | 21 ++++++-----  
1 file changed, 10 insertions(+), 11 deletions(-)

-----  
2002-04-25 23:02:51 +0000 Tony Finch <dot@dotat.at>

simplify error handling

unifdef.c | 59 ++++++-----  
1 file changed, 21 insertions(+), 38 deletions(-)

-----  
2002-04-25 21:44:51 +0000 Tony Finch <dot@dotat.at>

fix a comment to reflect the previous change

unifdef.c | 4 ++--  
1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-25 21:43:07 +0000 Tony Finch  
<dot@dotat.at>

Change the "unknown symbol" return value from findsym() from -1 to 0.

unifdef.c | 21 ++++++-----  
1 file changed, 9 insertions(+), 12 deletions(-)

-----  
2002-04-25 21:19:55 +0000 Tony Finch <dot@dotat.at>

remove an unnecessary variable inside doif()

unifdef.c | 11 +++++-----  
1 file changed, 5 insertions(+), 6 deletions(-)

-----  
2002-04-25 20:24:16 +0000 Tony Finch <dot@dotat.at>

Remove the inif argument to doif() entirely, since inif == (depth != 0).

unifdef.c | 19 ++++++-----  
1 file changed, 9 insertions(+), 10 deletions(-)

-----  
2002-04-25 20:20:05 +0000 Tony Finch <dot@dotat.at>

Move the gall to getlin() up to doif() so that it will be able to examine the same line more than once.

unifdef.c | 48 ++++++-----  
1 file changed, 21 insertions(+), 27 deletions(-)

2002-04-25

19:59:46 +0000 Tony Finch <dot@dotat.at>

Simplify doif()'s inif argument to just a boolean, since the IN\_ELSE value isn't very different from IN\_IF, and the idea doesn't work well with #elif.

unifdef.c | 19 ++++++-----

1 file changed, 7 insertions(+), 12 deletions(-)

-----

2002-04-25 18:45:54 +0000 Tony Finch <dot@dotat.at>

purge LT\_OTHER since it's a synonym for LT\_IF

unifdef.c | 8 +++-----

1 file changed, 3 insertions(+), 5 deletions(-)

-----

2002-04-25 18:17:09 +0000 Tony Finch <dot@dotat.at>

Restore the requirement that at least one -D or -U must be present on the command line, which was broken when #if handling was added.

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----

2002-04-25 18:15:23 +0000 Tony Finch <dot@dotat.at>

use \_\_RCSID  
for the sccs id and remove redundant #ifndef lint lines

unifdef.c | 12 ++-----

1 file changed, 2 insertions(+), 10 deletions(-)

-----

2002-04-25 18:10:00 +0000 Tony Finch <dot@dotat.at>

Initial version of #if handling. Symbol 0 is used for tracking the state of #if/#else activity. TODO: #elif, nested #if

unifdef.c | 155 +++

1 file changed, 145 insertions(+), 10 deletions(-)

-----

2002-04-25 16:16:26 +0000 Tony Finch <dot@dotat.at>

allow whitespace before #

unifdef.c | 5 +++--

1 file changed, 3 insertions(+), 2 deletions(-)

-----  
2002-04-25 16:12:23 +0000 Tony Finch <dot@dotat.at>

fix location of a {

unifdef.c | 4 +++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----  
2002-04-25 16:11:54 +0000 Tony Finch <dot@dotat.at>

add

a function that will evaluate if expressions

unifdef.c | 13 ++++++++--

1 file changed, 11 insertions(+), 2 deletions(-)

-----  
2002-04-25 16:05:30 +0000 Tony Finch <dot@dotat.at>

remove spurious fflush()

unifdef.c | 3 +--

1 file changed, 1 insertion(+), 2 deletions(-)

-----  
2002-04-25 16:04:55 +0000 Tony Finch <dot@dotat.at>

style: #include ordering; variable alignment

unifdef.c | 22 ++++++++-----

1 file changed, 11 insertions(+), 11 deletions(-)

-----  
2002-04-25 16:03:16 +0000 Tony Finch <dot@dotat.at>

use err()

unifdef.c | 83 ++++++++-----

1 file changed, 34 insertions(+), 49 deletions(-)

-----  
2002-04-25 15:51:42 +0000 Tony Finch <dot@dotat.at>

another formatting improvement

unifdef.c | 17 ++++++-----

1 file

changed, 7 insertions(+), 10 deletions(-)

-----

2002-04-25 15:37:25 +0000 Tony Finch <dot@dotat.at>

sensible else if formatting

unifdef.c | 150 ++++++-----

1 file changed, 67 insertions(+), 83 deletions(-)

-----

2002-04-25 15:31:28 +0000 Tony Finch <dot@dotat.at>

deal with -Dsym=value

unifdef.c | 30 ++++++-----

1 file changed, 21 insertions(+), 9 deletions(-)

-----

2002-04-25 15:02:48 +0000 Tony Finch <dot@dotat.at>

move #endif comments to a better place

unifdef.c | 16 ++++++-----

1 file changed, 8 insertions(+), 8 deletions(-)

-----

2002-04-25 14:59:59 +0000 Tony Finch <dot@dotat.at>

allow a reasonable number of symbols

unifdef.c | 4 ++--

1 file changed, 2 insertions(+), 2 deletions(-)

-----

2002-04-25

14:57:56 +0000 Tony Finch <dot@dotat.at>

remove BSS cruft

unifdef.c | 39 ++++++-----

1 file changed, 19 insertions(+), 20 deletions(-)

-----



2002-04-25 14:55:27 +0000 Tony Finch <dot@dotat.at>

remove \_\_P

unifdef.c | 24 ++++++-----

1 file changed, 12 insertions(+), 12 deletions(-)

-----

2002-04-25 14:52:54 +0000 Tony Finch <dot@dotat.at>

revert to the CSRG copyright/sccs rubric and add \$dotat\$

unifdef.c | 21 ++++++-----

1 file changed, 13 insertions(+), 8 deletions(-)

-----

2002-04-25 14:50:23 +0000 Tony Finch <dot@dotat.at>

import from NetBSD

unifdef.c | 684 ++++++-----

1 file changed, 684 insertions(+)

-----

Found in path(s):

\* /opt/cola/permits/2074183263\_1719603336.3960912/0/clearlinux-pkgs-unifdef-2-11-1-0-gba41266-tar-gz/clearlinux-pkgs-unifdef-ba41266/ChangeLog

# 1.880 diffstat 1.62

## 1.880.1 Available under license :

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Upstream source <http://invisible-island.net/diffstat/diffstat.html>

```
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\*\*\*\*\*/

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Files:

`debian/*`

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# 1.881 dialog 1.3-20180621

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Version 2.1, February 1999

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Current dialog upstream maintainer: Thomas Dickey <[dickey@invisible-island.net](mailto:dickey@invisible-island.net)>

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## 1.882 libatomic-ops

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# 1.886 libnewt 0.52.20

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# 1.887 python3-pbr 4.2.0

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## 1.888 libxml-parser-perl 2.44

### 1.888.1 Available under license :

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```
<![CDATA[<!ENTITY % pub " &#xc9;ditions Gallimard" >
<!ENTITY rights "All rights reserved" >
<!ENTITY book "La Peste: Albert Camus,
&#xA9; 1947 %pub;. &rights;" >]]>
```

Found in path(s):

```
* /opt/cola/permits/2074183627_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/samples/REC-xml-19980210.xml
```

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# This program is free software; you can redistribute it and/or  
# modify it under the same terms as Perl itself.

Found in path(s):

\* /opt/cola/permits/2074183627\_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/samples/canonical

\* /opt/cola/permits/2074183627\_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/Parser.pm

No license file was found, but licenses were detected in source scan.

/\*\*\*\*\*

\*\* Expat.xs

\*\*

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\*\*

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\*\*

\*/

Found in path(s):

\* /opt/cola/permits/2074183627\_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/Expat/Expat.xs

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XML::Parser Version 2.40

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under the same terms as Perl itself.

This is a Perl extension interface to James Clark's XML parser, expat.

It requires at least version 5.004 of perl and it requires that you have  
release 1.95.0 or greater of expat installed. You can download expat  
from <http://sourceforge.net/projects/expat/>

Best way is to install expat development package with your OS package manager.

Debian/Ubuntu/similar: libexpat1-dev (old versions: expat-dev)

After that run `cpan XML::Parser`.

You can install this module from OS package too, but CPAN has most fresh version.

CentOS/RHEL/Fedora: perl-XML-Parser

Debian/Ubuntu/similar: should be already installed

XML::Parser installation requires gcc, so on MacOS X you need to download and run

Xcode from Mac app store (~1.5 GB)

The documentation for this extension can be found in pod format at the end of the files Parser.pm and Expat/Expat.pm. The perldoc program, provided with the perl distribution, can be used to view this documentation.

This was modified from the original XML::Parser created by Larry Wall.

-----

To manually install this module, cd to the directory that contains this README file and type the following:

```
perl Makefile.PL
```

Alternatively, if you plan to install XML::Parser somewhere other than your system's perl library directory. You can type something like this:

```
perl Makefile.PL PREFIX=/home/me/perl INSTALLDIRS=perl
```

Then to build you run make.

```
make
```

You can then test the module by typing:

```
make test
```

There are some sample utilities in the samples directory along with an xml form of the XML specification to test them on. You may need to change the '#' line at the top of these utilities to what is appropriate for your system. If you're going to play around with them prior to installing the module, you would need to add the blib paths to your perl search path, like this (assuming your current directory is samples):

```
perl -I../blib/lib -I../blib/arch xmlcomments REC-xml-19980210.xml
```

or set your PERLLIB environment variable.

If you have write access to the installation directories, you may then install by typing:

```
make install
```

Discussion on features and bugs of this software and general discussion



on topics relating to perl and XML takes place on the perl-xml mailing list, to which you can subscribe by sending mail to:

subscribe-perl-xml@lyris.activestate.com

#### Differences from Version 2.30

=====

Version 2.31 is a minor bugfix release to allow XML::Parser to work under the forthcoming Perl 5.8.0 release. There are no functional changes.

#### Differences from Version 2.29

=====

Expat is no longer included with this package. It must now be already installed on your system as a library. You may download the library version of expat from <http://sourceforge.net/projects/expat/>. After downloading, expat must be configured (an automatic script does this), built and installed.

A workaround has been provided for those people who couldn't compile Expat.xs with a perl 5.6.0 with USE\_5005THREADS on.

A bug that prevented IO::Handler from being read by the parse method has been fixed.

Fixed a bug in reading external entities with incremental parsing.

Clark Cooper

coopercc@netheaven.com

Found in path(s):

\* /opt/cola/permits/2074183627\_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/README

No license file was found, but licenses were detected in source scan.

---

abstract: 'A perl module for parsing XML documents'

author:

- 'Clark Cooper (coopercc@netheaven.com)'

build\_requires:

Test::More: '0'

configure\_requires:

```
ExtUtils::MakeMaker: '0'  
dynamic_config: 1  
generated_by: 'ExtUtils::MakeMaker version 7.04, CPAN::Meta::Converter version 2.143240'  
license: perl  
meta-spec:  
  url: http://module-build.sourceforge.net/META-spec-v1.4.html  
  version: '1.4'  
name: XML-Parser  
no_index:  
  directory:  
    - t  
    - inc  
requires:  
  LWP::UserAgent: '0'  
  perl: '5.00405'  
resources:  
  repository: http://github.com/toddr/XML-Parser  
  version: '2.44'
```

Found in path(s):

```
* /opt/cola/permits/2074183627_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/META.yml
```

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```
# LWPEXternEnt.pl  
#  
# Copyright (c) 2000 Clark Cooper  
# All rights reserved.  
#  
# This program is free software; you can redistribute it and/or  
# modify it under the same terms as Perl itself.  
  
package XML::Parser;  
  
use URI;  
use URI::file;  
use LWP::UserAgent;  
  
##  
## Note that this external entity handler reads the entire entity into  
## memory, so it will choke on huge ones. It would be really nice if  
## LWP::UserAgent optionally returned us an IO::Handle.  
##  
  
sub lwp_ext_ent_handler {  
  my ($xp, $base, $sys) = @_ ; # We don't use public id  
  
  my $uri;
```

```

if (defined $base) {
    # Base may have been set by parsefile, which is agnostic about
    # whether its a file or URL.
    my $base_uri = new URI($base);
    unless (defined $base_uri->scheme) {
        $base_uri = URI->new_abs($base_uri, URI::file->cwd);
    }

    $suri = URI->new_abs($sys, $base_uri);
}
else {
    $suri = new URI($sys);
    unless (defined $suri->scheme)
    {
        $suri = URI->new_abs($suri, URI::file->cwd);
    }
}

my $ua = $xp->{_lwpagent};
unless (defined $ua) {
    $ua = $xp->{_lwpagent} = new LWP::UserAgent();
    $ua->env_proxy();
}

my $req = new HTTP::Request('GET', $suri);

my $res = $ua->request($req);
if ($res->is_error) {
    $xp->{ErrorMessage} .= "\n" . $res->status_line . " $suri";
    return undef;
}

$xp->{_BaseStack} ||= [];
push(@{$xp->{_BaseStack}}, $base);

$xp->base($suri);

return $res->content;
} # End lwp_ext_ent_handler

sub lwp_ext_ent_cleanup {
    my ($xp) = @_ ;

    $xp->base(pop(@{$xp->{_BaseStack}}));
} # End lwp_ext_ent_cleanup

1;

```

Found in path(s):

\* /opt/cola/permits/2074183627\_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/Parser/LWPEExternEnt.pl

No license file was found, but licenses were detected in source scan.

```
/******  
** encoding.h  
**  
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** All rights reserved.  
**  
** This program is free software; you can redistribute it and/or  
** modify it under the same terms as Perl itself.  
**/  
  
Found in path(s):  
* /opt/cola/permits/2074183627_1719585005.3994555/0/libxml-parser-perl-2-44-r0-tar-bz2/XML-Parser-2.44.tar.gz.dir/XML-Parser-2.44/Expat/encoding.h
```

## 1.889 alsa-state 0.2.0

### 1.889.1 Available under license :

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# License: GPL (see <http://www.gnu.org/licenses/gpl.txt> for a copy of the license)

Found in path(s):

\* /opt/cola/permits/2074183542\_1719585133.1273305/0/alsa-state-0.2.0-r5.0.src.rpm-cosi-expand-archive-0d2VysAU/alsa-state-init

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License: MIT

Found in path(s):

\* /opt/cola/permits/2074183542\_1719585133.1273305/0/alsa-state-0.2.0-r5.0.src.rpm-cosi-expand-archive-0d2VysAU/alsa-state.spec

## 1.890 luajit 2.0.5+gitAUTOINC+02b521981a

### 1.890.1 Available under license :

=====  
LuaJIT -- a Just-In-Time Compiler for Lua. <http://luajit.org/>

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=====  
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This is a version (aka dlmalloc) of malloc/free/realloc written by Doug Lea and released to the public domain, as explained at <http://creativecommons.org/licenses/publicdomain>

---

# 1.891 libartlgpl 2.3.21

## 1.891.1 Available under license :

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Version 2, June 1991

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this function must  
be optional: if the application does not supply it, the square  
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```
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it
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```

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```
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```

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<signature of Ty Coon>, 1 April 1989
```

```
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## 1.894 gnu-config

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## 1.895 chkconfig 1.3.58

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```

```
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# 1.897 python3-jsonnet 0.17.0

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```
// blah blah here could be a license text
```

```
// lorem ipsum dolor sit amet
```

```
local a = import 'a.jsonnet';
```

```
local b = import 'b.jsonnet';
```

```
true
```

```
MD5
```

```
Converted to C++ class by Frank Thilo (thilo@unix-ag.org)
```

```
for bzflag (http://www.bzflag.org)
```

based on:

md5.h and md5.c

reference implementation of RFC 1321

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```
// blah blah here could be a license text
```

```
// lorem ipsum dolor sit amet
```

```
local b = import 'b.jsonnet';
```

```
local a = import 'a.jsonnet';
```

```
true
```

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```

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* Module Name: dtparser.l - Flex input file for table compiler lexer
*
*****/

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 \* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE  
 \* POSSIBILITY OF SUCH DAMAGES.  
 \*/

```
#include "aslcompiler.h"
```

```
#include "dtparser.y.h"
```

```
#define YY_NO_INPUT /* No file input, we use strings only */
```

```
#define _COMPONENT ACPI_COMPILER
```

```
ACPI_MODULE_NAME ("dtscanner")
```

```
% }
```

```
%option noyywrap
```

```
%option nounput
```

```
Number [0-9a-fA-F]+
```

```
HexNumber 0[xX][0-9a-fA-F]+
```

```
DecimalNumber 0[dD][0-9]+
```

```
LabelRef $[a-zA-Z][0-9a-zA-Z]*
```

```
WhiteSpace [ \t\v\r]+
```

```
NewLine [\n]
```

```
%%
```

```

\ (      return (OP_EXP_PAREN_OPEN);
\)      return (OP_EXP_PAREN_CLOSE);
\~      return (OP_EXP_ONES_COMPLIMENT);
\!      return (OP_EXP_LOGICAL_NOT);
\*      return (OP_EXP_MULTIPLY);
\/      return (OP_EXP_DIVIDE);
\%      return (OP_EXP_MODULO);
\+      return (OP_EXP_ADD);
\-      return (OP_EXP_SUBTRACT);
">>"
    return (OP_EXP_SHIFT_RIGHT);
"<<"    return (OP_EXP_SHIFT_LEFT);
\<      return (OP_EXP_LESS);
\>      return (OP_EXP_GREATER);
"<="    return (OP_EXP_LESS_EQUAL);
">="    return (OP_EXP_GREATER_EQUAL);
"=="    return (OP_EXP_EQUAL);
"!="    return (OP_EXP_NOT_EQUAL);
\&      return (OP_EXP_AND);
\^      return (OP_EXP_XOR);
\\      return (OP_EXP_OR);
"&&"    return (OP_EXP_LOGICAL_AND);
"||"    return (OP_EXP_LOGICAL_OR);
<<EOF>> return (OP_EXP_EOF); /* null end-of-string */

```

```

{LabelRef} return (OP_EXP_LABEL);
{Number}   return (OP_EXP_NUMBER);
{HexNumber} return (OP_EXP_HEX_NUMBER);
{NewLine}  return (OP_EXP_NEW_LINE);
{WhiteSpace} /* Ignore */

```

```

.      return (OP_EXP_EOF);

```

```

%%

```

```

/*

```

```

* Local support functions

```

```

*/

```

```

YY_BUFFER_STATE    LexBuffer;

```

```

/*****

```

```

*

```

```

* FUNCTION:

```

```

    DtInitLexer, DtTerminateLexer

```

```

*

```

```

* PARAMETERS: String      - Input string to be parsed

```

```

*

```

```

* RETURN:    None

```

```
*
* DESCRIPTION: Initialization and termination routines for lexer. Lexer needs
*       a buffer to handle strings instead of a file.
*
*****/
```

```
int
DtInitLexer (
    char      *String)
{
    LexBuffer = yy_scan_string (String);
    return (LexBuffer == NULL);
}
```

```
void
DtTerminateLexer (
    void)
{
    yy_delete_buffer (LexBuffer);
}
```

Found in path(s):  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dtparser.l  
No license file was found, but licenses were detected in source scan.

```
NoEcho('
/*****
*
* Module Name: asrules.y - Main Bison/Yacc production rules
*       - Keep this file synched with the
*       CvParseOpBlockType function in cvcompiler.c
*
*****/
```

```
/*
* Copyright (C) 2000 - 2018, Intel Corp.
* All rights reserved.
*
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* modification, are permitted provided that the following conditions
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```



```

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* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
* POSSIBILITY OF SUCH DAMAGES.
*/

)

/*****
*
* ASL Root and Secondary Terms
*
*****/

/*
* Root term. Allow multiple #line directives before the definition block
* to handle output from preprocessors
*/
AslCode
: DefinitionBlockList      {${n}>$ = TrLinkOpChildren (
                          TrCreateLeafOp (PARSEOP_ASL_CODE),1, $1);}
| error                    {YYABORT; $$ = NULL;}
;

/*

```

\* Note concerning support for "module-level code".

\*

\* ACPI 1.0 allowed Type1 and Type2 executable opcodes outside of control methods (the so-called module-level code.) This support was explicitly removed in ACPI 2.0, but this type of code continues to be created by BIOS vendors. In order to support the disassembly and recompilation of such code (and the porting of ASL code to iASL), iASL supports this code in violation of the current ACPI specification.

\*

\* The grammar change to support module-level code is to revert the {ObjectList} portion of the DefinitionBlockTerm in ACPI 2.0 to the original use of {TermList} instead (see below.) This allows the use of Type1 and Type2 opcodes at module level.

\*

\* 04/2016: The module-level code is now allowed in the following terms:

\* DeviceTerm, PowerResTerm, ProcessorTerm, ScopeTerm, ThermalZoneTerm.

\* The ObjectList term is obsolete and has been removed.

\*/

```

DefinitionBlockTerm
: PARSEOP_DEFINITION_BLOCK
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_DEFINITION_BLOCK);
COMMENT_CAPTURE_OFF;}
  String ''

  String ''
  ByteConst ''
  String ''
  String ''
  DWordConst
  PARSEOP_CLOSE_PAREN    {TrSetOpIntegerWidth ($6,$8);
                          TrSetOpEndLineNumber (<n>3); COMMENT_CAPTURE_ON;}
  {' TermList ''        {$$ = TrLinkOpChildren (<n>3,7,
                          $4,$6,$8,$10,$12,$14,$18);}

;

```

```

DefinitionBlockList
: DefinitionBlockTerm
| DefinitionBlockTerm
  DefinitionBlockList    {$$ = TrLinkPeerOps (2, $1,$2);}

;

```

/\*\*\*\*\*\* Basic ASCII identifiers \*\*\*\*\*/

/\* Allow IO, DMA, IRQ Resource macro and FOR macro names to also be used as identifiers \*/

```

NameString
: NameSeg          {}

```

```

    | PARSEOP_NAMESTRING      {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING,
(ACPI_NATIVE_INT) $1);}
    | PARSEOP_IO              {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING, (ACPI_NATIVE_INT)
"IO");}
    | PARSEOP_DMA
        {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING, (ACPI_NATIVE_INT) "DMA");}
    | PARSEOP_IRQ            {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING, (ACPI_NATIVE_INT)
"IRQ");}
    | PARSEOP_FOR            {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESTRING, (ACPI_NATIVE_INT)
"FOR");}
    ;
/*
NameSeg
    : PARSEOP_NAMESEG        {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESEG,
(ACPI_NATIVE_INT)
        TrNormalizeNameSeg ($1));}
    ;
*/

NameSeg
    : PARSEOP_NAMESEG        {$$ = TrCreateValuedLeafOp (PARSEOP_NAMESEG,
        (ACPI_NATIVE_INT) AslCompilerIval.s);}
    ;

/***** Fundamental argument/statement types *****/

Term
    : Object                  {}
    | Type1Opcode             {}
    | Type2Opcode             {}
    | Type2IntegerOpcode      {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
    | Type2StringOpcode
        {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
    | Type2BufferOpcode       {}
    | Type2BufferOrStringOpcode {}
    | error                   {$$ = AslDoError(); yyclearin;}
    ;

SuperName
    : SimpleName              {}
    | DebugTerm               {}
    | Type6Opcode             {}
    ;

Target
    :                         {$$ = TrCreateNullTargetOp ();} /* Placeholder is a ZeroOp object */
    | ' '                     {$$ = TrCreateNullTargetOp ();} /* Placeholder is a ZeroOp object */

```

```

    |,' SuperName          {$$ = TrSetOpFlags ($2, OP_IS_TARGET);}
    ;

RequiredTarget
:,' SuperName          {$$ = TrSetOpFlags ($2, OP_IS_TARGET);}
;

TermArg
: SimpleName          {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
| Type2Opcode         {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
| DataObject          {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
|
PARSEOP_OPEN_PAREN
    TermArg
    PARSEOP_CLOSE_PAREN    {$$ = TrSetOpFlags ($2, OP_IS_TERM_ARG);}
;

/*
NOTE: Removed from TermArg due to reduce/reduce conflicts:
| Type2IntegerOpcode    {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
| Type2StringOpcode     {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
| Type2BufferOpcode     {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}
| Type2BufferOrStringOpcode    {$$ = TrSetOpFlags ($1, OP_IS_TERM_ARG);}

*/

MethodInvocationTerm
: NameString
    PARSEOP_OPEN_PAREN    {TrSetOpIntegerValue (PARSEOP_METHODCALL, $1);
COMMENT_CAPTURE_OFF;}
    ArgList
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkChildOp ($1,$4); COMMENT_CAPTURE_ON;}
;

/* OptionalCount must appear before ByteList or an incorrect reduction will result */

OptionalCount
:          {$$ = TrCreateLeafOp (PARSEOP_ONES);}    /* Placeholder is a OnesOp object */
|,'
    {$$ = TrCreateLeafOp (PARSEOP_ONES);}    /* Placeholder is a OnesOp object */
|,' TermArg          {$$ = $2;}
;

/*
* Data count for buffers and packages (byte count for buffers,
* element count for packages).
*/

OptionalDataCount

```

```

/* Legacy ASL */
:                {$$ = NULL;}
| PARSEOP_OPEN_PAREN
  TermArg
  PARSEOP_CLOSE_PAREN    {$$ = $2;}
| PARSEOP_OPEN_PAREN
  PARSEOP_CLOSE_PAREN    {$$ = NULL;}

/* C-style (ASL+) -- adds equals term */

| PARSEOP_EXP_EQUALS      {$$ = NULL;}

| PARSEOP_OPEN_PAREN
  TermArg
  PARSEOP_CLOSE_PAREN
  PARSEOP_EXP_EQUALS      {$$ = $2;}

| PARSEOP_OPEN_PAREN
  PARSEOP_CLOSE_PAREN
  String
  PARSEOP_EXP_EQUALS      {$$ = NULL;}
;

/***** List Terms *****/

/* ACPI 3.0 -- allow semicolons between terms */

TermList
:
    {$$ = NULL;}
| TermList Term          {$$ = TrLinkPeerOp (
                          TrSetOpFlags ($1, OP_RESULT_NOT_USED),$2);}
| TermList Term ';'      {$$ = TrLinkPeerOp (
                          TrSetOpFlags ($1, OP_RESULT_NOT_USED),$2);}
| TermList ';' Term      {$$ = TrLinkPeerOp (
                          TrSetOpFlags ($1, OP_RESULT_NOT_USED),$3);}
| TermList ';' Term ';'  {$$ = TrLinkPeerOp (
                          TrSetOpFlags ($1, OP_RESULT_NOT_USED),$3);}
;

ArgList
:                {$$ = NULL;}
| TermArg
| ArgList ','      /* Allows a trailing comma at list end */
| ArgList ','
  TermArg          {$$ = TrLinkPeerOp ($1,$3);}

```

```

;

ByteList
:
    {$$ = NULL;}
| ByteConstExpr
| ByteList ',' /* Allows a trailing comma at list end */
|
ByteList ','
    ByteConstExpr    {$$ = TrLinkPeerOp ($1,$3);}
;

DWordList
:
    {$$ = NULL;}
| DWordConstExpr
| DWordList ',' /* Allows a trailing comma at list end */
| DWordList ','
    DWordConstExpr    {$$ = TrLinkPeerOp ($1,$3);}
;

FieldUnitList
:
    {$$ = NULL;}
| FieldUnit
| FieldUnitList ',' /* Allows a trailing comma at list end */
| FieldUnitList ','
    FieldUnit    {$$ = TrLinkPeerOp ($1,$3);}
;

FieldUnit
: FieldUnitEntry    {}
| OffsetTerm        {}
| AccessAsTerm      {}
| ConnectionTerm    {}
;

FieldUnitEntry
: ',' AmlPackageLengthTerm    {$$ = TrCreateOp (PARSEOP_RESERVED_BYTES,1,$2);}
| NameSeg ','
    AmlPackageLengthTerm    {$$ = TrLinkChildOp ($1,$3);}
;

Object
: CompilerDirective    {}

| NamedObject          {}
| NameSpaceModifier    {}
/* | StructureTerm      {} */
;

```

## PackageList

```
:                {$$ = NULL;}
| PackageElement
| PackageList ',' /* Allows a trailing comma at list end */
| PackageList ' '
  PackageElement  {$$ = TrLinkPeerOp ($1,$3);}
;
```

## PackageElement

```
: DataObject      {}
| NameString      {}
;
```

/\* Rules for specifying the type of one method argument or return value \*/

## ParameterTypePackage

```
:                {$$ = NULL;}
| ObjectTypeKeyword {$$ = $1;}
| ParameterTypePackage ' '
  ObjectTypeKeyword {$$ = TrLinkPeerOps (2,$1,$3);}
;
```

## ParameterTypePackageList

```
:                {$$ = NULL;}
| ObjectTypeKeyword {$$ = $1;}
| '{' ParameterTypePackage '}' {$$ = $2;}
;
```

## OptionalParameterTypePackage

```
:
  {$$ = TrCreateLeafOp (PARSEOP_DEFAULT_ARG);}
| ',' ParameterTypePackageList {$$ = TrLinkOpChildren (
  TrCreateLeafOp (PARSEOP_DEFAULT_ARG),1,$2);}
;
```

/\* Rules for specifying the types for method arguments \*/

## ParameterTypesPackage

```
: ParameterTypePackageList {$$ = $1;}
| ParameterTypesPackage ' '
  ParameterTypePackageList {$$ = TrLinkPeerOps (2,$1,$3);}
;
```

## ParameterTypesPackageList

```
:                {$$ = NULL;}
| ObjectTypeKeyword {$$ = $1;}
| '{' ParameterTypesPackage '}' {$$ = $2;}
;
```

```

OptionalParameterTypesPackage
:           {$$ = TrCreateLeafOp (PARSEOP_DEFAULT_ARG);}
| ',' ParameterTypesPackageList {$$ = TrLinkOpChildren (
           TrCreateLeafOp (PARSEOP_DEFAULT_ARG),1,$2);}
;

/*
* Case-Default list; allow only one Default term and unlimited Case terms
*/
CaseDefaultTermList
:           {$$ = NULL;}
| CaseTerm      {}
| DefaultTerm   {}
| CaseDefaultTermList
  CaseTerm      {$$ = TrLinkPeerOp ($1,$2);}
| CaseDefaultTermList
  DefaultTerm   {$$ = TrLinkPeerOp ($1,$2);}

/* Original - attempts to force zero or one default term within the switch */

/*
CaseDefaultTermList
:           {$$ = NULL;}
| CaseTermList
  DefaultTerm
  CaseTermList      {$$ = TrLinkPeerOp ($1,TrLinkPeerOp ($2, $3));}
| CaseTermList
  CaseTerm          {$$ = TrLinkPeerOp ($1,$2);}
;

CaseTermList
:           {$$ = NULL;}
| CaseTerm      {}
| CaseTermList
  CaseTerm      {$$ = TrLinkPeerOp ($1,$2);}
;
*/

/*****
*
* ASL Data and Constant Terms
*
*****/
DataObject

```



```

: BufferData      {}
| PackageData    {}
| IntegerData    {}
| StringData     {}
;

```

#### BufferData

```

: Type5Opcode      {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
| Type2BufferOrStringOpcode  {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
| Type2BufferOpcode      {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
| BufferTerm          {}
;

```

#### PackageData

```

: PackageTerm      {}
;

```

#### IntegerData

```

: Type2IntegerOpcode      {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
| Type3Opcode             {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
| Integer                 {}
| ConstTerm              {}
;

```

#### StringData

```

: Type2StringOpcode      {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
| String
    {}
;

```

#### ByteConst

```

: Integer              {$$ = TrSetOpIntegerValue (PARSEOP_BYTECONST, $1);}
;

```

#### WordConst

```

: Integer              {$$ = TrSetOpIntegerValue (PARSEOP_WORDCONST, $1);}
;

```

#### DWordConst

```

: Integer              {$$ = TrSetOpIntegerValue (PARSEOP_DWORDCONST, $1);}
;

```

#### QWordConst

```

: Integer              {$$ = TrSetOpIntegerValue (PARSEOP_QWORDCONST, $1);}
;

```

/\*

\* The OP\_COMPILE\_TIME\_CONST flag in the following constant expressions

\* enables compile-time constant folding to reduce the Type3Opcodes/Type2IntegerOpcodes  
 \* to simple integers. It is an error if these types of expressions cannot be  
 \* reduced, since the AML grammar for \*\*\*\*ConstExpr requires a simple constant.  
 \* Note: The required byte length of the constant is passed through to the  
 \* constant folding code in the node AmlLength field.

\*/

#### ByteConstExpr

```
: Type3Opcode          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 1);}
| Type2IntegerOpcode   {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 1);}
| ConstExprTerm        {$$ = TrSetOpIntegerValue (PARSEOP_BYTECONST, $1);}
| ByteConst            {}
;

```

#### WordConstExpr

```
: Type3Opcode          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 2);}
| Type2IntegerOpcode   {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 2);}
| ConstExprTerm        {$$ = TrSetOpIntegerValue (PARSEOP_WORDCONST, $1);}
| WordConst            {}
;

```

#### DWordConstExpr

```
: Type3Opcode          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 4);}
| Type2IntegerOpcode   {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 4);}
| ConstExprTerm        {$$ = TrSetOpIntegerValue (PARSEOP_DWORDCONST, $1);}
| DWordConst           {}
;

```

#### QWordConstExpr

```
: Type3Opcode          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 8);}
| Type2IntegerOpcode   {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);
                        TrSetOpAmlLength ($1, 8);}
| ConstExprTerm        {$$ = TrSetOpIntegerValue (PARSEOP_QWORDCONST, $1);}
| QWordConst           {}
;

```

#### ConstTerm

```
: ConstExprTerm        {}
| PARSEOP_REVISION     {$$ = TrCreateLeafOp (PARSEOP_REVISION);}
;

```

```

ConstExprTerm
: PARSEOP_ZERO          {$$ = TrCreateValuedLeafOp (PARSEOP_ZERO, 0);}
| PARSEOP_ONE           {$$ = TrCreateValuedLeafOp
(PARSEOP_ONE, 1);}
| PARSEOP_ONES         {$$ = TrCreateValuedLeafOp (PARSEOP_ONES, ACPI_UINT64_MAX);}
| PARSEOP__DATE__      {$$ = TrCreateConstantLeafOp (PARSEOP__DATE__);}
| PARSEOP__FILE__      {$$ = TrCreateConstantLeafOp (PARSEOP__FILE__);}
| PARSEOP__LINE__      {$$ = TrCreateConstantLeafOp (PARSEOP__LINE__);}
| PARSEOP__PATH__      {$$ = TrCreateConstantLeafOp (PARSEOP__PATH__);}
| PARSEOP__METHOD__    {$$ = TrCreateConstantLeafOp (PARSEOP__METHOD__);}
;

```

```

Integer
: PARSEOP_INTEGER      {$$ = TrCreateValuedLeafOp (PARSEOP_INTEGER,
AslCompilerIval.i);}
;

```

```

String
: PARSEOP_STRING_LITERAL {$$ = TrCreateValuedLeafOp (PARSEOP_STRING_LITERAL,
(ACPI_NATIVE_INT) AslCompilerIval.s);}
;

```

```

/*****
*
* ASL Opcode Terms
*
*****/

```

```

CompilerDirective
: IncludeTerm          {}
| IncludeEndTerm       {}
| ExternalTerm         {}
;

```

```

NamedObject
: BankFieldTerm        {}
| CreateBitFieldTerm   {}
| CreateByteFieldTerm  {}
| CreateDWordFieldTerm {}
| CreateFieldTerm      {}
| CreateQWordFieldTerm {}
| CreateWordFieldTerm  {}
| DataRegionTerm       {}
| DeviceTerm           {}
| EventTerm            {}
| FieldTerm            {}
| FunctionTerm         {}

```

```

| IndexFieldTerm      {}
| MethodTerm          {}
| MutexTerm           {}
| OpRegionTerm        {}
| PowerResTerm        {}
| ProcessorTerm       {}
| ThermalZoneTerm     {}
;

NameSpaceModifier
: AliasTerm           {}
| NameTerm            {}
/* | NameTermAsIPlus   {} */
| ScopeTerm           {}
;

SimpleName
: NameString          {}
| LocalTerm           {}
| ArgTerm             {}
;

/* For ObjectType(), SuperName except for MethodInvocationTerm */

ObjectTypeSource
: SimpleName          {}
| DebugTerm           {}
| RefOfTerm           {}
| DerefOfTerm         {}
| IndexTerm           {}
| IndexExpTerm        {}
;

/* For DeRefOf(), SuperName except for DerefOf and Debug */

DerefOfSource
: SimpleName          {}
| RefOfTerm           {}
| DerefOfTerm         {}
| IndexTerm           {}
| IndexExpTerm        {}
| StoreTerm           {}
| EqualsTerm          {}
| MethodInvocationTerm
  {}
;

/* For RefOf(), SuperName except for RefOf and MethodInvocationTerm */

```

#### RefOfSource

```
: SimpleName      {}
| DebugTerm       {}
| DerefOfTerm     {}
| IndexTerm       {}
| IndexExpTerm    {}
;
```

/\* For CondRefOf(), SuperName except for RefOf and MethodInvocationTerm \*/

#### CondRefOfSource

```
: SimpleName      {}
| DebugTerm       {}
| DerefOfTerm     {}
| IndexTerm       {}
| IndexExpTerm    {}
;
```

/\*

\* Opcode types, as defined in the ACPI specification

\*/

#### Type1Opcode

```
: BreakTerm       {}
| BreakPointTerm  {}
| ContinueTerm    {}
| FatalTerm       {}
| ForTerm         {}
| ElseIfTerm     {}
| LoadTerm        {}
| NoOpTerm        {}
| NotifyTerm      {}
                  {}
| ReleaseTerm     {}
| ResetTerm       {}
| ReturnTerm      {}
| SignalTerm      {}
| SleepTerm       {}
| StallTerm       {}
| SwitchTerm      {}
| UnloadTerm      {}
| WhileTerm       {}
;
```

#### Type2Opcode

```
: AcquireTerm     {}
| CondRefOfTerm   {}
| CopyObjectTerm  {}
```

```

| DerefOfTerm      {}
| ObjectTypeTerm   {}
| RefOfTerm        {}
| SizeOfTerm       {}
| StoreTerm        {}
| EqualsTerm       {}
| TimerTerm        {}
| WaitTerm         {}
| MethodInvocationTerm {}
;

/*
* Type 3/4/5 opcodes
*/
Type2IntegerOpcode      /* "Type3" opcodes */
: Expression
{ $$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST); }
| AddTerm               {}
| AndTerm               {}
| DecTerm               {}
| DivideTerm            {}
| FindSetLeftBitTerm   {}
| FindSetRightBitTerm  {}
| FromBCDTerm           {}
| IncTerm               {}
| IndexTerm             {}
/* | StructureIndexTerm   {} */
/* | StructurePointerTerm {} */
| LAndTerm              {}
| LEqualTerm            {}
| LGreaterTerm          {}
| LGreaterEqualTerm    {}
| LLessTerm             {}
| LLessEqualTerm       {}
| LNotTerm              {}
| LNotEqualTerm        {}
| LoadTableTerm        {}
| LOrTerm               {}
| MatchTerm             {}
| ModTerm               {}
| MultiplyTerm          {}
|
NAndTerm               {}
| NORTerm              {}
| NotTerm               {}
| OrTerm                {}
| ShiftLeftTerm        {}
| ShiftRightTerm       {}

```

```

| SubtractTerm      {}
| ToBCDTerm        {}
| ToIntegerTerm    {}
| XOrTerm          {}
;

Type2StringOpcode  /* "Type4" Opcodes */
: ToDecimalStringTerm  {}
| ToHexStringTerm     {}
| ToStringTerm        {}
;

Type2BufferOpcode  /* "Type5" Opcodes */
: ToBufferTerm        {}
| ConcatResTerm       {}
;

Type2BufferOrStringOpcode
: ConcatTerm          {$$ = TrSetOpFlags ($1, OP_COMPILE_TIME_CONST);}
| PrintfTerm          {}
| FprintfTerm         {}
| MidTerm             {}
;

/*
* A type 3 opcode evaluates to an Integer and
* cannot have a destination operand
*/
Type3Opcode
: EISAIDTerm          {}
;

/* Obsolete
Type4Opcode
: ConcatTerm          {}
| ToDecimalStringTerm  {}
| ToHexStringTerm     {}
| MidTerm             {}
| ToStringTerm        {}
;
*/

/* Type 5 opcodes are a subset of Type2 opcodes, and return a constant */
Type5Opcode
: ResourceTemplateTerm  {}
| UnicodeTerm          {}
| ToPLDTerm            {}

```

```

| ToUUIDTerm          {}
;

Type6Opcode
: RefOfTerm           {}
| DerefOfTerm         {}
| IndexTerm           {}
| IndexExpTerm        {}
/* | StructureIndexTerm   {} */
/* | StructurePointerTerm {} */
| MethodInvocationTerm {}
;

/*****
*
* ASL Helper Terms
*
*****/

AmlPackageLengthTerm
: Integer              {$$ = TrSetOpIntegerValue (PARSEOP_PACKAGE_LENGTH,
                                                    (ACPI_PARSE_OBJECT *) $1);}
;

NameStringItem
: '|' NameString       {$$ = $2;}
| '|' error            {$$ = AslDoError (); yyclearin;}
;

TermArgItem
: '|' TermArg          {$$ = $2;}
| '|' error            {$$ = AslDoError (); yyclearin;}
;

OptionalReference
:                      {$$ = TrCreateLeafOp (PARSEOP_ZERO);} /* Placeholder is a ZeroOp object */
| '|'                  {$$ = TrCreateLeafOp (PARSEOP_ZERO);} /* Placeholder is a ZeroOp object */
| '|' TermArg          {$$ = $2;}
;

OptionalReturnArg
:                      {$$ = TrSetOpFlags (TrCreateLeafOp (PARSEOP_ZERO),
                                                    OP_IS_NULL_RETURN);}
/* Placeholder is a ZeroOp object */
| TermArg              {$$ = $1;}
;

```



OptionalSerializeRuleKeyword

```
:                {$$ = NULL;}
| ','            {$$ = NULL;}
| ',' SerializeRuleKeyword    {$$ = $2;}
;
```

OptionalTermArg

```
:                {$$ = TrCreateLeafOp (PARSEOP_DEFAULT_ARG);}
| TermArg        {$$ = $1;}
;
```

OptionalWordConst

```
:                {$$ = NULL;}
| WordConst      {$$ = $1;}
;
```

Found in path(s):

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslrules.y

No license file was found, but licenses were detected in source scan.

```
/*
*
* Module Name: aslsupport.l - Flex/lex scanner C support routines.
*      NOTE: Included into aslcompile.l, not compiled by itself.
*
*/
```

```
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*/
```

```

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* POSSIBILITY OF SUCH DAMAGES.
*/

```

```

/* Configuration */

```

```

#define ASL_SPACES_PER_TAB    4

#define ASL_NORMAL_CHAR      0
#define ASL_ESCAPE_SEQUENCE  1
#define ASL_OCTAL_CONSTANT   2
#define ASL_HEX_CONSTANT     3

```

```

void
yyerror (char const *s)
{
    AcpiOsPrintf ("YYERROR: %s\n", s);
}

```

```

/*****

```

```

*
* FUNCTION:  AslParserCleanup
*
* Used to delete the current buffer
*
*****/

```

```

void
AslParserCleanup (
    void)
{

```

```

yy_delete_buffer (YY_CURRENT_BUFFER);
}

/*****
*
* FUNCTION:  AslDoLineDirective
*
* PARAMETERS:  None. Uses
input() to access current source code line
*
* RETURN:    Updates global line number and filename
*
* DESCRIPTION: Handle #line directives emitted by the preprocessor.
*
* The #line directive is emitted by the preprocessor, and is used to
* pass through line numbers from the original source code file to the
* preprocessor output file (.i). This allows any compiler-generated
* error messages to be displayed with the correct line number.
*
*****/

static void
AslDoLineDirective (
    void)
{
    int          c;
    char         *Token;
    UINT32      LineNumber;
    char        *Filename;
    UINT32      i;

    Gbl_HasIncludeFiles = TRUE;

    /* Eat the entire line that contains the #line directive */

    Gbl_LineBufPtr = Gbl_CurrentLineBuffer;

    while ((c = input()) != '\n' && c != EOF)
    {
        *Gbl_LineBufPtr = c;
        Gbl_LineBufPtr++;
    }
    *Gbl_LineBufPtr = 0;

    /* First argument is the actual line number */

```

```

Token = strtok (Gbl_CurrentLineBuffer, " ");
if (!Token)
{
    goto ResetAndExit;
}

/* First argument is the line number */

LineNumber = (UINT32) UtDoConstant (Token);

/* Emit the appropriate number of newlines */

Gbl_CurrentColumn = 0;
if (LineNumber > Gbl_CurrentLineNumber)
{
    for (i = 0; i < (LineNumber - Gbl_CurrentLineNumber); i++)
    {
        FIWriteFile (ASL_FILE_SOURCE_OUTPUT, "\n", 1);
        Gbl_CurrentColumn++;
    }
}

FISetLineNumber (LineNumber);

/* Second argument is the optional filename (in double quotes) */

Token = strtok (NULL, "\"");
if (Token)
{
    Filename = ACPI_ALLOCATE_ZEROED (strlen (Token) + 1);
    strcpy (Filename, Token);
    FISetFilename (Filename);
}

/* Third argument is not supported at this time */

ResetAndExit:

/* Reset globals for a
new line */

Gbl_CurrentLineOffset += Gbl_CurrentColumn;
Gbl_CurrentColumn = 0;
Gbl_LineBufPtr = Gbl_CurrentLineBuffer;
}

/*****

```

```

*
* FUNCTION:  AslPopInputFileStack
*
* PARAMETERS:  None
*
* RETURN:    0 if a node was popped, -1 otherwise
*
* DESCRIPTION: Pop the top of the input file stack and point the parser to
*              the saved parse buffer contained in the fnode. Also, set the
*              global line counters to the saved values. This function is
*              called when an include file reaches EOF.
*
*****/

```

```

int
AslPopInputFileStack (
    void)
{
    ASL_FILE_NODE      *Fnode;

    Gbl_PreviousIncludeFilename = Gbl_Files[ASL_FILE_INPUT].Filename;
    Fnode = Gbl_IncludeFileStack;
    DbgPrint (ASL_PARSE_OUTPUT,
        "\nPop InputFile Stack, Fnode %p\n", Fnode);

    DbgPrint (ASL_PARSE_OUTPUT,
        "Include: Closing \"%s\"\n\n", Gbl_Files[ASL_FILE_INPUT].Filename);

    if (!Fnode)
    {
        return (-1);
    }

    /* Close the current include file */

    fclose (yyin);

    /* Update the top-of-stack */

    Gbl_IncludeFileStack = Fnode->Next;

    /* Reset global line counter and filename */

    Gbl_Files[ASL_FILE_INPUT].Filename = Fnode->Filename;
    Gbl_CurrentLineNumber = Fnode->CurrentLineNumber;

    /* Point the parser to the popped file */

```

```

yy_delete_buffer (YY_CURRENT_BUFFER);
yy_switch_to_buffer (Fnode->State);

/* All done with this node */

ACPI_FREE (Fnode);
return (0);
}

/*****
*
* FUNCTION:  AslPushInputFileStack
*
* PARAMETERS:  InputFile      - Open file pointer
*              Filename      - Name of the file
*
* RETURN:     None
*
* DESCRIPTION: Push the InputFile onto the file stack, and point the parser
*
*              to this file. Called when an include file is successfully
*              opened.
*
*****/

void
AslPushInputFileStack (
    FILE      *InputFile,
    char      *Filename)
{
    ASL_FILE_NODE    *Fnode;
    YY_BUFFER_STATE  State;

    /* Save the current state in an Fnode */

    Fnode = UtLocalCalloc (sizeof (ASL_FILE_NODE));

    Fnode->File = yyin;
    Fnode->Next = Gbl_IncludeFileStack;
    Fnode->State = YY_CURRENT_BUFFER;
    Fnode->Filename = Gbl_Files[ASL_FILE_INPUT].Filename;
    Fnode->CurrentLineNumber = Gbl_CurrentLineNumber;

    /* Push it on the stack */

```

```

Gbl_IncludeFileStack = Fnode;

/* Point the parser to this file */

State = yy_create_buffer (InputFile, YY_BUF_SIZE);
yy_switch_to_buffer (State);

DbgPrint (ASL_PARSE_OUTPUT,
    "\nPush InputFile Stack, returning %p\n\n", InputFile);

/* Reset the global line count and filename
*/

Gbl_Files[ASL_FILE_INPUT].Filename =
    UtLocalCacheCalloc (strlen (Filename) + 1);

strcpy (Gbl_Files[ASL_FILE_INPUT].Filename, Filename);

Gbl_CurrentLineNumber = 1;
yyin = InputFile;

/* converter: reset the comment state to STANDARD_COMMENT */

Gbl_CommentState.CommentType = STANDARD_COMMENT;
}

/*****
*
* FUNCTION:  AslResetCurrentLineBuffer
*
* PARAMETERS:  None
*
* RETURN:    None
*
* DESCRIPTION:  Reset the Line Buffer to zero, increment global line numbers.
*
*****/

void
AslResetCurrentLineBuffer (
    void)
{
    if (Gbl_Files[ASL_FILE_SOURCE_OUTPUT].Handle)
    {
        FIWriteFile (ASL_FILE_SOURCE_OUTPUT, Gbl_CurrentLineBuffer,
            Gbl_LineBufPtr - Gbl_CurrentLineBuffer);
    }
}

```

```

}

Gbl_CurrentLineOffset += Gbl_CurrentColumn;
Gbl_CurrentColumn = 0;

Gbl_CurrentLineNumber++;
Gbl_LogicalLineNumber++;
Gbl_LineBufPtr = Gbl_CurrentLineBuffer;
}

/*****
*
* FUNCTION:  AslInsertLineBuffer
*
* PARAMETERS:  SourceChar      - One char from the input ASL source file
*
* RETURN:     None
*
* DESCRIPTION: Put one character of the source file into the temp line buffer
*
*****/

void
AslInsertLineBuffer (
    int          SourceChar)
{
    UINT32      i;
    UINT32      Count = 1;

    if (SourceChar == EOF)
    {
        return;
    }

    Gbl_InputByteCount++;

    /* Handle tabs. Convert to spaces */

    if (SourceChar == '\t')
    {
        SourceChar = ' ';
        Count = ASL_SPACES_PER_TAB -
            (Gbl_CurrentColumn & (ASL_SPACES_PER_TAB-1));
    }

    for (i = 0; i < Count; i++)

```



```

{
    Gbl_CurrentColumn++;

    /*
Insert the character into the line buffer */

    *Gbl_LineBufPtr = (UINT8) SourceChar;
    Gbl_LineBufPtr++;

    if (Gbl_LineBufPtr >
        (Gbl_CurrentLineBuffer + (Gbl_LineBufferSize - 1)))
    {
#ifdef 0
        /*
        * Warning if we have split a long source line.
        * <Probably overkill>
        */
        sprintf (MsgBuffer, "Max %u", Gbl_LineBufferSize);
        AslCommonError (ASL_WARNING, ASL_MSG_LONG_LINE,
            Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
            Gbl_CurrentLineOffset, Gbl_CurrentColumn,
            Gbl_Files[ASL_FILE_INPUT].Filename, MsgBuffer);
#endif

        AslResetCurrentLineBuffer ();
    }
    else if (SourceChar == '\n')
    {
        /* End of line */

        AslResetCurrentLineBuffer ();
    }

    if (AcpiGbl_CaptureComments)
    {
        CvProcessCommentState (SourceChar);
    }
}

/*****
*
* FUNCTION:  count
*
* PARAMETERS:  yytext          - Contains the matched keyword.
*              Type            - Keyword/Character type:
*              0 = anything except a keyword

```

```

*           1 = pseudo-keywords
*           2 = non-executable ASL keywords
*           3 = executable ASL keywords
*
* RETURN:   None
*
* DESCRIPTION: Count keywords and put them into the line buffer
*
*****/

static void
count (
    int      Type)
{
    char     *p;

    switch (Type)
    {
    case 2:

        TotalKeywords++;
        TotalNamedObjects++;
        break;

    case 3:

        TotalKeywords++;
        TotalExecutableOpcodes++;
        break;

    default:

        break;
    }

    for (p = yytext; *p != '\0';
        p++)
    {
        AslInsertLineBuffer (*p);
        *Gbl_LineBufPtr = 0;
    }
}

/*****
*
* FUNCTION:  AslDoComment

```

```

*
* PARAMETERS: none
*
* RETURN: none
*
* DESCRIPTION: Process a standard comment.
*
*****/

```

```

static BOOLEAN
AslDoComment (
    void)
{
    int          c;
    int          c1 = 0;
    char         *StringBuffer = MsgBuffer;
    char         *EndBuffer = MsgBuffer + ASL_MSG_BUFFER_SIZE;
    ASL_COMMENT_STATE    CurrentState = Gbl_CommentState; /* to reference later on */

```

```

    AslInsertLineBuffer ('/');
    AslInsertLineBuffer ('*');
    if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
    {
        *StringBuffer = '/';
        ++StringBuffer;
        *StringBuffer = '*';
        ++StringBuffer;
    }

```

loop:

```

    /* Eat chars until end-of-comment */

    while (((c = input ()) != '*') && (c != EOF))
    {
        AslInsertLineBuffer (c);
        if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
        {
            *StringBuffer = c;
            ++StringBuffer;
        }
        c1 = c;
    }

```

```

    if (c == EOF)
    {
        goto EarlyEOF;
    }

```

```

}

/*
 * Check for nested comment -- can help catch cases where a previous
 * comment was accidentally left unterminated
 */
if ((c1 == '/') && (c == '*'))
{
    AslCommonError (ASL_WARNING, ASL_MSG_NESTED_COMMENT,
        Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
        Gbl_InputByteCount, Gbl_CurrentColumn,
        Gbl_Files[ASL_FILE_INPUT].Filename, NULL);
}

/* Comment is closed only if the NEXT character is a slash */

AslInsertLineBuffer (c);
if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
{
    *StringBuffer = c;
    ++StringBuffer;
}

if (((c1 = input ()) != '/') && (c1 != EOF))
{
    unput (c1);
    goto loop;
}

if (c1 == EOF)
{
    goto EarlyEOF;
}
if (StringBuffer > EndBuffer)
{
    goto BufferOverflow;
}

AslInsertLineBuffer (c1);
CvProcessComment (CurrentState, StringBuffer, c1);
return (TRUE);

```

EarlyEOF:

```

/*
 * Premature End-Of-File
 */
AslCommonError (ASL_ERROR, ASL_MSG_EARLY_EOF,

```

```

    Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
    Gbl_CurrentLineOffset, Gbl_CurrentColumn,
    Gbl_Files[ASL_FILE_INPUT].Filename, NULL);
return (FALSE);

```

BufferOverflow:

```

/* Comment was too long */

AslCommonError (ASL_ERROR, ASL_MSG_STRING_LENGTH,
    Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
    Gbl_CurrentLineOffset, Gbl_CurrentColumn,
    Gbl_Files[ASL_FILE_INPUT].Filename, "Max length 4096");
return (FALSE);

}

/*****
*
* FUNCTION:  AslDoCommentType2
*
* PARAMETERS:
    none
*
* RETURN:   none
*
* DESCRIPTION: Process a new "/" comment. Inline comments will be converted
*              to "/" standard comments.
*
*****/

static BOOLEAN
AslDoCommentType2 (
    void)
{
    int          c;
    char         *StringBuffer = MsgBuffer;
    char         *EndBuffer = MsgBuffer + ASL_MSG_BUFFER_SIZE;
    ASL_COMMENT_STATE    CurrentState = Gbl_CommentState;

    AslInsertLineBuffer ('/');

    if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
    {
        AslInsertLineBuffer (*');
    }

```

```

    *StringBuffer = '/';
    ++StringBuffer;
    *StringBuffer = '*';
    ++StringBuffer;
}
else
{
    AslInsertLineBuffer ('/');
}

while (((c = input ()) != '\n') && (c != EOF))
{
    AslInsertLineBuffer (c);
    if (AcpiGbl_CaptureComments && CurrentState.CaptureComments)
    {
        *StringBuffer
= c;
        ++StringBuffer;
    }
}

if (c == EOF)
{
    /* End of file is OK, change to newline. Let parser detect EOF later */

    c = '\n';
}

if (StringBuffer > EndBuffer)
{
    goto BufferOverflow;
}
AslInsertLineBuffer (c);

CvProcessCommentType2 (CurrentState, StringBuffer);
return (TRUE);

```

BufferOverflow:

```

/* Comment was too long */

AslCommonError (ASL_ERROR, ASL_MSG_STRING_LENGTH,
    Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
    Gbl_CurrentLineOffset, Gbl_CurrentColumn,
    Gbl_Files[ASL_FILE_INPUT].Filename, "Max length 4096");
return (FALSE);

```

```

}

/*****
*
* FUNCTION:  AslDoStringLiteral
*
* PARAMETERS: none
*
* RETURN:   none
*
* DESCRIPTION: Process a string literal (surrounded by quotes)
*
*****/

static char
AslDoStringLiteral
(
    void)
{
    char          *StringBuffer = MsgBuffer;
    char          *EndBuffer = MsgBuffer + ASL_MSG_BUFFER_SIZE;
    char          *CleanString;
    int           StringChar;
    UINT32        State = ASL_NORMAL_CHAR;
    UINT32        i = 0;
    UINT8         Digit;
    char          ConvertBuffer[4];

    /*
     * Eat chars until end-of-literal.
     * NOTE: Put back the original surrounding quotes into the
     * source line buffer.
     */
    AslInsertLineBuffer ("");
    while ((StringChar = input()) != EOF)
    {
        AslInsertLineBuffer (StringChar);

    DoCharacter:
        switch (State)
        {
            case ASL_NORMAL_CHAR:

                switch (StringChar)
                {
                    case '\\':

```

```

    /*
     * Special handling for backslash-escape sequence. We will
     * toss the backslash and translate the escape char(s).
     */

State = ASL_ESCAPE_SEQUENCE;
    continue;

case '\\':

    /* String terminator */

    goto CompletedString;

default:

    break;
}
break;

case ASL_ESCAPE_SEQUENCE:

    State = ASL_NORMAL_CHAR;
    switch (StringChar)
    {
case 'a':

    StringChar = 0x07;    /* BELL */
    break;

case 'b':

    StringChar = 0x08;    /* BACKSPACE */
    break;

case 'f':

    StringChar = 0x0C;    /* FORMFEED */
    break;

case 'n':

    StringChar = 0x0A;    /* LINEFEED */
    break;

case 'r':

```



```

StringChar = 0x0D; /* CARRIAGE RETURN*/
break;

case 't':

StringChar = 0x09; /* HORIZONTAL TAB */
break;

case 'v':

StringChar = 0x0B; /* VERTICAL TAB */
break;

case 'x':

State = ASL_HEX_CONSTANT;
i = 0;
continue;

case '\': /* Single Quote */
case '\"': /* Double Quote */
case '\\': /* Backslash */

break;

default:

/* Check for an octal digit (0-7) */

if (ACPI_IS_OCTAL_DIGIT (StringChar))
{
State = ASL_OCTAL_CONSTANT;
ConvertBuffer[0] = StringChar;
i = 1;
continue;
}

/* Unknown escape sequence issue warning, but use the character */

AslCommonError (ASL_WARNING, ASL_MSG_INVALID_ESCAPE,
Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
Gbl_CurrentLineOffset, Gbl_CurrentColumn,
Gbl_Files[ASL_FILE_INPUT].Filename, NULL);
break;
}
break;

```

```

case ASL_OCTAL_CONSTANT:

    /* Up to three octal digits allowed */

    if (!ACPI_IS_OCTAL_DIGIT (StringChar) ||
        (i > 2))
    {
        /*
         * Reached end of the constant. Convert the assembled ASCII
         * string and resume processing of the next character
         */
        ConvertBuffer[i] = 0;
        Digit = (UINT8) strtoul (ConvertBuffer, NULL, 8);

        /* Check for NULL or non-ascii character (ignore if so) */

        if ((Digit == 0) || (Digit > ACPI_ASCII_MAX))
        {
            AslCommonError (ASL_WARNING, ASL_MSG_INVALID_STRING,
                Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
                Gbl_CurrentLineOffset, Gbl_CurrentColumn,
                Gbl_Files[ASL_FILE_INPUT].Filename,
NULL);
        }
        else
        {
            *StringBuffer = (char) Digit;
            StringBuffer++;
            if (StringBuffer >= EndBuffer)
            {
                goto BufferOverflow;
            }
        }

        State = ASL_NORMAL_CHAR;
        goto DoCharacter;
        break;
    }

    /* Append another digit of the constant */

    ConvertBuffer[i] = StringChar;
    i++;
    continue;

case ASL_HEX_CONSTANT:

    /* Up to two hex digits allowed */

```

```

if (!isxdigit (StringChar) ||
    (i > 1))
{
    /*
     * Reached end of the constant. Convert the assembled ASCII
     * string and resume processing of the next character
     */
    ConvertBuffer[i] = 0;
    Digit = (UINT8) strtoul
(ConvertBuffer, NULL, 16);

    /* Check for NULL or non-ascii character (ignore if so) */

    if ((Digit == 0) || (Digit > ACPI_ASCII_MAX))
    {
        AslCommonError (ASL_WARNING, ASL_MSG_INVALID_STRING,
            Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
            Gbl_CurrentLineOffset, Gbl_CurrentColumn,
            Gbl_Files[ASL_FILE_INPUT].Filename, NULL);
    }
    else
    {
        *StringBuffer = (char) Digit;
        StringBuffer++;
        if (StringBuffer >= EndBuffer)
        {
            goto BufferOverflow;
        }
    }

    State = ASL_NORMAL_CHAR;
    goto DoCharacter;
    break;
}

/* Append another digit of the constant */

ConvertBuffer[i] = StringChar;
i++;

continue;

default:

    break;
}

```

```

/* Save the finished character */

*StringBuffer = StringChar;
StringBuffer++;
if (StringBuffer >= EndBuffer)
{
    goto BufferOverflow;
}
}

/*
* Premature End-Of-File
*/
AslCommonError (ASL_ERROR, ASL_MSG_EARLY_EOF,
    Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
    Gbl_CurrentLineOffset, Gbl_CurrentColumn,
    Gbl_Files[ASL_FILE_INPUT].Filename, NULL);
return (FALSE);

CompletedString:
/*
* Null terminate the input string and copy string to a new buffer
*/
*StringBuffer = 0;

CleanString = UtLocalCacheCalloc (strlen (MsgBuffer) + 1);
strcpy (CleanString, MsgBuffer);
AslCompilerIval.s = CleanString;
return (TRUE);

BufferOverflow:

/* Literal was too long */

AslCommonError (ASL_ERROR, ASL_MSG_STRING_LENGTH,
    Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
    Gbl_CurrentLineOffset,
    Gbl_CurrentColumn,
    Gbl_Files[ASL_FILE_INPUT].Filename, "Max length 4096");
return (FALSE);
}

```

Found in path(s):

```

* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslsupport.l

```

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```
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*/
/*****
*
* SLIC - Software Licensing Description Table. This table contains the standard
* ACPI header followed by proprietary data structures
*
*****/
/* Single subtable, a proprietary format, so treat it as a buffer */
```

Found in path(s):

```
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
```

20180508/source/common/dmtbinfo3.c

No license file was found, but licenses were detected in source scan.

```
% {
/*****
*
* Module Name: dtparser.y - Bison input file for table compiler parser
*
*****/

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*/
```

```

#include "aslcompiler.h"

#define _COMPONENT      DT_COMPILER
        ACPI_MODULE_NAME  ("dtparser")

void *          AslLocalAllocate (unsigned int Size);

/* Bison/yacc configuration */

#undef alloca
#define alloca      AslLocalAllocate

int            DtParserlex (void);
int            DtParserparse (void);
void          DtParsererror (char const *msg);
extern char    *DtParsertext;
extern DT_FIELD *Gbl_CurrentField;

UINT64        DtParserResult; /* Expression return value */

/* Bison/yacc configuration */

#define yyname      DtParsername
#define YYDEBUG      1          /* Enable debug output */
#define YYERROR_VERBOSE  1      /* Verbose error messages */
#define
        YYFLAG      -32768

/* Define YYMALLOC/YYFREE to prevent redefinition errors */

#define YYMALLOC      malloc
#define YYFREE        free
%}

%union
{
        UINT64      value;
        UINT32      op;
}

/*! [Begin] no source code translation */

%type <value> Expression

%token <op>      OP_EXP_EOF
%token <op>      OP_EXP_NEW_LINE
%token <op>      OP_EXP_NUMBER

```

```

%token <op> OP_EXP_HEX_NUMBER
%token <op> OP_EXP_DECIMAL_NUMBER
%token <op> OP_EXP_LABEL
%token <op> OP_EXP_PAREN_OPEN
%token <op> OP_EXP_PAREN_CLOSE

%left <op> OP_EXP_LOGICAL_OR
%left <op> OP_EXP_LOGICAL_AND
%left <op> OP_EXP_OR
%left <op> OP_EXP_XOR
%left <op> OP_EXP_AND
%left <op> OP_EXP_EQUAL OP_EXP_NOT_EQUAL
%left <op> OP_EXP_GREATER OP_EXP_LESS OP_EXP_GREATER_EQUAL OP_EXP_LESS_EQUAL
%left <op> OP_EXP_SHIFT_RIGHT OP_EXP_SHIFT_LEFT
%left <op> OP_EXP_ADD OP_EXP_SUBTRACT
%left <op> OP_EXP_MULTIPLY OP_EXP_DIVIDE OP_EXP_MODULO
%right
<op> OP_EXP_ONES_COMPLIMENT OP_EXP_LOGICAL_NOT

```

```
%%
```

```
/*
```

```

* Operator precedence rules (from K&R)
*
* 1)  ( )
* 2)  ! ~ (unary operators that are supported here)
* 3)  * / %
* 4)  + -
* 5)  >> <<
* 6)  < > <= >=
* 7)  == !=
* 8)  &
* 9)  ^
* 10) |
* 11) &&
* 12) ||
*/

```

```
Value
```

```

: Expression OP_EXP_NEW_LINE          { DtParserResult=$1; return 0; } /* End of line (newline) */
| Expression OP_EXP_EOF                { DtParserResult=$1; return 0; } /* End of string (0) */
;

```

```
Expression
```

```
/* Unary operators */
```

```

: OP_EXP_LOGICAL_NOT Expression      { $$ = DtDoOperator ($2, OP_EXP_LOGICAL_NOT,
$2);}

```



```

| OP_EXP_ONES_COMPLIMENT Expression { $$ = DtDoOperator ($2,
OP_EXP_ONES_COMPLIMENT, $2);}

/* Binary operators */

| Expression OP_EXP_MULTIPLY Expression { $$ = DtDoOperator ($1, OP_EXP_MULTIPLY,
$3);}
| Expression OP_EXP_DIVIDE Expression { $$ = DtDoOperator ($1, OP_EXP_DIVIDE, $3);}
| Expression OP_EXP_MODULO Expression { $$ = DtDoOperator ($1, OP_EXP_MODULO, $3);}
| Expression OP_EXP_ADD Expression { $$ = DtDoOperator ($1, OP_EXP_ADD, $3);}
| Expression OP_EXP_SUBTRACT Expression { $$ = DtDoOperator ($1, OP_EXP_SUBTRACT,
$3);}
| Expression OP_EXP_SHIFT_RIGHT Expression { $$ = DtDoOperator ($1, OP_EXP_SHIFT_RIGHT,
$3);}
| Expression OP_EXP_SHIFT_LEFT Expression { $$ = DtDoOperator ($1, OP_EXP_SHIFT_LEFT, $3);}
| Expression OP_EXP_GREATER Expression { $$ = DtDoOperator ($1, OP_EXP_GREATER, $3);}
| Expression OP_EXP_LESS Expression { $$ = DtDoOperator ($1, OP_EXP_LESS, $3);}
| Expression OP_EXP_GREATER_EQUAL Expression { $$ = DtDoOperator ($1,
OP_EXP_GREATER_EQUAL, $3);}
| Expression
OP_EXP_LESS_EQUAL Expression { $$ = DtDoOperator ($1, OP_EXP_LESS_EQUAL, $3);}
| Expression OP_EXP_EQUAL Expression { $$ = DtDoOperator ($1, OP_EXP_EQUAL, $3);}
| Expression OP_EXP_NOT_EQUAL Expression { $$ = DtDoOperator ($1, OP_EXP_NOT_EQUAL,
$3);}
| Expression OP_EXP_AND Expression { $$ = DtDoOperator ($1, OP_EXP_AND, $3);}
| Expression OP_EXP_XOR Expression { $$ = DtDoOperator ($1, OP_EXP_XOR, $3);}
| Expression OP_EXP_OR Expression { $$ = DtDoOperator ($1, OP_EXP_OR, $3);}
| Expression OP_EXP_LOGICAL_AND Expression { $$ = DtDoOperator ($1, OP_EXP_LOGICAL_AND,
$3);}
| Expression OP_EXP_LOGICAL_OR Expression { $$ = DtDoOperator ($1, OP_EXP_LOGICAL_OR,
$3);}

/* Parentheses: '(' Expression ')' */

| OP_EXP_PAREN_OPEN Expression
OP_EXP_PAREN_CLOSE { $$ = $2;}

/* Label references (prefixed with $) */

| OP_EXP_LABEL { $$ = DtResolveLabel (DtParsertext);}

/*
* All constants for the data table compiler are in hex, whether a (optional) 0x
* prefix is present or not. For example, these two input strings are equivalent:
* 1234
* 0x1234
*/

```

```

/* Non-prefixed hex number */

| OP_EXP_NUMBER                { $$ = DtDoConstant (DtParsertext);}

/* Standard hex number (0x1234) */

| OP_EXP_HEX_NUMBER            { $$ = DtDoConstant (DtParsertext);}

/* Possible TBD: Decimal number with prefix (0d1234) - Not supported this time */

| OP_EXP_DECIMAL_NUMBER        { $$ = DtDoConstant (DtParsertext);}
;
%%

/*! [End] no source code translation !*/

/*
 * Local support functions, including parser entry point
 */
#define PR_FIRST_PARSE_OPCODE  OP_EXP_EOF
#define PR_YYTNAME_START
    3

/*****
 *
 * FUNCTION:  DtParsererror
 *
 * PARAMETERS:  Message          - Parser-generated error message
 *
 * RETURN:     None
 *
 * DESCRIPTION:  Handler for parser errors
 */
*****/

void
DtParsererror (
    char const      *Message)
{
    DtError (ASL_ERROR, ASL_MSG_SYNTAX,
            Gbl_CurrentField, (char *) Message);
}

/*****
 *
 * FUNCTION:  DtGetOpName

```

```

*
* PARAMETERS: ParseOpcode      - Parser token (OP_EXP_*)
*
* RETURN:     Pointer to the opcode name
*
* DESCRIPTION: Get the ascii name of the parse opcode for debug output
*
*****/

char *
DtGetOpName (
    UINT32      ParseOpcode)
{
#ifdef ASL_YYTNAME_START
    /*
     * First entries (PR_YYTNAME_START)
     in yytname are special reserved names.
     * Ignore first 6 characters of name (OP_EXP_)
     */
    return ((char *) yytname
        [(ParseOpcode - PR_FIRST_PARSE_OPCODE) + PR_YYTNAME_START] + 6);
#else
    return ("[Unknown parser generator]");
#endif
}

/*****/
*
* FUNCTION:   DtEvaluateExpression
*
* PARAMETERS: ExprString      - Expression to be evaluated. Must be
*                               terminated by either a newline or a NUL
*                               string terminator
*
* RETURN:     64-bit value for the expression
*
* DESCRIPTION: Main entry point for the DT expression parser
*
*****/

UINT64
DtEvaluateExpression (
    char      *ExprString)
{
    DbgPrint (ASL_DEBUG_OUTPUT,
        "**** Input expression: %s (Base 16)\n", ExprString);
}

```

```

/* Point lexer to the
input string */

if (DtInitLexer (ExprString))
{
    DtError (ASL_ERROR, ASL_MSG_COMPILER_INTERNAL,
            Gbl_CurrentField, "Could not initialize lexer");
    return (0);
}

/* Parse/Evaluate the input string (value returned in DtParserResult) */

DtParserparse ();
DtTerminateLexer ();

DbgPrint (ASL_DEBUG_OUTPUT,
        "**** Parser returned value: %u (%8.8X%8.8X)\n",
        (UINT32) DtParserResult, ACPI_FORMAT_UINT64 (DtParserResult));

return (DtParserResult);
}

```

Found in path(s):

```

* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/dtparser.y

```

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```

% {
/*****
*
* Module Name: pparser.l - Flex input file for preprocessor lexer
*
*****/

```

```

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```

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*/

```

```
#include "aslcompiler.h"
```

```
#include "prparser.y.h"
```

```
/* Buffer to pass strings to the parser */
```

```
#define STRING_SETUP strcpy (StringBuffer, PrParsertext);\
PrParserlval.str = StringBuffer
```

```
#define _COMPONENT ACPI_COMPILER
ACPI_MODULE_NAME ("prscanner")
```

```
/* Local prototypes */
```

```
static char
PrDoCommentType1 (
void);
```

```
static char
PrDoCommentType2 (
void);
% }
```

```
%option noyywrap
```

```

Number      [0-9a-fA-F]+
HexNumber   0[xX][0-9a-fA-F]+
WhiteSpace  [ \t\v\r]+
NewLine     [\n]
Identifier  [a-zA-Z][0-9a-zA-Z]*

%%
"/*"      { if (!PrDoCommentType1 ()) {yyterminate ();} }
"//"      { if (!PrDoCommentType2 ()) {yyterminate ();} }

\<         return (EXPOP_PAREN_OPEN);
\)         return (EXPOP_PAREN_CLOSE);
\~         return (EXPOP_ONES_COMPLIMENT);
\!         return (EXPOP_LOGICAL_NOT);
\*         return (EXPOP_MULTIPLY);
\/         return (EXPOP_DIVIDE);
\%         return (EXPOP_MODULO);
\+         return (EXPOP_ADD);
\-         return (EXPOP_SUBTRACT);
">>"      return (EXPOP_SHIFT_RIGHT);
"<<"      return (EXPOP_SHIFT_LEFT);
\<         return (EXPOP_LESS);
\>         return (EXPOP_GREATER);
"<="      return (EXPOP_LESS_EQUAL);
">="      return (EXPOP_GREATER_EQUAL);
"=="      return (EXPOP_EQUAL);
"!="      return (EXPOP_NOT_EQUAL);
\&         return (EXPOP_AND);
\^         return (EXPOP_XOR);
\\         return (EXPOP_OR);
"&&"      return (EXPOP_LOGICAL_AND);
"||"      return (EXPOP_LOGICAL_OR);

"defined"  return (EXPOP_DEFINE);
{Identifier} {STRING_SETUP; return (EXPOP_IDENTIFIER);}

<<EOF>>    return (EXPOP_EOF); /* null end-of-string */

{Number}   return (EXPOP_NUMBER);
{HexNumber} return
(EXPOP_HEX_NUMBER);
{NewLine}  return (EXPOP_NEW_LINE);
{WhiteSpace} /* Ignore */

.          return (EXPOP_EOF);
%%

```

```

/*
 * Local support functions
 */
YY_BUFFER_STATE LexBuffer;

/*****
 *
 * FUNCTION: PrInitLexer
 *
 * PARAMETERS: String - Input string to be parsed
 *
 * RETURN: TRUE if parser returns NULL. FALSE otherwise.
 *
 * DESCRIPTION: Initialization routine for lexer. The lexer needs
 * a buffer to handle strings instead of a file.
 *****/

int
PrInitLexer (
    char *String)
{
    LexBuffer = yy_scan_string (String);
    return (LexBuffer == NULL);
}

/*****
 *
 * FUNCTION: PrTerminateLexer
 *
 * PARAMETERS: None
 *
 * RETURN: None
 *
 * DESCRIPTION: Termination routine
 * for thelexer.
 *****/

void
PrTerminateLexer (
    void)
{

```

```
yy_delete_buffer (LexBuffer);  
}
```

```
/*  
*  
* FUNCTION: PrDoCommentType1  
*  
* PARAMETERS: none  
*  
* RETURN: none  
*  
* DESCRIPTION: Process a new legacy comment. Just toss it.  
*  
*/
```

```
static char  
PrDoCommentType1 (  
void)  
{  
int c;
```

Loop:

```
while (((c = input ()) != '*') && (c != EOF))  
{  
}  
if (c == EOF)  
{  
return (FALSE);  
}  
  
if (((c = input ()) != '/') && (c != EOF))  
{  
unput (c);  
goto Loop;  
}  
if (c == EOF)  
{  
return (FALSE);  
}  
  
return (TRUE);  
}
```

```
/*  
*
```



```

* FUNCTION: PrDoCommentType2
*
* PARAMETERS: none
*
* RETURN: none
*
* DESCRIPTION: Process a new "/" comment. Just toss it.
*
*****/

```

```

static char
PrDoCommentType2 (
    void)
{
    int c;

    while (((c = input ()) != '\n') && (c != EOF))
    {
    }
    if (c == EOF)
    {
        return (FALSE);
    }

    return (TRUE);
}

```

Found in path(s):  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/prparser.l  
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- \*/

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- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbnames.c
- \*
- /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsmisc.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evxfregn.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dtio.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acgcc.h
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acclib.h
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evrgnini.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acmsvc.h
- \*
- /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslbtypes.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslresource.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsdump.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-

20180508/source/components/utilities/utdecode.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utmash.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsutils.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsio.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acmacosx.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/os\_specific/service\_layers/osunixmap.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpisrc/asmain.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/ahpredef.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmutils.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpinames/anstubs.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/excreate.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/dispatcher/dswexec.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbhistory.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aecommon.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/actbl2.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acdragonfly.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acos2.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpisrc/asconvrt.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/actbinfo.h

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpidump/acpidump.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/preprocess.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslmap.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbdisply.c

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* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/resources/rscalc.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/debugger/dbcmds.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/achware.h
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/os_specific/service_layers/osunixxf.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/namespace/nsubject.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpisrc/asfile.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/platform/acefiex.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/cvcompiler.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utalloc.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/events/evmisc.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslanalyze.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asllookup.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utstrsuppt.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslmaputils.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utmutex.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/parser/psloop.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utbuffer.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/os_specific/service_layers/osunixdir.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/platform/acenv.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/resources/rsdump.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/resources/rscreate.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/ahids.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-

```

20180508/source/compiler/dtsubtable.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acwin.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsserial.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/asltree.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsprepkg.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acapps.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslmapenter.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/getopt.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/ahtable.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslparseop.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslstartup.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/amlcode.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exoparg6.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/accygwin.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/os\_specific/service\_layers/oswinxf.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utids.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/os\_specific/service\_layers/oswindir.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmswitch.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/asltypes.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/dispatcher/dsutils.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsutils.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/hardware/hwgpe.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utclib.c

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* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/acdispat.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslrestype2q.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/cvparser.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/disassembler/dmopcode.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/platform/acdragonflyex.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/platform/acefi.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/debugger/dbconvert.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslrestype1.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/examples/exstubs.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/debugger/dbmethod.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/adwalk.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/dmtbdump1.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utdelete.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/resources/rslist.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/exnames.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/dmtables.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/parser/pswalk.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpiexec/aehandlers.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslrestype2s.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/hardware/hwesleep.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/events/evgpeinit.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/debugger/dbxface.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-

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20180508/source/compiler/aslpredef.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exstorob.c  
\*  
/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acdisasm.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acresrc.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslcache.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evhandler.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmextern.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpinames/antables.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/cvdisasm.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/aclinux.h  
\*  
/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utascii.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmtbinfo.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evxfgpe.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utxfinit.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exoparg3.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/asloptions.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslwalks.c  
\*  
/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslmain.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbutils.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/os\_specific/service\_layers/oswintbl.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbxfload.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslmethod.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/parser/psxface.c

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* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/accommon.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/platform/acmsvcex.h
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpisrc/ascase.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/resources/rsmemory.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dsinit.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utosi.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/dmtable.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/dtexpress.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/exsystem.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/parser/psutils.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/acuuid.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/acnamesp.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/exmisc.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/extrace.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/aclocal.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/exoparg1.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dsfield.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslutils.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utexcep.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/hardware/hwacpi.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpisrc/asremove.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/platform/acintel.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-

```



20180508/source/components/executer/exmutex.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acobject.h

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acstruct.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmrestag.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslexternal.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/uttrack.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/actypes.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpisrc/acpisrc.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utcache.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbdata.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmtbdump2.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/amlresrc.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dtcompiler.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acmacros.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbstats.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslhex.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslstubs.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmtbdump.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exdebug.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsconvert.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acnames.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpixtract/acpixtract.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/adisasm.c

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* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpixtract/axmain.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/ahuuids.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utpredef.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/disassembler/dmresrcs.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/acpiosxf.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/dttemplate.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asldefine.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dsargs.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utprint.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/acpi.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/namespace/nsarguments.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/parser/psopcode.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asloperands.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/acglobal.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/acconfig.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/debugger/dbobject.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/cmfsz.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/exresolv.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslerror.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dswload.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/resources/rsxf.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpidump/apdump.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-

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20180508/source/include/acoutput.h

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslcompiler.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmtbinfo1.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exstoren.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evsci.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utobject.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utlock.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsdumpinfo.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acutils.h

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsirq.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmbuffer.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/acfileio.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dtfield.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/parser/psparse.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslhelp.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslxrefout.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslrestype2.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/acgetline.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exresnte.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acpixf.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/dispatcher/dswstate.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpihelp/ahmain.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acinterp.h

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* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acevents.h
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/actbl1.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aetables.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/uthex.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aeinitfile.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utxfmutex.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslrestype li.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/parser/psobject.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbtest.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exdump.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utstate.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsrepair.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/prutils.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpidump/apmain.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/hardware/hwsleep.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsaddr.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/aclinuxex.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evevent.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpinames/anmain.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/efihello/efihello.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evgpeblk.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/resources/rsinfo.c
*

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/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/uterror.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/dispatcher/dscontrol.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executor/exfldio.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbutils.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbexec.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executor/exresop.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/hardware/hwtimer.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpinames/acpinames.h  
\*  
/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbfadt.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/aconvert.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utdebug.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslopt.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/dispatcher/dsmthdat.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmdeferred.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/uteval.c  
\*  
/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executor/exconfig.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aeexec.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utglobal.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/parser/psopinfo.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpibin/acpibin.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslmessages.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dtutils.c  
\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acnetbsd.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utstrtoul64.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evxfevnt.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslcompile.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evgpeutil.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmnames.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utuuid.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmresrcl.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/dispatcher/dsmethod.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslmessages.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbprint.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exoparg2.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsxfeval.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/prscan.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpihelp/ahdecode.c

\*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/asluuid.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exprep.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exconvrt.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aemain.c

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acenvex.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acdebug.h

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/os\_specific/service\_layers/oslinuxtbl.c

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/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exconcat.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/parser/psargs.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmwalk.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslfold.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpihelp/acpihelp.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpihelp/ahasl.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmresrc.c  
\*  
/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utaddress.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslxref.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acbuffer.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/actbl3.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslrestype2e.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslnamesp.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsparse.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslcodegen.c  
\*  
/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslascii.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acqnx.h  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbfileio.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsdumpdv.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dtable1.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/dispatcher/dswscope.c  
\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aeregion.c  
\*

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/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpidump/apfiles.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpibin/abmain.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/platform/acfreebsd.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslprepkg.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/hardware/hwpci.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/dtcompile.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslopccodes.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/dmtbdump3.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/hardware/hwxfsleep.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/namespace/nsinit.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslmapoutput.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/common/adfile.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dswload2.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslfiles.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/os_specific/service_layers/osgendbg.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/include/actables.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpihelp/ahaml.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/prexpress.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asldebug.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpisrc/astable.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/disassembler/dmccstyle.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dspkginit.c
*

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/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evglock.c

- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acwin64.h
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/hardware/hwxface.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exregion.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslfileio.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acpredef.h
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utresdecode.c

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/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acexcep.h

- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/parser/psscope.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpibin/abcompare.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsxfobj.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aetables.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nspredef.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utnonansi.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/examples/examples.c

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/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evxface.c

- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbxfroot.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utinit.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslload.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/asllength.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aeinstall.c
- \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dttable.c

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/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asllisting.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/namespace/nsnames.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpixtract/acpixtract.h
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/namespace/nswalk.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/exfield.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/tables/tbinstal.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utxferror.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dsdebug.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dsobject.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/executer/exstore.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asllistsup.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslprintf.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utresrc.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpihelp/ahgrammar.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslallocate.c
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpihelp/ahaslops.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpihelp/ahamlops.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/os_specific/service_layers/osbsdtbl.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/utilities/utmisc.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/components/dispatcher/dsopcode.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asloffset.c
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/tools/acpisrc/asutils.c
*

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/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/hardware/hwvalid.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsalloc.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dttemplate.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslpld.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acrestyp.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/debugger/dbinput.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbxface.c  
 \*  
 /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/actbl.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/examples/extables.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/dttable2.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/tables/tbfind.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslprune.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsload.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsxfname.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/disassembler/dmresrc12.c  
 \*  
 /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/achaiku.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evregion.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/parser/pstree.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utstring.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nseval.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslrestype2d.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nssearch.c  
 \*

/opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acopcode.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/common/dmtbinfo2.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpixtract/axutils.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aeexception.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/executer/exutils.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpiexec/aetests.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsrepair2.c  
 \*  
 /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/prmacros.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/hardware/hwregs.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/namespace/nsaccess.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utownerid.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/events/evgpe.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/asltransform.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utxface.c  
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 /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/examples/examples.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/acparser.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/components/utilities/utcopy.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslglobal.h  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslrestype2w.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/tools/acpihelp/ahaslkey.c  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/include/platform/acgccex.h

No license file was found, but licenses were detected in source scan.

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 8 May 2018. Summary of changes for version 20180508:

1) ACPICA kernel-resident subsystem:

Completed the new (recently deployed) package resolution mechanism for the Load and LoadTable ASL/AML operators. This fixes a regression that was introduced in version 20180209 that could result in an AE\_AML\_INTERNAL exception during the loading of a dynamic ACPI/AML table (SSDT) that contains package objects.

2) iASL Compiler/Disassembler and Tools:

AcpiDump and AcpiXtract: Implemented support for ACPI tables larger than 1 MB. This change allows for table offsets within the acpidump file to be up to 8 characters. These changes are backwards compatible with existing acpidump files.

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27 April 2018. Summary of changes for version 20180427:

1) ACPICA kernel-resident subsystem:

Debugger: Added support for Package objects in the "Test Objects" command. This command walks the entire namespace and evaluates all named data objects (Integers, Strings, Buffers, and now Packages).

Improved error messages for the namespace root node. Originally, the root was referred to by the confusing string "\\_\". This has been replaced by "Namespace Root" for clarification.

Fixed a potential infinite loop in the AcpiRsDumpByteList function. Colin Ian King <colin.king@canonical.com>.

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented support to detect and flag illegal forward references. For compatibility with other ACPI implementations, these references are now illegal at the root level of the DSDT or SSDTs. Forward references have always been illegal within control methods. This change should not affect existing ASL/AML code because of the fact that these references have always been illegal in the other ACPI implementation.

iASL: Added error messages for the case where a table OEM ID and OEM

TABLE ID strings  
are longer than the ACPI-defined length. Previously,  
these strings were simply silently truncated.

iASL: Enhanced the -tc option (which creates an AML hex file in C,  
suitable for import into a firmware project):

- 1) Create a unique name for the table, to simplify use of multiple SSDTs.
  - 2) Add a protection #ifdef in the file, similar to a .h header file.
- With assistance from Sami Mujawar, sami.mujawar@arm.com and Evan Lloyd,  
evan.lloyd@arm.com

AcpiExec: Added a new option, -df, to disable the local fault handler.  
This is useful during debugging, where it may be desired to drop into a  
debugger on a fault.

-----  
13 March 2018. Summary of changes for version 20180313:

1) ACPICA kernel-resident subsystem:

Implemented various improvements to the GPE support:

- 1) Dispatch all active GPEs at initialization time so that no GPEs are lost.
- 2) Enable runtime GPEs earlier. Some systems expect GPEs to be enabled before devices are enumerated.
- 3) Don't unconditionally clear ACPI IRQs during suspend/resume, so that IRQs are not lost.
- 4) Add parallel GPE handling to eliminate the possibility of dispatching the same GPE twice.
- 5) Dispatch any pending GPEs after enabling for the first time.

AcpiGetObjectInfo - removed support for the \_STA method. This was causing problems on some platforms.

Added a new \_OSI string, "Windows 2017.2".

Cleaned up and simplified the module-level code support. These changes are in preparation for the eventual removal of the legacy MLC support (deferred execution), replaced by the new MLC architecture which executes the MLC as a table is loaded (DSDT/SSDTs).

Changed a compile-time option to a runtime option. Changes the option to ignore ACPI table load-time package resolution errors into a runtime option. Used only for platforms that generate many AE\_NOT\_FOUND errors

during boot. `AcpiGbl_IgnorePackageResolutionErrors`.

Fixed the `ACPI_ERROR_NAMESPACE` macro. This change involves putting some `ACPI_ERROR_NAMESPACE` parameters inside macros. By doing so, we avoid compilation errors from unused variables (seen with some compilers).

## 2) iASL Compiler/Disassembler and Tools:

ASLTS: parallelized execution in order to achieve an (approximately) 2X performance increase.

ASLTS: Updated to use the iASL `__LINE__` and `__METHOD__` macros. Improves error reporting.

-----  
09 February 2018. Summary of changes for version 20180209:

### 1) ACPICA kernel-resident subsystem:

Completed the final integration of the recent changes to Package Object handling and the module-level AML code support. This allows forward references from individual package elements when the package object is declared from within module-level code blocks. Provides compatibility with other ACPI implementations.

The new architecture for the AML module-level code has been completed and is now the default for the ACPICA code. This new architecture executes the module-level code in-line as the ACPI table is loaded/parsed instead of the previous architecture which deferred this code until after the table was fully loaded. This solves some ASL code ordering issues and provides compatibility with other ACPI implementations. At this time, there is an option to fallback to the earlier architecture, but this support is deprecated and is planned to be completely removed later this year.

Added a compile-time option to ignore `AE_NOT_FOUND` exceptions during resolution of named reference elements within Package objects. Although this is potentially a serious problem, it can generate a lot of noise/errors on platforms whose firmware carries around a bunch of unused Package objects. To disable these errors, define `ACPI_IGNORE_PACKAGE_RESOLUTION_ERRORS` in the OS-specific header. All errors are always reported for ACPICA applications such as `AcpiExec`.

Fixed a regression related to the explicit type-conversion AML operators

(ToXXXX). The regression was introduced early in 2017 but was not seen until recently because these operators are not fully supported by other ACPI implementations and are thus rarely used by firmware developers. The operators are defined by the ACPI specification to not implement the "implicit result object conversion". The regression incorrectly introduced this object conversion for the following explicit conversion operators:

- ToInteger
- ToString
- ToBuffer
- ToDecimalString
- ToHexString
- ToBCD
- FromBCD

## 2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with the compiler constant folding feature as related to the ToXXXX explicit conversion operators. These operators do not support the "implicit result object conversion" by definition. Thus, ASL expressions that use these operators cannot be folded to a simple Store operator because Store implements the implicit conversion. This change uses the CopyObject operator for the ToXXXX operator folding instead. CopyObject is defined to not implement implicit result conversions and is thus appropriate for folding the ToXXXX operators.

iASL: Changed the severity of an error condition to a simple warning for the case where a symbol is declared both locally and as an external symbol. This accommodates existing ASL code.

AcpiExec: The -ep option to enable the new architecture for module-level code has been removed. It is replaced by the -dp option which instead has the opposite effect: it disables the new architecture (the default) and enables the legacy architecture. When the legacy code is removed in the future, the -dp option will be removed also.

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05 January 2018. Summary of changes for version 20180105:

### 1) ACPICA kernel-resident subsystem:

Updated all copyrights to 2018. This affects all source code modules.

Fixed a possible build error caused by an unresolved reference to the



AcpiUtSafeStrncpy function.

Removed NULL pointer arithmetic in the various pointer manipulation

macros. All "(void \*) NULL" constructs are converted to "(void \*) 0".

This eliminates warnings/errors in newer C compilers. Jung-uk Kim.

Added support for A32 ABI compilation, which uses the ILP32 model. Anuj Mittal.

2) iASL Compiler/Disassembler and Tools:

ASLTS: Updated all copyrights to 2018.

Tools: Updated all signon copyrights to 2018.

AcpiXtract: Fixed a regression related to ACPI table signatures where the signature was truncated to 3 characters (instead of 4).

AcpiExec: Restore the original terminal mode after the use of the -v and -vd options.

ASLTS: Deployed the iASL \_\_METHOD\_\_ macro across the test suite.

-----  
14 December 2017. Summary of changes for version 20171214:

1) ACPICA kernel-resident subsystem:

Fixed a regression in the external (public) AcpiEvaluateObjectTyped interface where the optional "pathname" argument had inadvertently become a required argument returning an error if omitted (NULL pointer argument).

Fixed

two possible memory leaks related to the recently developed "late resolution" of reference objects within ASL Package Object definitions.

Added two recently defined \_OSI strings: "Windows 2016" and "Windows 2017". Mario Limonciello.

Implemented and deployed a safer version of the C library function strncpy: AcpiUtSafeStrncpy. The intent is to at least prevent the creation of unterminated strings as a possible result of a standard strncpy.

Cleaned up and restructured the global variable file (acglobal.h). There are many changes, but no functional changes.

## 2) iASL Compiler/Disassembler and Tools:

iASL Table Compiler: Fixed a problem with the DBG2 ACPI table where the optional OemData field at the end of the table was incorrectly required for proper compilation. It is now correctly an optional field.

ASLTS: The entire suite was converted from standard ASL to the ASL+ language, using the ASL-to-ASL+ converter which is integrated into the iASL compiler. A

binary compare of all output files has verified the correctness of the conversion.

iASL: Fixed the source code build for platforms where "char" is unsigned. This affected the iASL lexer only. Jung-uk Kim.

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10 November 2017. Summary of changes for version 20171110:

### 1) ACPICA kernel-resident subsystem:

This release implements full support for ACPI 6.2A:

NFIT - Added a new subtable, "Platform Capabilities Structure"

No other changes to ACPICA were required, since ACPI 6.2A is primarily an errata release of the specification.

Other ACPI table changes:

IORT: Added the SMMUv3 Device ID mapping index. Hanjun Guo

PPTT: Added cache attribute flag definitions to actbl1.h. Jeremy Linton

Utilities: Modified the string/integer conversion functions to use internal 64-bit divide support instead of a native divide. On 32-bit platforms, a 64-bit divide typically requires a library function which may not be present in the build (kernel or otherwise).

Implemented a targeted error message for timeouts returned from the Embedded Controller device driver. This is seen frequently enough to special-case an AE\_TIME returned from an EC operation region access:

"Timeout from EC hardware or EC device driver"

Changed the "ACPI Exception" message prefix to "ACPI Error" so that all runtime error messages have the identical prefix.

## 2) iASL Compiler/Disassembler and Tools:

AcpiXtract: Fixed a problem with table header detection within the acpidump file. Processing a table could be ended early if a 0x40 (@) appears in the original binary table, resulting in the @ symbol appearing in the decoded ASCII field at the end of the acpidump text line. The symbol caused acpixtract to incorrectly think it had reached the end of the current table and the beginning of a new table.

AcpiXtract: Added an option (-f) to ignore some errors during table extraction. This initial implementation ignores non-ASCII and non-printable characters found in the acpidump text file.

TestSuite(ASLTS)/AcpiExec: Fixed and restored the memory usage statistics for ASLTS. This feature is used to track memory allocations from different memory caches within the ACPICA code. At the end of an ASLTS run, these memory statistics are recorded and stored in a log file.

Debugger (user-space version): Implemented a simple "Background" command. Creates a new thread to execute a control method in the background, while control returns to the debugger prompt to allow additional commands.

Syntax: Background <Namepath> [Arguments]

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29 September 2017. Summary of changes for version 20170929:

### 1) ACPICA kernel-resident subsystem:

Redesigned and implemented an improved ASL While() loop timeout mechanism. This mechanism is used to prevent infinite loops in the kernel AML interpreter caused by either non-responsive hardware or incorrect AML code. The new implementation uses AcpiOsGetTimer instead of a simple maximum loop count, and is thus more accurate and constant across different machines. The default timeout is currently 30 seconds, but this may be adjusted later.

Renamed the ACPI\_AML\_INFINITE\_LOOP exception to AE\_AML\_LOOP\_TIMEOUT to better reflect the new implementation of the loop timeout mechanism.

Updated the AcpiGetTimerDuration interface to cleanup the 64-bit support and to fix an off-by-one error. Jung-uk Kim.

Fixed an EFI build problem by updating the makefiles to for a new file

that was added, utstrsuppt.c

## 2) iASL Compiler/Disassembler and Tools:

Implemented full support for the PDTT, SDEV, and TPM2 ACPI tables. This includes support in the table disassembler, compiler, and template generator.

iASL: Added an exception for an illegal type of recursive method invocation. If a method creates named objects, the first recursive call will fail at runtime. This change adds an error detection at compile time to catch the problem up front. Note: Marking such a method as "serialized" will not help with this problem, because the same thread can acquire the method mutex more than once. Example compiler and runtime output:

```
Method (MTH1)
{
    Name (INT1, 1)
    MTH1 ()
}
```

```
dsdt.asl 22: MTH1 ()
Error 6152 - ^ Illegal recursive call to method
           that creates named objects (MTH1)
```

Previous runtime exception:

```
ACPI Error: [INT1] Namespace lookup failure,
AE_ALREADY_EXISTS (20170831/dswload2-465)
```

iASL: Updated support for External() opcodes to improve namespace management and error detection. These changes are related to issues seen with multiple-segment namespace pathnames within External declarations, such as below:

```
External(\_SB.PCI0.GFX0, DeviceObj)
External(\_SB.PCI0.GFX0.ALSI)
```

iASL: Implemented support for multi-line error/warning messages. This enables more detailed and helpful error messages as below, from the initial deployment for the duplicate names error:

```
DSDT.iiii 1692: Device(PEG2) {
Error 6074 -      ^ Name already exists in scope
(PEG2)
```

Original name creation/declaration below:

DSDT.iiii 93: External(\\_SB.PCI0.PEG2, DeviceObj)

AcpiXtract: Added additional flexibility to support differing input hex dump formats. Specifically, hex dumps that contain partial disassembly and/or comments within the ACPI table data definition. There exist some dump utilities seen in the field that create this type of hex dump (such as Simics). For example:

```
DSDT @ 0xdfffd0c0 (10999 bytes)
  Signature DSDT
  Length 10999
  Revision 1
  Checksum 0xf3 (Ok)
  OEM_ID BXPC
  OEM_table_id BXDSDT
  OEM_revision 1
  Creator_id 1280593481
  Creator_revision 537399345
0000: 44 53 44 54 f7 2a 00 00 01 f3 42 58 50 43 00 00
...
2af0: 5f 4c 30 46 00 a4 01
```

Test suite: Miscellaneous changes/fixes:

- More cleanup and simplification of makefiles
- Continue compilation of test cases after a compile failure
- Do not perform binary compare unless both files actually exist

iASL: Performed some code/module restructuring. Moved all memory allocation functions to new modules. Two new files, aslallocate.c and aslcache.c

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31 August 2017. Summary of changes for version 20170831:

1) ACPICA kernel-resident subsystem:

Implemented internal support for full 64-bit addresses that appear in all Generic Address Structure (GAS) structures. Previously, only the lower 32 bits were used. Affects the use of GAS structures in the FADT and other tables, as well as the GAS structures passed to the AcpiRead and AcpiWrite public external interfaces that are used by drivers. Lv Zheng.

Added header support for the PDTT ACPI table (Processor Debug Trigger Table). Full support in the iASL Data Table Compiler and disassembler is forthcoming.

## 2) iASL Compiler/Disassembler and Tools:

### iASL/Disassembler:

Fixed a problem with the PPTT ACPI table (Processor Properties Topology Table) where a flag bit was specified in the wrong bit position ("Line Size Valid", bit 6).

iASL: Implemented support for Octal integer constants as defined by the ASL language grammar, per the ACPI specification. Any integer constant that starts with a zero is an octal constant. For example,

```
Store (037777, Local0) /* Octal constant */  
Store (0x3FFF, Local0) /* Hex equivalent */  
Store (16383, Local0) /* Decimal equivalent */
```

iASL: Improved overflow detection for 64-bit string conversions during compilation of integer constants. "Overflow" in this case means a string that represents an integer that is too large to fit into a 64-bit value. Any 64-bit constants within a 32-bit DSDT or SSDT are still truncated to the low-order 32 bits with a warning, as previously implemented. Several new exceptions are defined that indicate a 64-bit overflow, as well as the base (radix) that was

used during the attempted conversion. Examples:

```
Local0 = 0xAAAABBBBCCCCDDDDDEEEFFFFFF // AE_HEX_OVERFLOW  
Local0 = 01111222233334444555566667777 // AE_OCTAL_OVERFLOW  
Local0 = 11112222333344445555666677778888 // AE_DECIMAL_OVERFLOW
```

iASL: Added a warning for the case where a ResourceTemplate is declared with no ResourceDescriptor entries (coded as "ResourceTemplate(){}"). In this case, the resulting template is created with a single END\_TAG descriptor, which is essentially useless.

iASL: Expanded the -vw option (ignore specific warnings/remarks) to include compilation error codes as well.

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28 July 2017. Summary of changes for version 20170728:

### 1) ACPICA kernel-resident subsystem:

Fixed a regression seen with small resource descriptors that could cause an inadvertent AE\_AML\_NO\_RESOURCE\_END\_TAG exception.

AML interpreter: Implemented a new feature that allows forward references from individual named references within

package objects that are contained within blocks of "module-level code". This provides compatibility with other ACPI implementations and supports existing firmware that depends on this feature. Example:

```
Name (ABCD, 1)
If (ABCD)          /* An If() at module-level */
{
    Name (PKG1, Package()
    {
        INT1          /* Forward reference to object INT1
*/
    })
    Name (INT1, 0x1234)
}
```

AML Interpreter: Fixed a problem with the Alias() operator where aliases to some ASL objects were not handled properly. Objects affected are: Mutex, Event, and OperationRegion.

AML Debugger: Enhanced to properly handle AML Alias objects. These objects have one level of indirection which was not fully supported by the debugger.

Table Manager: Added support to detect and ignore duplicate SSDTs within the XSDT/RSDT. This error in the XSDT has been seen in the field.

EFI and EDK2 support:

- Enabled /WX flag for MSVC builds
- Added support for AcpiOsStall, AcpiOsSleep, and AcpiOsGetTimer
- Added local support for 64-bit multiply and shift operations
- Added support to compile acpidump.efi on Windows
- Added OSL function stubs for interfaces not used under EFI

Added additional support for the \_DMA predefined name. \_DMA returns a buffer containing a resource template. This change add support within the resource manager (AcpiWalkResourceBuffer) to walk and parse this list of resource descriptors. Lorenzo Pieralisi <lorenzo.pieralisi@arm.com>

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem where the internal input line buffer(s) could overflow if there are very long lines in the input ASL source code file. Implemented buffer management that automatically increases the size of the buffers as necessary.

iASL: Added an option (-vx) to "expect" particular remarks, warnings and

errors. If the specified exception is not raised during compilation, the compiler emits an error. This is intended to support the ASL test suite, but may be useful in other contexts.

iASL: Implemented a new predefined macro, `__METHOD__`, which returns a string containing the name of the current control method that is being compiled.

iASL: Implemented debugger and table compiler support for the SDEI ACPI table (Software Delegated Exception Interface). James Morse <james.morse@arm.com>

Unix/Linux makefiles: Added an option to disable compile optimizations. The disable occurs when the NOOPT flag is set to TRUE. theracermaster@gmail.com

Acpidump: Added support for multiple DSDT and FACS tables. This can occur when there are different tables for 32-bit versus 64-bit.

Enhanced error reporting for the ASL test suite (ASLTS) by removing unnecessary/verbose text, and emit the actual line number where an error has occurred. These changes are intended to improve the usefulness of the test suite.

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29 June 2017. Summary of changes for version 20170629:

1)  
ACPICA kernel-resident subsystem:

Tables: Implemented a deferred ACPI table verification. This is useful for operating systems where the tables cannot be verified in the early initialization stage due to early memory mapping limitations on some architectures. Lv Zheng.

Tables: Removed the signature validation for dynamically loaded tables. Provides compatibility with other ACPI implementations. Previously, only SSDT tables were allowed, as per the ACPI specification. Now, any table signature can be used via the Load() operator. Lv Zheng.

Tables: Fixed several mutex issues that could cause errors during table acquisition. Lv Zheng.

Tables: Fixed a problem where an ACPI warning could be generated if a null pointer was passed to the AcpiPutTable interface. Lv Zheng.



Tables: Added a mechanism to handle imbalances for the AcpiGetTable and AcpiPutTable interfaces. This applies to the "late stage" table loading when the use of AcpiPutTable is no longer required (since the system memory manager is fully running and available). Lv Zheng.

Fixed/Reverted a regression during processing of resource descriptors that contain only a single EndTag. Fixes an AE\_AML\_NO\_RESOURCE\_END\_TAG exception in this case.

Headers: IORT/SMMU support: Updated the SMMU models for Revision C of the I/O Remapping specification. Robin Murphy <robin.murphy@arm.com>

Interpreter: Fixed a possible fault if an Alias operator with an invalid or duplicate target is encountered during Alias creation in AcpiExCreateAlias. Alex James <theracermaster@gmail.com>

Added an option to use designated initializers for function pointers. Kees Cook <keescook@google.com>

## 2) iASL Compiler/Disassembler and Tools:

iASL: Allow compilation of External declarations with target pathnames that refer to existing named objects within the table. Erik Schmauss.

iASL: Fixed a regression when compiling FieldUnits. Fixes an error if a FieldUnit name also is declared via External in the same table.

Erik Schmauss.

iASL: Allow existing scope names within pathnames used in External statements. For example:

```
External (ABCD.EFGH) // ABCD exists, but EFGH is truly external
Device (ABCD)
```

iASL: IORT ACPI table: Implemented changes required to decode the new Proximity Domain for the SMMUv3 IORT. Disassembler and Data Table compiler. Ganapatrao Kulkarni <ganapatrao.kulkarni@cavium.com>

Disassembler: Don't abort disassembly on errors from External() statements. Erik Schmauss.

Disassembler: fixed a possible fault when one of the Create\*Field operators references a Resource Template. ACPICA Bugzilla 1396.

iASL: In the source code, resolved some naming inconsistencies across the parsing support. Fixes confusion between "Parse Op" and "Parse Node".

Adds a new file, aslparseop.c

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31 May 2017. Summary of changes for version 20170531:

0) ACPI 6.2 support:

The ACPI specification version 6.2 has been released and is available at <http://uefi.org/specifications>

This

version of ACPICA fully supports the ACPI 6.2 specification. Changes are summarized below.

New ACPI tables (Table Compiler/Disassembler/Templates):

- HMAT (Heterogeneous Memory Attributes Table)
- WSMT (Windows SMM Security Mitigation Table)
- PPTT (Processor Properties Topology Table)

New subtables for existing ACPI tables:

- HEST (New subtable, Arch-deferred machine check)
- SRAT (New subtable, Arch-specific affinity structure)
- PCCT (New subtables, Extended PCC subspaces (types 3 and 4))

Simple updates for existing ACPI tables:

- BGRT (two new flag bits)
- HEST (New bit defined for several subtables, GHES\_ASSIST)

New Resource Descriptors and Resource macros (Compiler/Disassembler):

- PinConfig()
- PinFunction()
- PinGroup()
- PinGroupConfig()
- PinGroupFunction()
- New type for hardware error notification (section 18.3.2.9)

New predefined names/methods (Compiler/Interpreter):

- \_HMA (Heterogeneous Memory Attributes)
- \_LSI (Label Storage Information)
- \_LSR (Label Storage Read)
- \_LSW (Label Storage Write)

ASL grammar/macro changes (Compiler):

- For() ASL macro, implemented with the AML while operator
- Extensions to Concatenate operator
- Support for multiple definition blocks in same ASL file
- Clarification for Buffer operator

Allow executable AML code underneath all scopes (Devices, etc.)  
Clarification/change for the \_OSI return value  
ASL grammar update for reference operators  
Allow a zero-length string for AML filename in DefinitionBlock

Miscellaneous:

New device object notification value  
Remove a notify value (0x0C) for graceful shutdown  
New UUIDs for processor/cache properties and  
physical package property  
New \_HID, ACPI0014 (Wireless Power Calibration Device)

1) ACPICA kernel-resident subsystem:

Added support to disable ACPI events on hardware-reduced platforms.  
Eliminates error messages of the form "Could not enable fixed event".

Lv  
Zheng

Fixed a problem using Device/Thermal objects with the ObjectType and DereferOf ASL operators. This support had not been fully/properly implemented.

Fixed a problem where if a Buffer object containing a resource template was longer than the actual resource template, an error was generated -- even though the AML is legal. This case has been seen in the field.

Fixed a problem with the header definition of the MADT PCAT\_COMPAT flag. The values for DUAL\_PIC and MULTIPLE\_APIC were reversed.

Added header file changes for the TPM2 ACPI table. Update to new version of the TCG specification. Adds a new TPM2 subtable for ARM SMC.

Exported the external interfaces AcpiAcquireMutex and AcpiReleaseMutex. These interfaces are intended to be used only in conjunction with the predefined \_DLM method (Device Lock Method). "This object appears in a device scope when AML access to the device must be synchronized with the OS environment".

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 143.1K Code, 60.0K Data, 203.1K Total

Debug Version: 204.0K Code, 84.3K Data, 288.3K Total  
Previous Release:  
Non-Debug Version: 141.7K Code, 58.5K Data, 200.2K Total  
Debug Version: 207.5K Code, 82.7K Data, 290.2K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem where an External() declaration could not refer to a Field Unit. Erik Schmauss.

Disassembler: Improved support for the Switch/Case operators. This feature will disassemble AML code back to the original Switch operators when possible, instead of an If..Else sequence. David Box

iASL and disassembler: Improved the handling of multiple extraneous parentheses for both ASL input and disassembled ASL output.

Improved the behavior  
of the iASL compiler and disassembler to detect  
improper use of external declarations

Disassembler: Now aborts immediately upon detection of an unknown AML opcode. The AML parser has no real way to recover from this, and can result in the creation of an ill-formed parse tree that causes errors later during the disassembly.

All tools: Fixed a problem where the Unix application OSL did not handle control-c correctly. For example, a control-c could incorrectly wake the debugger.

AcpiExec: Improved the Control-C handling and added a handler for segmentation faults (SIGSEGV). Supports both Windows and Unix-like environments.

Reduced the verbosity of the generic unix makefiles. Previously, each compilation displayed the full set of compiler options. This has been eliminated as the options are easily inspected within the makefiles. Each compilation now results in a single line of output.

-----  
03 March 2017. Summary of changes for version 20170303:

0)  
ACPICA licensing:

The licensing information at the start of each source code module has

been updated. In addition to the Intel license, the dual GPLv2/BSD license has been added for completeness. Now, a single version of the source code should be suitable for all ACPICA customers. This is the major change for this release since it affects all source code modules.

#### 1) ACPICA kernel-resident subsystem:

Fixed two issues with the common asotypes.h header that could cause problems in some environments: (Kim Jung-uk)

- Removed typedef for YY\_BUFFER\_STATE ?

  - Fixes an error with earlier versions of Flex.

- Removed use of FILE typedef (which is only defined in stdio.h)

#### 2) iASL Compiler/Disassembler and Tools:

Disassembler: fixed a regression introduced in 20170224. A fix for a memory leak related to resource descriptor tags (names) could fault when the disassembler was generated with 64-bit compilers.

The ASLTS test suite has been updated to implement a new testing architecture. During generation of the suite from ASL source, both the ASL and ASL+ compilers are now validated, as well as the disassembler itself (Erik Schmauss). The architecture executes as follows:

- For every ASL source module:

  - Compile (legacy ASL compilation)

  - Disassemble the resulting AML to ASL+ source code

  - Compile the new ASL+ module

  - Perform a binary compare on the legacy AML and the new ASL+ AML

- The ASLTS suite then executes normally using the AML binaries.

-----  
24 February 2017. Summary of changes for version 20170224:

#### 1) ACPICA kernel-resident subsystem:

Interpreter: Fixed two issues with the control method return value auto-repair feature, where an attempt to double-delete an internal object could result in an ACPICA warning (for \_CID repair and others). No fault occurs, however, because the attempted deletion (actually a release to an internal cache) is detected and ignored via object poisoning.

Debugger: Fixed an AML interpreter mutex issue during the single stepping

of control methods. If certain debugger commands are executed during stepping, a mutex acquire/release error could occur. Lv Zheng.

Fixed some issues generating ACPICA with the Intel C compiler by restoring the original behavior and compiler-specific include file in acenv.h. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 141.7K Code, 58.5K Data, 200.2K Total

Debug Version: 207.5K Code, 82.7K Data, 290.2K Total

Previous Release:

Non-Debug Version: 137.4K Code, 52.6K Data, 190.0K Total

Debug Version: 201.5K Code, 82.2K Data, 283.7K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: A preliminary version of a new ASL-to-ASL+ conversion tool has been designed, implemented, and included in this release. The key feature of this utility is that the original comments within the input ASL file are preserved during the conversion process, and included within the converted ASL+ file -- thus creating a transparent conversion of existing ASL files to ASL+ (ASL 2.0). Erik Schmauss.

Usage: `iasl -ca <ASL-filename> // Output is a .dsl file with converted code`

iASL/Disassembler: Improved the detection and correct disassembly of Switch/Case operators. This feature detects sequences of if/elseif/else operators that originated from ASL Switch/Case/Default operators and emits the original operators. David Box.

iASL: Improved the IORT ACPI table support in the following areas. Lv Zheng:

Clear MappingOffset if the MappingCount is zero.

Fix the disassembly of the SMMU GSU interrupt offset.

Update the template file for the IORT table.

Disassembler: Enhanced the detection and disassembly of resource template/descriptor within a Buffer object. An EndTag descriptor is now required to have a zero second byte, since all known ASL compilers emit

this. This helps eliminate incorrect decisions when a buffer is disassembled (false positives on resource templates).

-----

19 January 2017. Summary of changes for version 20170119:

1) General ACPICA software:

Entire source code base: Added the 2017 copyright to all source code legal/licensing module headers and utility/tool signons. This includes the standard Linux dual-license header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and the ACPICA test suite.

2) iASL Compiler/Disassembler and Tools:

iASL: Removed/fixd an inadvertent remark when a method argument containing a reference is used as a target operand within the method (and never used as a simple argument), as in the example below. Jeffrey Hugo.

```
dsdt.asl 1507: Store(0x1, Arg0)
Remark 2146 -      ^ Method Argument is never used (Arg0)
```

All tools: Removed the bit width of the compiler that generated the tool from the common signon for all user space tools. This proved to be confusing and unnecessary. This includes similar removal of `HARDWARE_NAME` from the generic makefiles (Thomas Petazzoni). Example below.

Old:

```
ASL+ Optimizing Compiler version 20170119-32
ASL+ Optimizing Compiler version 20170119-64
```

New:

```
ASL+ Optimizing Compiler version 20170119
```

-----

22 December 2016. Summary of changes for version 20161222:

1) ACPICA kernel-resident subsystem:

AML Debugger: Implemented a new mechanism to simplify and enhance debugger integration into all environments, including kernel debuggers and user-space utilities, as well as remote debug services. This mechanism essentially consists of new OSL interfaces to support debugger initialization/termination,

as well as wait/notify interfaces to perform the debugger handshake with the host. Lv Zheng.

New OSL interfaces:

- AcpiOsInitializeDebugger (void)
- AcpiOsTerminateDebugger (void)
- AcpiOsWaitCommandReady (void)
- AcpiOsNotifyCommandComplete (void)

New OS services layer:

- osgndbg.c -- Example implementation, and used for AcpiExec

Update for Generic Address Space (GAS) support: Although the AccessWidth and/or BitOffset fields of the GAS are not often used, this change now fully supports these fields. This affects the internal support for FADT registers, registers in other ACPI data tables, and the AcpiRead and AcpiWrite public interfaces. Lv Zheng.

Sleep support: In order to simplify integration of ACPI sleep for the various host operating systems, a new OSL interface has been introduced. AcpiOsEnterSleep allows the host to perform any required operations before the final write to the sleep control register(s) is performed by ACPICA. Lv Zheng.

New OSL interface:

- AcpiOsEnterSleep(SleepState, RegisterAValue, RegisterBValue)

Called from these internal interfaces:

- AcpiHwLegacySleep
- AcpiHwExtendedSleep

EFI support: Added a very small EFI/ACPICA example application. Provides a simple demo for EFI integration, as well as assisting with resolution of issues related to customer ACPICA/EFI integration. Lv Zheng. See:

- source/tools/efihello/efihello.c

Local C library: Implemented several new functions to enhance ACPICA portability, for environments where these clib functions are not available (such as EFI). Lv Zheng:

- putchar
- getchar
- strpbrk
- strtok
- memmove

Fixed a regression where occasionally a valid resource descriptor was



incorrectly detected as invalid at runtime, and a  
AE\_AML\_NO\_RESOURCE\_END\_TAG was returned.

Fixed a problem with the recently implemented support that enables  
control method invocations as Target operands to many ASL operators.

Warnings

of this form: "Needed type [Reference], found [Processor]" were  
seen at runtime for some method invocations.

Example Code and Data Size: These are the sizes for the OS-independent  
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The  
debug version of the code includes the debug output trace mechanism and  
has a much larger code and data size.

Current Release:

Non-Debug Version: 141.5K Code, 58.5K Data, 200.0K Total

Debug Version: 201.7K Code, 82.7K Data, 284.4K Total

Previous Release:

Non-Debug Version: 140.5K Code, 58.5K Data, 198.9K Total

Debug Version: 201.3K Code, 82.7K Data, 284.0K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Enhanced output by adding the capability to detect and  
disassemble ASL Switch/Case statements back to the original ASL source  
code instead of if/else blocks. David Box.

AcpiHelp: Split a large file into separate files based upon  
functionality/purpose. New files are:

ahaml.c

ahasl.c

-----  
17 November 2016. Summary of changes for version 20161117:

1) ACPICA kernel-resident subsystem:

Table Manager: Fixed a regression introduced in 20160729, "FADT support  
cleanup". This was an attempt to remove all references in the source to  
the FADT version 2, which never was a legal version number. It was  
skipped because it was an early version of 64-bit support that was  
eventually abandoned for the current 64-bit support.

Interpreter: Fixed a problem where runtime implicit conversion was  
incorrectly disabled for the ASL operators below. This brings the  
behavior into compliance with the ACPI specification:

FromBCD  
ToBCD  
ToDecimalString  
ToHexString  
ToInteger  
ToBuffer

Table Manager: Added a new public interface, AcpiPutTable, used to release and free an ACPI table returned by AcpiGetTable and related interfaces. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 140.5K Code, 58.5K Data, 198.9K Total

Debug Version: 201.3K Code, 82.7K Data, 284.0K Total

Previous Release:

Non-Debug Version: 140.4K Code, 58.1K Data, 198.5K Total

Debug Version: 200.7K Code, 82.1K Data, 282.8K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a regression for disassembly of Resource Template. Detection of templates in the AML stream missed some types of templates.

iASL: Fixed a problem where an Access Size error was returned for the PCC address space when the AccessSize of the GAS register is greater than a DWORD. Hoan Tran.

iASL: Implemented several grammar changes for the operators below. These changes are slated for the next version of the ACPI specification:

RefOf - Disallow method invocation  
as an operand  
CondRefOf - Disallow method invocation as an operand  
DerefOf - Disallow operands that use the result from operators  
that  
do not return a reference (Changed TermArg to  
SuperName).

iASL: Control method invocations are now allowed for Target operands, as per the ACPI specification. Removed error for using a control method invocation as a Target operand.

Disassembler: Improved detection of Resource Templates, Unicode, and Strings within Buffer objects. These subtypes do not contain a specific opcode to indicate the originating ASL code, and they must be detected by other means within the disassembler.

iASL: Implemented an optimization improvement for 32-bit ACPI tables (DSDT/SSDT). For the 32-bit case only, compute the optimum integer opcode only after 64-bit to 32-bit truncation. A truncation warning message is still emitted, however.

AcpiXtract: Implemented handling for both types of line terminators (LF or CR/LF) so that it can accept AcpiDump output files from any system.  
Peter Wu.

AcpiBin: Added two new options for comparing AML files:  
-a: compare and display ALL mismatches  
-o: start compare at this offset into the second file

-----  
30 September 2016. Summary of changes for version 20160930:

#### 1) ACPICA kernel-resident subsystem:

Fixed a regression in the internal AcpiTbFindTable function where a non AE\_OK exception could inadvertently be returned even if the function did not fail. This problem affects the following operators:

- DataTableRegion
- LoadTable

Fixed a regression in the LoadTable operator where a load to any namespace location other than the root no longer worked properly.

Increased the maximum loop count value that will result in the AE\_AML\_INFINITE\_LOOP exception. This is a mechanism that is intended to prevent infinite loops within the AML interpreter and thus the host OS kernel. The value is increased from 0xFFFF to 0xFFFFF loops (65,535 to 1,048,575).

Moved the AcpiGbl\_MaxLoopIterations configuration variable to the public apixf.h file. This allows hosts to easily configure the maximum loop count at runtime.

Removed an illegal character in the strtoul64.c file. This character caused errors with some C compilers.

Example Code and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 140.4K Code, 58.1K Data, 198.5K Total

Debug Version: 200.7K Code, 82.1K Data, 282.8K Total

Previous Release:

Non-Debug Version: 140.0K Code, 58.1K Data, 198.1K Total

Debug Version: 200.3K Code, 82.1K Data, 282.4K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem with the conversion of `Else{If{` blocks into the simpler ASL `ElseIf` keyword.

During the conversion, a trailing `If` block could be lost and missing from the disassembled output.

iASL: Fixed a missing parser rule for the `ObjectType` operator. For ASL+, the missing rule caused a parse error when using the `Index` operator as an operand to `ObjectType`. This construct now compiles properly. Example:

```
ObjectType(PKG1[4]).
```

iASL: Correctly handle unresolved symbols in the hardware map file (`-lm` option). Previously, unresolved symbols could cause a protection fault. Such symbols are now marked as unresolved in the map file.

iASL: Implemented support to allow control method invocations as an operand to the ASL `DeRefOf` operator. Example:

```
DeRefOf(MTH1(Local0))
```

Disassembler: Improved support for the `ToPLD` ASL macro. Detection of a possible `_PLD` buffer now includes examination of both the normal buffer length (16 or 20) as well as the surrounding AML package length.

Disassembler: Fixed a problem with the decoding of complex expressions within the `Divide` operator

for ASL+. For the case where both the quotient and remainder targets are specified, the entire statement cannot be disassembled. Previously, the output incorrectly contained a mix of ASL- and ASL+ operators. This mixed statement causes a syntax error when compiled. Example:

`Divide (Add (INT1, 6), 128, RSLT, QUOT) //` was incorrectly disassembled to:

```
Divide (INT1 + 6, 128, RSLT, QUOT)
```

iASL/Tools: Added support to process AML and non-AML ACPI tables consistently. For the disassembler and AcpiExec, allow all types of ACPI tables (AML and data tables). For the iASL -e option, allow only AML tables (DSDT/SSDT).

-----  
31 August 2016. Summary of changes for version 20160831:

1) ACPICA kernel-resident subsystem:

Improve support for the so-called "module-level code", which is defined to be math, logical and control AML opcodes that appear outside of any control method. This change improves the support by adding more opcodes that can

be executed in the manner. Some other issues have been solved, and the ASL grammar changes to support such code under all scope operators (Device, etc.) are complete. Lv Zheng.

UEFI support: these OSL functions have been implemented. This is an additional step toward supporting the AcpiExec utility natively (with full hardware access) under UEFI. Marcelo Ferreira.

AcpiOsReadPciConfiguration  
AcpiOsWritePciConfiguration

Fixed a possible mutex error during control method auto-serialization. Lv Zheng.

Updated support for the Generic Address Structure by fully implementing all GAS fields when a 32-bit address is expanded to a 64-bit GAS. Lv Zheng.

Updated the return value for the internal \_OSI method. Instead of 0xFFFFFFFF, the "Ones" value is now returned, which is 0xFFFFFFFFFFFFFFFF for 64-bit ACPI tables. This fixes an incompatibility with other ACPI implementations, and will be reflected and clarified in the next version of the ACPI specification.

Implemented two new table events that can be passed to an ACPICA table handler. These events are used to indicate a table installation or uninstallation. These events are used in addition to existed table load and unload events. Lv Zheng.

Implemented a cleanup for all internal string-to-integer conversions. Consolidate multiple versions of this functionality and limit possible bases to either 10 or 16 to simplify the code. Adds a new file, utstrtol64.

Cleanup the inclusion order of the various compiler-specific headers. This simplifies build configuration management. The compiler-specific headers are now split out from the host-specific headers. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 140.1K Code, 58.1K Data, 198.1K Total

Debug Version: 200.3K Code, 82.1K Data, 282.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL/AcpiExec: Added a command line option to display the build date/time of the tool (-vd). This can be useful to verify that the correct version of the tools are being used.

AML Debugger: Implemented a new subcommand ("execute predef") to execute all predefined control methods and names within the current namespace. This can be useful for debugging problems with ACPI tables and the ACPI namespace.

-----  
29 July 2016. Summary of changes for version 20160729:

1) ACPICA kernel-resident subsystem:

Implemented basic UEFI support for the various ACPICA tools. This includes:

- 1) An OSL to implement the various `AcpiOs*` interfaces on UEFI.
- 2) Support to obtain the ACPI tables on UEFI.
- 3) Local implementation of required C library functions not available on UEFI.
- 4) A front-end (main) function for the tools for UEFI-related initialization.

The

initial deployment of this support is the `AcpiDump` utility executing as an UEFI application via EDK2 (EDKII, "UEFI Firmware Development Kit"). Current environments supported are Linux/Unix. MSVC generation is not supported at this time. See the `generate/efi/README` file for build instructions. Lv Zheng.

Future plans include porting the AcpiExec utility to execute natively on the platform with I/O and memory access. This will allow viewing/dump of the platform namespace and native execution of ACPI control methods that access the actual hardware. To fully implement this support, the OSL functions below must be implemented with UEFI interfaces. Any community help in the implementation of these functions would be appreciated:

- AcpiOsReadPort
- AcpiOsWritePort
- AcpiOsReadMemory
- AcpiOsWriteMemory
- AcpiOsReadPciConfiguration
- AcpiOsWritePciConfiguration

Restructured and standardized the C library configuration for ACPICA, resulting in the various configuration options below. This includes a global restructuring of the compiler-dependent and platform-dependent include files. These changes may affect the existing platform-dependent configuration files on some hosts. Lv Zheng.

The current C library configuration options appear below. For any issues, it may be helpful to examine the existing compiler-dependent and platform-dependent files as examples. Lv Zheng.

1) Linux kernel:

ACPI\_USE\_STANDARD\_HEADERS=n in order not to use system-provided C library.

ACPI\_USE\_SYSTEM\_CLIBRARY=y in order not to use ACPICA mini C library.

2) Unix/Windows/BSD applications:

ACPI\_USE\_STANDARD\_HEADERS=y in order to use system-provided C library.

ACPI\_USE\_SYSTEM\_CLIBRARY=y in order not to use ACPICA mini C library.

3) UEFI applications:

ACPI\_USE\_STANDARD\_HEADERS=n in order not to use system-provided C library.

ACPI\_USE\_SYSTEM\_CLIBRARY=n in order to use ACPICA mini C library.

4) UEFI applications (EDK2/StdLib):

ACPI\_USE\_STANDARD\_HEADERS=y

in order to use EDK2 StdLib C library.

ACPI\_USE\_SYSTEM\_CLIBRARY=y in order to use EDK2 StdLib C library.

AML interpreter: "module-level code" support. Allows for execution of so-called "executable" AML code (math/logical operations, etc.) outside of control methods not just at the module level (top level) but also within any scope declared outside of a control method - Scope{ }, Device{ }, Processor{ }, PowerResource{ }, and ThermalZone{ }. Lv Zheng.

Simplified the configuration of the "maximum AML loops" global option by adding a global public variable, "AcpiGbl\_MaxLoopIterations" which can be modified at runtime.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 139.1K Code, 22.9K Data, 162.0K Total

Debug Version:

199.0K Code, 81.8K Data, 280.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Add full support for the RASF ACPI table (RAS Features Table). Includes disassembler, data table compiler, and header support.

iASL Expand "module-level code" support. Allows for compilation/disassembly of so-called "executable" AML code (math/logical operations, etc.) outside of control methods not just at the module level (top level) but also within any scope declared outside of a control method - `Scope{ }`, `Device{ }`, `Processor{ }`, `PowerResource{ }`, and `ThermalZone{ }`.

AcpiDump: Added support for dumping all SSDTs on newer versions of Windows. These tables are now easily available -- SSDTs are not available through the registry on older versions.

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27 May 2016. Summary of changes for version 20160527:

1) ACPICA kernel-resident subsystem:

Temporarily reverted the new arbitrary bit length/alignment support in `AcpiHwRead/AcpiHwWrite` for the Generic Address Structure. There have been a number of regressions with the new code that need to be fully resolved and tested before this support can be finally integrated into ACPICA. Apologies for any inconveniences these issues may have caused.

The ACPI message macros are not configurable (`ACPI_MSG_ERROR`, `ACPI_MSG_EXCEPTION`, `ACPI_MSG_WARNING`, `ACPI_MSG_INFO`, `ACPI_MSG_BIOS_ERROR`, and `ACPI_MSG_BIOS_WARNING`). Lv Zheng.



Fixed a couple of GCC warnings associated with the use of the -Wcast-qual option. Adds a new return macro, return\_STR. Junk-uk Kim.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 136.8K Code, 51.6K Data, 188.4K Total

Debug Version: 201.5K Code, 82.2K Data, 283.7K Total

Previous Release:

Non-Debug Version: 137.4K

Code, 52.6K Data, 190.0K Total

Debug Version: 200.9K Code, 82.2K Data, 283.1K Total

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22 April 2016. Summary of changes for version 20160422:

1) ACPICA kernel-resident subsystem:

Fixed a regression in the GAS (generic address structure) arbitrary bit support in AcpiHwRead/AcpiHwWrite. Problem could cause incorrect behavior and incorrect return values. Lv Zheng. ACPICA BZ 1270.

ACPI 6.0: Added support for new/renamed resource macros. One new argument was added to each of these macros, and the original name has been deprecated. The AML disassembler will always disassemble to the new names. Support for the new macros was added to iASL, disassembler, resource manager, and the acpihelp utility. ACPICA BZ 1274.

I2cSerialBus -> I2cSerialBusV2

SpiSerialBus -> SpiSerialBusV2

UartSerialBus -> UartSerialBusV2

ACPI 6.0: Added support for a new integer field that was appended to the package object returned by the \_BIX method.

This adds iASL compile-time and AML runtime error checking. ACPICA BZ 1273.

ACPI 6.1: Added support for a new PCCT subtable, "HW-Reduced Comm Subspace Type2" (Headers, Disassembler, and data table compiler).

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 137.4K Code, 52.6K Data, 190.0K Total

Debug Version: 201.5K Code, 82.2K Data, 283.7K Total

Previous Release:

Non-Debug Version: 137.1K Code, 51.5K Data, 188.6K Total

Debug Version: 201.0K Code, 82.0K Data, 283.0K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented an ASL grammar extension to allow/enable executable "module-level code" to be created and executed under the various operators that create new scopes. This type of AML code is already supported in all known AML interpreters, and the grammar change will appear in the next version of the ACPI specification. Simplifies the conditional runtime creation of named objects under these object types:

- Device
- PowerResource
- Processor
- Scope
- ThermalZone

iASL: Implemented a new ASL extension, a "For" loop macro to add greater ease-of-use to the ASL language. The syntax is similar to the corresponding C operator, and is implemented with the existing AML While opcode -- thus requiring no changes to existing AML interpreters.

```
For (Initialize, Predicate, Update) {TermList}
```

Grammar:

```
ForTerm :=  
  For (  
    Initializer // Nothing | TermArg => ComputationalData  
    Predicate   // Nothing | TermArg => ComputationalData  
    Update      // Nothing | TermArg => ComputationalData  
  ) {TermList}
```

iASL: The `_HID/_ADR` detection and validation has been enhanced to search under conditionals in order to allow these objects to be conditionally created at runtime.

iASL: Fixed several issues with the constant folding feature. The improvement allows better detection and resolution of statements that can

be folded at compile time. ACPICA BZ 1266.

iASL/Disassembler: Fixed a couple issues with the Else{If{ }...} conversion to the ASL ElseIf operator where incorrect ASL code could be generated.

iASL/Disassembler: Fixed a problem with the ASL+ code disassembly where sometimes an extra (and extraneous) set of parentheses were emitted for some combinations of operators. Although this did not cause any problems with recompilation of the disassembled code, it made the code more difficult to read. David Box. ACPICA BZ 1231.

iASL: Changed to ignore the unreferenced detection for predefined names of resource descriptor elements, when the resource descriptor is created/defined within a control method.

iASL: Disassembler: Fix a possible fault with externally declared Buffer objects.

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18

March 2016. Summary of changes for version 20160318:

1) ACPICA kernel-resident subsystem:

Added support for arbitrary bit lengths and bit offsets for registers defined by the Generic Address Structure. Previously, only aligned bit lengths of 8/16/32/64 were supported. This was sufficient for many years, but recently some machines have been seen that require arbitrary bit-level support. ACPICA BZ 1240. Lv Zheng.

Fixed an issue where the \\_SB.\_INI method sometimes must be evaluated before any \_REG methods are evaluated. Lv Zheng.

Implemented several changes related to ACPI table support (Headers/Disassembler/TableCompiler):

NFIT: For ACPI 6.1, updated to add some additional new fields and constants.

FADT: Updated a warning message and set compliance to ACPI 6.1 (Version 6).

DMAR: Added new constants per the 10/2014 DMAR spec.

IORT: Added new subtable per the 10/2015 IORT spec.

HEST: For ACPI 6.1, added new constants and new subtable.

DBG2:

Added new constants per the 12/2015 DBG2 spec.

FPDT: Fixed several incorrect fields, add the FPDT boot record structure. ACPICA BZ 1249.

ERST/EINJ: Updated disassembler with new "Execute Timings" actions.

Updated header support for the DMAR table to match the current version of the related spec.

Added extensions to the ASL Concatenate operator to allow any ACPI object to be passed as an operand. Any object other than Integer/String/Buffer simply returns a string containing the object type. This extends the usefulness of the Printf macros. Previously, Concatenate would abort the control method if a non-data object was encountered.

ACPICA source code: Deployed the C "const" keyword across the source code where appropriate. ACPICA BZ 732. Joerg Sonnenberger (NetBSD).

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 137.1K Code, 51.5K Data, 188.6K Total

Debug Version: 201.0K Code, 82.0K Data, 283.0K Total

Previous Release:

Non-Debug Version: 136.2K Code, 51.5K Data, 187.7K Total

Debug Version: 200.4K Code, 82.0K Data, 282.4K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Improved the heuristic used to determine the number of arguments for an externally defined control method (a method in another table). Although this is an improvement, there is no deterministic way to "guess" the number of method arguments. Only the ACPI 6.0 External opcode will completely solve this problem as it is deployed (automatically) in newer BIOS code.

iASL/Disassembler: Fixed an ordering issue for emitted External() ASL statements that could cause errors when the disassembled file is compiled. ACPICA BZ 1243. David Box.

iASL: Fixed a regression caused by the merger of the two versions of the local strtoul64. Because of a dependency on a global variable, strtoul64 could return an error for integers greater than a 32-bit value. ACPICA BZ 1260.

iASL: Fixed a regression where a fault could occur for an ASL Return statement if it invokes a control method that is not resolved. ACPICA BZ

1264.

AcpiXtract: Improved input file validation: detection of binary files and non-acpidump text files.

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12 February 2016. Summary of changes for version 20160212:

1) ACPICA kernel-resident subsystem:

Implemented full support for the ACPI 6.1 specification (released in January). This version of the specification is available at:  
<http://www.uefi.org/specifications>

Only a relatively small number of changes were required in ACPICA to support ACPI 6.1, in these areas:

- New predefined names
- New `_HID` values
- A new subtable for HEST
- A few other header changes for new values

Ensure `\_SB\_._INI` is executed before any `_REG` methods are executed. There appears to be existing BIOS code that relies on this behavior. Lv Zheng.

Reverted a change made in version 20151218 which enabled method invocations to be targets of various ASL operators (SuperName and Target grammar elements). While the new behavior is supported by the ACPI specification, other AML interpreters do not support this behavior and never will. The ACPI specification will be updated for ACPI 6.2 to remove this support. Therefore, the change was reverted to the original ACPICA behavior.

ACPICA now supports the GCC 6 compiler.

Current Release: (Note: build changes increased sizes)

Non-Debug Version: 136.2K Code, 51.5K Data, 187.7K Total

Debug Version: 200.4K Code, 82.0K Data, 282.4K Total

Previous Release:

Non-Debug Version: 102.7K Code, 28.4K Data, 131.1K Total

Debug Version: 200.4K Code, 81.9K Data, 282.3K Total

2) iASL Compiler/Disassembler and Tools:

Completed full support for the ACPI 6.0 External() AML opcode. The compiler emits an external AML opcode for each ASL External statement.

This opcode is used by the disassembler to assist with the disassembly of external control methods by specifying the required number of arguments for the method. AML interpreters do not use this opcode. To ensure that interpreters do not even see the opcode, a block of one or more external opcodes is surrounded by an "If(0)" construct. As this feature becomes commonly deployed in BIOS code, the ability of disassemblers to correctly disassemble AML code will be greatly improved. David Box.

iASL: Implemented support for an optional cross-reference output file.

The -lx option will create a the cross-reference file with the suffix "xrf". Three different types of cross-reference are created in this file:

- List of object references made from within each control method
- Invocation (caller) list for each user-defined control method
- List of references to each non-method object in the namespace

iASL: Method invocations

as ASL Target operands are now disallowed and flagged as errors in preparation for ACPI 6.2 (see the description of the problem above).

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8 January 2016. Summary of changes for version 20160108:

1) ACPICA kernel-resident subsystem:

Updated all ACPICA copyrights and signons to 2016: Added the 2016 copyright to all source code module headers and utility/tool signons. This includes the standard Linux dual-license header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and the ACPICA test suite.

Fixed a regression introduced in version 20151218 concerning the execution of so-called module-level ASL/AML code. Namespace objects created under a module-level If() construct were not properly/fully entered into the namespace and could cause an interpreter fault when accessed.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 102.7K Code, 28.4K Data, 131.1K Total

Debug Version: 200.4K Code, 81.9K Data, 282.4K Total

Previous Release:

Non-Debug Version: 102.6K Code, 28.4K Data, 131.0K Total

Debug Version: 200.3K Code, 81.9K Data, 282.3K Total

## 2) iASL Compiler/Disassembler and Tools:

Fixed a problem with the compilation of the GpioIo and GpioInt resource descriptors. The `_PIN` field name was incorrectly defined to be an array of 32-bit values, but the `_PIN` values are in fact 16 bits each. This would cause incorrect bit width warnings when using Word (16-bit) fields to access the descriptors.

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18 December 2015. Summary of changes for version 20151218:

### 1) ACPICA kernel-resident subsystem:

Implemented per-AML-table execution of "module-level code" as individual

ACPI tables are loaded into the namespace during ACPICA initialization. In other words, any module-level code within an AML table is executed immediately after the table is loaded, instead of batched and executed after all of the tables have been loaded. This provides compatibility with other ACPI implementations. ACPICA BZ 1219. Bob Moore, Lv Zheng, David Box.

To fully support the feature above, the default operation region handlers for the SystemMemory, SystemIO, and PCI\_Config address spaces are now installed before any ACPI tables are loaded. This enables module-level code to access these address spaces during the table load and module-level code execution phase. ACPICA BZ 1220. Bob Moore, Lv Zheng, David Box.

Implemented several changes to the internal `_REG` support in conjunction with the changes above. Also, changes to the `AcpiExec/AcpiNames/Examples` utilities for the changes above. Although these tools were changed, host operating systems that simply use the default handlers for SystemMemory, SystemIO, and PCI\_Config spaces should not require any update. Lv Zheng.

For example, in the code below, `DEV1` is conditionally added to the namespace by the DSDT via module-level code that accesses an operation region. The SSDT references `DEV1` via the Scope operator. `DEV1` must be created immediately after the DSDT is loaded in order for the SSDT to successfully reference `DEV1`. Previously, this code would cause an `AE_NOT_EXIST` exception during the load of the SSDT. Now, this code is fully supported by ACPICA.

```

DefinitionBlock ("", "DSDT", 2, "Intel", "DSDT1", 1)
{
    OperationRegion (OPR1, SystemMemory, 0x400, 32)
    Field (OPR1, AnyAcc, NoLock, Preserve)
    {
        FLD1, 1
    }
    If (FLD1)
    {
        Device (\DEV1)
        {
        }
    }
}
DefinitionBlock ("", "SSDT", 2, "Intel", "SSDT1", 1)
{
    External (\DEV1, DeviceObj)
    Scope (\DEV1)
    {
    }
}

```

Fixed an AML interpreter problem where control method invocations were not handled correctly when the invocation was itself a SuperName argument to another ASL operator. In these cases, the method was not invoked. ACPICA BZ 1002. Affects the following ASL operators that have a SuperName argument:

- Store
- Acquire, Wait
- CondRefOf, RefOf
- Decrement, Increment
- Load, Unload
- Notify
- Signal, Release, Reset
- SizeOf

Implemented automatic String-to-ObjectReference conversion support for packages returned by predefined names (such as \_DEP). A common BIOS error is to add double quotes around an ObjectReference namepath, which turns the reference into an unexpected string object. This support detects the problem and corrects it before the package is returned to the caller that invoked the method. Lv Zheng.

Implemented extensions to the Concatenate operator. Concatenate now accepts any type of object, it is not restricted to simply Integer/String/Buffer.



For objects other than these 3 basic data types, the argument is treated as a string containing the name of the object type. This expands the utility of Concatenate and the Printf/Fprintf macros. ACPICA BZ 1222.

Cleaned up the output of the ASL Debug object. The timer() value is now optional and no longer emitted by default. Also, the basic data types of Integer/String/Buffer are simply emitted as their values, without a data type string -- since the data type is obvious from the output. ACPICA BZ 1221.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 102.6K Code, 28.4K Data, 131.0K Total

Debug Version: 200.3K Code, 81.9K Data, 282.3K Total

Previous Release:

Non-Debug Version: 102.0K Code, 28.3K Data, 130.3K

Total

Debug Version: 199.6K Code, 81.8K Data, 281.4K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Fixed some issues with the ASL Include() operator. This operator was incorrectly defined in the iASL parser rules, causing a new scope to be opened for the code within the include file. This could lead to several issues, including allowing ASL code that is technically illegal and not supported by AML interpreters. Note, this does not affect the related #include preprocessor operator. ACPICA BZ 1212.

iASL/Disassembler: Implemented support for the ASL ElseIf operator. This operator is essentially an ASL macro since there is no AML opcode associated with it. The code emitted by the iASL compiler for ElseIf is an Else opcode followed immediately by an If opcode. The disassembler will now emit an ElseIf if it finds an Else immediately followed by an If. This simplifies the decoded ASL, especially for deeply nested If..Else and large Switch constructs. Thus, the disassembled code more closely follows the original source ASL. ACPICA BZ 1211. Example:

Old disassembly:

```
Else
{
    If (Arg0 == 0x02)
```

```
{
  Local0 = 0x05
}
```

New disassembly:

```
ElseIf (Arg0 == 0x02)
{
  Local0 = 0x05
}
```

AcpiExec: Added support for the new module level code behavior and the early region installation. This required a small change to the initialization, since AcpiExec must install its own operation region handlers.

AcpiExec: Added support to make the debug object timer optional. Default is timer disabled. This cleans up the debug object output -- the timer data is rarely used.

AcpiExec: Multiple ACPI tables are now loaded in the order that they appear on the command line. This can be important when there are interdependencies/references between the tables.

iASL/Templates. Add support to generate template files with multiple SSDTs within a single output file. Also added command line support to specify the number of SSDTs (in addition to a single DSDT). ACPICA BZ 1223, 1225.

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24 November 2015. Summary of changes for version 20151124:

1) ACPICA kernel-resident subsystem:

Fixed a possible regression for a previous update to FADT handling. The FADT no longer has a fixed table ID, causing some issues with code that was hardwired to a specific ID. Lv Zheng.

Fixed a problem where the method auto-serialization could interfere with the current SyncLevel. This change makes the auto-serialization support transparent to the SyncLevel support and management.

Removed support for the \_SUB predefined name in AcpiGetObjectInfo. This interface is intended for early access to the namespace during the initial namespace device discovery walk. The \_SUB method has been seen to access operation regions in some cases, causing errors because the

operation regions are not fully initialized.

AML Debugger:

Fixed some issues with the terminate/quit/exit commands that can cause faults. Lv Zheng.

AML Debugger: Add thread ID support so that single-step mode only applies to the AML Debugger thread. This prevents runtime errors within some kernels. Lv Zheng.

Eliminated extraneous warnings from AcpiGetSleepTypeData. Since the \_Sx methods that are invoked by this interface are optional, removed warnings emitted for the case where one or more of these methods do not exist. ACPICA BZ 1208, original change by Prarit Bhargava.

Made a major pass through the entire ACPICA source code base to standardize formatting that has diverged a bit over time. There are no functional changes, but this will of course cause quite a few code differences from the previous ACPICA release.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and

has a much larger code and data size.

Current Release:

Non-Debug Version: 102.0K Code, 28.3K Data, 130.3K Total

Debug Version: 199.6K Code, 81.8K Data, 281.4K Total

Previous Release:

Non-Debug Version: 101.7K Code, 27.9K Data, 129.6K Total

Debug Version: 199.3K Code, 81.4K Data, 280.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL/acpiexec/acpixtract/disassembler: Added support to allow multiple definition blocks within a single ASL file and the resulting AML file. Support for this type of file was also added to the various tools that use binary AML files: acpiexec, acpixtract, and the AML disassembler. The example code below shows two definition blocks within the same file:

```
DefinitionBlock ("dsdt.aml", "DSDT", 2, "Intel", "Template",
0x12345678)
{
}
DefinitionBlock ("", "SSDT", 2, "Intel", "Template", 0xABCDEF01)
{
```

}

iASL: Enhanced typechecking for the Name() operator. All expressions for the value of the named object must be reduced/folded to a single constant at compile time, as per the ACPI specification (the AML definition of Name()).

iASL: Fixed some code indentation issues for the -ic and -ia options (C and assembly headers). Now all emitted code correctly begins in column 1.

iASL: Added an error message for an attempt to open a Scope() on an object defined in an SSDT. The DSDT is always loaded into the namespace first, so any attempt to open a Scope on an SSDT object will fail at runtime.

-----

30 September 2015. Summary of changes for version 20150930:

1) ACPICA kernel-resident subsystem:

Debugger: Implemented several changes and bug fixes to assist support for the in-kernel version of the AML debugger. Lv Zheng.

- Fix the "predefined" command for in-kernel debugger.
- Do not enter debug command loop for the help and version commands.
- Disallow "execute" command during execution/single-step of a method.

Interpreter: Updated runtime typechecking for all operators that have target operands. The operand is resolved and validated that it is legal. For example, the target cannot be a non-data object such as a Device, Mutex, ThermalZone, etc., as per the ACPI specification.

Debugger: Fixed the double-mutex user I/O handshake to work when local deadlock detection is enabled.

Debugger: limited display of method locals and arguments (LocalX and ArgX) to only those that have actually been initialized. This prevents lines of extraneous output.

Updated the definition of the NFIT table to correct the bit polarity of one flag: ACPI\_NFIT\_MEM\_ARMED --> ACPI\_NFIT\_MEM\_NOT\_ARMED

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 101.7K Code, 27.9K Data, 129.6K Total

Debug Version:

199.3K Code, 81.4K Data, 280.7K Total

Previous Release:

Non-Debug Version: 101.3K Code, 27.7K Data, 129.0K Total

Debug Version: 198.6K Code, 80.9K Data, 279.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Improved the compile-time typechecking for operands of many of the ASL operators:

-- Added an option to disable compiler operand/operator typechecking (-ot).

-- For the following operators, the TermArg operands are now validated when possible to be Integer data objects: BankField, OperationRegion, DataTableRegion, Buffer, and Package.

-- Store (Source, Target): Both the source and target operands are resolved and checked that the operands are both legal. For example, neither operand can be a non-data object such as a Device, Mutex, ThermalZone, etc. Note, as per the ACPI specification, the CopyObject operator can be used to store an object to any type of target object.

-- Store (Source, Target): If the source is a Package object, the target

must be a Package object, LocalX, ArgX, or Debug. Likewise, if the target is a Package, the source must also be a Package.

-- Store (Source, Target): A warning is issued if the source and target resolve to the identical named object.

-- Store (Source, <method invocation>): An error is generated for the target method invocation, as this construct is not supported by the AML interpreter.

-- For all ASL math and logic operators, the target operand must be a data object (Integer, String, Buffer, LocalX, ArgX, or Debug). This includes the function return value also.

-- External declarations are also included in the typechecking where possible. External objects defined using the UnknownObj keyword cannot be typechecked, however.

iASL and Disassembler: Added symbolic (ASL+) support for the ASL Index operator:

- Legacy code: Index(PKG1, 3)
- New ASL+ code: PKG1[3]

This completes the ACPI 6.0 ASL+ support as it was the only operator not supported.

iASL: Fixed the file suffix for the preprocessor output file (.i). Two spaces were inadvertently appended to the filename, causing file access and deletion problems on some systems.

ASL Test Suite (ASLTS): Updated the master makefile to generate all possible compiler output files when building the test suite -- thus exercising these features of the compiler. These files are automatically deleted when the test suite exits.

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18 August 2015. Summary of changes for version 20150818:

1) ACPICA kernel-resident subsystem:

Fix a regression for AcpiGetTableByIndex interface causing it to fail. Lv Zheng. ACPICA BZ 1186.

Completed development to ensure that the ACPICA Disassembler and Debugger are fully standalone components of ACPICA. Removed cross-component dependences. Lv Zheng.

The max-number-of-AML-loops is now runtime configurable (previously was compile-time only). This is essentially a loop timeout to force-abort infinite AML loops. ACPICA BZ 1192.

Debugger: Cleanup output to dump ACPI names and namepaths without any trailing underscores. Lv Zheng. ACPICA BZ 1135.

Removed unnecessary conditional compilations across the Debugger and Disassembler components where entire modules could be left uncompiled.

The aapits test is deprecated and has been removed from the ACPICA git tree. The test has never been completed and has not been maintained, thus becoming rather useless. ACPICA BZ 1015, 794.

A batch of small changes to close bugzilla and other reports:

- Remove duplicate code for \_PLD processing. ACPICA BZ 1176.
- Correctly cleanup after a ACPI table load failure. ACPICA BZ 1185.

- iASL: Support POSIX yacc again in makefile. Jung-uk Kim.
- ACPI table support: general cleanup and simplification. Lv Zheng, Bob Moore.
- ACPI table support: fix for a buffer read overrun in AcpiTbFindTable. ACPICA BZ 1184.
- Enhance parameter validation for DataTableRegion and LoadTable ASL/AML operators.
- Debugger: Split debugger initialization/termination interfaces. Lv Zheng.
- AcpiExec: Emit OemTableId for SSDTs during the load phase for table identification.
- AcpiExec: Add debug message during \_REG method phase during table load/init.
- AcpiNames: Fix a regression where some output was missing and no longer emitted.
- Debugger: General cleanup and simplification. Lv Zheng.
- Disassembler: Cleanup use of several global option variables. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 101.3K Code, 27.7K Data, 129.0K Total

Debug Version: 198.6K Code, 80.9K Data, 279.5K Total

Previous Release:

Non-Debug Version: 100.9K Code, 24.5K Data, 125.4K Total

Debug Version: 197.8K Code, 81.5K Data, 279.3K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec:

Fixed a problem where any more than 32 ACPI tables in the XSDT were not handled properly and caused load errors. Now, properly invoke and use the ACPICA auto-reallocate mechanism for ACPI table data structures. ACPICA BZ 1188

AcpiNames: Add command-line wildcard support for ACPI table files. ACPICA BZ 1190.

AcpiExec and AcpiNames: Add -l option to load ACPI tables only. For AcpiExec, this means that no control methods (like \_REG/\_INI/\_STA) are executed during initialization. ACPICA BZ 1187, 1189.

iASL/Disassembler: Implemented a prototype "listing" mode that emits AML

that corresponds to each disassembled ASL statement, to simplify debugging. ACPICA BZ 1191.

Debugger: Add option to the "objects" command to display a summary of the current namespace objects (Object type and count). This is displayed if the command is entered with no arguments.

AcpiNames: Add -x option to specify debug level, similar to AcpiExec.

-----  
17 July 2015.

Summary of changes for version 20150717:

1) ACPICA kernel-resident subsystem:

Improved the partitioning between the Debugger and Disassembler components. This allows the Debugger to be used standalone within kernel code without the Disassembler (which is used for single stepping also). This renames and moves one file, dmobject.c to dbject.c. Lv Zheng.

Debugger: Implemented a new command to trace the execution of control methods (Trace). This is especially useful for the in-kernel version of the debugger when file I/O may not be available for method trace output. See the ACPICA reference for more information. Lv Zheng.

Moved all C library prototypes (used for the local versions of these functions when requested) to a new header, acclib.h

Cleaned up the use of non-ANSI C library functions. These functions are implemented locally in ACPICA. Moved all such functions to a common source file, utnonansi.c

Debugger: Fixed a problem with the "!!" command (get last command executed) where the debugger could enter an infinite loop and eventually crash.

Removed the use of local macros that were used for some of the standard C library functions to automatically cast input parameters. This mostly affected the is\* functions where the input parameter is defined to be an int. This required a few modifications to the main ACPICA source code to provide casting for these functions and eliminate possible compiler warnings for these parameters.

Across the source code, added additional status/error checking to resolve issues discovered by static source code analysis tools such as Coverity.

Example Code and Data Size: These are the sizes for the OS-independent



acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 100.9K Code, 24.5K Data, 125.4K Total

Debug Version: 197.8K Code, 81.5K

Data, 279.3K Total

Previous Release:

Non-Debug Version: 100.6K Code, 27.6K Data, 128.2K Total

Debug Version: 196.2K Code, 81.0K Data, 277.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a regression where the device map file feature no longer worked properly when used in conjunction with the disassembler. It only worked properly with the compiler itself.

iASL: Implemented a new warning for method LocalX variables that are set but never used (similar to a C compiler such as gcc). This also applies to ArgX variables that are not defined by the parent method, and are instead (legally) used as local variables.

iASL/Preprocessor: Finished the pass-through of line numbers from the preprocessor to the compiler. This ensures that compiler errors/warnings have the correct original line numbers and filenames, regardless of any #include files.

iASL/Preprocessor: Fixed a couple of issues with comment handling and the pass-through of comments to the preprocessor output file (which becomes the compiler input file). Also fixed a problem with // comments that appear after a math expression.

iASL: Added support for the TCPA server table to the table compiler and template generator. (The client table was already previously supported)

iASL/Preprocessor: Added a permanent #define of the symbol "\_\_IASL\_\_" to identify the iASL compiler.

Cleaned up the use of the macros NEGATIVE and POSITIVE which were defined multiple times. The new names are ACPI\_SIGN\_NEGATIVE and ACPI\_SIGN\_POSITIVE.

AcpiHelp: Update to expand help messages for the iASL preprocessor directives.

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19 June 2015. Summary of changes for version 20150619:

Two regressions in version 20150616 have been addressed:

Fixes some problems/issues with the C library macro removal (ACPI\_STRLEN, etc.) This update changes ACPICA to only use the standard headers for functions, or the prototypes for the local versions of the C library functions.

Across the source code, this required some additional casts for some Clib invocations for portability. Moved all local prototypes to a new file, acclib.h

Fixes several problems with recent changes to the handling of the FACS table that could cause some systems not to boot.

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16 June 2015. Summary of changes for version 20150616:

1) ACPICA kernel-resident subsystem:

Across the entire ACPICA source code base, the various macros for the C library functions (such as ACPI\_STRLEN, etc.) have been removed and replaced by the standard C library names (strlen, etc.) The original purpose for these macros is no longer applicable. This simplification reduces the number of macros used in the ACPICA source code significantly, improving readability and maintainability.

Implemented support for a new ACPI table, the OSDT. This table, the "override" SDT, can be loaded directly by the host OS at boot time. It enables the replacement of existing namespace objects that were installed via the DSDT and/or SSDTs. The primary purpose for this is to replace buggy or incorrect ASL/AML code obtained via the BIOS. The OSDT is slated for inclusion in a future version of the ACPI Specification. Lv Zheng/Bob Moore.

Added support for systems with (improperly) two FACS tables -- a "32-bit" table (via FADT 32-bit legacy field) and a "64-bit" table (via the 64-bit X field). This change will support both automatically. There continues to be systems found with this issue. This support requires a change to the AcpiSetFirmwareWakingVector interface. Also, a public global variable has been added to allow the host to select which FACS is desired (AcpiGbl\_Use32BitFacsAddresses). See the ACPICA reference for more details Lv Zheng.

Added a new feature to allow for systems that do not contain an FACS. Although this is already supported on hardware-reduced platforms, the feature has been extended for all platforms. The reasoning is that we do not want to abort the entire ACPICA initialization just because the system is seriously buggy and has no FACS.

Fixed a problem where the GUID strings for NFIT tables (in acuuid.h) were not correctly transcribed from the ACPI specification in ACPICA version 20150515.

Implemented support for the \_CLS object in the AcpiGetObjectInfo external interface.

Updated the definitions of the TCPA and TPM2 ACPI tables to the more recent TCG ACPI Specification, December 14, 2014. Table disassembler and compiler also updated. Note: The TCPA "server" table is not supported by the disassembler/table-compiler at this time.

ACPI 6.0: Added definitions for the new GIC version field in the MADT.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version:

100.6K Code, 27.6K Data, 128.2K Total

Debug Version: 196.2K Code, 81.0K Data, 277.2K Total

Previous Release:

Non-Debug Version: 99.9K Code, 27.5K Data, 127.4K Total

Debug Version: 195.2K Code, 80.8K Data, 276.0K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem with the new symbolic operator disassembler where incorrect ASL code could be emitted in some cases for the "non-commutative" operators -- Subtract, Divide, Modulo, ShiftLeft, and ShiftRight. The actual problem cases seem to be rather unusual in common ASL code, however. David Box.

Modified the linux version of acpidump to obtain ACPI tables from not just /dev/mem (which may not exist) and /sys/firmware/acpi/tables. Lv Zheng.

iASL: Fixed a problem where the user preprocessor output file (.i) contained extra data that was not expected. The compiler was using this file as a temporary file and passed through #line directives in order to keep compiler error messages in sync with the input file and line number across multiple include files. The (.i) is no longer a temporary file as the compiler uses a new, different file for the original purpose.

iASL: Fixed a problem where comments within the original ASL source code file were not passed through to the preprocessor output file, nor any listing files.

iASL: Fixed some issues for the handling of the "#include" preprocessor directive and the similar (but not the same) "Include" ASL operator.

iASL: Add support for the new OSDT in both the disassembler and compiler.

iASL: Fixed a problem with the constant folding support where a Buffer object could be incorrectly generated (incorrectly formed) during a conversion to a Store() operator.

AcpiHelp: Updated for new NFIT GUIDs, "External" AML opcode, and new description text for the \_REV predefined name. \_REV now permanently returns 2, as per the ACPI 6.0 specification.

Debugger: Enhanced the output of the Debug ASL object for references produced by the Index operator. For Buffers and strings, only output the actual byte pointed to by the index. For packages, only print the single package element decoded by the index. Previously, the entire buffer/string/package was emitted.

iASL/Table-compiler: Fixed a regression where the "generic" data types were no longer recognized, causing errors.

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15 May 2015. Summary of changes for version 20150515:

This release implements most of ACPI 6.0 as described below.

1) ACPICA kernel-resident subsystem:

Implemented runtime argument checking and return value checking for all new ACPI 6.0 predefined names. This includes: \_BTH, \_CR3, \_DSD, \_LPI, \_MTL, \_PRR, \_RDI, \_RST, \_TFP, \_TSN.

Example Code and Data Size: These are the sizes for the OS-independent

acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 99.9K Code, 27.5K Data, 127.4K Total

Debug Version: 195.2K Code, 80.8K Data, 276.0K Total

Previous Release:

Non-Debug Version: 99.1K Code, 27.3K Data, 126.4K Total

Debug Version: 192.8K Code, 79.9K Data, 272.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL compiler: Added compile-time support for all new ACPI 6.0 predefined names (argument count validation and return value typechecking.)

iASL disassembler and table compiler: implemented support for all new ACPI 6.0 tables. This includes: DRTM, IORT, LPIT, NFIT, STAO, WPBT, XENV.

iASL disassembler and table compiler: Added ACPI 6.0 changes to existing tables: FADT, MADT.

iASL preprocessor: Added a new directive to enable inclusion of binary blobs into ASL code. The new directive is #includebuffer. It takes a binary file as input and emits a named ascii buffer object into the ASL code.

AcpiHelp: Added support for all new ACPI 6.0 predefined names.

AcpiHelp:

Added a new option, -d, to display all iASL preprocessor directives.

AcpiHelp: Added a new option, -t, to display all known/supported ACPI tables.

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10 April 2015. Summary of changes for version 20150410:

Reverted a change introduced in version 20150408 that caused a regression in the disassembler where incorrect operator symbols could be emitted.

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08 April 2015. Summary of changes for version 20150408:

1) ACPICA kernel-resident subsystem:

Permanently set the return value for the `_REV` predefined name. It now returns 2 (was 5). This matches other ACPI implementations. `_REV` will be deprecated in the future, and is now defined to be 1 for ACPI 1.0, and 2 for ACPI 2.0 and later. It should never be used to differentiate or identify operating systems.

Added the "Windows 2015" string to the `_OSI` support. ACPICA will now return TRUE to a query with this string.

Fixed several issues with the local version of the `printf` function.

Added the C99 compiler option (`-std=c99`) to the Unix makefiles.

Current Release:

Non-Debug Version: 99.9K Code, 27.4K Data, 127.3K Total

Debug Version: 195.2K Code, 80.7K Data, 275.9K Total

Previous Release:

Non-Debug Version: 98.8K Code, 27.3K Data, 126.1K Total

Debug Version: 192.1K Code, 79.8K Data, 271.9K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented an enhancement to the constant folding feature to transform the parse tree to a simple Store operation whenever possible:

Add (2, 3, X) ==> is converted to: Store (5, X)

X = 2 + 3 ==> is converted to: Store (5, X)

Updated support for the SLIC table (Software Licensing Description Table) in both the Data Table compiler and the disassembler. The SLIC table support now conforms to "Microsoft Software Licensing Tables (SLIC and MSDM). November 29, 2011. Copyright 2011 Microsoft". Note: Any SLIC data following the ACPI header is now defined to be "Proprietary Data", and as such, can only be entered or displayed as a hex data block.

Implemented full support for the MSDM table as described in the document above. Note: The format of MSDM is similar to SLIC. Any MSDM data following the ACPI header is defined to be "Proprietary Data", and can only be entered or displayed as a hex data block.

Implemented the `-Pn` option for the iASL Table Compiler (was only

implemented for the ASL compiler). This option disables the iASL preprocessor.

Disassembler: For disassembly of Data Tables, added a comment field around the Ascii equivalent data that is emitted as part of the "Raw Table Data" block. This prevents the iASL Preprocessor from possible confusion if/when the table is compiled.

Disassembler: Added an option (-df) to force the disassembler to assume that the table being disassembled contains valid AML. This feature is useful for disassembling AML files that contain ACPI signatures other than DSDT or SSDT (such as OEMx or other signatures).

Changes for the EFI version of the tools:

- 1) Fixed a build error/issue
- 2) Fixed a cast warning

iASL: Fixed a path issue with the `__FILE__` operator by making the directory prefix optional within the internal `SplitInputFilename` function.

Debugger: Removed some unused global variables.

Tests: Updated the makefile for proper generation of the AAPITS suite.

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04 February 2015. Summary of changes for version 20150204:

ACPICA kernel-resident subsystem:

Updated all ACPICA copyrights and signons to 2014. Added the 2014 copyright to all module headers and signons, including the standard Linux header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and the test suites.

Events: Introduce `ACPI_GPE_DISPATCH_RAW_HANDLER` to fix GPE storm issues. A raw gpe handling mechanism was created to allow better handling of GPE storms that aren't easily managed by the normal handler.

The raw handler allows disabling/enabling of the the GPE so that interrupt storms can be avoided in cases where events cannot be timely serviced. In this scenario, handlers should use the `AcpiSetGpe()` API to disable/enable the GPE. This API will leave the reference counts undisturbed, thereby preventing unintentional clearing of the GPE when the intent in only to temporarily disable it. Raw handlers allow enabling and disabling of a GPE by removing GPE register locking. As such, raw handlers much provide

their own locks while using GPE API's to protect access to GPE data structures.

Lv Zheng

Events: Always modify GPE registers under the GPE lock.

Applies GPE lock around AcpiFinishGpe() to protect access to GPE register values. Reported as bug by joe.liu@apple.com.

Unix makefiles: Separate option to disable optimizations and `_FORTIFY_SOURCE`. This change removes the `_FORTIFY_SOURCE` flag from the `NOOPT` disable option and creates a separate flag (`NOFORTIFY`) for this purpose.

Some toolchains may define `_FORTIFY_SOURCE` which leads redefined errors when building ACPICA. This allows disabling the option without also having to disable optimizations.

David Box

Current Release:

Non-Debug Version: 101.7K Code, 27.9K Data, 129.6K Total

Debug Version: 199.2K Code, 82.4K Data, 281.6K Total

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07 November 2014. Summary of changes for version 20141107:

This release is available at <https://acpica.org/downloads>

This release introduces and implements language extensions to ASL that provide support for symbolic ("C-style") operators and expressions. These language extensions are known collectively as ASL+.

1) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem with disassembly of the `UartSerialBus` macro. Changed "StopBitsNone" to the correct "StopBitsZero". David E. Box.

Disassembler: Fixed the Unicode macro support to add escape sequences. All non-printable ASCII values are emitted as escape sequences, as well as the standard escapes for quote and backslash. Ensures that the disassembled macro can be correctly recompiled.

iASL: Added `Printf`/`Fprintf` macros for formatted output. These macros are translated to existing AML Concatenate and Store operations. `Printf` writes to the ASL Debug object. `Fprintf` allows the specification of an ASL name as the target. Only a single format specifier is required, `%o`,



since the AML interpreter dynamically converts objects to the required type. David E. Box.

(old) Store (Concatenate (Concatenate (Concatenate (Concatenate (Concatenate (Concatenate (Concatenate (Concatenate ("", Arg0), ": Unexpected value for ", Arg1), ", ", Arg2), " at line ", Arg3), Debug)

(new) Printf ("%o: Unexpected value for %o, %o at line %o", Arg0, Arg1, Arg2, Arg3)

(old) Store (Concatenate (Concatenate (Concatenate (Concatenate ("", Arg1), ": "), Arg0), " Successful"), STR1)

(new) Fprintf (STR1, "%o: %o Successful", Arg1, Arg0)

iASL: Added debug options (-bp, -bt) to dynamically prune levels of the ASL parse tree before the AML code is generated. This allows blocks of ASL code to be removed in order to help locate and identify problem devices and/or code. David E. Box.

AcpiExec: Added support (-fi) for an optional namespace object initialization file. This file specifies initial values for namespace objects as necessary for debugging and testing different ASL code paths that may be taken as a result of BIOS options.

## 2) Overview of symbolic operator support for ASL (ASL+)

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As an extension to the ASL language, iASL implements support for symbolic (C-style) operators for math and logical expressions. This can greatly simplify ASL code as well as improve both readability and maintainability. These language extensions can exist concurrently with all legacy ASL code and expressions.

The symbolic extensions are 100% compatible with existing AML interpreters, since no new AML opcodes are created. To implement the extensions, the iASL compiler transforms the symbolic expressions into the legacy ASL/AML equivalents at compile time.

Full symbolic expressions are supported, along with the standard C precedence and associativity rules.

Full disassembler support for the symbolic expressions is provided, and creates an automatic migration path for existing ASL code to ASL+ code

via the disassembly process. By default, the disassembler now emits ASL+ code with symbolic expressions. An option (-dl) is provided to force the disassembler to emit legacy ASL code if desired.

Below is the complete list of the currently supported symbolic operators with examples. See the iASL User Guide for additional information.

#### ASL+ Syntax    Legacy ASL Equivalent

-----    -----

##### // Math operators

```
Z = X + Y    Add (X, Y, Z)
Z
= X - Y    Subtract (X, Y, Z)
Z = X * Y    Multiply (X, Y, Z)
Z = X / Y    Divide (X, Y, , Z)
Z = X % Y    Mod (X, Y, Z)
Z = X << Y    ShiftLeft (X, Y, Z)
Z = X >> Y    ShiftRight (X, Y, Z)
Z = X & Y    And (X, Y, Z)
Z = X | Y    Or (X, Y, Z)
Z = X ^ Y    Xor (X, Y, Z)
Z = ~X    Not (X, Z)
X++    Increment (X)
X--    Decrement (X)
```

##### // Logical operators

```
(X == Y)    LEqual (X, Y)
(X != Y)    LNotEqual (X, Y)
(X < Y)    LLess (X, Y)
(X > Y)    LGreater (X, Y)
(X <= Y)    LLessEqual (X, Y)
(X >= Y)    LGreaterEqual (X, Y)
(X && Y)    LAnd (X, Y)
(X || Y)    LOr (X, Y)
(!X)    LNot (X)
```

##### // Assignment and compound assignment operations

```
X = Y    Store (Y, X)
X += Y    Add (X, Y, X)
X -= Y    Subtract (X, Y, X)
X *= Y    Multiply (X, Y, X)
X /= Y    Divide (X, Y, , X)
X %= Y    Mod (X, Y, X)
```

```

X <<= Y    ShiftLeft (X, Y, X)
X >>= Y
    ShiftRight (X, Y, X)
X &= Y     And (X, Y, X)
X |= Y     Or (X, Y, X)
X ^= Y     Xor (X, Y, X)

```

### 3) ASL+ Examples:

-----

#### Legacy ASL:

```

If (LOr (LOr (LEqual (And (R510, 0x03FB), 0x02E0), LEqual (
    And (R520, 0x03FB), 0x02E0)), LOr (LEqual (And (R530,
0x03FB),
    0x02E0), LEqual (And (R540, 0x03FB), 0x02E0))))
{
    And (MEMB, 0xFFFFFFFF0, SRMB)
    Store (MEMB, Local2)
    Store (PDBM, Local1)
    And (PDBM, 0xFFFFFFFFFFFFFFF9, PDBM)
    Store (SRMB, MEMB)
    Or (PDBM, 0x02, PDBM)
}

```

#### ASL+ version:

```

If (((R510 & 0x03FB) == 0x02E0) ||
    ((R520 & 0x03FB) == 0x02E0) ||
    ((R530 & 0x03FB) == 0x02E0) ||
    ((R540 & 0x03FB) == 0x02E0))
{
    SRMB = (MEMB & 0xFFFFFFFF0)
    Local2 = MEMB
    Local1 = PDBM
    PDBM &= 0xFFFFFFFFFFFFFFF9
    MEMB = SRMB
    PDBM |= 0x02
}

```

#### Legacy

##### ASL:

```

Store (0x1234, Local1)
Multiply (Add (Add (Local1, TEST), 0x20), Local2, Local3)
Multiply (Local2, Add (Add (Local1, TEST), 0x20), Local3)
Add (Local1, Add (TEST, Multiply (0x20, Local2)), Local3)
Store (Index (PKG1, 0x03), Local6)
Store (Add (Local3, Local2), Debug)
Add (Local1, 0x0F, Local2)

```

Add (Local1, Multiply (Local2, Local3), Local2)  
Multiply (Add (Add (Local1, TEST), 0x20), ToBCD (Local1), Local3)

ASL+ version:

```
Local1 = 0x1234
Local3 = (((Local1 + TEST) + 0x20) * Local2)
Local3 = (Local2 * ((Local1 + TEST) + 0x20))
Local3 = (Local1 + (TEST + (0x20 * Local2)))
Local6 = Index (PKG1, 0x03)
Debug = (Local3 + Local2)
Local2 = (Local1 + 0x0F)
Local2 = (Local1 + (Local2 * Local3))
Local3 = (((Local1 + TEST) + 0x20) * ToBCD (Local1))
```

-----  
26 September 2014. Summary of changes for version 20140926:

1)

ACPICA kernel-resident subsystem:

Updated the GPIO operation region handler interface (GeneralPurposeIo). In order to support GPIO Connection objects with multiple pins, along with the related Field objects, the following changes to the interface have been made: The Address is now defined to be the offset in bits of the field unit from the previous invocation of a Connection. It can be viewed as a "Pin Number Index" into the connection resource descriptor. The BitWidth is the exact bit width of the field. It is usually one bit, but not always. See the ACPICA reference guide (section 8.8.6.2.1) for additional information and examples.

GPE support: During ACPICA/GPE initialization, ensure that all GPEs with corresponding `_Lxx/_Exx` methods are disabled (they may have been enabled by the firmware), so that they cannot fire until they are enabled via `AcpiUpdateAllGpes`. Rafael J. Wysocki.

Added a new return flag for the Event/GPE status interfaces --

`AcpiGetEventStatus`

and `AcpiGetGpeStatus`. The new

`ACPI_EVENT_FLAGS_HAS_HANDLER` flag is used to indicate that the event or GPE currently has a handler associated with it, and can thus actually affect the system. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 99.1K Code, 27.3K Data, 126.4K Total

Debug Version: 192.8K Code, 79.9K Data, 272.7K Total

Previous Release:

Non-Debug Version: 98.8K Code, 27.3K Data, 126.1K Total

Debug Version: 192.1K Code, 79.8K Data, 271.9K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a memory allocation/free regression introduced in 20140828 that could cause the compiler to crash. This was introduced inadvertently during the effort to eliminate compiler memory leaks. ACPICA BZ

1111,

1113.

iASL: Removed two error messages that have been found to create false positives, until they can be fixed and fully validated (ACPICA BZ 1112):

1) Illegal forward reference within a method

2) Illegal reference across two methods

iASL: Implemented a new option (-lm) to create a hardware mapping file that summarizes all GPIO, I2C, SPI, and UART connections. This option works for both the compiler and disassembler. See the iASL compiler user guide for additional information and examples (section 6.4.6).

AcpiDump: Added support for the version 1 (ACPI 1.0) RSDP in addition to version 2. This corrects the AE\_BAD\_HEADER exception seen on systems with a version 1 RSDP. Lv Zheng ACPICA BZ 1097.

AcpiExec: For Unix versions, don't attempt to put STDIN into raw mode unless STDIN is actually a terminal. Assists with batch-mode processing. ACPICA BZ 1114.

Disassembler/AcpiHelp: Added another large group of recognized \_HID values.

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28

August 2014. Summary of changes for version 20140828:

1) ACPICA kernel-resident subsystem:

Fixed a problem related to the internal use of the Timer() operator where a 64-bit divide could cause an attempted link to a double-precision math library. This divide is not actually necessary, so the code was restructured to eliminate it. Lv Zheng.

ACPI 5.1: Added support for the runtime validation of the \_DSD package (similar to the iASL support).

ACPI 5.1/Headers: Added support for the GICC affinity subtable to the SRAT table. Hanjun Guo <hanjun.guo@linaro.org>.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 98.8K Code, 27.3K Data, 126.1K Total

Debug Version: 192.1K Code, 79.8K Data, 271.9K Total

Previous Release:

Non-Debug Version: 98.7K Code, 27.3K Data, 126.0K Total

Debug Version: 192.0K Code, 79.7K Data, 271.7K Total

2) iASL Compiler/Disassembler and Tools:

AcpiExec: Fixed a problem on unix systems where the original terminal state was not always properly restored upon exit. Seen when using the -v option. ACPICA BZ 1104.

iASL: Fixed a problem with the validation of the ranges/length within the Memory24 resource descriptor. There was a boundary condition when the range was equal to the (length -1) caused by the fact that these values are defined in 256-byte blocks, not bytes. ACPICA BZ 1098

Disassembler: Fixed a problem with the GpioInt descriptor interrupt polarity flags. The flags are actually 2 bits, not 1, and the "ActiveBoth" keyword is now supported properly.

ACPI 5.1: Added the GICC affinity subtable to the SRAT table. Supported in the disassembler, data table compiler, and table template generator.

iASL: Added a requirement for Device() objects that one of either a \_HID or \_ADR must exist within the scope of a Device, as per the ACPI specification. Remove a similar requirement that was incorrectly in place for the \_DSD object.

iASL: Added error detection for illegal named references within control methods that would cause runtime failures. Now trapped as errors are: 1) References to objects within a non-parent control method. 2) Forward

references (within a method) -- for control methods, AML interpreters use a one-pass parse of control methods. ACPICA BZ 1008.

iASL: Added error checking for dependencies related to the \_PSx power methods. ACPICA BZ 1029.

1) For \_PS0, one of these must exist within the same scope: \_PS1, \_PS2, \_PS3.

2) For \_PS1, \_PS2, and PS3: A \_PS0 object must exist within the same scope.

iASL and table compiler: Cleanup miscellaneous memory leaks by fully deploying the existing object and string caches and adding new caches for the table compiler.

iASL: Split the huge parser source file into multiple subfiles to improve manageability. Generation now requires the M4 macro preprocessor, which is part of the Bison distribution on both unix and windows platforms.

AcpiSrc: Fixed and removed all extraneous warnings generated during entire ACPICA source code scan and/or conversion.

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24 July 2014. Summary of changes for version 20140724:

The ACPI 5.1 specification has been released and is available at:  
<http://uefi.org/specs/access>

0) ACPI 5.1 support in ACPICA:

ACPI 5.1 is fully supported in ACPICA as of this release.

New predefined names. Support includes iASL and runtime ACPICA validation.

\_CCA (Cache Coherency Attribute).

\_DSD (Device-Specific Data). David Box.

Modifications to existing ACPI tables. Support includes headers, iASL Data Table compiler, disassembler, and the template generator.

FADT - New fields and flags. Graeme Gregory.

GTDT - One new subtable and new fields. Tomasz Nowicki.

MADT - Two new subtables.

Tomasz Nowicki.

PCCT - One new subtable.

Miscellaneous.

New notification type for System Resource Affinity change events.

#### 1) ACPICA kernel-resident subsystem:

Fixed a regression introduced in 20140627 where a fault can happen during the deletion of Alias AML namespace objects. The problem affected both the core ACPICA and the ACPICA tools including iASL and AcpiExec.

Implemented a new GPE public interface, AcpiMarkGpeForWake. Provides a simple mechanism to enable wake GPEs that have no associated handler or control method. Rafael Wysocki.

Updated the AcpiEnableGpe interface to disallow the enable if there is no handler or control method associated with the particular GPE. This will help avoid meaningless GPEs and even GPE floods. Rafael Wysocki.

Updated GPE handling and dispatch by disabling the GPE before clearing the status bit for edge-triggered GPEs. Lv Zheng.

Added Timer() support to the AML Debug object. The current timer value is now displayed with each invocation of (Store to) the debug object to enable simple generation of execution times for AML code (method execution for example.) ACPICA BZ 1093.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Current Release:

Non-Debug Version: 98.7K Code, 27.3K Data, 126.0K Total

Debug Version: 192.0K Code, 79.7K Data, 271.7K Total

#### Previous Release:

Non-Debug Version: 98.7K Code, 27.2K Data, 125.9K Total

Debug Version: 191.7K Code, 79.6K Data, 271.3K Total

#### 2) iASL Compiler/Disassembler and Tools:

Fixed an issue with the recently added local printf implementation, concerning width/precision specifiers that could cause incorrect output. Lv Zheng. ACPICA BZ 1094.

Disassembler: Added support to detect buffers that contain UUIDs and disassemble them to an



invocation of the ToUUID operator. Also emit commented descriptions of known ACPI-related UUIDs.

AcpiHelp: Added support to display known ACPI-related UUIDs. New option, -u. Adds three new files.

iASL: Update table compiler and disassembler for DMAR table changes that were introduced in September 2013. With assistance by David Woodhouse.

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27 June 2014. Summary of changes for version 20140627:

1) ACPICA kernel-resident subsystem:

Formatted Output: Implemented local versions of standard formatted output utilities such as printf, etc. Over time, it has been discovered that there are in fact many portability issues with printf, and the addition of this feature will fix/prevent these issues once and for all. Some known issues are summarized below:

- 1) Output of 64-bit values is not portable. For example, UINT64 is %ull for the Linux kernel and is %uI64 for some MSVC versions.
- 2) Invoking printf consistently in a manner that is portable across both 32-bit and 64-bit platforms is difficult at best in many situations.
- 3) The output format for pointers varies from system to system (leading zeros especially), and leads to inconsistent output from ACPICA across platforms.
- 4) Certain platform-specific printf formats may conflict with ACPICA use.
- 5) If there is no local C library available, ACPICA now has local support for printf.

-- To address these printf issues in a complete manner, ACPICA now directly implements a small subset of printf format specifiers, only those that it requires. Adds a new file, utilities/utprint.c. Lv Zheng.

Implemented support for ACPICA generation within the EFI environment. Initially, the AcpiDump utility is supported in the UEFI shell environment. Lv Zheng.

Added a new external interface, AcpiLogError, to improve ACPICA portability. This allows the host to redirect error messages from the ACPICA utilities. Lv Zheng.

Added and deployed new OSL file I/O interfaces to improve ACPICA

portability:  
AcpiOsOpenFile

AcpiOsCloseFile  
AcpiOsReadFile  
AcpiOsWriteFile  
AcpiOsGetFileOffset  
AcpiOsSetFileOffset

There are C library implementations of these functions in the new file `service_layers/oslibcfs.c` -- however, the functions can be implemented by the local host in any way necessary. Lv Zheng.

Implemented a mechanism to disable/enable ACPI table checksum validation at runtime. This can be useful when loading tables very early during OS initialization when it may not be possible to map the entire table in order to compute the checksum. Lv Zheng.

Fixed a buffer allocation issue for the Generic Serial Bus support. Originally, a fixed buffer length was used. This change allows for variable-length buffers based upon the protocol indicated by the field access attributes. Reported by Lan Tianyu. Lv Zheng.

Fixed a problem where an object detached from a namespace node was not properly terminated/cleared and could cause a circular list problem if reattached.

ACPICA BZ 1063. David Box.

Fixed a possible recursive lock acquisition in `hwregs.c`. Rakib Mullick.

Fixed a possible memory leak in an error return path within the function `AcpiUtCopyIobjectToIobject`. ACPICA BZ 1087. Colin Ian King.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 98.7K Code, 27.2K Data, 125.9K Total

Debug Version: 191.7K Code, 79.6K Data, 271.3K Total

Previous Release:

Non-Debug Version: 96.8K Code, 27.2K Data, 124.0K Total

Debug Version: 189.5K Code, 79.7K Data, 269.2K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Add dump of ASCII equivalent text within a comment at the end of each line of the output for the `Buffer()` ASL operator.

AcpiDump: Miscellaneous changes:

Fixed

repetitive table dump in -n mode.

For older EFI platforms, use the ACPI 1.0 GUID during RSDP search if the ACPI 2.0 GUID fails.

iASL: Fixed a problem where the compiler could fault if incorrectly given an acpidump output file as input. ACPICA BZ 1088. David Box.

AcpiExec/AcpiNames: Fixed a problem where these utilities could fault if they are invoked without any arguments.

Debugger: Fixed a possible memory leak in an error return path. ACPICA BZ 1086. Colin Ian King.

Disassembler: Cleaned up a block of code that extracts a parent Op object. Added a comment that explains that the parent is guaranteed to be valid in this case. ACPICA BZ 1069.

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24 April 2014. Summary of changes for version 20140424:

1) ACPICA kernel-resident subsystem:

Implemented support to skip/ignore NULL address entries in the RSDT/XSDT. Some of these tables are known to contain a trailing NULL entry. Lv Zheng.

Removed an extraneous error message for the case where there are a large number of system GPEs (> 124). This was the "32-bit FADT register is too long to convert to GAS struct" message, which is irrelevant for GPEs since the GPEX\_BLK\_LEN fields of the FADT are always used instead of the (limited capacity) GAS bit length. Also, several changes to ensure proper support for GPE numbers > 255, where some "GPE number" fields were 8-bits internally.

Implemented and deployed additional configuration support for the public ACPICA external interfaces. Entire classes of interfaces can now be easily modified or configured out, replaced by stubbed inline functions by default. Lv Zheng.

Moved all public ACPICA runtime configuration globals to the public ACPICA external interface file for convenience. Also, removed some obsolete/unused globals. See the file acpixf.h. Lv Zheng.

Documentation: Added a new section to the ACPICA reference describing the maximum number of GPEs that can be supported by the FADT-defined GPEs in

block zero

and one. About 1200 total. See section 4.4.1 of the ACPICA reference.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 96.8K Code, 27.2K Data, 124.0K Total

Debug Version: 189.5K Code, 79.7K Data, 269.2K Total

Previous Release:

Non-Debug Version: 97.0K Code, 27.2K Data, 124.2K Total

Debug Version: 189.7K Code, 79.5K Data, 269.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL and disassembler: Add full support for the LPIT table (Low Power Idle Table). Includes support in the disassembler, data table compiler, and template generator.

AcpiDump utility:

1) Add option to force the use of the RSDT (over the XSDT).

2) Improve validation of the RSDP signature (use 8 chars instead of 4).

iASL: Add check for predefined packages that are too large. For predefined names that contain subpackages, check if each subpackage is too large. (Check for too small already exists.)

Debugger: Updated the GPE command (which simulates a GPE by executing the GPE code paths in ACPICA). The GPE device is now optional, and defaults to the GPE 0/1 FADT-defined blocks.

Unix application OSL: Update line-editing support. Add additional error checking and take care not to reset terminal attributes on exit if they were never set. This should help guarantee that the terminal is always left in the previous state on program exit.

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25 March 2014. Summary of changes for version 20140325:

1) ACPICA kernel-resident subsystem:

Updated the auto-serialize feature for control methods. This feature

automatically serializes all methods that create named objects in order to prevent runtime errors. The update adds support to ignore the currently executing AML SyncLevel when invoking such a method, in order to prevent disruption of any existing SyncLevel priorities that may exist in the AML code. Although the use of SyncLevels is relatively rare, this change fixes a regression where an AE\_AML\_MUTEX\_ORDER exception can appear on some machines starting with the 20140214 release.

Added a new external interface to allow the host to install ACPI tables very early, before the namespace is even created. AcpiInstallTable gives the host additional flexibility for ACPI table management. Tables can be installed directly by the host as if they had originally appeared in the XSDT/RSMT. Installed tables can be SSDTs or other ACPI data tables (anything except the DSDT and FACS). Adds a new file, tldata.c, along with additional internal restructuring and cleanup. See the ACPICA Reference for interface details. Lv Zheng.

Added validation of the checksum for all incoming dynamically loaded tables (via external interfaces or via AML Load/LoadTable operators). Lv Zheng.

Updated the use of the AcpiOsWaitEventsComplete interface during Notify and GPE handler removal. Restructured calls to eliminate possible race conditions. Lv Zheng.

Added a warning for the use/execution of the ASL/AML Unload (table) operator. This will help detect and identify machines that use this operator if and when it is ever used. This operator has never been seen in the field and the usage model and possible side-effects of the drastic runtime action of a full table removal are unknown.

Reverted the use of #pragma push/pop which was introduced in the 20140214 release. It appears that push and pop are not implemented by enough compilers to make the use of this feature feasible for ACPICA at this time. However, these operators may be deployed in a future ACPICA release.

Added the missing EXPORT\_SYMBOL macros for the install and remove SCI handler interfaces.

Source code generation:

1) Disabled the use of the "strchr" macro for the gcc-specific generation.

For some versions of gcc, this macro can periodically expose a compiler bug which in turn causes compile-time error(s).

2) Added support for PPC64 compilation. Colin Ian King.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 97.0K Code, 27.2K Data, 124.2K Total

Debug Version: 189.7K Code, 79.5K Data, 269.2K Total

Previous Release:

Non-Debug Version: 96.5K Code, 27.2K Data, 123.7K Total

Debug Version: 188.6K Code, 79.0K Data, 267.6K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: Added several new features to improve the readability of the resulting ASL code. Extra information is emitted within comment fields in the ASL code:

- 1) Known `_HID/_CID` values are decoded to descriptive text.
- 2) Standard values for the `Notify()` operator are decoded to descriptive text.
- 3) Target operands are expanded to full pathnames (in a comment) when possible.

Disassembler: Miscellaneous updates for `extern()` handling:

- 1) Abort compiler if file specified by `-fe` option does not exist.
- 2) Silence unnecessary warnings about argument count mismatches.
- 3) Update warning messages concerning unresolved method externals.
- 4) Emit "UnknownObj" keyword for externals whose type cannot be determined.

AcpiHelp utility:

- 1) Added the `-a` option to display both the ASL syntax and the AML encoding for an input ASL operator. This effectively displays all known information about an ASL operator with one AcpiHelp invocation.
- 2) Added substring match support (similar to a wildcard) for the `-i` (`_HID/PNP IDs`) option.

iASL/Disassembler: Since this tool does not yet support execution on big-endian machines, added detection of endianness and an error message if execution is attempted on big-endian. Support for big-endian within iASL is a feature that is on the ACPICA to-be-done list.

AcpiBin utility:

- 1) Remove option to extract binary files from an `acpidump`; this function

is made obsolete by the AcpiXtract utility.

2) General cleanup of open files and allocated buffers.

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14 February 2014. Summary of changes for version 20140214:

1) ACPICA kernel-resident subsystem:

Implemented a new mechanism to proactively prevent problems with ill-behaved reentrant control methods that create named ACPI objects. This behavior is illegal as per the ACPI specification, but is nonetheless frequently seen in the field. Previously, this could lead to an AE\_ALREADY\_EXISTS exception if the method was actually entered by more than one thread. This new mechanism detects such methods at table load time and marks them "serialized" to prevent reentrancy. A new global option, AcpiGbl\_AutoSerializeMethods, has been added to disable this feature if desired. This mechanism and global option obsoletes and supersedes the previous AcpiGbl\_SerializeAllMethods option.

Added the "Windows 2013" string to the \_OSI support. ACPICA will now respond TRUE to \_OSI queries with this string. It is the stated policy of ACPICA to add new strings to the \_OSI support as soon as possible after they are defined. See the full ACPICA \_OSI policy which has been added to the utilities/utosi.c file.

Hardened/updated the \_PRT return value auto-repair code:

- 1) Do not abort the repair on a single subpackage failure, continue to check all subpackages.
- 2) Add check for the minimum subpackage length (4).
- 3) Properly handle extraneous NULL package elements.

Added support to avoid the possibility of infinite loops when traversing object linked lists. Never allow an infinite loop, even in the face of corrupted object lists.

ACPICA headers: Deployed the use of #pragma pack(push) and #pragma pack(pop) directives to ensure that the ACPICA headers are independent of compiler settings or other host headers.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 96.5K Code, 27.2K Data, 123.7K Total  
Debug Version: 188.6K Code, 79.0K Data, 267.6K Total  
Previous Release:  
Non-Debug Version: 96.2K Code, 27.0K Data, 123.2K Total  
Debug Version: 187.5K Code, 78.3K Data, 265.8K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL/Table-compiler: Fixed a problem with support for the SPMI table. The first reserved field was incorrectly forced to have a value of zero. This change correctly forces the field to have a value of one. ACPICA BZ 1081.

Debugger: Added missing support for the "Extra" and "Data" subobjects when displaying object data.

Debugger: Added support to display entire object linked lists when displaying object data.

iASL: Removed the obsolete -g option to obtain ACPI tables from the Windows registry. This feature has been superseded by the acpidump utility.

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14 January 2014. Summary of changes for version 20140114:

### 1) ACPICA kernel-resident subsystem:

Updated all ACPICA copyrights and signons to 2014. Added the 2014 copyright to all module headers and signons, including the standard Linux header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and the test suites.

Improved parameter validation for AcpiInstallGpeBlock. Added the following checks:

- 1) The incoming device handle refers to type ACPI\_TYPE\_DEVICE.
- 2) There is not already a GPE block attached to the device.

Likewise, with AcpiRemoveGpeBlock, ensure that the incoming object is a device.

Correctly support "references" in the ACPI\_OBJECT. This change fixes the support to allow references (namespace nodes) to be passed as arguments to control methods via the evaluate object interface. This is probably most useful for testing purposes, however.



Improved support for 32/64 bit physical addresses in printf()-like output. This change improves the support for physical addresses in printf debug statements and other output on both 32-bit and 64-bit hosts. It consistently outputs the appropriate number of bytes for each host. The %p specifier is unsatisfactory since it does not emit uniform output on all hosts/clib implementations (on some, leading zeros are not supported, leading to difficult-to-read output).

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 96.2K Code, 27.0K Data, 123.2K Total

Debug Version: 187.5K Code, 78.3K  
Data, 265.8K Total

Previous Release:

Non-Debug Version: 96.1K Code, 27.0K Data, 123.1K Total

Debug Version: 185.6K Code, 77.3K Data, 262.9K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Fix a possible fault when using the `Connection()` operator. Fixes a problem if the parent Field definition for the `Connection` operator refers to an operation region that does not exist. ACPICA BZ 1064.

AcpiExec: Load of local test tables is now optional. The utility has the capability to load some various tables to test features of ACPICA. However, there are enough of them that the output of the utility became confusing. With this change, only the required local tables are displayed (RSDP, XSDT, etc.) along with the actual tables loaded via the command line specification. This makes the default output simpler and easier to understand. The `-el` command line option restores the original behavior for testing purposes.

AcpiExec: Added support for overlapping operation regions.

This change

expands the simulation of operation regions by supporting regions that overlap within the given address space. Supports `SystemMemory` and `SystemIO`. ASLTS test suite updated also. David Box. ACPICA BZ 1031.

AcpiExec: Added region handler support for `PCI_Config` and `EC` spaces. This allows AcpiExec to simulate these address spaces, similar to the current support for `SystemMemory` and `SystemIO`.

Debugger: Added new command to read/write/compare all namespace objects.

The command "test objects" will exercise the entire namespace by writing new values to each data object, and ensuring that the write was successful. The original value is then restored and verified.

Debugger: Added the "test predefined" command. This change makes this test public and puts it under the new "test" command. The test executes each and every predefined name within the current namespace.

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18 December 2013. Summary of changes for version 20131218:

#### Global

note: The ACPI 5.0A specification was released this month. There are no changes needed for ACPICA since this release of ACPI is an errata/clarification release. The specification is available at [acpi.info](http://acpi.info).

#### 1) ACPICA kernel-resident subsystem:

Added validation of the XSDT root table if it is present. Some older platforms contain an XSDT that is ill-formed or otherwise invalid (such as containing some or all entries that are NULL pointers). This change adds a new function to validate the XSDT before actually using it. If the XSDT is found to be invalid, ACPICA will now automatically fall back to using the RSDT instead. Original implementation by Zhao Yakui. Ported to ACPICA and enhanced by Lv Zheng and Bob Moore.

Added a runtime option to ignore the XSDT and force the use of the RSDT. This change adds a runtime option that will force ACPICA to use the RSDT instead of the XSDT (`AcpiGbl_DoNotUseXsdt`). Although the ACPI spec requires that an XSDT be used instead of the RSDT, the XSDT has been found to be corrupt or ill-formed on some machines. Lv Zheng.

Added a runtime option to favor 32-bit FADT register addresses over the 64-bit addresses. This change adds an option to favor 32-bit FADT addresses when there is a conflict between the 32-bit and 64-bit versions of the same register. The default behavior is to use the 64-bit version in accordance with the ACPI specification. This can now be overridden via the `AcpiGbl_Use32BitFadtAddresses` flag. ACPICA BZ 885. Lv Zheng.

During the change above, the internal "Convert FADT" and "Verify FADT" functions have been merged to simplify the code, making it easier to understand and maintain. ACPICA BZ 933.

Improve exception reporting and handling for GPE block installation.

Return an actual status from AcpiEvGetGpeXruptBlock and don't clobber the status when exiting AcpiEvInstallGpeBlock. ACPICA BZ 1019.

Added helper macros to extract bus/segment numbers from the HEST table.

This change adds two

macros to extract the encoded bus and segment

numbers from the HEST Bus field - ACPI\_HEST\_BUS and ACPI\_HEST\_SEGMENT.

Betty Dall <betty.dall@hp.com>

Removed the unused ACPI\_FREE\_BUFFER macro. This macro is no longer used by ACPICA. It is not a public macro, so it should have no effect on existing OSV code. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 96.1K Code, 27.0K Data, 123.1K Total

Debug Version: 185.6K Code, 77.3K Data, 262.9K Total

Previous Release:

Non-Debug Version: 95.9K Code, 27.0K Data, 122.9K Total

Debug Version: 185.1K Code, 77.2K Data, 262.3K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Improved pathname support for emitted External() statements. This change adds

full pathname support for external names

that have been resolved internally by the inclusion of additional ACPI tables (via the iASL -e option). Without this change, the disassembler can emit multiple externals for the same object, or it become confused when the Scope() operator is used on an external object. Overall, greatly improves the ability to actually recompile the emitted ASL code when objects a referenced across multiple ACPI tables. Reported by Michael Tsirkin (mst@redhat.com).

Tests/ASLTS: Updated functional control suite to execute with no errors.

David Box. Fixed several errors related to the testing of the interpreter slack mode. Lv Zheng.

iASL: Added support to detect names that are declared within a control method, but are unused (these are temporary names that are only valid during the time the method is executing). A remark is issued for these cases. ACPICA BZ 1022.

iASL: Added full support for the DBG2 table. Adds full disassembler, table compiler, and template generator support for the DBG2 table (Debug Port 2 table).

iASL: Added full support for the PCCT table, update the table definition. Updates the PCCT table definition in the actbl3.h header and adds table compiler and template generator support.

iASL: Added an option to emit only error messages (no warnings/remarks). The -ve option will enable only error messages, warnings and remarks are suppressed. This can simplify debugging when only the errors are important, such as when an ACPI table is disassembled and there are many warnings and remarks -- but only the actual errors are of real interest.

Example ACPICA code (source/tools/examples): Updated the example code so that it builds to an actual working program, not just example code. Added ACPI tables and execution of an example control method in the DSDT. Added makefile support for Unix generation.

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15 November 2013. Summary of changes for version 20131115:

This release  
is available at <https://acpica.org/downloads>

#### 1) ACPICA kernel-resident subsystem:

Resource Manager: Fixed loop termination for the "get AML length" function. The loop previously had an error termination on a NULL resource pointer, which can never happen since the loop simply increments a valid resource pointer. This fix changes the loop to terminate with an error on an invalid end-of-buffer condition. The problem can be seen as an infinite loop by callers to AcpiSetCurrentResources with an invalid or corrupted resource descriptor, or a resource descriptor that is missing an END\_TAG descriptor. Reported by Dan Carpenter <[dan.carpenter@oracle.com](mailto:dan.carpenter@oracle.com)>. Lv Zheng, Bob Moore.

Table unload and ACPICA termination: Delete all attached data objects during namespace node deletion. This fix updates namespace node deletion to delete the entire list of attached objects (attached via AcpiAttachObject) instead of just one of the attached items. ACPICA BZ 1024. Tomasz Nowicki ([tomasz.nowicki@linaro.org](mailto:tomasz.nowicki@linaro.org)).

ACPICA

termination: Added support to delete all objects attached to the root namespace node. This fix deletes any and all objects that have been attached to the root node via AcpiAttachData. Previously, none of these objects were deleted. Reported by Tomasz Nowicki. ACPICA BZ 1026.

Debug output: Do not emit the function nesting level for the in-kernel build. The nesting level is really only useful during a single-thread execution. Therefore, only enable this output for the AcpiExec utility. Also, only emit the thread ID when executing under AcpiExec (Context switches are still always detected and a message is emitted). ACPICA BZ 972.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 95.9K Code, 27.0K Data, 122.9K

Total

Debug Version: 185.1K Code, 77.2K Data, 262.3K Total

Previous Release:

Non-Debug Version: 95.8K Code, 27.0K Data, 122.8K Total

Debug Version: 185.2K Code, 77.2K Data, 262.4K Total

## 2) iASL Compiler/Disassembler and Tools:

AcpiExec/Unix-OSL: Use <termios.h> instead of <termio.h>. This is the correct portable POSIX header for terminal control functions.

Disassembler: Fixed control method invocation issues related to the use of the CondRefOf() operator. The problem is seen in the disassembly where control method invocations may not be disassembled properly if the control method name has been used previously as an argument to CondRefOf. The solution is to not attempt to emit an external declaration for the CondRefOf target (it is not necessary in the first place). This prevents disassembler object type confusion. ACPICA BZ 988.

Unix Makefiles: Added an option to disable compiler optimizations and the \_FORTIFY\_SOURCE flag. Some older compilers have problems compiling ACPICA with optimizations (reportedly, gcc 4.4 for example). This change adds a command line option for make (NOOPT) that disables all compiler optimizations and the \_FORTIFY\_SOURCE compiler flag. The default optimization is -O2 with the \_FORTIFY\_SOURCE flag specified. ACPICA BZ 1034. Lv Zheng, Bob Moore.

Tests/ASLTS: Added options to specify individual test cases and modes. This allows testers running aslts.sh to optionally specify individual test modes and test cases. Also added an option to disable the forced generation of the ACPICA tools from source if desired. Lv Zheng.

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27 September 2013. Summary of changes for version 20130927:

This release is available at <https://acpica.org/downloads>

1) ACPICA kernel-resident subsystem:

Fixed a problem with store operations to reference objects. This change fixes a problem where a Store operation to an ArgX object that contained a reference to a field object did not complete the automatic dereference and then write to the actual field object. Instead, the object type of the field object was inadvertently changed to match the type of the source operand. The new behavior will actually write to the field object (buffer field or field unit), thus matching the correct ACPI-defined behavior.

Implemented support to allow the host to redefine individual OSL prototypes. This change enables the host to redefine OSL prototypes found in the acpiosxf.h file. This allows the host to implement OSL interfaces with a macro or inlined function. Further, it allows the host to add any additional required modifiers such as \_\_iomem, \_\_init, \_\_exit, etc., as necessary on a per-interface basis. Enables maximum flexibility for the OSL interfaces. Lv Zheng.

Hardcoded the access width for the FADT-defined reset register. The ACPI specification requires the reset register width to be 8 bits. ACPICA now hardcodes the width to 8 and ignores the FADT width value.

This provides compatibility with other ACPI implementations that have allowed BIOS code with bad register width values to go unnoticed. Matthew Garrett, Bob Moore,  
Lv Zheng.

Changed the position/use of the ACPI\_PRINTF\_LIKE macro. This macro is used in the OSL header (acpiosxf). The change modifies the position of this macro in each instance where it is used (AcpiDebugPrint, etc.) to avoid build issues if the OSL defines the implementation of the interface to be an inline stub function. Lv Zheng.

Deployed a new macro `ACPI_EXPORT_SYMBOL_INIT` for the main ACPICA initialization interfaces. This change adds a new macro for the main init and terminate external interfaces in order to support hosts that require additional or different processing for these functions. Changed from `ACPI_EXPORT_SYMBOL` to `ACPI_EXPORT_SYMBOL_INIT` for these functions. Lv Zheng, Bob Moore.

Cleaned up the memory allocation macros for configurability. In the common case, the `ACPI_ALLOCATE` and related macros now resolve directly to their respective AcpiOs\* OSL interfaces. Two options:

- 1) The `ACPI_ALLOCATE_ZEROED` macro uses a simple local implementation by default, unless overridden by the `USE_NATIVE_ALLOCATE_ZEROED` define.
- 2) For AcpiExec (and for debugging), the macros can optionally be resolved to the local ACPICA interfaces that track each allocation (local tracking is used to immediately detect memory leaks).

Lv Zheng.

Simplified the configuration for `ACPI_REDUCED_HARDWARE`. Allows the kernel to predefine this macro to either `TRUE` or `FALSE` during the system build.

Replaced `__FUNCTION__` with `__func__` in the gcc-specific header.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 95.8K Code, 27.0K Data, 122.8K Total

Debug Version:

185.2K Code, 77.2K Data, 262.4K Total

Previous Release:

Non-Debug Version: 96.7K Code, 27.1K Data, 123.9K Total

Debug Version: 184.4K Code, 76.8K Data, 261.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented wildcard support for the `-e` option. This simplifies use when there are many SSDTs that must be included to resolve external method declarations. ACPICA BZ 1041. Example:

```
iasl -e ssdt*.dat -d dsdt.dat
```

AcpiExec: Add history/line-editing for Unix/Linux systems. This change

adds a portable module that implements full history and limited line editing for Unix and Linux systems. It does not use `readline()` due to portability issues. Instead it uses the POSIX `termio` interface to put the terminal in raw input mode so that the various special keys can be trapped (such as up/down-arrow for history support and left/right-arrow for line editing). Uses the existing debugger history mechanism. ACPICA BZ 1036.

AcpiXtract: Add support to handle (ignore) "empty" lines containing only one or more spaces. This provides compatible with early or different versions of the `AcpiDump` utility. ACPICA BZ 1044.

AcpiDump: Do not ignore tables that contain only an ACPI table header. Apparently, some BIOSs create SSDTs that contain an ACPI table header but no other data. This change adds support to dump these tables. Any tables shorter than the length of an ACPI table header remain in error (an error message is emitted). Reported by Yi Li.

Debugger: Echo actual command along with the "unknown command" message.

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23 August 2013. Summary of changes for version 20130823:

1) ACPICA kernel-resident subsystem:

Implemented support for host-installed System Control Interrupt (SCI) handlers. Certain ACPI functionality requires the host to handle raw SCIs. For example, the "SCI Doorbell" that is defined for memory power state support requires the host device driver to handle SCIs to examine

if the doorbell has been activated. Multiple SCI handlers can be installed to allow for future expansion. New external interfaces are `AcpiInstallSciHandler`, `AcpiRemoveSciHandler`; see the ACPICA reference for details. Lv Zheng, Bob Moore. ACPICA BZ 1032.

Operation region support: Never locally free the handler "context" pointer. This change removes some dangerous code that attempts to free the handler context pointer in some (rare) circumstances. The owner of the handler owns this pointer and the ACPICA code should never touch it. Although not seen to be an issue in any kernel, it did show up as a problem (fault) under `AcpiExec`. Also, set the internal storage field for the context pointer to zero when the region is deactivated, simply for sanity. David Box. ACPICA BZ 1039.

AcpiRead: On error, do not modify the return value target location. If an error happens in the middle of a split 32/32 64-bit I/O operation, do not modify the target of the return value pointer. Makes



the code consistent  
with the rest of ACPICA. Bjorn Helgaas.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 96.7K Code, 27.1K Data, 123.9K Total

Debug Version: 184.4K Code, 76.8K Data, 261.2K Total

Previous Release:

Non-Debug Version: 96.2K Code, 27.1K Data, 123.3K Total

Debug Version: 185.4K Code, 77.1K Data, 262.5K Total

2) iASL Compiler/Disassembler and Tools:

AcpiDump: Implemented several new features and fixed some problems:

- 1) Added support to dump the RSDP, RSDT, and XSDT tables.
- 2) Added support for multiple table instances (SSDT, UEFI).
- 3) Added option to dump "customized" (overridden) tables (-c).
- 4) Fixed a problem where some table filenames were improperly constructed.
- 5) Improved some error messages,  
removed some unnecessary messages.

iASL: Implemented additional support for disassembly of ACPI tables that contain invocations of external control methods. The `-fe<file>` option allows the import of a file that specifies the external methods along with the required number of arguments for each -- allowing for the correct disassembly of the table. This is a workaround for a limitation of AML code where the disassembler often cannot determine the number of arguments required for an external control method and generates incorrect ASL code. See the iASL reference for details. ACPICA BZ 1030.

Debugger: Implemented a new command (`paths`) that displays the full pathnames (`namepaths`) and object types of all objects in the namespace. This is an alternative to the `namespace` command.

Debugger: Implemented a new command (`sci`) that invokes the SCI dispatch mechanism and any installed handlers.

iASL: Fixed a possible segfault for "too many parent prefixes" condition. This can occur if there are too many parent prefixes in a namepath (for example, `^^^^^PCI0.ECRD`). ACPICA BZ 1035.

Application OSLs: Set the return value for the PCI read functions. These functions simply return AE\_OK, but should set the return value to zero also. This change implements this. ACPICA BZ 1038.

Debugger: Prevent possible command line buffer overflow. Increase the size of a couple of the debugger line buffers, and ensure that overflow cannot happen. ACPICA BZ 1037.

iASL: Changed to abort immediately on serious errors during the parsing phase. Due to the nature of ASL, there is no point in attempting to compile these types of errors, and they typically end up causing a cascade of hundreds of errors which obscure the original problem.

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25 July 2013. Summary of changes for version 20130725:

1) ACPICA kernel-resident subsystem:

Fixed a problem with the DereferOf operator where references to FieldUnits and BufferFields incorrectly returned the parent object, not the actual value of the object. After this change, a dereference of a FieldUnit reference results in a read operation on the field to get the value, and likewise, the appropriate BufferField value is extracted from the target buffer.

Fixed a problem where the \_WAK method could cause a fault under these circumstances: 1) Interpreter slack mode was not enabled, and 2) the \_WAK method returned no value. The problem is rarely seen because most kernels run ACPICA in slack mode.

For the DereferOf operator, a fatal error now results if an attempt is made to dereference a reference (created by the Index operator) to a NULL package element. Provides compatibility with other ACPI implementations, and this behavior will be added to a future version of the ACPI specification.

The ACPI Power Management Timer (defined in the FADT) is now optional. This provides compatibility with other ACPI implementations and will appear in the next version of the ACPI specification.

If there is no PM

Timer on the platform, AcpiGetTimer returns AE\_SUPPORT. An address of zero in the FADT indicates no PM timer.

Implemented a new interface for \_OSI support, AcpiUpdateInterfaces. This allows the host to globally enable/disable all vendor strings, all feature strings, or both. Intended to be primarily used for debugging purposes only. Lv Zheng.

Expose the collected \_OSI data to the host via a global variable. This data tracks the highest level vendor ID that has been invoked by the BIOS so that the host (and potentially ACPICA itself) can change behaviors based upon the age of the BIOS.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 96.2K Code, 27.1K Data, 123.3K Total

Debug Version: 184.4K Code,  
76.8K Data, 261.2K Total

Previous Release:

Non-Debug Version: 95.9K Code, 26.9K Data, 122.8K Total

Debug Version: 184.1K Code, 76.7K Data, 260.8K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Created the following enhancements for the -so option (create offset table):

- 1) Add offsets for the last nameseg in each namepath for every supported object type
- 2) Add support for Processor, Device, Thermal Zone, and Scope objects
- 3) Add the actual AML opcode for the parent object of every supported object type
- 4) Add support for the ZERO/ONE/ONES AML opcodes for integer objects

Disassembler: Emit all unresolved external symbols in a single block.

These are external references to control methods that could not be resolved, and thus, the disassembler had to make a guess at the number of arguments to parse.

iASL: The argument to the -T option (create table template) is now optional. If not specified, the default table is a DSDT, typically the most common case.

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26

June 2013. Summary of changes for version 20130626:

### 1) ACPICA kernel-resident subsystem:

Fixed an issue with runtime repair of the \_CST object. Null or invalid elements were not always removed properly. Lv Zheng.

Removed an arbitrary restriction of 256 GPEs per GPE block (such as the FADT-defined GPE0 and GPE1). For GPE0, GPE1, and each GPE Block Device, the maximum number of GPEs is 1016. Use of multiple GPE block devices makes the system-wide number of GPEs essentially unlimited.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 95.9K Code, 26.9K Data, 122.8K Total

Debug Version: 184.1K Code, 76.7K Data, 260.8K Total

Previous Release:

Non-Debug Version: 96.0K Code, 27.0K Data,  
123.0K Total

Debug Version: 184.1K Code, 76.8K Data, 260.9K Total

2) iASL Compiler/Disassembler and Tools:

Portable AcpiDump: Implemented full support for the Linux and FreeBSD hosts. Now supports Linux, FreeBSD, and Windows.

Disassembler: Added some missing types for the HEST and EINJ tables: "Set Error Type With Address", "CMCI", "MCE", and "Flush Cacheline".

iASL/Preprocessor: Implemented full support for nested `#if/#else/#elif/#endif` blocks. Allows arbitrary depth of nested blocks.

Disassembler: Expanded maximum output string length to 64K. Was 256 bytes max. The original purpose of this constraint was to limit the amount of debug output. However, the string function in question (`UtPrintString`) is now used for the disassembler also, where 256 bytes is insufficient. Reported by RehabMan@GitHub.

iASL/DataTables: Fixed some problems and issues with compilation of DMAR tables. ACPICA BZ 999. Lv Zheng.

iASL: Fixed a couple of error exit issues that could result in a "Could not delete <file>" message during ASL compilation.

AcpiDump: Allow "FADT" and "MADT" as valid table signatures, even though the actual signatures for these tables are "FACP" and "APIC", respectively.

AcpiDump: Added support for multiple UEFI tables. Only SSDT and UEFI tables are allowed to have multiple instances.

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17 May 2013. Summary of changes for version 20130517:

1) ACPICA kernel-resident subsystem:

Fixed a regression introduced in version 20130328 for \_INI methods. This change fixes a problem introduced in 20130328 where \_INI methods are no longer executed properly because of a memory block that was not initialized correctly. ACPICA BZ 1016. Tomasz Nowicki <tomasz.nowicki@linaro.org>.

Fixed a possible problem with the new extended sleep registers in the ACPI 5.0 FADT. Do not use these registers (even if populated) unless the HW-reduced bit is set in the FADT (as per the ACPI specification). ACPICA BZ 1020. Lv Zheng.

Implemented return value repair code for \_CST predefined objects: Sort the list and detect/remove invalid entries. ACPICA BZ 890. Lv Zheng.

Implemented a debug-only option to disable loading of SSDTs from the RSDT/XSDT during ACPICA initialization. This can be useful for debugging ACPI problems on some machines. Set AcpiGbl\_DisableSsdTableLoad in acglobal.h - ACPICA BZ 1005. Lv Zheng.

Fixed some issues in the ACPICA initialization and termination code: Tomasz Nowicki <tomasz.nowicki@linaro.org>

- 1) Clear events initialized flag upon event component termination. ACPICA BZ 1013.
- 2) Fixed a possible memory leak in GPE init error path. ACPICA BZ 1018.
- 3) Delete global lock pending lock during termination. ACPICA BZ 1012.
- 4) Clear debug buffer global on termination to prevent possible multiple delete. ACPICA BZ 1010.

Standardized all switch() blocks across the entire source base. After many years, different formatting for switch() had crept in. This change makes the formatting of every switch block identical. ACPICA BZ 997. Chao Guan.

Split some files to enhance ACPICA modularity and configurability:

- 1) Split buffer dump routines into utilities/utbuffer.c
- 2) Split internal error message routines into utilities/uterror.c

- 3) Split table print utilities into tables/tbprint.c
- 4) Split iASL command-line option processing into asloptions.c

Makefile enhancements:

- 1) Support for all new files above.
- 2) Abort make on errors from any subcomponent. Chao Guan.
- 3) Add build support for Apple Mac OS X. Liang Qi.

Example Code and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 96.0K Code, 27.0K Data, 123.0K Total

Debug Version: 184.1K Code, 76.8K Data, 260.9K Total

Previous Release:

Non-Debug Version: 95.6K Code,  
26.8K Data, 122.4K Total

Debug Version: 183.5K Code, 76.6K Data, 260.1K Total

## 2) iASL Compiler/Disassembler and Tools:

New utility: Implemented an easily portable version of the `acpidump` utility to extract ACPI tables from the system (or a file) in an ASCII hex dump format. The top-level code implements the various command line options, file I/O, and table dump routines. To port to a new host, only three functions need to be implemented to get tables -- since this functionality is OS-dependent. See the `tools/acpidump/apmain.c` module and the `ACPICA` reference for porting instructions. `ACPICA BZ 859`. Notes:

- 1) The Windows version obtains the ACPI tables from the Registry.
- 2) The Linux version is under development.
- 3) Other hosts - If an OS-dependent module is submitted, it will be distributed with `ACPICA`.

iASL: Fixed a regression for `-D` preprocessor option (define symbol). A restructuring/change to the initialization sequence caused this option to no longer work properly.

iASL:

Implemented a mechanism to disable specific warnings and remarks. Adds a new command line option, `"-vw <messageid>` as well as `"#pragma disable <messageid>`". `ACPICA BZ 989`. Chao Guan, Bob Moore.

iASL: Fix for too-strict package object validation. The package object validation for return values from the predefined names is a bit too

strict, it does not allow names references within the package (which will be resolved at runtime.) These types of references cannot be validated at compile time. This change ignores named references within package objects for names that return or define static packages.

Debugger: Fixed the 80-character command line limitation for the History command. Now allows lines of arbitrary length. ACPICA BZ 1000. Chao Guan.

iASL: Added control method and package support for the -so option (generates AML offset table for BIOS support.)

iASL: issue a remark if a non-serialized method creates named objects. If a thread blocks within the method for any reason, and another thread enters the method, the method will fail because an attempt will be made to create the same (named) object twice. In this case, issue a remark that the method should be marked serialized. NOTE: may become a warning later. ACPICA BZ 909.

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18 April 2013. Summary of changes for version 20130418:

1) ACPICA kernel-resident subsystem:

Fixed a possible buffer overrun during some rare but specific field unit read operations. This overrun can only happen if the DSDT version is 1 -- meaning that all AML integers are 32 bits -- and the field length is between 33 and 55 bits long. During the read, an internal buffer object is created for the field unit because the field is larger than an integer (32 bits). However, in this case, the buffer will be incorrectly written beyond the end because the buffer length is less than the internal minimum of 64 bits (8 bytes) long. The buffer will be either 5, 6, or 7 bytes long, but a full 8 bytes will be written.

Updated the Embedded Controller "orphan" \_REG method support. This refers to \_REG methods under the EC device that have no corresponding operation region. This is allowed by the ACPI specification. This update removes a dependency on the existence an ECDD table. It will execute an orphan \_REG method as long as the operation region handler for the EC is installed at the EC device node and not the namespace root. Rui Zhang (original update), Bob Moore (update/integrate).

Implemented run-time argument typechecking for all predefined ACPI names

(\_STA, \_BIF, etc.) This change performs object typechecking on all incoming arguments for all predefined names executed via AcpiEvaluateObject. This ensures that ACPI-related device drivers are passing correct object types as well as the correct number of arguments (therefore identifying any issues immediately). Also, the ASL/namespace definition of the predefined name is checked against the ACPI specification for the proper argument count. Adds one new file, nsarguments.c

Changed an exception code for the ASL UnLoad() operator. Changed the exception code for the case where the input DdbHandle is invalid, from AE\_BAD\_PARAMETER to the more appropriate AE\_AML\_OPERAND\_TYPE.

Unix/Linux makefiles: Removed the use of the -O2 optimization flag in the global makefile. The use of this flag causes compiler errors on earlier versions of GCC, so it has been removed for compatibility.

Miscellaneous cleanup:

- 1) Removed some unused/obsolete macros
- 2) Fixed a possible memory leak in the \_OSI support
- 3) Removed an unused variable in the predefined name support
- 4) Windows OSL: remove obsolete reference to a memory list field

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Current Release:

Non-Debug Version: 95.2K Code, 26.4K Data, 121.6K Total

Debug Version: 183.0K Code, 76.0K Data, 259.0K Total

Previous Release:

Non-Debug Version: 95.6K Code, 26.8K Data, 122.4K Total

Debug Version: 183.5K Code, 76.6K Data, 260.1K Total

## 2) iASL Compiler/Disassembler and Tools:

AcpiExec: Added installation of a handler for the SystemCMOS address space. This prevents control method abort if a method accesses this space.

AcpiExec: Added support for multiple EC devices, and now install EC operation region handler(s) at the actual EC device instead of the namespace root. This reflects the typical behavior of host operating systems.



AcpiExec: Updated to ensure that all operation region handlers are installed before the \_REG methods are executed. This prevents a \_REG method from aborting if it accesses an address space has no handler. AcpiExec installs a handler for every possible address space.

Debugger: Enhanced the "handlers" command to display non-root handlers. This change enhances the handlers command to display handlers associated with individual devices throughout the namespace, in addition to the currently supported display of handlers associated with the root namespace node.

ASL Test Suite: Several test suite errors have been identified and resolved, reducing the total error count during execution. Chao Guan.

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28 March 2013. Summary of changes for version 20130328:

1) ACPICA kernel-resident subsystem:

Fixed several possible race conditions with the internal object reference counting mechanism. Some of the external ACPICA interfaces update object reference counts without holding the interpreter or namespace lock. This change adds a spinlock to protect reference count updates on the internal ACPICA objects. Reported by and with assistance from Andriy Gapon (avg@FreeBSD.org).

FADT support: Removed an extraneous warning for very large GPE register sets.

This change removes a size mismatch warning if the legacy length field for a GPE register set is larger than the 64-bit GAS structure can accommodate. GPE register sets can be larger than the 255-bit width limitation of the GAS structure. Linn Crosetto (linn@hp.com).

\_OSI Support: handle any errors from AcpiOsAcquireMutex. Check for error return from this interface. Handles a possible timeout case if ACPI\_WAIT\_FOREVER is modified by the host to be a value less than "forever". Jung-uk Kim.

Predefined name support: Add allowed/required argument type information to the master predefined info table. This change adds the infrastructure to enable typechecking on incoming arguments for all predefined methods/objects. It does not actually contain the code that will fully utilize this information, this is still under development. Also condenses some duplicate code for the predefined names into a new module, utilities/utpredef.c

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 95.0K Code, 25.9K Data, 120.9K Total

Debug Version: 182.9K Code, 75.6K Data, 258.5K Total

Current Release:

Non-Debug Version: 95.2K Code, 26.4K Data, 121.6K Total

Debug Version: 183.0K Code, 76.0K Data, 259.0K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Implemented a new option to simplify the development of ACPI-related

BIOS code. Adds support for a new "offset table" output file. The `-so` option will create a C table containing the AML table offsets of various named objects in the namespace so that BIOS code can modify them easily at

boot time. This can simplify BIOS runtime code by eliminating expensive searches for "magic values", enhancing boot times and adding greater reliability. With assistance from Lee Hamel.

iASL: Allow additional predefined names to return zero-length packages. Now, all predefined names that are defined by the ACPI specification to return a "variable-length package of packages" are allowed to return a zero length top-level package. This allows the BIOS to tell the host that the requested feature is not supported, and supports existing BIOS/ASL code and practices.

iASL: Changed the "result not used" warning to an error. This is the case where an ASL operator is effectively a NOOP because the result of the operation is not stored anywhere. For example:

```
Add (4, Local0)
```

There is no target (missing 3rd argument), nor is the function return value used. This is potentially a very serious problem -- since the code was probably intended to do something, but for whatever reason, the value was not stored. Therefore, this issue has been upgraded from a warning to an error.

AcpiHelp: Added allowable/required argument types to the predefined names

info display. This feature utilizes the recent update to the predefined

names table (above).

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14 February 2013. Summary of changes for version 20130214:

1) ACPICA Kernel-resident Subsystem:

Fixed a possible regression on some hosts: Reinstated the safe return macros (return\_ACPI\_STATUS, etc.) that ensure that the argument is evaluated only once. Although these macros are not needed for the ACPICA code itself, they are often used by ACPI-related host device drivers where the safe feature may be necessary.

Fixed several issues related to the ACPI 5.0 reduced hardware support (SOC): Now ensure that if the platform declares itself as hardware-reduced via the FADT, the following functions become NOOPs (and always return AE\_OK) because ACPI is always enabled by definition on these machines:  
AcpiEnable  
AcpiDisable  
AcpiHwGetMode  
AcpiHwSetMode

Dynamic Object Repair: Implemented additional runtime repairs for predefined name return

values. Both of these repairs can simplify code in the related device drivers that invoke these methods:

- 1) For the \_STR and \_MLS names, automatically repair/convert an ASCII string to a Unicode buffer.
- 2) For the \_CRS, \_PRS, and \_DMA names, return a resource descriptor with a

lone end tag descriptor in the following cases: A Return(0) was executed, a null buffer was returned, or no object at all was returned (non-slack mode only). Adds a new file, nsconvert.c  
ACPICA BZ 998. Bob Moore, Lv Zheng.

Resource Manager: Added additional code to prevent possible infinite loops while traversing corrupted or ill-formed resource template buffers. Check for zero-length resource descriptors in all code that loops through resource templates (the length field is used to index through the template). This change also hardens the external AcpiWalkResources and AcpiWalkResourceBuffer interfaces.

Local Cache Manager: Enhanced the main data structure to eliminate an unnecessary mechanism

to access the next object in the list. Actually provides a small performance enhancement for hosts that use the local ACPI cache manager. Jung-uk Kim.

Example Code and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 94.5K Code, 25.4K Data, 119.9K Total

Debug Version: 182.3K Code, 75.0K Data, 257.3K Total

Current Release:

Non-Debug Version: 95.0K Code, 25.9K Data, 120.9K Total

Debug Version: 182.9K Code, 75.6K Data, 258.5K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Fixed several issues with the definition of the ACPI 5.0 RASF table (RAS Feature Table). This change incorporates late changes that were made to the ACPI 5.0 specification.

iASL/Disassembler: Added full support for the following new ACPI tables:

1) The MTMR table (MID Timer Table)

2) The VRTC table (Virtual Real Time Clock Table).

Includes header file, disassembler, table compiler, and template support for both tables.

iASL: Implemented compile-time validation of package objects returned by predefined names. This new feature validates static package objects returned by the various predefined names defined to return packages. Both object types and package lengths are validated, for both parent packages and sub-packages, if any. The code is similar in structure and behavior to the runtime repair mechanism within the AML interpreter and uses the existing predefined name information table. Adds a new file, `aslprep.c`. ACPI BZ 938.

iASL: Implemented auto-detection of binary ACPI tables for disassembly. This feature detects a binary file with a valid ACPI table header and invokes the disassembler automatically. Eliminates the need to specifically invoke the disassembler with the `-d` option. ACPI BZ 862.

iASL/Disassembler: Added several warnings for the case where there are unresolved control methods during the disassembly. This can potentially

cause errors when the output file is compiled, because the disassembler assumes zero method arguments in these cases (it cannot determine the actual number of arguments without resolution/definition of the method).

Debugger: Added support to display all resources with a single command. Invocation of the resources command with no arguments will now display all resources within the current namespace.

AcpiHelp: Added descriptive text for each ACPICA exception code displayed via the -e option.

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17 January 2013. Summary of changes for version 20130117:

1) ACPICA Kernel-resident Subsystem:

Updated the AcpiGetSleepTypeData interface: Allow the \\_Sx methods to return either 1 or 2 integers. Although the ACPI spec defines the \\_Sx objects to return a package containing one integer, most BIOS code

returns two integers and the previous code reflects that. However, we also need to support BIOS code that actually implements to the ACPI spec, and this change reflects this.

Fixed two issues with the ACPI\_DEBUG\_PRINT macros:

- 1) Added the ACPI\_DO\_WHILE macro to the main DEBUG\_PRINT helper macro for C compilers that require this support.
- 2) Renamed the internal ACPI\_DEBUG macro to ACPI\_DO\_DEBUG\_PRINT since ACPI\_DEBUG is already used by many of the various hosts.

Updated all ACPICA copyrights and signons to 2013. Added the 2013 copyright to all module headers and signons, including the standard Linux header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, all ACPICA utilities, and the test suites.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 94.5K Code, 25.5K Data, 120.0K Total

Debug Version: 182.2K Code, 74.9K Data, 257.1K Total

Current Release:

Non-Debug Version: 94.5K Code, 25.4K Data, 119.9K Total

Debug Version: 182.3K Code, 75.0K Data, 257.3K Total

## 2) iASL Compiler/Disassembler and Tools:

Generic Unix OSL: Use a buffer to eliminate multiple `fprintf()`s and prevent a possible fault on some hosts. Some C libraries modify the arg pointer parameter to `fprintf` making it difficult to call it twice in the `AcpiOsVprintf` function. Use a local buffer to workaround this issue. This does not affect the Windows OSL since the Win C library does not modify the arg pointer. Chao Guan, Bob Moore.

iASL: Fixed a possible infinite loop when the maximum error count is reached. If an output file other than the .AML file is specified (such as a listing file), and the maximum number of errors is reached, do not attempt to flush data to the output file(s) as the compiler is aborting.

This can cause an infinite loop as the max error count code essentially keeps calling itself.

iASL/Disassembler: Added an option (-in) to ignore NOOP opcodes/operators.

Implemented for both the compiler and the disassembler. Often, the NOOP opcode is used as padding for packages that are changed dynamically by the BIOS. When disassembled and recompiled, these NOOPs will cause syntax errors. This option causes the disassembler to ignore all NOOP opcodes (0xA3), and it also causes the compiler to ignore all ASL source code NOOP statements as well.

Debugger: Enhanced the Sleep command to execute all sleep states. This change allows Sleep to be invoked with no arguments and causes the debugger to execute all of the sleep states, 0-5, automatically.

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20 December 2012. Summary of changes for version 20121220:

### 1) ACPICA Kernel-resident Subsystem:

Implemented a new interface, `AcpiWalkResourceBuffer`. This interface is an alternate entry point for `AcpiWalkResources` and improves the usability of the resource manager by accepting as input a buffer containing the output of either a `_CRS`, `_PRS`, or `_AEI` method. The key functionality is that the input buffer is not deleted by this interface so that it can be used by the host later. See the ACPICA reference for details.

Interpreter: Add a warning if a 64-bit constant appears in a 32-bit table (DSDT version < 2). The constant will be truncated and this warning reflects that behavior.

Resource Manager: Add support for the new ACPI 5.0 wake bit in the IRQ, ExtendedInterrupt, and GpioInt descriptors. This change adds support to both get and set the new wake bit in these descriptors, separately from the existing share bit. Reported by Aaron Lu.

Interpreter: Fix Store() when an implicit conversion is not possible. For example, in the cases such as a store of a string to an existing package object, implement the store as a CopyObject().

This is a small departure from the ACPI specification which states that the control method should be aborted in this case. However, the ASLTS suite depends on this behavior.

Performance improvement for the various FUNCTION\_TRACE and DEBUG\_PRINT macros: check if debug output is currently enabled as soon as possible to minimize performance impact if debug is in fact not enabled.

Source code restructuring: Cleanup to improve modularity. The following new files have been added: dbconvert.c, evhandler.c, nsprepkg.c, psopinfo.c, psoject.c, rsdumpinfo.c, utstring.c, and utownerid.c. Associated makefiles and project files have been updated.

Changed an exception code for LoadTable operator. For the case where one of the input strings is too long, change the returned exception code from AE\_BAD\_PARAMETER to AE\_AML\_STRING\_LIMIT.

Fixed a possible memory leak in dispatcher error path. On error, delete the mutex object created during method mutex creation. Reported by tim.gardner@canonical.com.

#### Example

Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Previous Release:

Non-Debug Version: 94.3K Code, 25.3K Data, 119.6K Total

Debug Version: 175.5K Code, 74.5K Data, 250.0K Total

#### Current Release:

Non-Debug Version: 94.5K Code, 25.5K Data, 120.0K Total

Debug Version: 182.2K Code, 74.9K Data, 257.1K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Disallow a method call as argument to the ObjectType ASL operator. This change tracks an errata to the ACPI 5.0 document. The AML grammar will not allow the interpreter to differentiate between a method and a method invocation when these are used as an argument to the ObjectType operator. The ACPI specification change is to disallow a method invocation (UserTerm) for the ObjectType operator.

### Finish

support for the TPM2 and CSRT tables in the headers, table compiler, and disassembler.

Unix user-space OSL: Fix a problem with WaitSemaphore where the timeout always expires immediately if the semaphore is not available. The original code was using a relative-time timeout, but sem\_timedwait requires the use of an absolute time.

iASL: Added a remark if the Timer() operator is used within a 32-bit table. This operator returns a 64-bit time value that will be truncated within a 32-bit table.

iASL Source code restructuring: Cleanup to improve modularity. The following new files have been added: aslhex.c, aslxref.c, aslnamesp.c, aslmethod.c, and aslfileio.c. Associated makefiles and project files have been updated.

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14 November 2012. Summary of changes for version 20121114:

### 1) ACPICA Kernel-resident Subsystem:

Implemented a performance enhancement for ACPI/AML Package objects. This change greatly increases the performance of Package objects within the interpreter. It changes the processing of reference counts for packages by optimizing for the most common case where the package sub-objects are either Integers, Strings, or Buffers. Increases the overall performance of the ASLTS test suite by 1.5X (Increases the Slack Mode performance by 2X.)  
Chao Guan. ACPICA BZ 943.



Implemented and deployed common macros to extract flag bits from resource descriptors. Improves readability and maintainability of the code. Fixes a problem with the UART serial bus descriptor for the number of data bits flags (was incorrectly 2 bits, should be 3).

Enhanced the ACPI\_GETx and ACPI\_SETx macros. Improved the implementation of the macros and changed the SETx macros to the style of (destination, source). Also added ACPI\_CASTx companion macros. Lv Zheng.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 93.9K Code, 25.2K Data, 119.1K Total

Debug Version: 175.5K Code, 74.5K Data, 250.0K Total

Current Release:

Non-Debug Version: 94.3K Code, 25.3K Data, 119.6K Total

Debug Version: 175.5K Code, 74.5K Data, 250.0K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Added the new ACPI 5.0 interrupt sharing flags. This change adds the ShareAndWake and ExclusiveAndWake flags which were added to the Irq, Interrupt, and Gpio resource descriptors in ACPI 5.0. ACPICA BZ 986.

Disassembler: Fixed a problem with external declaration generation. Fixes a problem where an incorrect pathname could be generated for an external declaration if the original reference to the object includes leading carats (^). ACPICA BZ 984.

Debugger: Completed a major update for the Disassemble<method> command. This command was out-of-date and did not properly disassemble control methods that had any reasonable complexity. This fix brings the command up to the same level as the rest of the disassembler. Adds one new file, dmdeferred.c, which is existing code that is now common with the main disassembler and the debugger disassemble command. ACPICA MZ 978.

iASL: Moved the parser entry prototype to avoid a duplicate declaration. Newer versions of Bison emit this prototype, so moved the prototype out of

the iASL header to where it is actually used in order to avoid a duplicate declaration.

iASL/Tools: Standardized use of the stream I/O functions:

- 1) Ensure check for I/O error after every fopen/fread/fwrite
- 2) Ensure proper order of size/count arguments for fread/fwrite
- 3) Use test of (Actual != Requested) after all fwrite, and most fread
- 4) Standardize I/O error messages

Improves reliability and maintainability of the code. Bob Moore, Lv Zheng.

ACPICA BZ 981.

Disassembler: Prevent duplicate External()

statements. During generation

of external statements, detect similar pathnames that are actually duplicates such as these:

External (\ABCD)

External (ABCD)

Remove all leading '\' characters from pathnames during the external statement generation so that duplicates will be detected and tossed.

ACPICA BZ 985.

Tools: Replace low-level I/O with stream I/O functions. Replace

open/read/write/close with the stream I/O equivalents

fopen/fread/fwrite/fclose for portability and performance. Lv Zheng, Bob Moore.

AcpiBin: Fix for the dump-to-hex function. Now correctly output the table name header so that AcpiXtract recognizes the output file/table.

iASL: Remove obsolete -2 option flag. Originally intended to force the compiler/disassembler into an ACPI 2.0 mode, this was never implemented and the entire concept is now obsolete.

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18 October 2012. Summary of changes for version 20121018:

1) ACPICA Kernel-resident Subsystem:

Updated support

for the ACPI 5.0 MPST table. Fixes some problems

introduced by late changes to the table as it was added to the ACPI 5.0 specification. Includes header, disassembler, and data table compiler support as well as a new version of the MPST template.

AcpiGetObjectInfo: Enhanced the device object support to include the ACPI

5.0 \_SUB method. Now calls \_SUB in addition to the other PNP-related ID methods: \_HID, \_CID, and \_UID.

Changed ACPI\_DEVICE\_ID to ACPI\_PNP\_DEVICE\_ID. Also changed ACPI\_DEVICE\_ID\_LIST to ACPI\_PNP\_DEVICE\_ID\_LIST. These changes prevent name collisions on hosts that reserve the \*\_DEVICE\_ID (or \*DeviceId) names for their various drivers. Affects the AcpiGetObjectInfo external interface, and other internal interfaces as well.

Added and deployed a new macro for ACPI\_NAME management: ACPI\_MOVE\_NAME. This macro resolves to a simple 32-bit move of the 4-character ACPI\_NAME on machines that support non-aligned transfers. Optimizes for this case rather than using a strncpy.

With assistance from Zheng Lv.

Resource Manager: Small fix for buffer size calculation. Fixed a one byte error in the output buffer calculation. Feng Tang. ACPICA BZ 849.

Added a new debug print message for AML mutex objects that are force-released. At control method termination, any currently acquired mutex objects are force-released. Adds a new debug-only message for each one that is released.

Audited/updated all ACPICA return macros and the function debug depth counter: 1) Ensure that all functions that use the various TRACE macros also use the appropriate ACPICA return macros. 2) Ensure that all normal return statements surround the return expression (value) with parens to ensure consistency across the ACPICA code base. Guan Chao, Tang Feng, Zheng Lv, Bob Moore. ACPICA Bugzilla 972.

Global source code changes/maintenance: All extra lines at the start and end of each source file have been removed for consistency. Also, within comments, all new sentences start with a single space instead of a double space, again for consistency across the code base.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 93.7K Code, 25.3K Data, 119.0K Total

Debug Version: 175.0K Code, 74.4K Data, 249.4K Total

Current Release:

Non-Debug Version: 93.9K Code, 25.2K Data, 119.1K Total

Debug Version: 175.5K Code, 74.5K Data, 250.0K Total

## 2) iASL Compiler/Disassembler and Tools:

AcpiExec: Improved the algorithm used for memory leak/corruption detection. Added some intelligence to the code that maintains the global list of allocated memory. The list is now ordered by allocated memory address, significantly improving performance. When running AcpiExec on the ASLTS test suite, speed improvements of 3X to 5X are seen, depending on the platform and/or the environment. Note, this performance enhancement affects the AcpiExec utility only, not the kernel-resident ACPICA code.

Enhanced error reporting for invalid AML opcodes and bad ACPI\_NAMES. For the disassembler, dump the 48 bytes surrounding the invalid opcode. Fix incorrect table offset reported for invalid opcodes. Report the original 32-bit value for bad ACPI\_NAMES (as well as the repaired name.)

Disassembler: Enhanced the -vt option to emit the binary table data in hex format to assist with debugging.

Fixed a potential filename buffer overflow in osunixdir.c. Increased the size of file structure. Colin Ian King.

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13 September 2012. Summary of changes for version 20120913:

### 1) ACPICA Kernel-resident Subsystem:

ACPI 5.0: Added two new notify types for the Hardware Error Notification Structure within the Hardware Error Source Table (HEST) table -- CMCI(5) and MCE(6).

#### Table

Manager: Merged/removed duplicate code in the root table resize functions. One function is external, the other is internal. Lv Zheng, ACPICA BZ 846.

Makefiles: Completely removed the obsolete "Linux" makefiles under acpica/generate/linux. These makefiles are obsolete and have been replaced by the generic unix makefiles under acpica/generate/unix.

Makefiles: Ensure that binary files always copied properly. Minor rule

change

to ensure that the final binary output files are always copied up to the appropriate binary directory (bin32 or bin64.)

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 93.8K Code, 25.3K Data, 119.1K Total

Debug Version: 175.7K Code, 74.8K Data, 250.5K Total

Current Release:

Non-Debug

Version: 93.7K Code, 25.3K Data, 119.0K Total

Debug Version: 175.0K Code, 74.4K Data, 249.4K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a possible fault during the disassembly of resource descriptors when a second parse is required because of the invocation of external control methods within the table. With assistance from adq@lidskialf.net. ACPICA BZ 976.

iASL: Fixed a namepath optimization problem. An error can occur if the parse node that contains the namepath to be optimized does not have a parent node that is a named object. This change fixes the problem.

iASL: Fixed a regression where the AML file is not deleted on errors. The AML output file should be deleted if there are any errors during the compiler. The only exception is if the -f (force output) option is used. ACPICA BZ 974.

iASL: Added a feature to automatically increase internal line buffer sizes. Via realloc(), automatically increase the internal line buffer sizes as necessary to support very long source code lines. The current version of the preprocessor requires a buffer long enough to contain full source code lines.

This change increases the line buffer(s) if the input lines go beyond the current buffer size. This eliminates errors that occurred when a source code line was longer than the buffer.

iASL: Fixed a problem with constant folding in method declarations. The SyncLevel term is a ByteConstExpr, and incorrect code would be generated if a Type3 opcode was used.

Debugger: Improved command help support. For incorrect argument count, display full help for the command. For help command itself, allow an argument to specify a command.

Test Suites: Several bug fixes for the ASLTS suite reduces the number of errors during execution of the suite. Guan Chao.

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16 August 2012. Summary of changes for version 20120816:

#### 1) ACPICA Kernel-resident Subsystem:

Removed all use of the deprecated `_GTS` and `_BFS` predefined methods. The `_GTS` (Going To Sleep) and `_BFS` (Back From Sleep) methods are essentially deprecated and will probably be removed from the ACPI specification. Windows does not invoke them, and reportedly never will. The final nail in the coffin is that the ACPI specification states that these methods must be run with interrupts off, which is not going to happen in a kernel interpreter.

Note:

Linux has removed all use of the methods also. It was discovered that invoking these functions caused failures on some machines, probably because they were never tested since Windows does not call them. Affects two external interfaces, `AcpiEnterSleepState` and `AcpiLeaveSleepStatePrep`. Tang Feng. ACPICA BZ 969.

Implemented support for complex bit-packed buffers returned from the `_PLD` (Physical Location of Device) predefined method. Adds a new external interface, `AcpiDecodePldBuffer` that parses the buffer into a more usable C structure. Note: C Bitfields cannot be

used for this type of predefined structure since the memory layout of individual bitfields is not defined by the C language. In addition, there are endian concerns where a compiler will change the bitfield ordering based on the machine type. The new ACPICA interface eliminates these issues, and should be called after `_PLD` is executed. ACPICA BZ 954.

Implemented a change to allow a scope change to root (via "Scope (\)") during execution of module-level ASL code (code that is executed at table load time.) Lin Ming.

Added the Windows8/Server2012 string for the `_OSI` method. This change adds a new `_OSI` string, "Windows 2012" for both Windows 8 and Windows Server 2012.

Added header support for the new ACPI tables DBG2 (Debug Port Table Type 2) and CSRT (Core System Resource Table).

Added struct header support for the `_FDE`, `_GRT`, `_GTM`, and `_SRT` predefined names. This simplifies access to the buffers returned by these predefined names. Adds a new file, `include/acbuffer.h`. ACPICA BZ 956.

GPE support: Removed an extraneous parameter from the various low-level internal GPE functions. Tang Feng.

Removed the linux makefiles from the unix packages. The `generate/linux` makefiles are obsolete and have been removed from the unix tarball release packages. The replacement makefiles are under `generate/unix`, and there is a top-level makefile under the main `acpica` directory. ACPICA BZ 967, 912.

Updates for Unix makefiles:

- 1) Add `-D_FORTIFY_SOURCE=2` for gcc generation. Arjan van de Ven.
- 2) Update linker flags (move to end of command line) for `AcpiExec` utility. Guan Chao.

Split ACPICA initialization functions to new file, `utxfinit.c`. Split from `utxface.c` to improve modularity and reduce file size.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous

Release:

Non-Debug Version: 93.5K Code, 25.3K Data, 118.8K Total

Debug Version: 173.7K Code, 74.0K Data, 247.7K Total

Current Release:

Non-Debug Version: 93.8K Code, 25.3K Data, 119.1K Total

Debug Version: 175.7K Code, 74.8K Data, 250.5K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with constant folding for fixed-length constant expressions. The constant-folding code was not being invoked for constant expressions that allow the use of type 3/4/5 opcodes to generate constants for expressions such as ByteConstExpr, WordConstExpr, etc. This could result in the generation of invalid AML bytecode. ACPICA BZ 970.

iASL: Fixed a generation issue on newer versions of Bison. Newer versions apparently automatically emit some of the necessary externals. This change handles these versions in order to eliminate generation warnings.

Disassembler: Added support to decode the DBG2 and CSRT ACPI tables.

Disassembler: Add support to decode \_PLD buffers. The decoded buffer appears within comments in the output file.

Debugger: Fixed a regression with the "Threads" command where AE\_BAD\_PARAMETER was always returned.

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11 July 2012. Summary of changes for version 20120711:

### 1) ACPICA Kernel-resident Subsystem:

Fixed a possible fault in the return package object repair code. Fixes a problem that can occur when a lone package object is wrapped with an outer



package object in order to force conformance to the ACPI specification.

Can

affect these predefined names: `_ALR`, `_MLS`, `_PSS`, `_TRT`, `_TSS`, `_PRT`, `_HPX`,  
`_DLM`,  
`_CSD`, `_PSD`, `_TSD`.

Removed code to disable/enable bus master arbitration (`ARB_DIS` bit in the `PM2_CNT` register) in the ACPICA sleep/wake interfaces. Management of the `ARB_DIS` bit must be implemented in the host-dependent C3 processor power state

support. Note, `ARB_DIS` is obsolete and only applies to older chipsets,

both

Intel and other vendors. (for Intel:

`ICH4-M` and earlier)

This change removes the code to disable/enable bus master arbitration during

suspend/resume. Use of the `ARB_DIS` bit in the optional `PM2_CNT` register causes

resume problems on some machines. The change has been in use for over seven

years within Linux.

Implemented two new external interfaces to support host-directed dynamic ACPI

table load and unload. They are intended to simplify the host implementation

of hot-plug support:

`AcpiLoadTable`: Load an SSDT from a buffer into the namespace.

`AcpiUnloadParentTable`: Unload an SSDT via a named object owned by the table.

See the ACPICA reference for additional details. Adds one new file, `components/tables/tbxfload.c`

Implemented and deployed two new interfaces for errors and warnings that are

known to be caused by BIOS/firmware issues:

`AcpiBiosError`: Prints "ACPI Firmware Error" message.

`AcpiBiosWarning`: Prints "ACPI Firmware Warning" message.

Deployed these new interfaces in the ACPICA Table Manager code for ACPI

table

and FADT errors. Additional deployment to be completed as appropriate in the

future. The associated conditional macros are `ACPI_BIOS_ERROR` and `ACPI_BIOS_WARNING`. See the ACPICA reference for additional details.

ACPICA

BZ

843.

Implicit notify support: ensure that no memory allocation occurs within a critical region. This fix moves a memory allocation outside of the time that a spinlock is held. Fixes issues on systems that do not allow this behavior.

Jung-uk Kim.

Split exception code utilities and tables into a new file, utilities/utexcept.c

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 93.1K Code, 25.1K Data, 118.2K Total

Debug Version: 172.9K Code, 73.6K Data, 246.5K Total

Current Release:

Non-Debug Version: 93.5K Code, 25.3K Data, 118.8K Total

Debug Version: 173.7K Code, 74.0K Data, 247.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a parser problem for hosts where EOF is defined as -1 instead of

0. Jung-uk Kim.

Debugger: Enhanced the "tables" command to emit additional information about the current set of ACPI tables, including the owner ID and flags decode.

Debugger: Reimplemented the "unload" command to use the new AcpiUnloadParentTable external interface. This command was disabled previously due to need for an unload interface.

AcpiHelp: Added a new option to decode ACPICA exception codes. The -e option will decode 16-bit hex status codes (ACPI\_STATUS) to name strings.

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20 June 2012. Summary of changes for version 20120620:

## 1) ACPICA Kernel-resident Subsystem:

Implemented support to expand the "implicit notify" feature to allow multiple

devices to be notified by a single GPE.

This feature automatically

generates a

runtime device notification in the absence of a BIOS-provided GPE control method (`_Lxx/_Exx`) or a host-installed handler for the GPE. Implicit

notify is

provided by ACPICA for Windows compatibility, and is a workaround for BIOS

AML

code errors. See the description of the `AcpiSetupGpeForWake` interface in the

ACPICA reference. Bob Moore, Rafael Wysocki. ACPICA BZ 918.

Changed some comments and internal function names to simplify and ensure correctness of the Linux code translation. No functional changes.

**Example Code and Data Size:** These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug

version of the code includes the debug output trace mechanism and has a much

larger code and data size.

### Previous Release:

Non-Debug Version: 93.0K Code, 25.1K Data, 118.1K Total

Debug Version: 172.7K Code, 73.6K Data, 246.3K Total

### Current Release:

Non-Debug Version:

93.1K Code, 25.1K Data, 118.2K Total

Debug Version: 172.9K Code, 73.6K Data, 246.5K Total

## 2) iASL Compiler/Disassembler and Tools:

**Disassembler:** Added support to emit short, commented descriptions for the ACPI

predefined names in order to improve the readability of the disassembled output. ACPICA BZ 959. Changes include:

1) Emit descriptions for all standard predefined names (`_INI`, `_STA`, `_PRW`,

etc.)

2) Emit generic descriptions for the special names (`_Exx`, `_Qxx`, etc.)

3) Emit descriptions for the resource descriptor names (\_MIN, \_LEN, etc.)

AcpiSrc: Fixed several long-standing Linux code translation issues.

Argument

descriptions in function headers are now translated properly to lower case

and

underscores. ACPICA BZ 961. Also fixes translation problems such as these:

(old -> new)

i\_aSL -> iASL

00-7\_f -> 00-7F

16\_k -> 16K

local\_fADT -> local\_FADT

execute\_oSI -> execute\_OSI

iASL: Fixed a problem where null bytes were inadvertently emitted into

some

listing files.

iASL: Added the existing debug options to the standard help screen. There

are

no longer two different help screens. ACPICA BZ 957.

AcpiHelp: Fixed some typos in the various predefined name descriptions.

Also

expand some of the descriptions where appropriate.

iASL: Fixed the -ot option (display compile times/statistics). Was not working

properly for standard output; only worked for the debug file case.

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18 May 2012. Summary of changes for version 20120518:

1) ACPICA Core Subsystem:

Added a new OSL interface, AcpiOsWaitEventsComplete. This interface is defined

to block until asynchronous events such as notifies and GPEs have completed.

Within ACPICA, it is only called before a notify or GPE handler is removed/uninstalled. It also may be useful for the host OS within related drivers such as the Embedded Controller driver. See the ACPICA reference for

additional information. ACPICA BZ 868.

#### ACPI Tables: Added

a new error message for a possible overflow failure during the conversion of FADT 32-bit legacy register addresses to internal common 64-bit GAS structure representation. The GAS has a one-byte "bit length" field, thus limiting the register length to 255 bits. ACPICA BZ 953.

**Example Code and Data Size:** These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Previous Release:

Non-Debug Version: 92.9K Code, 25.0K Data, 117.9K Total

Debug Version: 172.6K Code, 73.4K Data, 246.0K Total

#### Current Release:

Non-Debug Version: 93.0K Code, 25.1K Data, 118.1K Total

Debug Version: 172.7K Code, 73.6K Data, 246.3K Total

## 2) iASL Compiler/Disassembler and Tools:

**iASL:** Added the ACPI 5.0 "PCC" keyword for use in the `Register()` ASL macro.

This keyword was added late in the ACPI 5.0 release cycle and was not implemented until now.

**Disassembler:** Added support for Operation Region externals. Adds missing support for operation regions that are defined in another table, and referenced locally via a `Field` or `BankField` ASL operator. Now generates the correct External statement.

**Disassembler:** Several additional fixes for the `External()` statement generation related to some ASL operators. Also, order the `External()` statements alphabetically in the disassembler output. Fixes the `External()` generation for the `Create*` field, `Alias`, and `Scope` operators:

- 1) Create\* buffer field operators - fix type mismatch warning on disassembly
- 2) Alias - implement missing External support
- 3) Scope - fix to make sure all necessary externals are emitted.

iASL: Improved pathname support. For include files, merge the prefix pathname with the file pathname and eliminate unnecessary components. Convert backslashes in all pathnames to forward slashes, for readability. Include file

pathname changes affect both #include and Include() type operators.

iASL/DTC/Preprocessor: Gracefully handle early EOF. Handle an EOF at the end of a valid line by inserting a newline and then returning the EOF during the next call to GetNextLine. Prevents the line from being ignored due to EOF condition.

iASL: Implemented some changes to enhance the IDE support (-vi option.) Error and Warning messages are now correctly recognized for both the source code browser and the global error and warning counts.

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20 April 2012. Summary of changes for version 20120420:

#### 1) ACPI Core Subsystem:

Implemented support for multiple notify handlers. This change adds support to allow multiple system and device notify handlers on Device, Thermal Zone, and Processor objects. This can simplify the host OS notification implementation. Also re-worked and restructured the entire notify support code to simplify handler installation, handler removal, notify event queuing, and notify dispatch to handler(s). Note: there can still only be two global notify handlers - one for system notifies and one for device notifies. There are no changes to the existing handler install/remove interfaces. Lin Ming, Bob Moore, Rafael Wysocki.

Fixed a regression in the package repair code where the object reference count was calculated incorrectly. Regression was introduced in the commit "Support to add Package wrappers".

Fixed a couple possible memory leaks in the AML parser, in the error recovery path. Jesper Juhl, Lin Ming.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 92.9K Code, 25.0K Data, 117.9K Total

Debug Version: 172.5K Code, 73.2K Data, 245.7K Total

Current Release:

Non-Debug Version: 92.9K Code, 25.0K Data, 117.9K Total

Debug Version: 172.6K Code, 73.4K Data, 246.0K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with the resource descriptor support where the length of the `StartDependentFn` and `StartDependentFnNoPrio` descriptors were not included in cumulative descriptor offset, resulting in incorrect values for resource tags within resource descriptors appearing after a `StartDependent*` descriptor. Reported by Petr Vandrovec. ACPICA BZ 949.

iASL and Preprocessor: Implemented full support for the `#line` directive to correctly track original source file line numbers through the `.i` preprocessor output file - for error and warning messages.

iASL: Expand the allowable byte constants for address space IDs. Previously, the allowable range was `0x80-0xFF` (user-defined spaces), now the range is `0x0A-0xFF` to allow for custom and new IDs without changing the compiler.

iASL: Add option to treat all warnings as errors (`-we`). ACPICA BZ 948.

iASL: Add option to completely disable the preprocessor (-Pn).

iASL: Now emit all error/warning messages to standard error (stderr) by default (instead of the previous stdout).

ASL Test Suite (ASLTS): Reduce iASL warnings due to use of Switch().

Update

for resource descriptor offset fix above. Update/cleanup error output routines. Enable and send iASL errors/warnings to an error logfile (error.txt). Send all other iASL output to a logfile (compiler.txt).

Fixed

several extraneous "unrecognized operator" messages.

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20 March 2012. Summary of changes for version 20120320:

#### 1) ACPICA Core Subsystem:

Enhanced the sleep/wake interfaces to optionally execute the \_GTS method (Going To Sleep) and the \_BFS method (Back From Sleep). Windows apparently

does not execute these methods, and therefore these methods are often untested. It has been seen on some systems where the execution of these methods causes

errors and also prevents the machine from entering S5. It is

therefore suggested that host operating systems do not execute these methods

by default. In the future, perhaps these methods can be optionally executed

based on the age of the system and/or what is the newest version of Windows

that the BIOS asks for via \_OSI. Changed interfaces: AcpiEnterSleepState and

AcpileaveSleepStatePrep. See the ACPICA reference and Linux BZ 13041. Lin Ming.

Fixed a problem where the length of the local/common FADT was set too early.

The local FADT table length cannot be set to the common length until the original length has been examined. There is code that checks the table length

and sets various fields appropriately. This can affect older machines with

early FADT versions. For example, this can cause inadvertent writes to the

CST\_CNT register. Julian Anastasov.



Fixed a mapping issue related to a physical table override. Use the deferred mapping mechanism for tables loaded via the physical override OSL interface.

This allows for early mapping before the virtual memory manager is available.

Thomas Renninger, Bob Moore.

Enhanced the automatic return-object repair code: Repair a common problem with predefined methods that are defined to return a variable-length Package of sub-objects. If there is only one sub-object, some BIOS ASL code mistakenly simply returns the single object instead of a Package with one sub-object.

This new support will repair this error by wrapping a Package object around

the original object, creating the correct and expected Package with one sub-

object. Names that can be repaired in this manner include: `_ALR`, `_CSD`, `_HPX`,

`_MLS`, `_PLD`, `_PRT`, `_PSS`, `_TRT`, `_TSS`, `_BCL`, `_DOD`, `_FIX`, and `_Sx`. ACPICA BZ 939.

Changed the exception code returned for invalid ACPI paths passed as parameters to external interfaces such as `AcpiEvaluateObject`. Was `AE_BAD_PARAMETER`, now is the more sensible `AE_BAD_PATHNAME`.

#### Example Code and Data

Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Previous Release:

Non-Debug Version: 93.0K Code, 25.0K Data, 118.0K Total

Debug Version: 172.5K Code, 73.2K Data, 245.7K Total

#### Current Release:

Non-Debug Version: 92.9K Code, 25.0K Data, 117.9K Total

Debug Version: 172.5K Code, 73.2K Data, 245.7K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Added the infrastructure and initial implementation of a integrated C-like preprocessor. This will simplify BIOS development process by eliminating the need for a separate preprocessing step during builds. On Windows, it also eliminates the need to install a separate C compiler. ACPICA BZ 761. Some features including full #define() macro support are still under development.

These preprocessor directives are supported:

- #define
- #elif
- #else
- #endif
- #error
- #if
- #ifdef
- #ifndef
- #include
- #pragma message
- #undef
- #warning

In addition, these new command line options are supported:

- D <symbol> Define symbol for preprocessor use
- li Create preprocessed output file (\*.i)
- P Preprocess only and create preprocessor output file (\*.i)

Table Compiler: Fixed a problem where the equals operator within an expression did not work properly.

Updated iASL to use the current versions of Bison/Flex. Updated the Windows project file to invoke these tools from the standard location. ACPICA BZ 904.

Versions supported:

- Flex for Windows: V2.5.4
- Bison for Windows: V2.4.1

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15 February 2012. Summary of changes for version 20120215:

1) ACPICA Core Subsystem:

There have been some major changes to the sleep/wake support code, as described below (a - e).

a) The AcpiLeaveSleepState has been split into two interfaces, similar to AcpiEnterSleepStatePrep and AcpiEnterSleepState. The new interface is AcpiLeaveSleepStatePrep. This allows the host to perform actions between the time the \_BFS method is called and the \_WAK method is called. NOTE: all hosts must update their wake/resume code or else sleep/wake will not work properly.  
Rafael Wysocki.

b) In AcpiLeaveSleepState, now enable all runtime GPEs before calling the \_WAK method. Some machines require that the GPEs are enabled before the \_WAK method is executed. Thomas Renninger.

c) In AcpiLeaveSleepState, now always clear the WAK\_STS (wake status) bit. Some BIOS code assumes that WAK\_STS will be cleared on resume and use it to determine whether the system is rebooting or resuming. Matthew Garrett.

d) Move the invocations of \_GTS (Going To Sleep) and \_BFS (Back From Sleep) to match the ACPI specification requirement. Rafael Wysocki.

e) Implemented full support for the ACPI 5.0 SleepStatus and SleepControl registers within the V5 FADT. This support adds two new files: hardware/hwesleep.c implements the support for the new registers. Moved all sleep/wake external interfaces to hardware/hwxfsleep.c.

Added a new OSL interface for ACPI table overrides, AcpiOsPhysicalTableOverride. This interface allows the host to override a table via a physical address, instead of the logical address required by AcpiOsTableOverride. This simplifies the host implementation. Initial implementation by Thomas Renninger. The ACPICA implementation creates a single shared function for table overrides that attempts both a logical and a physical override.

Expanded the OSL memory read/write interfaces to 64-bit data (AcpiOsReadMemory, AcpiOsWriteMemory.) This enables full 64-bit memory transfer support for GAS register structures passed to AcpiRead and

AcpiWrite.

Implemented the ACPI\_REDUCED\_HARDWARE option to allow the creation of a custom

build of ACPICA that supports only the ACPI 5.0 reduced hardware (SoC)

model.

See the ACPICA reference for details. ACPICA BZ 942. This option removes about

10% of the code and 5% of the static data, and the following hardware ACPI

features become unavailable:

- PM Event and Control registers

- SCI interrupt (and handler)

- Fixed Events

- General Purpose Events (GPEs)

- Global Lock

- ACPI PM timer

- FACS table (Waking vectors and Global Lock)

Updated the unix tarball directory structure to match the ACPICA git source

tree. This ensures that the generic unix makefiles work properly (in generate/unix). Also updated the Linux makefiles to match. ACPICA BZ 867.

Updated the return value of the \_REV predefined method to integer value 5 to

reflect ACPI 5.0 support.

Moved the external ACPI PM timer interface prototypes to the public acpixf.h

file where they belong.

Example Code and Data Size: These are the sizes for the OS-independent apcica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The

debug

version

of the code includes the debug output trace mechanism and has a

much

larger code and data size.

Previous Release:

- Non-Debug Version: 92.8K Code, 24.9K Data, 117.7K Total

- Debug Version: 171.7K Code, 72.9K Data, 244.5K Total

Current Release:

- Non-Debug Version: 93.0K Code, 25.0K Data, 118.0K Total

- Debug Version: 172.5K Code, 73.2K Data, 245.7K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed a problem with the new ACPI 5.0 serial resource descriptors (I2C, SPI, UART) where the resource produce/consumer bit was incorrectly displayed.

AcpiHelp: Add display of ACPI/PNP device IDs that are defined in the ACPI specification.

-----  
11 January 2012. Summary of changes for version 20120111:

### 1) ACPICA Core Subsystem:

Implemented a new mechanism to allow host device drivers to check for address range conflicts with ACPI Operation Regions. Both SystemMemory and SystemIO address spaces are supported.

A new external interface, AcpiCheckAddressRange, allows drivers to check an address range against the ACPI namespace. See the ACPICA reference for additional details. Adds one new file, utilities/utaddress.c. Lin Ming, Bob Moore.

Fixed several issues with the ACPI 5.0 FADT support: Add the sleep Control and Status registers, update the ACPI 5.0 flags, and update internal data structures to handle an FADT larger than 256 bytes. The size of the ACPI 5.0 FADT is 268 bytes.

Updated all ACPICA copyrights and signons to 2012. Added the 2012 copyright to all module headers and signons, including the standard Linux header. This affects virtually every file in the ACPICA core subsystem, iASL compiler, and all ACPICA utilities.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a

much  
larger code and data  
size.

Previous Release:

Non-Debug Version: 92.3K Code, 24.9K Data, 117.2K Total

Debug Version: 170.8K Code, 72.6K Data, 243.4K Total

Current Release:

Non-Debug Version: 92.8K Code, 24.9K Data, 117.7K Total

Debug Version: 171.7K Code, 72.9K Data, 244.5K Total

2) iASL Compiler/Disassembler and Tools:

Disassembler: fixed a problem with the automatic resource tag generation support. Fixes a problem where the resource tags are inadvertently not constructed if the table being disassembled contains external references to control methods. Moved the actual construction of the tags to after the final namespace is constructed (after 2nd parse is invoked due to external control method references.) ACPICA BZ 941.

Table Compiler: Make all "generic" operators caseless. These are the operators like UINT8, String, etc. Making these caseless improves ease-of-use. ACPICA BZ 934.

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23 November 2011. Summary of changes  
for version 20111123:

0) ACPI 5.0 Support:

This release contains full support for the ACPI 5.0 specification, as summarized below.

Reduced Hardware Support:  
-----

This support allows for ACPI systems without the usual ACPI hardware. This support is enabled by a flag in the revision 5 FADT. If it is set, ACPICA will not attempt to initialize or use any of the usual ACPI hardware. Note, when

this flag is set, all of the following ACPI hardware is assumed to be not present and is not initialized or accessed:

- General Purpose Events (GPEs)
- Fixed Events (PM1a/PM1b and PM Control)
- Power Management Timer and Console Buttons (power/sleep)
- Real-time Clock Alarm
- Global Lock
- System Control Interrupt (SCI)
- The FACS is assumed to be non-existent

ACPI Tables:

-----

All new tables and updates to existing tables are fully supported in the ACPICA headers (for use by device drivers), the disassembler, and the iASL

Data Table Compiler.

ACPI 5.0 defines these new tables:

- BGRT /\* Boot Graphics Resource Table \*/
- DRTM /\* Dynamic Root of Trust for Measurement table \*/
- FPDT /\* Firmware Performance Data Table \*/
- GTDT /\* Generic Timer Description Table \*/
- MPST /\* Memory Power State Table \*/
- PCCT /\* Platform Communications Channel Table \*/
- PMTT /\* Platform Memory Topology Table \*/
- RASF /\* RAS Feature table \*/

Operation Regions/SpaceIDs:

-----

All new operation regions are fully supported by the iASL compiler, the disassembler, and the ACPICA runtime code (for dispatch to region handlers.)

The new operation region Space IDs are:

- GeneralPurposeIo
- GenericSerialBus

Resource Descriptors:

-----

All new ASL resource descriptors are fully supported by the iASL compiler, the ASL/AML disassembler, and the ACPICA runtime Resource Manager code (including

all new predefined resource tags).

New descriptors are:

FixedDma  
GpioIo  
GpioInt  
I2cSerialBus  
SpiSerialBus  
UartSerialBus

ASL/AML Operators, New and Modified:

-----

One new operator is added, the Connection operator, which is used to associate a GeneralPurposeIo or GenericSerialBus resource descriptor with individual field objects within an operation region. Several new protocols are associated with the AccessAs operator. All are fully supported by the iASL compiler, disassembler, and runtime ACPICA AML interpreter:

```
Connection          // Declare Field Connection
attributes
  AccessAs: AttribBytes (n)      // Read/Write N-Bytes Protocol
  AccessAs: AttribRawBytes (n)  // Raw Read/Write N-Bytes
Protocol
  AccessAs: AttribRawProcessBytes (n) // Raw Process Call Protocol
  RawDataBuffer                // Data type for Vendor Data
fields
```

Predefined ASL/AML Objects:

-----

All new predefined objects/control-methods are supported by the iASL compiler and the ACPICA runtime validation/repair (arguments and return values.) New predefined names include the following:

Standard Predefined Names (Objects or Control Methods):

\_AEI, \_CLS, \_CPC, \_CWS, \_DEP,  
\_DLM, \_EVT, \_GCP, \_CRT, \_GWS,  
\_HRV, \_PRE, \_PSE, \_SRT, \_SUB.

Resource Tags (Names used to access individual fields within resource descriptors):



\_DBT, \_DPL, \_DRS, \_END, \_FLC,  
\_IOR, \_LIN, \_MOD, \_PAR, \_PHA,  
\_PIN, \_PPI, \_POL, \_RXL, \_SLV,  
\_SPE, \_STB, \_TXL, \_VEN.

#### ACPICA External Interfaces:

-----

Several new interfaces have been defined for use by ACPI-related device drivers and other host OS services:

**AcpiAcquireMutex and AcpiReleaseMutex:** These interfaces allow the host OS to acquire and release AML mutexes that are defined in the DSDT/SSDT tables provided by the BIOS. They are intended to be used in conjunction with the ACPI 5.0 \_DLM (Device Lock Method) in order to provide transaction-level mutual exclusion with the AML code/interpreter.

**AcpiGetEventResources:** Returns the (formatted) resource descriptors as defined by the ACPI 5.0 \_AEI object (ACPI Event Information). This object provides resource descriptors associated with hardware-reduced platform events, similar to the AcpiGetCurrentResources interface.

**Operation Region Handlers:** For General Purpose IO and Generic Serial Bus operation regions, information about the Connection() object and any optional length information is passed to the region handler within the Context parameter.

**AcpiBufferToResource:** This interface converts a raw AML buffer containing a resource template or resource descriptor to the ACPI\_RESOURCE internal format suitable for use by device drivers. Can be used by an operation region handler to convert the Connection() buffer object into a ACPI\_RESOURCE.

#### Miscellaneous/Tools/TestSuites:

-----

Support for extended \_HID names (Four alpha characters instead of three).  
Support for ACPI 5.0 features in the AcpiExec and AcpiHelp utilities.

Support for ACPI 5.0 features in the ASLTS test suite.  
Fully updated documentation (ACPICA and iASL reference documents.)

ACPI Table Definition Language:  
-----

Support for this language was implemented and released as a subsystem of  
the  
iASL compiler in 2010. (See the iASL compiler User Guide.)

Non-ACPI 5.0 changes for this release:  
-----

1) ACPICA Core Subsystem:

Fix a problem with operation region declarations where a failure can  
occur  
if  
the region name and an argument that evaluates to an object (such as the  
region address) are in different namespace scopes. Lin Ming, ACPICA BZ  
937.

Do not abort an ACPI table load if an invalid space ID is found within.  
This  
will be caught later if the offending method is executed. ACPICA BZ 925.

Fixed an issue with the FFixedHW space ID where the ID was not always  
recognized  
properly (Both ACPICA and iASL). ACPICA BZ 926.

Fixed a problem with the 32-bit generation of the unix-specific OSL  
(osunixxf.c). Lin Ming, ACPICA BZ 936.

Several changes made to enable generation with the GCC 4.6 compiler.  
ACPICA BZ  
935.

New error messages: Unsupported I/O requests (not 8/16/32 bit), and  
Index/Bank  
field registers out-of-range.

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented the \_\_PATH\_\_ operator, which returns the full pathname  
of  
the current source file.

AcpiHelp: Automatically display expanded keyword information for all ASL operators.

Debugger: Add "Template" command to disassemble/dump resource template buffers.

Added a new master script to generate and execute the ASLTS test suite. Automatically handles 32- and 64-bit generation. See tests/aslts.sh

iASL: Fix problem with listing generation during processing of the Switch() operator where AML listing was disabled until the entire Switch block was completed.

iASL: Improve support for semicolon statement terminators. Fix "invalid character" message for some cases when the semicolon is used. Semicolons are now allowed after every <Term> grammar element. ACPICA BZ 927.

iASL: Fixed some possible aliasing warnings during generation. ACPICA BZ 923.

Disassembler: Fix problem with disassembly of the DataTableRegion operator where an inadvertent "Unhandled deferred opcode" message could be generated.

### 3) Example Code and Data Size

These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Previous Release:

Non-Debug Version: 90.2K Code, 23.9K Data, 114.1K Total

Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

#### Current Release:

Non-Debug Version: 92.3K Code, 24.9K Data, 117.2K Total

Debug Version: 170.8K Code, 72.6K Data, 243.4K Total

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22

September 2011. Summary of changes for version 20110922:

0) ACPI 5.0 News:

Support for ACPI 5.0 in ACPICA has been underway for several months and will be released at the same time that ACPI 5.0 is officially released.

The ACPI 5.0 specification is on track for release in the next few months.

#### 1) ACPICA Core Subsystem:

Fixed a problem where the maximum sleep time for the Sleep() operator was intended to be limited to two seconds, but was inadvertently limited to 20 seconds instead.

Linux and Unix makefiles: Added header file dependencies to ensure correct generation of ACPICA core code and utilities. Also simplified the makefiles considerably through the use of the vpath variable to specify search paths.  
ACPICA BZ 924.

#### 2) iASL Compiler/Disassembler and Tools:

iASL: Implemented support to check the access length for all fields created to access named Resource Descriptor fields. For example, if a resource field is defined to be two bits, a warning is issued if a CreateXxxxField() is used with an incorrect bit length. This is implemented for all current resource descriptor names. ACPICA BZ 930.

Disassembler: Fixed a byte ordering problem with the output of 24-bit and 56-bit integers.

iASL: Fixed a couple of issues associated with variable-length package objects. 1) properly handle constants like One, Ones, Zero -- do not make a VAR\_PACKAGE when these are used as a package length. 2) Allow the VAR\_PACKAGE opcode (in addition to PACKAGE) when validating object types for predefined names.

iASL: Emit statistics for all output files (instead of just the ASL input and AML output). Includes listings, hex files, etc.

iASL: Added -G option to the table compiler to allow the compilation of custom ACPI tables. The only part of a table that is required is the standard 36-byte ACPI header.

AcpiXtract: Ported to the standard ACPICA environment (with ACPICA headers), which also adds correct 64-bit support. Also, now all output filenames are completely lower case.

AcpiExec: Ignore any non-AML tables (tables other than DSDT or SSDT) when loading table files. A warning is issued for any such tables. The only exception is an FADT. This also fixes a possible fault when attempting to load non-AML tables. ACPICA BZ 932.

AcpiHelp: Added the AccessAs and Offset operators. Fixed a problem where a missing table terminator could cause a fault when using the -p option.

AcpiSrc: Fixed a possible divide-by-zero fault when generating file statistics.

### 3) Example Code and Data Size

These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release (VC 9.0):

Non-Debug Version: 90.2K Code, 23.9K Data, 114.1K Total

Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

Current Release (VC 9.0):

Non-Debug Version: 90.2K Code, 23.9K Data, 114.1K Total

Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

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23 June 2011. Summary of changes for version 20110623:

1) ACPI CA Core Subsystem:

Updated the predefined name repair mechanism to not attempt repair of a  
\_TSS  
return object if a \_PSS object is present. We can only sort the \_TSS  
return  
package if there is no \_PSS within the same scope. This is because if  
\_PSS  
is  
present, the ACPI specification dictates that the \_TSS Power Dissipation  
field  
is to be ignored, and therefore some BIOSs leave garbage values in the  
\_TSS  
Power field(s). In this case, it is best to just return the \_TSS package  
as-  
is. Reported by, and fixed with assistance from Fenghua Yu.

Added an option to globally disable the control method return value  
validation  
and repair. This runtime option can be used to disable return value  
repair  
if  
this is causing a problem on a particular machine. Also added  
an option  
to  
AcpiExec (-dr) to set this disable flag.

All makefiles and project files: Major changes to improve generation of  
ACPICA

tools. ACPICA BZ 912:

- Reduce default optimization levels to improve compatibility
- For Linux, add strict-aliasing=0 for gcc 4
- Cleanup and simplify use of command line defines
- Cleanup multithread library support
- Improve usage messages

Linux-specific header: update handling of THREAD\_ID and pthread. For the  
32-  
bit case, improve casting to eliminate possible warnings, especially with  
the  
acpica tools.

Example Code and Data Size: These are the sizes for the OS-independent  
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The

debug

version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release (VC 9.0):

Non-Debug Version: 90.1K Code, 23.9K Data, 114.0K Total

Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

Current Release (VC

9.0):

Non-Debug Version: 90.2K Code, 23.9K Data, 114.1K Total

Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

## 2) iASL Compiler/Disassembler and Tools:

With this release, a new utility named "acpihelp" has been added to the ACPICA

package. This utility summarizes the ACPI specification chapters for the ASL

and AML languages. It generates under Linux/Unix as well as Windows, and provides the following functionality:

Find/display ASL operator(s) -- with description and syntax.

Find/display ASL keyword(s) -- with exact spelling and descriptions.

Find/display ACPI predefined name(s) -- with description, number of arguments, and the return value data type.

Find/display AML opcode name(s) -- with opcode, arguments, and grammar.

Decode/display AML opcode -- with opcode name, arguments, and grammar.

Service Layers: Make multi-thread support configurable. Conditionally compile

the multi-thread support so that threading libraries will not be linked

if

not

necessary. The only tool that requires multi-thread support is AcpiExec.

iASL: Update yyerror/AslCompilerError for "const" errors. Newer versions of

Bison appear to want the interface to yyerror to be a const char \* (or at least this is a problem when generating iASL on some systems.) ACPICA BZ

923

Pierre Lejeune.

Tools: Fix for systems where O\_BINARY is not defined. Only used for Windows

versions of the tools.

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27 May 2011. Summary of changes for version 20110527:

1) ACPI CA Core Subsystem:

ASL Load() operator: Reinstate most restrictions on the incoming ACPI table

signature. Now, only allow SSDT, OEMx, and a null signature. History:

1) Originally, we checked the table signature for "SSDT" or "PSDT".  
(PSDT is now obsolete.)

2) We added support for OEMx tables, signature "OEM" plus a fourth  
"don't care" character.

3) Valid tables were encountered with a null signature, so we just

gave up on validating the signature, (05/2008).

4) We encountered non-AML tables such as the MADT, which caused  
interpreter errors and kernel faults. So now, we once again allow  
only SSDT, OEMx, and now, also a null signature. (05/2011).

Added the missing \_TDL predefined name to the global name list in order  
to  
enable validation. Affects both the core ACPICA code and the iASL  
compiler.

Example Code and Data Size: These are the sizes for the OS-independent  
acpica.lib produced by the Microsoft Visual C++ 9.0 32-bit compiler. The  
debug

version of the code includes the debug output trace mechanism and has a  
much  
larger code and data size.

Previous Release (VC 9.0):

Non-Debug Version: 90.0K Code, 23.8K Data, 113.8K Total

Debug Version: 164.5K Code, 68.0K Data, 232.5K Total

Current Release (VC 9.0):

Non-Debug Version: 90.1K Code, 23.9K Data, 114.0K Total

Debug Version: 165.6K Code, 68.4K Data, 234.0K Total

2) iASL Compiler/Disassembler  
and Tools:

Debugger/AcpiExec: Implemented support for "complex" method arguments on  
the

debugger command line. This adds support beyond simple integers --  
including

Strings, Buffers, and Packages. Includes support for nested packages.

Increased the default command line buffer size to accommodate these



arguments.

See the ACPICA reference for details and syntax. ACPICA BZ 917.

Debugger/AcpiExec: Implemented support for "default" method arguments for the Execute/Debug command. Now, the debugger will always invoke a control method with the required number of arguments -- even if the command line specifies none or insufficient arguments. It uses default integer values for any missing arguments. Also fixes a bug where only six method arguments maximum were supported instead of the required seven.

Debugger/AcpiExec: Add a maximum buffer length parameter to AcpiOsGetLine and also return status in order to prevent buffer overruns. See the ACPICA reference for details and syntax. ACPICA BZ 921

iASL: Cleaned up support for Berkeley yacc. A general cleanup of code and makefiles to simplify support for the two different but similar parser generators, bison and yacc.

Updated the generic unix makefile for gcc 4. The default gcc version is now expected to be 4 or greater, since options specific to gcc 4 are used.

-----  
13 April 2011. Summary of changes for version 20110413:

1) ACPI CA Core Subsystem:

Implemented support to execute a so-called "orphan" \_REG method under the EC device. This change will force the execution of a \_REG method underneath the EC device even if there is no corresponding operation region of type EmbeddedControl. Fixes a problem seen on some machines and apparently is compatible with Windows behavior. ACPICA BZ 875.

Added more predefined methods that are eligible for automatic NULL package element removal. This change adds another group of predefined names to the list of names

that can be repaired by having NULL package elements dynamically removed. This group are those methods that return a single variable-length package containing simple data types such as integers, buffers, strings.

This

includes: `_ALx`, `_BCL`, `_CID`, `_DOD`, `_EDL`, `_FIX`, `_PCL`, `_PLD`, `_PMD`, `_PRx`, `_PSL`, `_Sx`, and `_TZD`. ACPICA BZ 914.

Split and segregated all internal global lock functions to a new file, `evglock.c`.

Updated internal address SpaceID for DataTable regions. Moved this internal space id in preparation for ACPI 5.0 changes that will include some new space IDs. This change should not affect user/host code.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release (VC 9.0):

Non-Debug Version: 89.8K Code, 23.8K Data, 113.6K Total

Debug Version:

164.2K Code, 67.9K Data, 232.1K Total

Current Release (VC 9.0):

Non-Debug Version: 90.0K Code, 23.8K Data, 113.8K Total

Debug Version: 164.5K Code, 68.0K Data, 232.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL/DTC: Major update for new grammar features. Allow generic data types in custom ACPI tables. Field names are now optional. Any line can be split to multiple lines using the continuation char (`\`). Large buffers now use line-continuation character(s) and no colon on the continuation lines. See the grammar

update in the iASL compiler reference. ACPI BZ 910,911. Lin Ming, Bob Moore.

iASL: Mark ASL "Return()" and the simple "Return" as "Null" return statements.

Since the parser stuffs a "zero" as the return value for these statements

(due

to

the underlying AML grammar), they were seen as "return with value" by the

iASL

semantic checking. They are now seen correctly as "null" return

statements.

iASL: Check if a \_REG declaration has a

corresponding Operation Region.

Adds a

check for each \_REG to ensure that there is in fact a corresponding

operation

region declaration in the same scope. If not, the \_REG method is not very

useful

since it probably won't be executed. ACPICA BZ 915.

iASL/DTC: Finish support for expression evaluation. Added a new

expression

parser

that implements c-style operator precedence and parenthesization. ACPICA

bugzilla

908.

Disassembler/DTC: Remove support for () and <> style comments in data tables.

Now

that DTC has full expression support, we don't want to have comment

strings

that

start with a parentheses or a less-than symbol. Now, only the standard /\*

and

//

comments are supported, as well as the bracket [] comments.

AcpiXtract: Fix for RSDP and dynamic SSDT extraction. These tables have "unusual"

headers in the acpidump file. Update the header validation to support

these

tables. Problem introduced in previous AcpiXtract version in the change

to

support "wrong

checksum" error messages emitted by acpidump utility.

iASL: Add a \* option to generate all template files (as a synonym for ALL)

as

in

"iasl -T \*" or "iasl -T ALL".

iASL/DTC: Do not abort compiler on fatal errors. We do not want to completely

abort the compiler on "fatal" errors, simply should abort the current compile.

This allows multiple compiles with a single (possibly wildcard) compiler invocation.

-----  
16 March 2011. Summary of changes for version 20110316:

1) ACPI CA Core Subsystem:

Fixed a problem caused by a \_PRW method appearing at the namespace root scope

during the setup of wake GPEs. A fault could occur if a \_PRW directly under

the

root object was passed to the AcpiSetupGpeForWake interface. Lin Ming.

Implemented support for "spurious" Global Lock interrupts. On some systems, a

global lock interrupt can occur without the pending flag being set. Upon a

GL

interrupt, we now ensure that a thread is actually waiting

for the lock

before

signaling GL availability. Rafael Wysocki, Bob Moore.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib

produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of

the code includes the debug output trace mechanism and has a much larger code

and

data size.

Previous Release (VC 9.0):

Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total

Debug Version: 163.9K Code, 67.5K Data, 231.4K Total  
Current Release (VC 9.0):  
Non-Debug Version: 89.8K Code, 23.8K Data, 113.6K Total  
Debug Version: 164.2K Code, 67.9K Data, 232.1K Total

## 2) iASL Compiler/Disassembler and Tools:

Implemented full support for the "SLIC" ACPI table. Includes support in the header files, disassembler, table compiler, and template generator. Bob Moore, Lin Ming.

AcpiXtract: Correctly handle embedded comments and messages from AcpiDump. Apparently some or all versions of acpidump will occasionally emit a comment

like

"Wrong checksum", etc., into the dump file. This was causing problems for AcpiXtract. ACPICA BZ 905.

iASL: Fix the Linux makefile by removing an inadvertent double file inclusion. ACPICA BZ 913.

AcpiExec: Update installation of operation region handlers. Install one handler for a user-defined address space. This is used by the ASL test suite (ASLTS).

-----  
11 February 2011. Summary of changes for version 20110211:

### 1) ACPI CA Core Subsystem:

Added a mechanism to defer \_REG methods for some early-installed handlers.

Most user handlers should be installed before call to AcpiEnableSubsystem.

However, Event handlers and region handlers should be installed after AcpiInitializeObjects. Override handlers for the "default" regions should be

installed early, however. This change executes all \_REG methods for the default regions (Memory/IO/PCI/DataTable) simultaneously to prevent any chicken/egg issues between them. ACPICA BZ 848.

Implemented

an optimization for GPE detection. This optimization will simply ignore GPE registers that contain no enabled GPEs -- there is no need to read the register since this information is available internally. This becomes more important on machines with a large GPE space. ACPICA bugzilla 884. Lin Ming. Suggestion from Joe Liu.

Removed all use of the highly unreliable FADT revision field. The revision number in the FADT has been found to be completely unreliable and cannot be trusted. Only the actual table length can be used to infer the version. This change updates the ACPICA core and the disassembler so that both no longer even look at the FADT version and instead depend solely upon the FADT length.

Fix an unresolved name issue for the no-debug and no-error-message source generation cases. The `_AcpiModuleName` was left undefined in these cases, but it is actually needed as a parameter to some interfaces. Define `_AcpiModuleName` as a null string in these cases. ACPICA Bugzilla 888.

Split several large files (makefiles and project files updated)

```
utglobal.c -> utdecode.c
dbcomds.c  -> dbmethod.c dbnames.c
dsopcode.c -> dsargs.c dscontrol.c
dsload.c   -> dsload2.c
aslanalyze.c -> aslbtypes.c aslwalks.c
```

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release (VC 9.0):

Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total

Debug Version: 163.9K Code, 67.5K Data, 231.4K Total

Current Release (VC 9.0):

Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total

Debug Version: 163.9K Code, 67.5K Data, 231.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented the predefined macros `__LINE__`, `__FILE__`, and `__DATE__`. These are useful C-style macros with the standard definitions.

ACPICA

bugzilla 898.

iASL/DTC: Added support for integer expressions and labels. Support for full expressions for all integer fields in all ACPI tables. Support for labels in "generic" portions of tables such as UEFI. See the iASL reference manual.

Debugger: Added a command to display the status of global handlers. The "handlers" command will display op region, fixed event, and miscellaneous global handlers. installation status -- and for op regions, whether default or user-installed handler will be used.

iASL: Warn if reserved method incorrectly returns a value. Many predefined names are defined such that they do not return a value. If implemented as a method, issue a warning if such a name explicitly returns a value. ACPICA Bugzilla 855.

iASL: Added detection of GPE method name conflicts. Detects a conflict where there are two GPE methods of the form `_Lxy` and `_Exy` in the same scope. (For example, `_L1D` and `_E1D` in the same scope.) ACPICA bugzilla 848.

iASL/DTC:

Fixed a couple input scanner issues with comments and line numbers. Comment remover could get confused and miss a comment ending. Fixed a problem with line counter maintenance.

iASL/DTC: Reduced the severity of some errors from fatal to error. There is no need to abort on simple errors within a field definition.

Debugger: Simplified the output of the help command. All help output now in a single screen, instead of help subcommands. ACPICA Bugzilla 897.

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12 January 2011. Summary of changes for version 20110112:

1) ACPI CA Core Subsystem:

Fixed a race condition between method execution and namespace walks that can possibly cause a fault. The problem was apparently introduced in version 20100528 as a result of a performance optimization that reduces the number of namespace walks upon method exit by using the `delete_namespace_subtree` function instead of the `delete_namespace_by_owner` function used previously. Bug is a missing namespace lock in the `delete_namespace_subtree` function. [dana.myers@oracle.com](mailto:dana.myers@oracle.com)

Fixed several issues and a possible fault with the automatic "serialized" method support. History: This support changes a method to "serialized" on the fly if the method generates an `AE_ALREADY_EXISTS` error, indicating the possibility that it cannot handle reentrancy. This fix repairs a couple of issues seen in the field, especially on machines with many cores:

- 1) Delete method children only upon the exit of the last thread, so as to not delete objects out from under other running threads (and possibly causing a fault.)
- 2) Set the "serialized" bit for the method only upon the exit of the last thread, so as to not cause deadlock when running threads attempt to exit.
- 3) Cleanup the use of the AML "MethodFlags" and internal method flags so that there is no longer any confusion between the two.

Lin Ming, Bob Moore. Reported by [dana.myers@oracle.com](mailto:dana.myers@oracle.com).

Debugger:

Now lock the namespace for duration of a namespace dump.

Prevents

issues if the namespace is changing dynamically underneath the debugger. Especially affects temporary namespace nodes, since the debugger displays these also.

Updated the ordering of include files. The ACPICA headers should appear before any compiler-specific headers (`stdio.h`, etc.) so that `acenv.h` can set any necessary compiler-specific defines, etc. Affects the ACPI-related tools and utilities.

Updated all ACPICA copyrights and signons to 2011. Added the 2011



copyright

to all module headers and signons, including the Linux header. This affects virtually every file in the ACPI CA core subsystem, iASL compiler, and all utilities.

Added project files for MS Visual Studio 2008 (VC++ 9.0). The original project files for VC++ 6.0 are now obsolete. New project files can be found under `acpica/generate/msvc9`. See `acpica/generate/msvc9/readme.txt` for details.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 9.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release (VC 6.0):

Non-Debug Version: 89.8K Code, 18.9K Data, 108.7K Total

Debug Version: 166.6K Code, 52.1K Data, 218.7K Total

Current Release (VC 9.0):

Non-Debug Version: 89.7K Code, 23.7K Data, 113.4K Total

Debug Version: 163.9K Code, 67.5K Data, 231.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added generic data types to the Data Table compiler. Add "generic" data types such as `UINT32`, `String`, `Unicode`, etc., to simplify the generation of platform-defined tables such as `UEFI`. Lin Ming.

iASL: Added listing support for the Data Table Compiler. Adds listing support (-l) to display actual binary output for each line of input code.

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09 December 2010. Summary of changes  
for version 20101209:

1) ACPI CA Core Subsystem:

Completed the major overhaul of the GPE support code that was begun in July 2010. Major features include: removal of `_PRW` execution in ACPI CA (host executes `_PRWs` anyway), cleanup of "wake" GPE interfaces and processing,

changes to existing interfaces, simplification of GPE handler operation,  
and  
a handful of new interfaces:

AcpiUpdateAllGpes

AcpiFinishGpe

AcpiSetupGpeForWake

AcpiSetGpeWakeMask

One new file, evxfgpe.c to consolidate all external GPE interfaces.

See the ACPICA Programmer Reference for full details and programming information. See the new section 4.4 "General Purpose Event (GPE) Support"

for a full overview, and section 8.7 "ACPI General Purpose Event Management"

for programming details. ACPICA BZ 858,870,877. Matthew Garrett, Lin Ming,  
Bob Moore, Rafael Wysocki.

Implemented a new GPE feature for Windows compatibility, the "Implicit Wake

GPE Notify". This feature will automatically issue

a Notify(2) on a  
device

when a Wake GPE is received if there is no corresponding GPE method or handler. ACPICA BZ 870.

Fixed a problem with the Scope() operator during table parse and load phase.

During load phase (table load or method execution), the scope operator should

not enter the target into the namespace. Instead, it should open a new scope

at the target location. Linux BZ 19462, ACPICA BZ 882.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a  
much larger code and data size.

Previous Release:

Non-Debug Version: 89.8K Code, 18.9K Data, 108.7K Total

Debug Version: 166.6K Code, 52.1K Data, 218.7K Total

Current Release:

Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total

Debug Version: 166.3K Code, 52.1K Data, 218.4K Total

## 2) iASL Compiler/Disassembler and Tools:

### iASL:

Relax the alphanumeric restriction on `_CID` strings. These strings are "bus-specific" per the ACPI specification, and therefore any characters are acceptable. The only checks that can be performed are for a null string and perhaps for a leading asterisk. ACPICA BZ 886.

iASL: Fixed a problem where a syntax error that caused a premature EOF condition on the source file emitted a very confusing error message. The premature EOF is now detected correctly. ACPICA BZ 891.

Disassembler: Decode the `AccessSize` within a Generic Address Structure (byte access, word access, etc.) Note, this field does not allow arbitrary bit access, the size is encoded as 1=byte, 2=word, 3=dword, and 4=qword.

New: `AcpiNames` utility - Example namespace dump utility. Shows an example of ACPICA configuration for a minimal namespace dump utility. Uses table and namespace managers, but no AML interpreter. Does not add any functionality over `AcpiExec`, it is a subset of `AcpiExec`. The purpose is to show how to partition and configure ACPICA. ACPICA BZ 883.

AML Debugger: Increased the debugger buffer size for method return objects. Was 4K, increased to 16K. Also enhanced error messages for debugger method execution, including the buffer overflow case.

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13 October 2010. Summary of changes for version 20101013:

### 1) ACPI CA Core Subsystem:

Added support to clear the `PCIEXP_WAKE` event. When clearing ACPI events, now clear the `PCIEXP_WAKE_STS` bit in the ACPI PM1 Status Register, via `HwClearAcpiStatus`. Original change from Colin King. ACPICA BZ 880.

Changed the type of the predefined namespace object `_TZ` from `ThermalZone` to `Device`. This was found to be confusing to the host software that

processes

the various thermal zones, since \_TZ is not really a ThermalZone.

However,

a

Notify() can still be performed on it. ACPICA BZ 876. Suggestion from Rui Zhang.

Added Windows Vista SP2 to the list of supported \_OSI strings. The actual

string is "Windows 2006 SP2".

Eliminated duplicate code in AcpiUtExecute\* functions. Now that the nsrepair

code automatically repairs \_HID-related strings, this type of code is no longer needed in Execute\_HID, Execute\_CID, and Execute\_UID. ACPICA BZ 878.

Example Code and Data Size: These are the sizes for the OS-independent apcica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total

Debug Version: 166.3K Code, 52.1K Data, 218.4K Total

Current Release:

Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total

Debug Version: 166.3K Code, 52.1K Data, 218.4K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Implemented additional compile-time validation for \_HID strings.

The

non-hex prefix (such as "PNP" or "ACPI") must be uppercase, and the length

of

the string must be exactly seven or eight characters. For both \_HID and \_CID

strings, all characters must be alphanumeric. ACPICA BZ 874.

iASL: Allow certain "null" resource descriptors. Some BIOS code creates descriptors that are mostly or all zeros, with the expectation that they will

be filled in at runtime. iASL now allows this as long as there is a

"resource

tag" (name) associated with the descriptor, which gives the ASL a handle

needed to modify the descriptor. ACPICA BZ 873.

Added single-thread support to the generic Unix application OSL. Primarily for iASL support, this change removes the use of semaphores in the single-threaded ACPICA tools/applications - increasing performance. The `_MULTI_THREADED` option was replaced by the (reverse) `ACPI_SINGLE_THREADED` option. ACPICA BZ 879.

AcpiExec: several fixes for the 64-bit version. Adds XSDT support and support for 64-bit DSDT/FACS addresses in the FADT. Lin Ming.

iASL: Moved all compiler messages to a new file, `aslmessages.h`.

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15 September 2010. Summary of changes for version 20100915:

1) ACPI CA Core Subsystem:

Removed the `AcpiOsDerivePciId` OSL interface. The various host implementations of this function were not OS-dependent and are now obsolete and can be removed from all host OSLs. This function has been replaced by `AcpiHwDerivePciId`, which is now part of the ACPICA core code. `AcpiHwDerivePciId` has been implemented without recursion. Adds one new module, `hwpci.c`. ACPICA BZ 857.

Implemented a dynamic repair for `_HID` and `_CID` strings. The following problems are now repaired at runtime: 1) Remove a leading asterisk in the string, and 2) the entire string is uppercased. Both repairs are in accordance with the ACPI specification and will simplify host driver code. ACPICA BZ 871.

The `ACPI_THREAD_ID` type is no longer configurable, internally it is now always `UINT64`. This simplifies the ACPICA code, especially any `printf` output.

`UINT64` is the only common data type for all `thread_id` types across all operating systems. It is now up to the host OSL to cast the native `thread_id` type to `UINT64` before returning the value to ACPICA (via `AcpiOsGetThreadId`).  
Lin Ming, Bob Moore.

Added the ACPI\_INLINE type to enhance the ACPICA configuration. The "inline" keyword is not standard across compilers, and this type allows inline to be configured on a per-compiler basis. Lin Ming.

Made the system global AcpiGbl\_SystemAwakeAndRunning publically available.

Added an extern for this boolean in acpixf.h. Some hosts utilize this value during suspend/restore operations. ACPICA BZ 869.

All code that implements error/warning messages with the "ACPI:" prefix has been moved to a new module, utxferror.c.

The UINT64\_OVERLAY was moved to utmath.c, which is the only module where it is used. ACPICA BZ 829. Lin Ming, Bob Moore.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 89.1K Code, 19.0K Data, 108.1K Total

Debug Version: 165.1K Code, 51.9K Data, 217.0K Total

Current Release:

Non-Debug Version: 89.9K Code, 19.0K Data, 108.9K Total

Debug Version: 166.3K Code, 52.1K Data, 218.4K Total

2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Write ACPI errors to stderr instead of the output file.

This keeps the output files free of random error messages that may originate from within the namespace/interpreter code. Used this opportunity to merge all ACPI:-style messages into a single new module, utxferror.c. ACPICA BZ 866. Lin Ming, Bob Moore.

Tools: update some printf's for ansi warnings on size\_t. Handle width change of size\_t on 32-bit versus 64-bit generations. Lin Ming.

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06

August 2010. Summary of changes for version 20100806:

1) ACPI CA Core Subsystem:

Designed and implemented a new host interface to the \_OSI support code.

This

will allow the host to dynamically add or remove multiple \_OSI strings,

as

well as install an optional handler that is called for each \_OSI

invocation.

Also added a new AML debugger command, 'osi' to display and modify the

global

\_OSI string table, and test support in the AcpiExec utility. See the

ACPICA

reference manual for full details. Lin Ming, Bob Moore. ACPICA BZ 836.

New Functions:

AcpiInstallInterface - Add an \_OSI string.

AcpiRemoveInterface - Delete an \_OSI string.

AcpiInstallInterfaceHandler - Install optional \_OSI handler.

Obsolete Functions:

AcpiOsValidateInterface - no longer used.

New Files:

source/components/utilities/utosi.c

Re-introduced the support to enable multi-byte transfers for Embedded

Controller (EC) operation regions. A reported problem was found to be a

bug

in

the host OS, not in the multi-byte support. Previously, the maximum

data

size passed to the EC operation region handler was a single byte. There

are

often EC Fields larger than one byte that need to be transferred, and it

is

useful for the EC driver to lock these as a single transaction. This

change

enables single transfers larger than 8 bits. This effectively changes the

access to the EC space from ByteAcc to AnyAcc, and will probably require

changes to the host OS Embedded Controller driver to enable 16/32/64/256-

bit

transfers in addition to 8-bit transfers. Alexey Starikovskiy, Lin Ming.

Fixed a problem with the prototype for AcpiOsReadPciConfiguration. The

prototype in acpiosxf.h had the output value pointer as a (void \*).

It should be a (UINT64 \*). This may affect some host OSL code.

Fixed a couple problems with the recently modified Linux makefiles for iASL and AcpiExec. These new makefiles place the generated object files in the local directory so that there can be no collisions between the files that are shared between them that are compiled with different options.

Example Code and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total

Debug Version: 164.0K Code, 51.5K Data, 215.5K Total

Current Release:

Non-Debug Version: 89.1K Code, 19.0K Data, 108.1K Total

Debug Version: 165.1K Code, 51.9K Data, 217.0K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL/Disassembler: Added a new option (`-da`, "disassemble all") to load the namespace from and disassemble an entire group of AML files. Useful for loading all of the AML tables for a given machine (DSDT, SSDT1...SSDTn) and disassembling with one simple command. ACPICA BZ 865. Lin Ming.

iASL: Allow

multiple invocations of `-e` option. This change allows multiple

uses of `-e` on the command line: "`-e ssdt1.dat -e ssdt2.dat`". ACPICA BZ 834.

Lin Ming.

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02 July 2010. Summary of changes for version 20100702:

### 1) ACPI CA Core Subsystem:

Implemented several updates to the recently added GPE reference count support. The model for "wake" GPEs is changing to give the host OS complete control of these GPEs. Eventually, the ACPICA core will not execute any `_PRW`



methods, since the host already must execute them. Also, additional changes were made to help ensure that the reference counts are kept in proper synchronization with reality. Rafael J. Wysocki.

- 1) Ensure that GPEs are not enabled twice during initialization.
- 2) Ensure that GPE enable masks stay in sync with the reference count.
- 3) Do not inadvertently enable GPEs when writing GPE registers.
- 4) Remove the internal wake reference counter and add new AcpiGpeWakeup interface. This interface will set or clear individual GPEs for wakeup.
- 5) Remove GpeType argument from AcpiEnable and AcpiDisable. These interfaces are now used for "runtime" GPEs only.

Changed the behavior of the GPE install/remove handler interfaces. The GPE is no longer disabled during this process, as it was found to cause problems on some machines. Rafael J. Wysocki.

Reverted a change introduced in version 20100528 to enable Embedded Controller multi-byte transfers. This change was found to cause problems with Index Fields and possibly Bank Fields. It will be reintroduced when these problems have been resolved.

Fixed a problem with references to Alias objects within Package Objects. A reference to an Alias within the definition of a Package was not always resolved properly. Aliases to objects like Processors, Thermal zones, etc. were resolved to the actual object instead of a reference to the object as it should be. Package objects are only allowed to contain integer, string, buffer, package, and reference objects. Redhat bugzilla 608648.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total

Debug Version: 164.1K Code, 51.5K Data, 215.6K Total  
Current Release:  
Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total  
Debug Version: 164.0K Code, 51.5K Data, 215.5K Total

## 2) iASL Compiler/Disassembler and Tools:

iASL: Implemented a new compiler subsystem to allow definition and compilation of the non-AML ACPI tables such as FADT, MADT, SRAT, etc. These are called "ACPI Data Tables", and the new compiler is the "Data Table Compiler". This compiler is intended to simplify the existing error-prone process of creating these tables for the BIOS, as well as allowing the disassembly, modification, recompilation, and override of existing ACPI data tables. See the iASL User Guide for detailed information.

iASL: Implemented a new Template Generator option in support of the new Data Table Compiler. This option will create examples of all known ACPI tables that can be used as the basis for table development. See the iASL documentation and the -T option.

Disassembler and headers: Added support for the WDDT ACPI table (Watchdog Descriptor Table).

Updated the Linux makefiles for iASL and AcpiExec to place the generated object files in the local directory so that there can be no collisions between the shared files between them that are generated with different options.

Added support for Mac OS X in the Unix OSL used for iASL and AcpiExec. Use the #define `__APPLE__` to enable this support.

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28 May 2010. Summary of changes for version 20100528:

Note: The ACPI 4.0a specification was released on April 5, 2010 and is available at [www.acpi.info](http://www.acpi.info). This is primarily an errata release.

### 1) ACPI CA Core Subsystem:

Undefined ACPI tables: We are looking for the definitions for the following ACPI tables that have been seen in the field: ATKG, IEIT, GSCI.

Implemented support to enable multi-byte transfers for Embedded Controller (EC) operation regions. Previously, the maximum data size passed to the EC operation region handler was a single byte. There are often EC Fields larger than one byte that need to be transferred, and it is useful for the EC driver to lock these as a single transaction. This change enables single transfers larger than 8 bits. This effectively changes the access to the EC space from ByteAcc to AnyAcc, and will probably require changes to the host OS Embedded Controller driver to enable 16/32/64/256-bit transfers in addition to 8-bit transfers. Alexey Starikovskiy, Lin Ming

Implemented a performance enhancement for namespace search and access.

This change enhances the performance of namespace searches and walks by adding a backpointer to the parent in each namespace node. On large namespaces, this change can improve overall ACPI performance by up to 9X. Adding a pointer to each namespace node increases the overall size of the internal namespace by about 5%, since each namespace entry usually consists of both a namespace node and an ACPI operand object. However, this is the first growth of the namespace in ten years. ACPICA bugzilla 817. Alexey Starikovskiy.

Implemented a performance optimization that reduces the number of namespace walks. On control method exit, only walk the namespace if the method is known to have created namespace objects outside of its local scope. Previously, the entire namespace was traversed on each control method exit. This change can improve overall ACPI performance by up to 3X. Alexey Starikovskiy, Bob Moore.

Added support to truncate I/O addresses to 16 bits for Windows compatibility.

Some ASL code has been seen in the field that inadvertently has bits set above bit 15. This feature is optional and is enabled if the BIOS requests any Windows OSI strings. It can also be enabled by the host OS. Matthew Garrett, Bob Moore.

Added support to limit the maximum time for the ASL Sleep() operator. To prevent accidental deep sleeps, limit the maximum time that Sleep() will actually sleep. Configurable, the default maximum is two seconds. ACPICA bugzilla 854.

Added run-time validation support for the \_WDG and \_WED Microsoft predefined methods. These objects are defined by "Windows Instrumentation", and are not part of the ACPI spec. ACPICA BZ 860.

Expanded all statistic counters used during namespace and device initialization from 16 to 32 bits in order to support very large namespaces.

Replaced all instances of %d in printf format specifiers with %u since nearly all integers in ACPICA are unsigned.

Fixed the exception namestring for AE\_WAKE\_ONLY\_GPE. Was incorrectly returned as AE\_NO\_HANDLER.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 88.4K Code, 18.8K Data, 107.2K Total

Debug Version: 164.2K Code, 51.5K Data, 215.7K Total

Current Release:

Non-Debug Version: 88.3K Code, 18.8K Data, 107.1K Total

Debug Version: 164.1K Code, 51.5K Data, 215.6K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added compiler support for the \_WDG and \_WED Microsoft predefined methods. These objects are defined by "Windows Instrumentation", and are

not

part of the ACPI spec. ACPICA BZ 860.

AcpiExec: added option to disable the memory tracking mechanism. The -dt option will disable the tracking mechanism, which improves performance considerably.

AcpiExec:

Restructured the command line options into -d (disable) and -e (enable) options.

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28 April 2010. Summary of changes for version 20100428:

1) ACPI CA Core Subsystem:

Implemented GPE support for dynamically loaded ACPI tables. For all GPEs, including FADT-based and GPE Block Devices, execute any \_PRW methods in the new table, and process any \_Lxx/\_Exx GPE methods in the new table. Any runtime GPE that is referenced by an \_Lxx/\_Exx method in the new table is immediately enabled. Handles the FADT-defined GPEs as well as GPE Block Devices. Provides compatibility with other ACPI implementations. Two new files added, evgpeinit.c and evgpeutil.c. ACPICA BZ 833. Lin Ming, Bob Moore.

Fixed a regression introduced in version 20100331 within the table manager where initial table loading could fail. This was introduced in the fix for AcpiReallocateRootTable. Also, renamed some of fields in the table manager data structures to clarify their meaning and use.

Fixed a possible allocation overrun during internal object copy in AcpiUtCopySimpleObject. The original code did not correctly handle the case where the object to be copied was a namespace node. Lin Ming. ACPICA BZ 847.

Updated the allocation dump routine, AcpiUtDumpAllocation and fixed a possible access beyond end-of-allocation. Also, now fully validate descriptor (size and type) before output. Lin Ming, Bob Moore. ACPICA BZ 847

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The

debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 87.9K Code, 18.6K Data, 106.5K Total

Debug Version: 163.5K Code, 51.3K Data, 214.8K Total

Current Release:

Non-Debug Version: 88.4K Code, 18.8K Data, 107.2K Total

Debug Version: 164.2K Code, 51.5K Data, 215.7K Total

2)

iASL Compiler/Disassembler and Tools:

iASL: Implemented Min/Max/Len/Gran validation for address resource descriptors. This change implements validation for the address fields that are common to all address-type resource descriptors. These checks are implemented: Checks for valid Min/Max, length within the Min/Max window, valid granularity, Min/Max a multiple of granularity, and \_MIF/\_MAF as per table 6-40 in the ACPI 4.0a specification. Also split the large aslrestype1.c and aslrestype2.c files into five new files. ACPICA BZ 840.

iASL: Added support for the \_Wxx predefined names. This support was missing and these names were not recognized by the compiler as valid predefined names. ACPICA BZ 851.

iASL: Added an error for all predefined names that are defined to return no value and thus must be implemented as Control Methods. These include all of the \_Lxx, \_Exx, \_Wxx, and \_Qxx names, as well as some other miscellaneous names such as \_DIS, \_INI, \_IRC, \_OFF, \_ON, and \_PSx. ACPICA BZ 850, 856.

iASL: Implemented the -ts option to emit hex AML data in ASL format, as an ASL Buffer. Allows ACPI tables to be easily included within ASL files, to be dynamically loaded via the Load() operator. Also cleaned up output for the -ta and -tc options. ACPICA BZ 853.

Tests: Added a new file with examples of extended iASL error checking.

Demonstrates the advanced error checking ability of the iASL compiler.  
Available at tests/misc/badcode.asl.

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31 March 2010. Summary of changes for version 20100331:

1) ACPI CA Core Subsystem:

Completed a major update for the GPE support in order to improve support for shared GPEs and to simplify both host OS and ACPICA code. Added a reference count mechanism to support shared GPEs that require multiple device drivers.

Several external interfaces have changed. One external interface has been removed. One new external interface was added. Most of the GPE external interfaces

now use the GPE spinlock instead of the events mutex (and the Flags parameter for many GPE interfaces has been removed.) See the updated

ACPICA Programmer Reference for details. Matthew Garrett, Bob Moore, Rafael Wysocki. ACPICA BZ 831.

Changed:

AcpiEnableGpe, AcpiDisableGpe, AcpiClearGpe, AcpiGetGpeStatus

Removed:

AcpiSetGpeType

New:

AcpiSetGpe

Implemented write support for DataTable operation regions. These regions are defined via the DataTableRegion() operator. Previously, only read support was implemented. The ACPI specification allows DataTableRegions to be read/write, however.

Implemented a new subsystem option to force a copy of the DSDT to local memory. Optionally copy the entire DSDT to local memory (instead of simply mapping it.) There are some (albeit very rare) BIOSs that corrupt or replace the original DSDT, creating the need for this option. Default is FALSE, do not copy the DSDT.

Implemented detection of a corrupted or replaced DSDT.

This change adds support to detect a DSDT that has been corrupted and/or replaced from outside the OS (by firmware). This is typically catastrophic for the system, but has been seen on some machines. Once this problem has been detected, the DSDT copy option can be enabled via system configuration. Lin Ming, Bob Moore.

Fixed two problems with AcpiReallocateRootTable during the root table copy.

When copying the root table to the new allocation, the length used was incorrect. The new size was used instead of the current table size, meaning too much data was copied. Also, the count of available slots for ACPI tables was not set correctly. Alexey Starikovskiy, Bob Moore.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 87.5K  
Code, 18.4K Data, 105.9K Total

Debug Version: 163.4K Code, 51.1K Data, 214.5K Total

Current Release:

Non-Debug Version: 87.9K Code, 18.6K Data, 106.5K Total

Debug Version: 163.5K Code, 51.3K Data, 214.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implement limited typechecking for values returned from predefined control methods. The type of any returned static (unnamed) object is now validated. For example, Return(1). ACPICA BZ 786.

iASL: Fixed a predefined name object verification regression. Fixes a problem introduced in version 20100304. An error is incorrectly generated if a predefined name is declared as a static named object with a value defined using the keywords "Zero", "One", or "Ones". Lin Ming.

iASL: Added Windows 7 support for the -g option (get local ACPI tables) by reducing the requested registry access rights. ACPICA BZ 842.



Disassembler: fixed a possible fault when generating External() statements.

Introduced in commit

ae7d6fd: Properly handle externals with parent-prefix

(carat). Fixes a string length allocation calculation. Lin Ming.

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04 March 2010. Summary of changes for version 20100304:

1) ACPI CA Core Subsystem:

Fixed a possible problem with the AML Mutex handling function AcpiExReleaseMutex where the function could fault under the very rare condition when the interpreter has blocked, the interpreter lock is released, the interpreter is then reentered via the same thread, and attempts to acquire an AML mutex that was previously acquired. FreeBSD report 140979.  
Lin  
Ming.

Implemented additional configuration support for the AML "Debug Object". Output from the debug object can now be enabled via a global variable, AcpiGbl\_EnableAmlDebugObject. This will assist with remote machine debugging.  
This debug output is now available in the release version of ACPICA instead of just the debug version. Also, the entire debug output module can now be

configured out of the ACPICA build if desired. One new file added, executer/exdebug.c. Lin Ming, Bob Moore.

Added header support for the ACPI MCHI table (Management Controller Host Interface Table). This table was added in ACPI 4.0, but the defining document has only recently become available.

Standardized output of integer values for ACPICA warnings/errors. Always use

0x prefix for hex output, always use %u for unsigned integer decimal output.

Affects ACPI\_INFO, ACPI\_ERROR, ACPI\_EXCEPTION, and ACPI\_WARNING (about 400

invocations.) These invocations were converted from the original ACPI\_DEBUG\_PRINT invocations and were not consistent. ACPICA BZ 835.

Example Code and Data Size: These are the sizes for the OS-independent

acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 87.1K Code, 18.0K Data,  
105.1K Total

Debug Version: 163.5K Code, 50.9K Data, 214.4K Total

Current Release:

Non-Debug Version: 87.5K Code, 18.4K Data, 105.9K Total

Debug Version: 163.4K Code, 51.1K Data, 214.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented typechecking support for static (non-control method) predefined named objects that are declared with the Name() operator. For example, the type of this object is now validated to be of type Integer: Name(\_BBN, 1). This change migrates the compiler to using the core predefined name table instead of maintaining a local version. Added a new file, aslpredef.c. ACPICA BZ 832.

Disassembler: Added support for the ACPI 4.0 MCHI table.

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21 January 2010. Summary of changes for version 20100121:

1) ACPI CA Core Subsystem:

Added the 2010 copyright to all module headers and signons. This affects virtually every file in the ACPICA core subsystem, the iASL compiler, the tools/utilities, and the test suites.

Implemented a change to the AcpiGetDevices interface to eliminate unnecessary invocations of the \_STA method. In the case where a specific \_HID is requested, do not run \_STA until a \_HID match is found. This eliminates potentially dozens of \_STA calls during a search for a particular device/HID, which in turn can improve boot times. ACPICA BZ 828. Lin Ming.

Implemented an additional repair for predefined method return values. Attempt to repair unexpected NULL elements within returned Package objects. Create an

Integer of value zero, a NULL String, or a zero-length Buffer as appropriate.

ACPICA BZ 818. Lin Ming, Bob Moore.

Removed the obsolete ACPI\_INTEGER data type. This type was introduced as the code was migrated from ACPI 1.0 (with 32-bit AML integers) to ACPI 2.0 (with 64-bit AML integers). It is now obsolete and this change removes it from the ACPICA code base, replaced by UINT64. The original typedef has been retained for now for compatibility with existing device driver code. ACPICA BZ 824.

Removed the unused UINT32\_STRUCT type, and the obsolete Integer64 field in the parse tree object.

Added additional warning options for the gcc-4 generation. Updated the source accordingly. This includes some code restructuring to eliminate unreachable code, elimination of some gotos, elimination of unused return values, some additional casting, and removal of redundant declarations.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 87.0K Code, 18.0K Data, 105.0K Total

Debug Version: 163.4K Code, 50.8K Data, 214.2K Total

Current Release:

Non-Debug Version: 87.1K Code, 18.0K Data, 105.1K Total

Debug Version: 163.5K Code, 50.9K Data, 214.4K

Total

2) iASL Compiler/Disassembler and Tools:

No functional changes for this release.

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14 December 2009. Summary of changes for version 20091214:

## 1) ACPI CA Core Subsystem:

Enhanced automatic data type conversions for predefined name repairs.

This

change expands the automatic repairs/conversions for predefined name

return

values to make Integers, Strings, and Buffers fully interchangeable.

Also,

a

Buffer can be converted to a Package of Integers if necessary. The

nsrepair.c

module was completely restructured. Lin Ming, Bob Moore.

Implemented automatic removal of null package elements during predefined

name

repairs. This change will automatically remove embedded and trailing NULL

package elements from returned package objects that are defined to

contain

a

variable number of sub-packages. The driver is then presented with a

package

with no null elements to deal with. ACPICA BZ 819.

Implemented a repair for the predefined

\_FDE and \_GTM names. The expected

return value for both names is a Buffer of 5 DWORDs. This repair fixes

two

possible problems (both seen in the field), where a package of integers

is

returned, or a buffer of BYTES is returned. With assistance from Jung-uk

Kim.

Implemented additional module-level code support. This change will

properly

execute module-level code that is not at the root of the namespace (under

a

Device object, etc.). Now executes the code within the current scope

instead

of the root. ACPICA BZ 762. Lin Ming.

Fixed possible mutex acquisition errors when running \_REG methods. Fixes

a

problem where mutex errors can occur when running a \_REG method that is

in

the same scope as a method-defined operation region or an operation

region

under a module-level IF block. This type of code is rare, so the problem

has  
not been seen before. ACPICA BZ 826. Lin Ming, Bob Moore.

Fixed a possible memory leak during module-level code execution. An object could be leaked for each block of executed module-level code if the interpreter slack mode is enabled This change deletes any implicitly returned object from the module-level code block. Lin Ming.

Removed messages for successful predefined repair(s). The repair mechanism was considered too wordy. Now, messages are only unconditionally emitted if the return object cannot be repaired. Existing messages for successful repairs were converted to ACPI\_DEBUG\_PRINT messages for now. ACPICA BZ 827.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 86.6K Code, 18.2K Data, 104.8K Total

Debug Version: 162.7K Code, 50.8K Data, 213.5K Total

Current Release:

Non-Debug Version: 87.0K Code, 18.0K Data, 105.0K Total

Debug Version: 163.4K

Code, 50.8K Data, 214.2K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a regression introduced in 20091112 where intermediate .SRC files were no longer automatically removed at the termination of the compile.

acpiexec: Implemented the `-f` option to specify default region fill value. This option specifies the value used to initialize buffers that simulate operation regions. Default value is zero. Useful for debugging problems that depend on a specific initial value for a region or field.

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12 November 2009. Summary of changes for version 20091112:

## 1) ACPI CA Core Subsystem:

Implemented a post-order callback to AcpiWalkNamespace. The existing interface only has a pre-order callback. This change adds an additional parameter for a post-order callback which will be more useful for bus scans.

ACPICA BZ 779. Lin Ming. Updated the ACPICA Programmer Reference.

Modified the behavior of the operation region memory mapping cache for SystemMemory. Ensure that the memory mappings created for operation regions do not cross 4K page boundaries. Crossing a page boundary while mapping regions can cause kernel warnings on some hosts if the pages have different attributes. Such regions are probably BIOS bugs, and this is the workaround.

Linux BZ 14445. Lin Ming.

Implemented an automatic repair for predefined methods that must return sorted lists. This change will repair (by sorting) packages returned by \_ALR, \_PSS, and \_TSS. Drivers can now assume that the packages are correctly sorted and do not contain NULL package elements. Adds one new file, namespace/nsrepair2.c. ACPICA BZ 784. Lin Ming, Bob Moore.

Fixed a possible fault during predefined name validation if a return Package object contains NULL elements. Also adds a warning if a NULL element is followed by any non-null elements. ACPICA BZ 813, 814. Future enhancement may include repair or removal of all such NULL elements where possible.

Implemented additional module-level executable AML code support. This change will execute module-level code that is not at the root of the namespace (under a Device object, etc.) at table load time. Module-level executable AML code has been illegal since ACPI 2.0. ACPICA BZ 762. Lin Ming.

Implemented a new internal function to create Integer objects. This function simplifies miscellaneous object creation code. ACPICA BZ 823.

Reduced the severity of predefined repair messages, Warning to Info. Since

the object was successfully repaired, a warning is too severe. Reduced to an info message for now. These messages may eventually be changed to debug-only.

ACPICA BZ 812.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 85.8K

Code, 18.0K Data, 103.8K Total

Debug Version: 161.8K Code, 50.6K Data, 212.4K Total

Current Release:

Non-Debug Version: 86.6K Code, 18.2K Data, 104.8K Total

Debug Version: 162.7K Code, 50.8K Data, 213.5K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Implemented `Switch()` with `While(1)` so that `Break` works correctly.

This

change correctly implements the `Switch` operator with a surrounding

`While(1)`

so that the `Break` operator works as expected. ACPICA BZ 461. Lin Ming.

iASL: Added a message if a package initializer list is shorter than

package

length. Adds a new remark for a `Package()` declaration if an initializer

list

exists, but is shorter than the declared length of the package. Although

technically legal, this is probably a coding error and it is seen in the

field. ACPICA BZ 815. Lin Ming, Bob Moore.

iASL: Fixed a problem where the compiler could fault after the maximum

number

of errors was reached (200).

acpitract: Fixed a possible warning

for pointer cast if the compiler

warning

level set very high.

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13 October 2009. Summary of changes for version 20091013:

## 1) ACPI CA Core Subsystem:

Fixed a problem where an Operation Region `_REG` method could be executed more than once. If a custom address space handler is installed by the host before the "initialize operation regions" phase of the ACPICA initialization, any `_REG` methods for that address space could be executed twice. This change fixes the problem. ACPICA BZ 427. Lin Ming.

Fixed a possible memory leak for the `Scope()` ASL operator. When the exact invocation of "`Scope()`" is executed (change scope to root), one internal operand object was leaked. Lin Ming.

Implemented a run-time repair for the `_MAT` predefined method. If the `_MAT` return value is defined as a Field object in the AML, and the field size is less than or equal to the default width of an integer (32 or 64), `_MAT` can incorrectly return an Integer instead of a Buffer. ACPICA now automatically repairs this problem. ACPICA BZ 810.

Implemented a run-time repair for the `_BIF` and `_BIX` predefined methods. The "OEM Information" field is often incorrectly returned as an Integer with value zero if the field is not supported by the platform. This is due to an ambiguity in the ACPI specification. The field should always be a string. ACPICA now automatically repairs this problem by returning a NULL string within the returned Package. ACPICA BZ 807.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

### Previous Release:

Non-Debug Version: 85.6K Code, 18.0K Data, 103.6K Total

Debug Version: 161.7K Code, 50.9K Data, 212.6K Total

### Current Release:

Non-Debug Version: 85.8K Code, 18.0K Data, 103.8K Total

Debug Version:

161.8K Code, 50.6K Data, 212.4K Total

## 2) iASL Compiler/Disassembler and Tools:



Disassembler: Fixed a problem where references to external symbols that contained one or more parent-prefixes (carats) were not handled correctly, possibly causing a fault. ACPICA BZ 806. Lin Ming.

Disassembler: Restructured the code so that all functions that handle external symbols are in a single module. One new file is added, common/dmextern.c.

AML Debugger: Added a max count argument for the Batch command (which executes multiple predefined methods within the namespace.)

iASL: Updated the compiler documentation (User Reference.) Available at <http://www.acpica.org/documentation/>. ACPICA BZ 750.

AcpiXtract: Updated for Lint and other formatting changes. Close all open files.

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03 September 2009. Summary of changes for version 20090903:

1) ACPI CA Core Subsystem:

For Windows Vista compatibility, added the automatic execution of an `_INI` method located at the namespace root (`\_INI`). This method is executed at table load time. This support is in addition to the automatic execution of `\_SB._INI`. Lin Ming.

Fixed a possible memory leak in the interpreter for AML package objects if the package initializer list is longer than the defined size of the package. This apparently can only happen if the BIOS changes the package size on the fly (seen in a `_PSS` object), as ASL compilers do not allow this. The interpreter will truncate the package to the defined size (and issue an error message), but previously could leave the extra objects undeleted if they were pre-created during the argument processing (such is the case if the package consists of a number of sub-packages as in the `_PSS`.) ACPICA BZ 805.

Fixed a problem seen when a Buffer or String is stored to itself via ASL. This has been reported in the field. Previously, ACPICA would zero out the

buffer/string. Now, the operation is treated as a noop. Provides Windows

compatibility. ACPICA BZ 803. Lin Ming.

Removed an extraneous error message for ASL constructs of the form Store(LocalX,LocalX) when LocalX is uninitialized. These curious statements are seen in many BIOSs and are once again treated as NOOPs and no error is emitted when they are encountered. ACPICA BZ 785.

Fixed an extraneous warning message if a \_DSM reserved method returns a Package object. \_DSM can return any type of object, so validation on the return type cannot be performed. ACPICA BZ 802.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 85.5K Code, 18.0K Data, 103.5K Total

Debug Version: 161.6K Code, 50.9K Data, 212.5K Total

Current Release:

Non-Debug Version: 85.6K Code, 18.0K Data, 103.6K Total

Debug

Version: 161.7K Code, 50.9K Data, 212.6K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a problem with the use of the Alias operator and Resource Templates. The correct alias is now constructed and no error is emitted. ACPICA BZ 738.

iASL: Implemented the -I option to specify additional search directories for include files. Allows multiple additional search paths for include files. Directories are searched in the order specified on the command line (after the local directory is searched.) ACPICA BZ 800.

iASL: Fixed a problem where the full pathname for include files was not emitted for warnings/errors. This caused the IDE support to not work properly. ACPICA BZ 765.

iASL: Implemented the -@ option to specify a Windows-style response file containing additional command line options. ACPICA BZ 801.

AcpiExec: Added support to load multiple AML files simultaneously (such as a DSDT and multiple SSDTs). Also added support for wildcards within the AML pathname.

These features allow all machine tables to be easily loaded and debugged together. ACPICA BZ 804.

Disassembler: Added missing support for disassembly of HEST table Error Bank subtables.

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30 July 2009. Summary of changes for version 20090730:

The ACPI 4.0 implementation for ACPICA is complete with this release.

1) ACPI CA Core Subsystem:

ACPI 4.0: Added header file support for all new and changed ACPI tables. Completely new tables are: IBFT, IVRS, MSCT, and WAET. Tables that are new for ACPI 4.0, but have previously been supported in ACPICA are: CPEP, BERT, EINJ, ERST, and HEST. Other newly supported tables are: UEFI and WDAT. There have been some ACPI 4.0 changes to other existing tables. Split the large actbl1.h header into the existing actbl2.h header. ACPICA BZ 774.

ACPI 4.0: Implemented predefined name validation for all new names. There are 31 new names in ACPI 4.0. The predefined validation module was split into two files. The new file is namespace/nsrepair.c. ACPICA BZ 770.

Implemented support for so-called "module-level executable code". This is executable AML code that exists outside of any control method and is intended to be executed at table load time. Although illegal since ACPI 2.0, this type of code still exists and is apparently still being created. Blocks of this code are now detected and executed as intended. Currently, the code blocks must exist under either an If, Else, or While construct; these are the typical cases seen in the field. ACPICA BZ 762. Lin Ming.

Implemented an automatic dynamic repair for predefined names that return nested Package objects. This applies to predefined names that are defined to return a variable-length Package of sub-packages. If the number of sub-packages is one, BIOS code is occasionally seen that creates a simple single package with no sub-packages. This code attempts to fix the problem by wrapping a new package object around the existing package. These methods can be repaired: `_ALR`, `_CSD`, `_HPX`, `_MLS`, `_PRT`, `_PSS`, `_TRT`, and `_TSS`. ACPICA BZ 790.

Fixed a regression introduced in 20090625 for the `AcpiGetDevices` interface. The `_HID/_CID` matching was broken and no longer matched IDs correctly. ACPICA BZ 793.

Fixed a problem with `AcpiReset` where the reset would silently fail if the register was one of the protected I/O ports. `AcpiReset` now bypasses the port validation mechanism. This may eventually be driven into the `AcpiRead/Write` interfaces.

Fixed a regression related to the recent update of the `AcpiRead/Write` interfaces. A sleep/suspend could fail if the optional PM2 Control register does not exist during an attempt to write the Bus Master Arbitration bit. (However, some hosts already delete the code that writes this bit, and the code may in fact be obsolete at this date.) ACPICA BZ 799.

Fixed a problem where `AcpiTerminate` could fault if inadvertently called twice in succession. ACPICA BZ 795.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 84.7K Code, 17.8K Data, 102.5K Total  
Debug Version: 160.5K Code, 50.6K Data, 211.1K Total  
Current Release:  
Non-Debug Version: 85.5K Code, 18.0K Data, 103.5K Total  
Debug Version: 161.6K Code, 50.9K Data, 212.5K Total

## 2) iASL Compiler/Disassembler and Tools:

ACPI 4.0: Implemented disassembler support for all new ACPI tables and changes to existing tables. ACPICA BZ 775.

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25 June 2009. Summary of changes for version 20090625:

The ACPI 4.0 Specification was released on June 16 and is available at [www.acpi.info](http://www.acpi.info). ACPICA implementation of ACPI 4.0 is underway and will continue for the next few releases.

### 1) ACPI CA Core

Subsystem:

ACPI 4.0: Implemented interpreter support for the IPMI operation region address space. Includes support for bi-directional data buffers and an IPMI address space handler (to be installed by an IPMI device driver.) ACPICA BZ 773. Lin Ming.

ACPI 4.0: Added changes for existing ACPI tables - FACS and SRAT. Includes support in both the header files and the disassembler.

Completed a major update for the AcpiGetObjectInfo external interface.

Changes include:

- Support for variable, unlimited length HID, UID, and CID strings.
- Support Processor objects the same as Devices (HID,UID,CID,ADR,STA, etc.)
- Call the \_SxW power methods on behalf of a device object.
- Determine if a device is a PCI root bridge.
- Change the ACPI\_BUFFER parameter to ACPI\_DEVICE\_INFO.

These changes will require an update to all callers of this interface.

See

the updated ACPICA Programmer Reference for details. One new source file has been added - utilities/utids.c. ACPICA BZ 368, 780.

Updated

the AcpiRead and AcpiWrite external interfaces to support 64-bit transfers. The Value parameter has been extended from 32 bits to 64 bits in order to support new ACPI 4.0 tables. These changes will require an update to all callers of these interfaces. See the ACPICA Programmer Reference for details. ACPICA BZ 768.

Fixed several problems with AcpiAttachData. The handler was not invoked when the host node was deleted. The data sub-object was not automatically deleted when the host node was deleted. The interface to the handler had an unused parameter, this was removed. ACPICA BZ 778.

Enhanced the function that dumps ACPI table headers. All non-printable characters in the string fields are now replaced with '?' (Signature, OemId, OemTableId, and CompilerId.) ACPI tables with non-printable characters in these fields are occasionally seen in the field. ACPICA BZ 788.

Fixed a problem with predefined method repair code where the code that attempts to repair/convert an object of incorrect type is only executed on the first time the predefined method is called. The mechanism that disables warnings on subsequent calls was interfering with the repair mechanism. ACPICA BZ 781.

Fixed a possible memory leak in the predefined validation/repair code when a buffer is automatically converted to an expected string object.

Removed obsolete 16-bit files from the distribution and from the current git tree head. ACPICA BZ 776.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 83.4K Code, 17.5K Data, 100.9K Total  
Debug Version: 158.9K Code, 50.0K Data, 208.9K Total  
Current Release:  
Non-Debug Version: 84.7K Code, 17.8K Data, 102.5K Total  
Debug Version: 160.5K Code, 50.6K Data,  
211.1K Total

## 2) iASL Compiler/Disassembler and Tools:

ACPI 4.0: iASL and Disassembler - implemented support for the new IPMI operation region keyword. ACPICA BZ 771, 772. Lin Ming.

ACPI 4.0: iASL - implemented compile-time validation support for all new predefined names and control methods (31 total). ACPICA BZ 769.

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21 May 2009. Summary of changes for version 20090521:

### 1) ACPI CA Core Subsystem:

Disabled the preservation of the SCI enable bit in the PM1 control register.

The SCI enable bit (bit 0, SCI\_EN) is defined by the ACPI specification to be

a "preserved" bit - "OSPM always preserves this bit position", section 4.7.3.2.1. However, some machines fail if this bit is in fact preserved because the bit needs to be explicitly set by the OS as a workaround. No machines fail if the bit is not preserved. Therefore, ACPICA no longer attempts to preserve this bit.

Fixed a problem in AcpiRsGetPciRoutingTableLength where an invalid or incorrectly formed \_PRT package could cause a fault. Added validation to ensure that each package element is actually a sub-package.

Implemented a new interface to install or override a single control method, AcpiInstallMethod. This interface is useful when debugging in order to repair an existing method or to install a missing method without having to override the entire ACPI table. See the ACPICA Programmer Reference for use and examples. Lin Ming, Bob Moore.

Fixed several reference count issues with the DdbHandle object that is created from a Load or LoadTable operator. Prevent premature deletion of the

object. Also, mark the object as invalid once the table has been unloaded.

This is needed because the handle itself may not be deleted after the table unload, depending on whether it has been stored in a named object by the caller. Lin Ming.

Fixed a problem with Mutex Sync Levels. Fixed a problem where if multiple mutexes of the same sync level are acquired but then not released in strict opposite order, the internally maintained Current Sync Level becomes confused and can cause subsequent execution errors. ACPICA BZ 471.

Changed the allowable release order for ASL mutex objects. The ACPI 4.0 specification has been changed to make the SyncLevel for mutex objects more useful. When releasing a mutex, the SyncLevel of the mutex must now be the same as the current sync level. This makes more sense than the previous rule (SyncLevel less than or equal). This change updates the code to match the specification.

Fixed a problem with the local version of the AcpiOsPurgeCache function. The (local) cache must be locked during all cache object deletions. Andrew Baumann.

Updated the Load operator to use operation region interfaces. This replaces direct memory mapping with region access calls. Now, all region accesses go through the installed region handler as they should.

Simplified and optimized the NsGetNextNode function. Reduced parameter count and reduced code for this frequently used function.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:



Non-Debug Version: 82.8K Code, 17.5K Data, 100.3K Total  
Debug Version: 158.0K Code, 49.9K Data, 207.9K Total  
Current Release:  
Non-Debug Version: 83.4K Code, 17.5K Data, 100.9K Total  
Debug Version: 158.9K Code, 50.0K Data, 208.9K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Fixed some issues with DMAR, HEST, MADT tables. Some problems with sub-table disassembly and handling invalid sub-tables. Attempt recovery after an invalid sub-table ID.

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22 April 2009. Summary of changes for version 20090422:

### 1) ACPI CA Core Subsystem:

Fixed a compatibility issue with the recently released I/O port protection mechanism. For windows compatibility, 1) On a port protection violation, simply ignore the request and do not return an exception (allow the control method to continue execution.) 2) If only part of the request overlaps a protected port, read/write the individual ports that are not protected.  
Linux  
BZ 13036. Lin Ming

Enhanced the execution of the ASL/AML BreakPoint operator so that it actually breaks into the AML debugger if the debugger is present. This matches the ACPI-defined behavior.

Fixed several possible warnings related to the use of the configurable ACPI\_THREAD\_ID. This type can now be configured as either an integer or a pointer with no warnings. Also fixes several warnings in printf-like statements for the 64-bit build when the type is configured as a pointer.  
ACPICA BZ 766, 767.

Fixed a number of possible warnings when compiling with gcc 4+ (depending on warning options.) Examples include printf formats, aliasing, unused globals, missing prototypes, missing switch default statements, use of non-ANSI library functions, use of non-ANSI constructs. See generate/unix/Makefile

for  
a list of warning options used with gcc 3 and 4. ACPICA BZ 735.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 82.6K Code, 17.6K Data, 100.2K Total

Debug Version: 157.7K Code, 49.9K Data, 207.6K Total

Current Release:

Non-Debug Version: 82.8K Code, 17.5K Data, 100.3K Total

Debug Version: 158.0K Code, 49.9K Data, 207.9K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Fixed a generation warning from Bison 2.3 and fixed several warnings on the 64-bit build.

iASL: Fixed a problem where the Unix/Linux versions of the compiler could not correctly digest Windows/DOS formatted files (with CR/LF).

iASL: Added a new option for "quiet mode" (-va) that produces only the compilation summary, not individual errors and warnings. Useful for large batch compilations.

AcpiExec: Implemented a new option (-z) to enable a forced semaphore/mutex timeout that can be used to detect hang conditions during execution of AML code (includes both internal semaphores and AML-defined mutexes and events.)

Added new makefiles for the generation of acpica in a generic unix-like environment. These makefiles are intended to generate the acpica tools and utilities from the original acpica git source tree structure.

Test Suites: Updated and cleaned up the documentation files. Updated the copyrights to 2009, affecting all source files. Use the new version of iASL with quiet mode. Increased the number of available semaphores in the

Windows

OSL, allowing the aslts to execute fully on Windows. For the Unix OSL, added an alternate implementation of the semaphore timeout to allow aslts to execute fully on Cygwin.

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20 March 2009. Summary of changes for version 20090320:

1) ACPI CA Core Subsystem:

Fixed a possible race condition between AcpiWalkNamespace and dynamic table unloads. Added a reader/writer locking mechanism to allow multiple concurrent namespace walks (readers), but block a dynamic table unload until it can gain exclusive write access to the namespace. This fixes a problem where a table unload could (possibly catastrophically) delete the portion of the namespace that is currently being examined by a walk. Adds a new file, utlock.c, that implements the reader/writer lock mechanism. ACPICA BZ 749.

Fixed a regression introduced in version 20090220 where a change to the FADT handling could cause the ACPICA subsystem to access non-existent I/O ports.

Modified the handling of FADT register and table (FACS/DSDT) addresses. The FADT can contain both 32-bit and 64-bit versions of these addresses. Previously, the 64-bit versions were favored, meaning that if both 32 and 64 versions were valid, but not equal, the 64-bit version was used. This was found to cause some machines to fail. Now, in this case, the 32-bit version is used instead. This now matches the Windows behavior.

Implemented a new mechanism to protect certain I/O ports. Provides Microsoft compatibility and protects the standard PC I/O ports from access via AML code. Adds a new file, hwvalid.c

Fixed a possible extraneous warning message from the FADT support. The

message warns of a 32/64 length mismatch between the legacy and GAS definitions for a register.

Removed the obsolete AcpiOsValidateAddress OSL interface. This interface is made obsolete by the port protection mechanism above. It was previously used to validate the entire address range of an operation region, which could be incorrect if the range included illegal ports, but fields within the operation region did not actually access those ports. Validation is now performed on a per-field basis instead of the entire region.

Modified the handling of the PM1 Status Register ignored bit (bit 11.) Ignored bits must be "preserved" according to the ACPI spec. Usually, this means a read/modify/write when writing to the register. However, for status registers, writing a one means clear the event. Writing a zero means preserve the event (do not clear.) This behavior is clarified in the ACPI 4.0 spec, and the ACPICA code now simply always writes a zero to the ignored bit.

Modified the handling of ignored bits for the PM1 A/B Control Registers. As per the ACPI specification, for the control registers, preserve (read/modify/write) all bits that are defined as either reserved or ignored.

Updated the handling of write-only bits in the PM1 A/B Control Registers. When reading the register, zero the write-only bits as per the ACPI spec. ACPICA BZ 443. Lin Ming.

Removed "Linux" from the list of supported \_OSI strings. Linux no longer wants to reply true to this request. The Windows strings are the only paths through the AML that are tested and known to work properly.

Previous Release:

Non-Debug Version: 82.0K Code, 17.5K Data, 99.5K Total

Debug Version: 156.9K Code, 49.8K Data, 206.7K Total

Current Release:

Non-Debug Version: 82.6K Code, 17.6K Data, 100.2K Total

Debug Version: 157.7K Code, 49.9K Data, 207.6K Total

## 2) iASL Compiler/Disassembler and Tools:

Acpiexec: Split the large aeexec.c file into two new files, aehandlers.c and aetables.c

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20 February 2009. Summary of changes for version 20090220:

### 1) ACPI CA Core Subsystem:

Optimized the ACPI register locking. Removed locking for reads from the ACPI

bit registers in PM1 Status, Enable, Control, and PM2 Control. The lock is

not required when reading the single-bit registers. The

AcpiGetRegisterUnlocked function

is no longer needed and has been

removed.

This will improve performance for reads on these registers. ACPICA BZ 760.

Fixed the parameter validation for AcpiRead/Write. Now return

AE\_BAD\_PARAMETER if the input register pointer is null, and

AE\_BAD\_ADDRESS

if

the register has an address of zero. Previously, these cases simply

returned

AE\_OK. For optional registers such as PM1B status/enable/control, the

caller

should check for a valid register address before calling. ACPICA BZ 748.

Renamed the external ACPI bit register access functions. Renamed

AcpiGetRegister and AcpiSetRegister to clarify the purpose of these

functions. The new names are AcpiReadBitRegister and

AcpiWriteBitRegister.

Also, restructured the code for these functions by simplifying the code

path

and condensing duplicate code to reduce code size.

Added new functions to transparently handle the possibly split PM1 A/B

registers. AcpiHwReadMultiple and AcpiHwWriteMultiple. These two

functions

now handle

the split registers for PM1 Status, Enable, and Control.

ACPICA

BZ

746.

Added a function to handle the PM1 control registers, `AcpiHwWritePm1Control`. This function writes both of the PM1 control registers (A/B). These registers are different than the PM1 A/B status and enable registers in that different values can be written to the A/B registers. Most notably, the `SLP_TYP` bits can be different, as per the values returned from the `_Sx` predefined methods.

Removed an extra register write within `AcpiHwClearAcpiStatus`. This function was writing an optional PM1B status register twice. The existing call to the low-level `AcpiHwRegisterWrite` automatically handles a possibly split PM1 A/B register. ACPICA BZ 751.

Split out the PM1 Status registers from the FADT. Added new globals for these registers (A/B), similar to the way the PM1 Enable registers are handled. Instead of overloading the FADT Event Register blocks. This makes the code clearer and less prone to error.

Fixed the warning message for when the platform contains too many ACPI tables for the default size of the global root table data structure. The calculation for the truncation value was incorrect.

Removed the `ACPI_GET_OBJECT_TYPE` macro. Removed all instances of this obsolete macro, since it is now a simple reference to `->common.type`. There were about 150 invocations of the macro across 41 files. ACPICA BZ 755.

Removed the redundant `ACPI_BITREG_SLEEP_TYPE_B`. This type is the same as `TYPE_A`. Removed this and all related instances. Renamed `SLEEP_TYPE_A` to simply `SLEEP_TYPE`. ACPICA BZ 754.

Conditionally compile the `AcpiSetFirmwareWakingVector64` function. This function is only needed on 64-bit host operating systems and is thus not included for 32-bit hosts.

Debug output: print the input and result for invocations of the `_OSI`

reserved

control method via the ACPI\_LV\_INFO debug level. Also, reduced some of the verbosity of this debug level. Len Brown.

#### Example Code and Data

Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Previous Release:

Non-Debug Version: 82.3K Code, 17.5K Data, 99.8K Total

Debug Version: 157.3K Code, 49.8K Data, 207.1K Total

#### Current Release:

Non-Debug Version: 82.0K Code, 17.5K Data, 99.5K Total

Debug Version: 156.9K Code, 49.8K Data, 206.7K Total

#### 2) iASL Compiler/Disassembler and Tools:

Disassembler: Decode the FADT PM\_Profile field. Emit ascii names for the various legal performance profiles.

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23 January 2009. Summary of changes for version 20090123:

#### 1) ACPI CA Core Subsystem:

Added the 2009 copyright to all module headers and signons. This affects virtually every file in the ACPICA core subsystem, the iASL compiler, and the tools/utilities.

Implemented a change to allow the host to override any ACPI table, including dynamically loaded tables. Previously, only the DSDT could be replaced by the host. With this change, the AcpiOsTableOverride interface is called for each table found in the RSDT/XSDT during ACPICA initialization, and also whenever a table is dynamically loaded via the AML Load operator.

Updated FADT flag definitions, especially the Boot Architecture flags.

Debugger: For the Find command, automatically pad the input ACPI name with

underscores if the name is shorter than 4 characters. This enables a match with the actual namespace entry which is itself padded with underscores.

Example Code and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 82.3K Code, 17.4K Data, 99.7K Total

Debug Version:

157.1K Code, 49.7K Data, 206.8K Total

Current Release:

Non-Debug Version: 82.3K Code, 17.5K Data, 99.8K Total

Debug Version: 157.3K Code, 49.8K Data, 207.1K Total

## 2) iASL Compiler/Disassembler and Tools:

Fix build error under Bison-2.4.

Disassembler: Enhanced FADT support. Added decoding of the Boot Architecture

flags. Now decode all flags, regardless of the FADT version. Flag output includes the FADT version which first defined each flag.

The iASL `-g` option now dumps the RSDT to a file (in addition to the FADT and DSDT). Windows only.

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04 December 2008. Summary of changes for version 20081204:

### 1) ACPI CA Core Subsystem:

The ACPI CA Programmer Reference has been completely updated and revamped for this release. This includes updates to the external interfaces, OSL interfaces, the overview sections, and the debugger reference.

Several new ACPI CA interfaces have been implemented and documented in the programmer reference:

`AcpiReset` - Writes the reset value to the FADT-defined reset register.

`AcpiDisableAllGpes` - Disable all available GPEs.

`AcpiEnableAllRuntimeGpes` - Enable all available runtime GPEs.

`AcpiGetGpeDevice` - Get the GPE block device associated with a GPE.



AcpiGbl\_CurrentGpeCount - Tracks the current number of available GPEs.

AcpiRead - Low-level read ACPI register (was HwLowLevelRead.)

AcpiWrite - Low-level write ACPI register (was HwLowLevelWrite.)

Most of the public ACPI hardware-related interfaces have been moved to a new

file, components/hardware/hwxface.c

Enhanced the FADT parsing and low-level ACPI register access: The ACPI register lengths within the FADT are now used, and the low level ACPI register access no longer hardcodes the ACPI register lengths. Given that there may be some risk in actually trusting the FADT register lengths, a run-

time option was added to fall back to the default hardcoded lengths if the

FADT proves to contain incorrect values - UseDefaultRegisterWidths.

This

option is set to true for now, and a warning is issued if a suspicious

FADT

register length is overridden with the default value.

Fixed a reference count issue in NsRepairObject. This problem was introduced

in version 20081031 as part of a fix to repair Buffer objects within Packages. Lin Ming.

Added semaphore support to the Linux/Unix application OS-services layer (OSL). ACPICA BZ 448. Lin Ming.

Added the ACPI\_MUTEX\_TYPE configuration option to select whether mutexes will

be implemented in the OSL, or will binary semaphores be used instead.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a

much larger code and data size.

Previous Release:

Non-Debug Version: 81.7K Code, 17.3K Data, 99.0K Total

Debug Version: 156.4K Code, 49.4K Data, 205.8K Total

Current

Release:

Non-Debug Version: 82.3K Code, 17.4K Data, 99.7K Total

Debug Version: 157.1K Code, 49.7K Data, 206.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Completed the '-e' option to include additional ACPI tables in order to aid with disassembly and External statement generation. ACPICA BZ 742.  
Lin  
Ming.

iASL: Removed the "named object in while loop" error. The compiler cannot determine how many times a loop will execute. ACPICA BZ 730.

Disassembler: Implemented support for FADT revision 2 (MS extension).  
ACPICA  
BZ 743.

Disassembler: Updates for several ACPI data tables (HEST, EINJ, and MCFG).

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31 October 2008. Summary of changes for version 20081031:

1) ACPI CA Core Subsystem:

Restructured the ACPICA header files into public/private. acpi.h now includes only the "public" acpica headers. All other acpica headers are "private" and should not be included by acpica users. One new file, accommon.h is used

to include the commonly used private headers for acpica code generation. Future plans include moving all private headers to a new subdirectory.

Implemented an automatic Buffer->String return value conversion for predefined ACPI methods. For these methods (such as \_BIF), added automatic conversion for return objects that are required to be a String, but a Buffer was found instead. This can happen when reading string battery data from an operation region, because it used to be difficult to convert the data from buffer to string from within the ASL. Ensures that the host OS is provided with a valid null-terminated string. Linux BZ 11822.

Updated the FACS waking vector interfaces. Split

AcpiSetFirmwareWakingVector

into two: one for the 32-bit vector, another for the 64-bit vector. This is required because the host OS must setup the wake much differently for each vector (real vs. protected mode, etc.) and the interface itself should not be deciding which vector to use. Also, eliminated the GetFirmwareWakingVector interface, as it served no purpose (only the firmware reads the vector, OS only writes the vector.) ACPICA BZ 731.

Implemented a mechanism to escape infinite AML While() loops. Added a loop counter to force exit from AML While loops if the count becomes too large.

This can occur in poorly written AML when the hardware does not respond within a while loop and the loop does not implement a timeout. The maximum loop count is configurable. A new exception code is returned when a loop is broken, AE\_AML\_INFINITE\_LOOP. Alexey Starikovskiy, Bob Moore.

Optimized the execution of AML While loops. Previously, a control state object was allocated and freed for each execution of the loop. The optimization is to simply reuse the control state for each iteration. This speeds up the raw loop execution time by about 5%.

Enhanced the implicit return mechanism. For Windows compatibility, return an implicit integer of value zero for methods that contain no executable code.

Such methods are seen in the field as stubs (presumably), and can cause drivers to fail if they expect a return value. Lin Ming.

Allow multiple backslashes as root prefixes in namepaths. In a fully qualified namepath, allow multiple backslash prefixes. This can happen (and is seen in the field) because of the use of a double-backslash in strings (since backslash is the escape character) causing confusion. ACPICA BZ 739  
Lin Ming.

Emit a warning if two different FACS or DSDT tables are discovered in the FADT. Checks if there are two valid but different addresses for the FACS and DSDT within the FADT (mismatch between the 32-bit and 64-bit fields.)

Consolidated the method argument count validation code. Merged the code that validates control method argument counts into the predefined validation module. Eliminates possible multiple warnings for incorrect argument counts.

Implemented ACPICA example code. Includes code for ACPICA initialization, handler installation, and calling a control method. Available at [source/tools/examples](#).

Added a global pointer for FACS table to simplify internal FACS access. Use the global pointer instead of using `AcpiGetTableByIndex` for each FACS access. This simplifies the code for the Global Lock and the Firmware Waking Vector(s).

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 81.2K Code, 17.0K Data, 98.2K Total

Debug Version: 155.8K Code, 49.1K Data, 204.9K Total

Current Release:

Non-Debug Version: 81.7K Code, 17.3K Data, 99.0K Total

Debug Version: 156.4K Code, 49.4K Data, 205.8K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Improved disassembly of external method calls. Added the `-e` option

to allow the inclusion of additional ACPI tables to help with the disassembly of method invocations and the generation of external declarations during the disassembly. Certain external method invocations cannot be disassembled properly without the actual declaration of the method. Use the `-e` option to

include the table where the external method(s) are actually declared.

Most

useful for disassembling SSDTs that make method calls back to the master DSDT. Lin Ming. Example: To disassemble an SSDT with calls to DSDT: `iasl -d -e dsdt.aml ssdt1.aml`

iASL: Fix to allow references to aliases within ASL namepaths. Fixes a problem where the use of an alias within a namepath would result in a not found error or cause the compiler to fault. Also now allows forward references from the Alias operator itself. ACPICA BZ 738.

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26 September 2008. Summary of changes for version 20080926:

1) ACPI CA Core Subsystem:

Designed and implemented a mechanism to validate predefined ACPI methods and objects. This code validates the predefined ACPI objects (objects whose names start with underscore) that appear in the namespace, at the time they are evaluated. The argument count and the type of the returned object are validated against the ACPI specification. The purpose of this validation is to detect problems with the BIOS-implemented predefined ACPI objects before the results are returned to the ACPI-related drivers. Future enhancements may include actual repair of incorrect return objects where possible. Two new files are `nspredef.c` and `acpredef.h`.

Fixed a fault in the AML parser if a memory allocation fails during the `Op` completion routine `AcpiPsCompleteThisOp`. Lin Ming. ACPICA BZ 492.

Fixed an issue with implicit return compatibility. This change improves the implicit return mechanism to be more compatible with the MS interpreter. Lin Ming, ACPICA BZ 349.

Implemented support for zero-length buffer-to-string conversions. Allow zero length strings during interpreter buffer-to-string conversions. For example,

during the ToDecimalString and ToHexString operators, as well as implicit conversions. Fiodor Suietov, ACPICA BZ 585.

Fixed two possible memory leaks in the error exit paths of AcpiUtUpdateObjectReference and AcpiUtWalkPackageTree. These functions are similar in that they use a stack of state objects in order to eliminate recursion. The stack must be fully unwound and deallocated if an error occurs. Lin Ming. ACPICA BZ 383.

Removed the unused ACPI\_BITREG\_WAKE\_ENABLE definition and entry in the global ACPI register table. This bit does not exist and is unused. Lin Ming, Bob Moore ACPICA BZ 442.

Removed the obsolete version number in module headers. Removed the "\$Revision" number that appeared in each module header. This version number was useful under SourceSafe and CVS, but has no meaning under git. It is not only incorrect, it could also be misleading.

#### Example

Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Previous Release:

Non-Debug Version: 79.7K Code, 16.4K Data, 96.1K Total

Debug Version: 153.7K Code, 48.2K Data, 201.9K Total

#### Current Release:

Non-Debug Version: 81.2K Code, 17.0K Data, 98.2K Total

Debug Version: 155.8K Code, 49.1K Data, 204.9K Total

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29 August 2008. Summary of changes for version 20080829:

#### 1) ACPI CA Core Subsystem:

Completed a major cleanup of the internal ACPI\_OPERAND\_OBJECT of type Reference. Changes include the elimination of cheating on the Object field for the DdbHandle subtype, addition of a reference class field to differentiate the various reference types (instead of an AML opcode), and the cleanup of debug output for this object. Lin

Ming, Bob Moore. BZ 723

Reduce an error to a warning for an incorrect method argument count. Previously aborted with an error if too few arguments were passed to a control method via the external ACPICA interface. Now issue a warning instead and continue. Handles the case where the method inadvertently declares too many arguments, but does not actually use the extra ones. Applies mainly to the predefined methods. Lin Ming. Linux BZ 11032.

Disallow the evaluation of named object types with no intrinsic value. Return AE\_TYPE for objects that have no value and therefore evaluation is undefined: Device, Event, Mutex, Region, Thermal, and Scope. Previously, evaluation of these types were allowed, but an exception would be generated at some point during the evaluation. Now, the error is generated up front.

Fixed a possible memory leak in the AcpiNsGetExternalPathname function (nsnames.c). Fixes a leak in the error exit path.

Removed the obsolete debug levels ACPI\_DB\_WARN and ACPI\_DB\_ERROR. These debug levels were made obsolete by the ACPI\_WARNING, ACPI\_ERROR, and ACPI\_EXCEPTION interfaces. Also added ACPI\_DB\_EVENTS to correspond with the existing ACPI\_LV\_EVENTS.

Removed obsolete and/or unused exception codes from the acexcep.h header. There is the possibility that certain device drivers may be affected if they use any of these exceptions.

The ACPICA documentation has been added to the public git source tree, under acpica/documents. Included are the ACPICA programmer reference, the iASL compiler reference, and the changes.txt release logfile.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 79.7K Code, 16.4K Data, 96.1K Total

Debug Version: 153.9K Code, 48.4K Data, 202.3K Total

Current Release:

Non-Debug Version: 79.7K Code, 16.4K Data, 96.1K Total

Debug Version: 153.7K Code, 48.2K Data, 201.9K Total

## 2) iASL Compiler/Disassembler and Tools:

Allow multiple argument counts for the predefined \_SCP method. ACPI 3.0 defines \_SCP with 3 arguments. Previous versions defined it with only 1 argument. iASL now allows both definitions.

iASL/disassembler: avoid infinite loop on bad ACPI tables. Check for zero-length subtables when disassembling ACPI tables. Also fixed a couple of errors where a full 16-bit table type field was not extracted from the input properly.

acpisrc: Improve comment counting mechanism for generating source code statistics. Count first and last lines of multi-line comments as whitespace, not comment lines. Handle Linux legal header in addition to standard apica header.

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29 July 2008. Summary of changes for version 20080729:

### 1) ACPI CA Core Subsystem:

Fix a possible deadlock in the GPE dispatch. Remove call to AcpiHwDisableAllGpes during wake in AcpiEvGpeDispatch. This call will attempt to acquire the GPE lock but can deadlock since the GPE lock is already held at dispatch time. This code was introduced in version 20060831 as a response to Linux BZ 6881 and has since been removed from Linux.

Add a function to dereference returned reference objects. Examines the return object from a call to AcpiEvaluateObject. Any Index or RefOf references are



automatically dereferenced in an attempt to return something useful  
(these  
reference types cannot be converted into an external ACPI\_OBJECT.)  
Provides  
MS compatibility. Lin Ming, Bob Moore. Linux BZ 11105

x2APIC support: changes for MADT and SRAT ACPI tables. There are 2 new  
subtables for the MADT and one new subtable for the SRAT. Includes  
disassembler and AcpiSrc support. Data from the Intel 64 Architecture  
x2APIC  
Specification, June 2008.

Additional error checking for pathname utilities. Add  
error check after  
all  
calls to AcpiNsGetPathnameLength. Add status return from  
AcpiNsBuildExternalPath and check after all calls. Add parameter  
validation  
to AcpiUtInitializeBuffer. Reported by and initial patch by Ingo Molnar.

Return status from the global init function AcpiUtGlobalInitialize. This  
is  
used by both the kernel subsystem and the utilities such as iASL  
compiler.  
The function could possibly fail when the caches are initialized. Yang  
Yi.

Add a function to decode reference object types to strings. Created for  
improved error messages.

Improve object conversion error messages. Better error messages during  
object  
conversion from internal to the external ACPI\_OBJECT. Used for external  
calls  
to AcpiEvaluateObject.

Example Code and Data Size: These are the sizes for the OS-independent  
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The  
debug version of the code includes the debug output trace mechanism and  
has a  
much larger code and data  
size.

Previous Release:

Non-Debug Version: 79.6K Code, 16.2K Data, 95.8K Total

Debug Version: 153.5K Code, 48.2K Data, 201.7K Total

Current Release:

Non-Debug Version: 79.7K Code, 16.4K Data, 96.1K Total

Debug Version: 153.9K Code, 48.4K Data, 202.3K Total

## 2) iASL Compiler/Disassembler and Tools:

Debugger: fix a possible hang when evaluating non-methods. Fixes a problem introduced in version 20080701. If the object being evaluated (via execute command) is not a method, the debugger can hang while trying to obtain non-existent parameters.

iASL: relax error for using reserved "\_T\_x" identifiers. These names can appear in a disassembled ASL file if they were emitted by the original compiler. Instead of issuing an error or warning and forcing the user to manually change these names, issue a remark instead.

iASL: error if named object created in while loop. Emit an error if any named object is created within a While loop. If allowed, this code will generate a run-time error on the second iteration of the loop when an attempt is made to create the same named object twice. ACPICA bugzilla 730.

iASL: Support absolute pathnames for include files. Add support for absolute pathnames within the Include operator. previously, only relative pathnames were supported.

iASL: Enforce minimum 1 interrupt in interrupt macro and Resource Descriptor. The ACPI spec requires one interrupt minimum. BZ 423

iASL: Handle a missing ResourceSource arg, with a present SourceIndex. Handles the case for the Interrupt Resource Descriptor where the ResourceSource argument is omitted but ResourceSourceIndex is present. Now leave room for the Index. BZ 426

iASL: Prevent error message if CondRefOf target does not exist. Fixes cases where an error message is emitted if the target does not exist. BZ 516

iASL: Fix broken -g option (get Windows ACPI tables). Fixes the -g option

(get ACPI tables on Windows). This was apparently broken in version 20070919.

AcpiXtract: Handle EOF while extracting data. Correctly handle the case where the EOF happens immediately after the last table in the input file. Print completion message. Previously, no message was displayed in this case.

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01 July 2008. Summary of changes for version 20080701:

0) Git source tree / acpica.org

Fixed a problem where a git-clone from http would not transfer the entire source tree.

1) ACPI CA Core Subsystem:

Implemented a "careful" GPE disable in AcpiEvDisableGpe, only modify one enable bit. Now performs a read-change-write of the enable register instead of simply writing out the cached enable mask. This will prevent inadvertent enabling of GPEs if a rogue GPE is received during initialization (before GPE handlers are installed.)

Implemented a copy for dynamically loaded tables. Previously, dynamically loaded tables were simply mapped - but on some machines this memory is corrupted after suspend.

Now copy the table to a local buffer. For the OpRegion case, added checksum verify. Use the table length from the table header, not the region length. For the Buffer case, use the table length also. Dennis Noordsij, Bob Moore. BZ 10734

Fixed a problem where the same ACPI table could not be dynamically loaded and unloaded more than once. Without this change, a table cannot be loaded again once it has been loaded/unloaded one time. The current mechanism does not unregister a table upon an unload. During a load, if the same table is found, this no longer returns an exception. BZ 722

Fixed a problem where the wrong descriptor length was calculated for the EndTag descriptor in 64-bit mode. The "minimal" descriptors such as EndTag

are calculated as 12 bytes long, but the actual length in the internal descriptor is 16 because of the round-up to 8 on the 64-bit build.

Reported

by Linn Crosetto. BZ 728

Fixed a possible memory leak in the Unload operator. The DdbHandle returned

by Load() did not have its reference count decremented during unload, leading

to a memory leak. Lin Ming. BZ 727

Fixed a possible memory leak when deleting thermal/processor objects. Any associated notify handlers (and objects) were not being deleted. Fiodor Suietov. BZ 506

Fixed the ordering of the ASCII names in the global mutex table to match the actual mutex IDs. Used by AcpiUtGetMutexName, a function used for debug only.

Vegard Nossum. BZ 726

Enhanced the AcpiGetObjectInfo interface to return the number of required arguments if the object is a control method. Added this call to the debugger

so the proper number of default arguments are passed to a method. This prevents a warning when executing methods from AcpiExec.

Added a check for an invalid handle in AcpiGetObjectInfo. Return AE\_BAD\_PARAMETER if input handle is invalid. BZ 474

Fixed an extraneous warning from exconfig.c on the 64-bit build.

Example Code and Data Size: These are the sizes for the OS-independent

acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a

much larger code and data size.

Previous Release:

Non-Debug Version: 79.3K Code, 16.2K Data, 95.5K Total

Debug Version: 153.0K Code, 48.2K Data, 201.2K Total

Current Release:

Non-Debug Version: 79.6K Code, 16.2K Data, 95.8K Total

Debug Version: 153.5K Code, 48.2K Data, 201.7K Total

2) iASL Compiler/Disassembler and Tools:

iASL: Added two missing ACPI reserved names. Added `_MTP` and `_ASZ`, both resource descriptor names.

iASL: Detect invalid ASCII characters in input (windows version). Removed the "-CF" flag from the flex compile, enables correct detection of non-ASCII characters in the input. BZ 441

iASL: Eliminate warning when result of LoadTable is not used. Eliminate the "result of operation not used" warning when the DDB handle returned from LoadTable is not used. The warning is not needed. BZ 590

AcpiExec: Add support for dynamic table load/unload. Now calls `_CFG` method to pass address of table to the AML. Added option to disable OpRegion simulation to allow creation of an OpRegion with a real address that was passed to `_CFG`. All of this allows testing of the Load and Unload operators from AcpiExec.

Debugger: update tables command for unloaded tables. Handle unloaded tables and use the standard table header output routine.

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09 June 2008. Summary of changes for version 20080609:

1) ACPI CA Core Subsystem:

Implemented a workaround for reversed `_PRT` entries. A significant number of BIOSs erroneously reverse the `_PRT` SourceName and the SourceIndex. This change dynamically detects and repairs this problem. Provides compatibility with MS ACPI. BZ 6859

Simplified the internal ACPI hardware interfaces to eliminate the locking flag parameter from Register Read/Write. Added a new external interface, `AcpiGetRegisterUnlocked`.

Fixed a problem where the invocation of a GPE control method could hang. This

was a regression introduced in 20080514. The new method argument count validation mechanism can enter an infinite loop when a GPE method is dispatched. Problem fixed by removing the obsolete code that passed GPE block information to the notify handler via the control method parameter pointer.

Fixed a problem where the `_SST` execution status was incorrectly returned to the caller of `AcpiEnterSleepStatePrep`. This was a regression introduced in 20080514. `_SST` is optional and a `NOT_FOUND` exception should never be returned. BZ 716

Fixed a problem where a deleted object could be accessed from within the AML parser. This was a regression introduced in version 20080123 as a fix for the Unload operator. Lin Ming. BZ 10669

Cleaned up the debug operand dump mechanism. Eliminated unnecessary operands and eliminated the use of a negative index in a loop. Operands are now displayed in the correct order, not backwards. This also fixes a regression introduced in 20080514 on 64-bit systems where the elimination of `ACPI_NATIVE_UINT` caused the negative index to go large and positive. BZ 715

Fixed a possible memory leak in `EvPciConfigRegionSetup` where the error exit path did not delete a locally allocated structure.

Updated definitions for the DMAR and SRAT tables to synchronize with the current specifications. Includes disassembler support.

Fixed a problem in the mutex debug code (in `utmutex.c`) where an incorrect loop termination value was used. Loop terminated on iteration early, missing one mutex. Linn Crosetto

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 79.5K Code, 16.2K Data, 95.7K Total

Debug

Version: 153.3K Code, 48.3K Data, 201.6K Total

Current Release:

Non-Debug Version: 79.3K Code, 16.2K Data, 95.5K Total

Debug Version: 153.0K Code, 48.2K Data, 201.2K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Implemented support for EisaId() within \_CID objects. Now disassemble integer \_CID objects back to EisaId invocations, including multiple integers within \_CID packages. Includes single-step support for debugger also.

Disassembler: Added support for DMAR and SRAT table definition changes.

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14 May 2008. Summary of changes for version 20080514:

### 1) ACPI CA Core Subsystem:

Fixed a problem where GPEs were enabled too early during the ACPICA initialization. This could lead to "handler not installed" errors on some machines. Moved GPE enable until after \_REG/\_STA/\_INI methods are run.

This

ensures that all operation regions and devices throughout the namespace have

been initialized before GPEs

are enabled. Alexey Starikovskiy, BZ 9916.

Implemented a change to the enter sleep code. Moved execution of the \_GTS method to just before setting sleep enable bit. The execution was moved from

AcpiEnterSleepStatePrep to AcpiEnterSleepState. \_GTS is now executed immediately before the SLP\_EN bit is set, as per the ACPI specification.

Luming Yu, BZ 1653.

Implemented a fix to disable unknown GPEs (2nd version). Now always disable

the GPE, even if ACPICA thinks that that it is already disabled. It is possible that the AML or some other code has enabled the GPE unbeknownst to

the ACPICA code.

Fixed a problem with the Field operator where zero-length fields would return

an AE\_AML\_NO\_OPERAND exception during table load. Fix enables zero-length

ASL

field declarations in Field(), BankField(), and IndexField(). BZ 10606.

Implemented a fix for the Load operator, now load the table at the namespace root. This reverts a change introduced in version 20071019. The table is now loaded at the namespace root even though this goes against the ACPI specification. This provides compatibility with other ACPI implementations. The ACPI specification will be updated to reflect this in ACPI 4.0. Lin Ming.

Fixed a problem where ACPICA would not Load() tables with unusual signatures. Now ignore ACPI table signature for Load() operator. Only "SSDT" is acceptable to the ACPI spec, but tables are seen with OEMx and null sigs. Therefore, signature validation is worthless. Apparently MS ACPI accepts such signatures, ACPICA must be compatible. BZ 10454.

Fixed a possible negative array index in AcpiUtValidateException. Added NULL fields to the exception string arrays to eliminate a -1 subtraction on the SubStatus field.

Updated the debug tracking macros to reduce overall code and data size. Changed ACPI\_MODULE\_NAME and ACPI\_FUNCTION\_NAME to use arrays of strings instead of pointers to static strings. Jan Beulich and Bob Moore.

Implemented argument count checking in control method invocation via AcpiEvaluateObject. Now emit an error if too few arguments, warning if too many. This applies only to extern programmatic control method execution, not method-to-method calls within the AML. Lin Ming.

Eliminated the ACPI\_NATIVE\_UINT type across all ACPICA code. This type is no longer needed, especially with the removal of 16-bit support. It was replaced mostly with UINT32, but also ACPI\_SIZE where a type that changes 32/64 bit on 32/64-bit platforms is required.



Added the C const qualifier for appropriate string constants -- mostly MODULE\_NAME and printf format strings. Jan Beulich.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 80.0K Code, 17.4K Data, 97.4K Total

Debug Version:

159.4K Code, 64.4K Data, 223.8K Total

Current Release:

Non-Debug Version: 79.5K Code, 16.2K Data, 95.7K Total

Debug Version: 153.3K Code, 48.3K Data, 201.6K Total

2) iASL Compiler/Disassembler and Tools:

Implemented ACPI table revision ID validation in the disassembler. Zero is always invalid. For DSDTs, the ID controls the interpreter integer width. 1 means 32-bit and this is unusual. 2 or greater is 64-bit.

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21 March 2008. Summary of changes for version 20080321:

1) ACPI CA Core Subsystem:

Implemented an additional change to the GPE support in order to suppress spurious or stray GPEs. The AcpiEvDisableGpe function will now permanently disable incoming GPEs that are neither enabled nor disabled -- meaning that the GPE is unknown to the system. This should prevent future interrupt floods from that GPE. BZ 6217 (Zhang Rui)

Fixed a problem where NULL package elements were not returned to the AcpiEvaluateObject interface correctly. The element was simply ignored instead of returning a NULL ACPI\_OBJECT package element, potentially causing a buffer overflow and/or confusing the caller who expected a fixed number of elements. BZ 10132 (Lin Ming, Bob Moore)

Fixed a problem with the CreateField, CreateXXXField (Bit, Byte, Word, Dword, Qword), Field, BankField, and IndexField operators when invoked from inside an executing control method. In this case, these operators created namespace nodes that were incorrectly left marked as permanent nodes instead of temporary nodes. This could cause a problem if there is race condition between an exiting control method and a running namespace walk. (Reported by Linn Crosetto)

Fixed a problem where the CreateField and CreateXXXField operators would incorrectly allow duplicate names (the name of the field) with no exception generated.

Implemented several changes for Notify handling. Added support for new Notify values (ACPI 2.0+) and improved the Notify debug output. Notify on PowerResource objects is no longer allowed, as per the ACPI specification. (Bob Moore, Zhang Rui)

All Reference Objects returned via the AcpiEvaluateObject interface are now marked as type "REFERENCE" instead of "ANY". The type ANY is now reserved for NULL objects - either NULL package elements or unresolved named references.

Fixed a problem where an extraneous debug message was produced for package objects (when debugging enabled). The message "Package List length larger than NumElements count" is now produced in the correct case, and is now an error message rather than a debug message. Added a debug message for the opposite case, where NumElements is larger than the Package List (the package will be padded out with NULL elements as per the ACPI spec.)

Implemented several improvements for the output of the ASL "Debug" object to clarify and keep all data for a given object on one output line.

Fixed two size calculation issues

with the variable-length Start

Dependent

resource descriptor.

Example Code and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has

a much larger code and data size.

Previous Release:

Non-Debug Version: 79.7K Code, 17.3K Data, 97.0K Total

Debug Version: 158.9K Code, 64.0K Data, 222.9K Total

Current Release:

Non-Debug Version: 80.0K Code, 17.4K Data, 97.4K Total

Debug Version: 159.4K Code, 64.4K Data, 223.8K Total

## 2) iASL Compiler/Disassembler and Tools:

Fixed a problem with the use of the Switch operator where execution of the containing method by multiple concurrent threads could cause an `AE_ALREADY_EXISTS` exception. This is caused by the fact that there is no actual Switch opcode, it must be simulated with local named temporary variables and if/else pairs. The solution chosen was to mark any method that uses Switch as Serialized, thus preventing multiple thread entries. BZ 469.

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13 February 2008. Summary of changes for version 20080213:

### 1) ACPI CA Core Subsystem:

Implemented another MS compatibility design change for GPE/Notify handling.

GPEs are now cleared/enabled asynchronously to allow all pending notifies to

complete first. It is expected that the OSL will queue the enable request behind all pending notify requests (may require changes to the local host

OSL

in `AcpiOsExecute`). Alexey Starikovskiy.

Fixed a problem where buffer and package objects passed as arguments to a control method via the external `AcpiEvaluateObject` interface could cause an

`AE_AML_INTERNAL` exception depending on the order and type of operators

executed by the target control method.

Fixed a problem where resource descriptor size optimization could cause a problem when a `_CRS` resource template is passed to a `_SRS` method. The `_SRS`

resource

template must use the same descriptors (with the same size) as returned from `_CRS`. This change affects the following resource descriptors:

`IRQ / IRQNoFlags` and `StartDependentFn / StartDependentFnNoPri`. (BZ 9487)

Fixed a problem where a `CopyObject` to `RegionField`, `BankField`, and `IndexField`

objects did not perform an implicit conversion as it should. These types must

retain their initial type permanently as per the ACPI specification.

However,

a `CopyObject` to all other object types should not perform an implicit conversion, as per the ACPI specification. (Lin Ming, Bob Moore) BZ 388

Fixed a problem with the `AcpiGetDevices` interface where the mechanism to match device CIDs did not examine the entire list of available CIDs, but instead aborted on the first non-matching CID. Andrew Patterson.

Fixed a regression introduced in version 20071114. The `ACPI_HIDWORD` macro was

inadvertently changed to return a 16-bit value instead of a 32-bit value, truncating the upper dword

of a 64-bit value. This macro is only used to display debug output, so no incorrect calculations were made. Also, reimplemented the macro so that a 64-bit shift is not performed by inefficient compilers.

Added missing `va_end` statements that should correspond with each `va_start` statement.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has

a much larger code and data size.

Previous Release:

Non-Debug Version: 79.5K Code, 17.2K Data, 96.7K Total

Debug Version: 159.0K Code, 63.8K Data, 222.8K Total

Current Release:

Non-Debug Version: 79.7K Code, 17.3K Data, 97.0K Total

Debug Version: 158.9K Code, 64.0K Data, 222.9K Total

## 2) iASL Compiler/Disassembler and Tools:

Implemented full disassembler support for the following new ACPI tables: BERT, EINJ, and ERST. Implemented partial disassembler support for the complicated HEST table. These tables support the Windows Hardware Error Architecture (WHEA).

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23 January 2008. Summary of changes for version 20080123:

### 1) ACPI CA Core Subsystem:

Added the 2008 copyright to all module headers and signons. This affects virtually every file in the ACPI CA core subsystem, the iASL compiler, and the tools/utilities.

Fixed a problem with the SizeOf operator when used with Package and Buffer objects. These objects have deferred execution for some arguments, and the execution is now completed before the SizeOf is executed. This problem caused unexpected AE\_PACKAGE\_LIMIT errors on some systems (Lin Ming, Bob Moore)  
BZ  
9558

Implemented an enhancement to the interpreter "slack mode". In the absence of an explicit return or an implicitly returned object from the last executed opcode, a control method will now implicitly return an integer of value 0 for Microsoft compatibility.  
(Lin Ming) BZ 392

Fixed a problem with the Load operator where an exception was not returned in the case where the table is already loaded. (Lin Ming) BZ 463

Implemented support for the use of DDBHandles as an Indexed Reference, as per the ACPI spec. (Lin Ming) BZ 486

Implemented support for UserTerm (Method invocation) for the Unload operator as per the ACPI spec. (Lin Ming) BZ 580

Fixed a problem with the LoadTable operator where the OemId and OemTableId input strings could cause unexpected failures if they were shorter than the maximum lengths allowed. (Lin Ming, Bob Moore) BZ 576

Implemented support for UserTerm (Method invocation) for the Unload operator as per the ACPI spec. (Lin Ming) BZ 580

Implemented header file support for new ACPI tables - BERT, ERST, EINJ, HEST, IBFT, UEFI, WDAT. Disassembler support is forthcoming.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 79.3K Code, 17.2K Data, 96.5K Total

Debug Version: 158.6K Code, 63.8K Data, 222.4K Total

Current Release:

Non-Debug Version: 79.5K Code, 17.2K Data, 96.7K Total

Debug Version: 159.0K Code, 63.8K Data, 222.8K Total

2) iASL Compiler/Disassembler and Tools:

Implemented support in the disassembler for checksum validation on incoming binary DSDTs and SSDTs. If incorrect, a message is displayed within the table header dump at the start of the disassembly.

Implemented additional debugging information in the namespace listing file created during compilation. In addition to the namespace hierarchy, the full pathname to each namespace object is displayed.

Fixed a problem with the disassembler where invalid ACPI tables could cause

faults or infinite loops.

Fixed an unexpected parse error  
when using the optional "parameter types"  
list in a control method declaration. (Lin Ming) BZ 397

Fixed a problem where two External declarations with the same name did  
not  
cause an error (Lin Ming) BZ 509

Implemented support for full TermArgs (adding Argx, Localx and method  
invocation) for the ParameterData parameter to the LoadTable operator.  
(Lin  
Ming) BZ 583,587

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19 December 2007. Summary of changes for version 20071219:

1) ACPI CA Core Subsystem:

Implemented full support for deferred execution for the TermArg string  
arguments for DataTableRegion. This enables forward references and full  
operand resolution for the three string arguments. Similar to  
OperationRegion  
deferred argument execution.) Lin Ming. BZ 430

Implemented full argument resolution support for the BankValue argument  
to  
BankField. Previously, only constants were supported, now any TermArg may  
be  
used. Lin Ming BZ 387, 393

Fixed a problem with AcpiGetDevices  
where the search of a branch of the  
device tree could be terminated prematurely. In accordance with the ACPI  
specification, the search down the current branch is terminated if a  
device  
is both not present and not functional (instead of just not present.)  
Yakui  
Zhao.

Fixed a problem where "unknown" GPEs could be allowed to fire repeatedly  
if  
the underlying AML code changed the GPE enable registers. Now, any  
unknown  
incoming GPE (no \_Lxx/\_Exx method and not the EC GPE) is immediately  
disabled  
instead of simply ignored. Rui Zhang.

Fixed a problem with Index Fields where the Index register was incorrectly limited to a maximum of 32 bits. Now any size may be used.

Fixed a couple memory leaks associated with "implicit return" objects when the AML Interpreter slack mode is enabled. Lin Ming BZ 349

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 79.0K Code, 17.2K Data, 96.2K Total

Debug Version: 157.9K Code, 63.6K Data, 221.5K Total

Current Release:

Non-Debug Version: 79.3K Code, 17.2K Data, 96.5K Total

Debug Version: 158.6K Code, 63.8K Data, 222.4K Total

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14 November 2007. Summary of changes for version 20071114:

1) ACPI CA Core Subsystem:

Implemented event counters for each of the Fixed Events, the ACPI SCI (interrupt) itself, and control methods executed. Named `AcpiFixedEventCount[]`, `AcpiSciCount`, and `AcpiMethodCount` respectively. These should be useful for debugging and statistics.

Implemented a new external interface, `AcpiGetStatistics`, to retrieve the contents of the various event counters. Returns the current values for `AcpiSciCount`, `AcpiGpeCount`, the `AcpiFixedEventCount` array, and `AcpiMethodCount`. The interface can be expanded in the future if new counters are added. Device drivers should use this interface rather than access the counters directly.

Fixed a problem with the `FromBCD` and `ToBCD` operators. With some compilers, the `ShortDivide` function worked incorrectly, causing problems with the BCD



functions with large input values. A truncation from 64-bit to 32-bit inadvertently occurred. Internal BZ 435. Lin Ming

Fixed a problem with Index references passed as method arguments.

References

passed as arguments to control methods were dereferenced immediately (before control was passed to the called method). The references are now correctly passed directly to the called method. BZ 5389. Lin Ming

Fixed a problem with CopyObject used in conjunction with the Index operator.

The reference was incorrectly dereferenced before the copy. The reference is now correctly copied. BZ 5391. Lin Ming

Fixed a problem with Control Method references within Package objects.

These

references are now

correctly generated. This completes the package construction overhaul that began in version 20071019.

Example Code and Data Size: These are the sizes for the OS-independent `acpica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 78.8K Code, 17.2K Data, 96.0K Total

Debug Version: 157.2K Code, 63.4K Data, 220.6K Total

Current Release:

Non-Debug Version: 79.0K Code, 17.2K Data, 96.2K Total

Debug Version: 157.9K Code, 63.6K Data, 221.5K Total

## 2) iASL Compiler/Disassembler and Tools:

The `AcpiExec` utility now installs handlers for all of the predefined Operation Region types. New types supported are: `PCI_Config`, `CMOS`, and `PCIBARTarget`.

Fixed a problem with the 64-bit version of `AcpiExec` where the extended (64-bit) address fields for the DSDT and FACS within the FADT were not being used,

causing truncation of the upper 32-bits of these addresses. Lin Ming and Bob Moore

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19 October 2007. Summary of changes for version 20071019:

1) ACPI CA Core Subsystem:

Fixed a problem with the Alias operator when the target of the alias is a named ASL operator that opens a new scope -- Scope, Device, PowerResource, Processor, and ThermalZone. In these cases, any children of the original operator could not be accessed via the alias, potentially causing unexpected AE\_NOT\_FOUND exceptions. (BZ 9067)

Fixed a problem with the Package operator where all named references were created as object references and left otherwise unresolved. According to the ACPI specification, a Package can only contain Data Objects or references to control methods. The implication is that named references to Data Objects (Integer, Buffer, String, Package, BufferField, Field) should be resolved immediately upon package creation. This is the approach taken with this change. References to all other named objects (Methods, Devices, Scopes, etc.) are all now properly created as reference objects. (BZ 5328)

Reverted a change to Notify handling that was introduced in version 20070508. This version changed the Notify handling from asynchronous to fully synchronous (Device driver Notify handling with respect to the Notify ASL operator). It was found that this change caused more problems than it solved and was removed by most users.

Fixed a problem with the Increment and Decrement operators where the type of the target object could be unexpectedly and incorrectly changed. (BZ 353) Lin Ming.

Fixed a problem with the Load and LoadTable operators where the table location within the namespace was ignored. Instead, the table was always loaded into the root or current scope. Lin Ming.

Fixed a problem with the Load operator when loading a table from a buffer object. The input buffer was prematurely zeroed and/or deleted. (BZ 577)

Fixed

a problem with the Debug object where a store of a DdbHandle reference object to the Debug object could cause a fault.

Added a table checksum verification for the Load operator, in the case where the load is from a buffer. (BZ 578).

Implemented additional parameter validation for the LoadTable operator. The length of the input strings SignatureString, OemIdString, and OemTableId are now checked for maximum lengths. (BZ 582) Lin Ming.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 78.5K Code, 17.1K Data, 95.6K Total

Debug Version: 156.7K Code, 63.2K Data, 219.9K Total

Current Release:

Non-Debug Version: 78.8K Code, 17.2K Data, 96.0K Total

Debug Version: 157.2K Code, 63.4K Data, 220.6K Total

2)

iASL Compiler/Disassembler:

Fixed a problem where if a single file was specified and the file did not exist, no error message was emitted. (Introduced with wildcard support in version 20070917.)

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19 September 2007. Summary of changes for version 20070919:

1) ACPI CA Core Subsystem:

Designed and implemented new external interfaces to install and remove handlers for ACPI table-related events. Current events that are defined are

LOAD and UNLOAD. These interfaces allow the host to track ACPI tables as they are dynamically loaded and unloaded. See AcpiInstallTableHandler and AcpiRemoveTableHandler. (Lin Ming and Bob Moore)

Fixed a problem where the use of the AcpiGbl\_AllMethodsSerialized flag (acpi\_serialized option on Linux) could cause some systems to hang during initialization. (Bob Moore) BZ 8171

Fixed a problem where objects of certain types (Device, ThermalZone, Processor, PowerResource) can be not found if they are declared and

referenced from within the same control method (Lin Ming) BZ 341

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 78.3K Code, 17.0K Data, 95.3K Total

Debug Version: 156.3K Code, 63.1K Data, 219.4K Total

Current Release:

Non-Debug Version: 78.5K Code, 17.1K Data, 95.6K Total

Debug Version: 156.7K Code, 63.2K Data, 219.9K Total

## 2) iASL Compiler/Disassembler:

Implemented support to allow multiple files to be compiled/disassembled in a single invocation. This includes command line wildcard support for both the Windows and Unix versions of the compiler. This feature simplifies the disassembly and compilation of multiple ACPI tables in a single directory.

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08 May

2007. Summary of changes for version 20070508:

## 1) ACPI CA Core Subsystem:

Implemented a Microsoft compatibility design change for the handling of the Notify AML operator. Previously, notify handlers were dispatched and executed completely asynchronously in a deferred thread. The new design still executes the notify handlers in a different thread, but the original thread that executed the Notify() now waits at a synchronization point for

the notify handler to complete. Some machines depend on a synchronous Notify operator in order to operate correctly.

Implemented support to allow Package objects to be passed as method arguments to the external AcpiEvaluateObject interface. Previously, this would return the AE\_NOT\_IMPLEMENTED exception. This feature had not been implemented since there were no reserved control methods that required it until recently.

Fixed a problem with the internal FADT conversion where ACPI 1.0 FADTs that contained invalid non-zero values in reserved fields could cause later failures because these fields have meaning in later revisions of the FADT.

For incoming ACPI 1.0 FADTs, these fields are now always zeroed. (The fields are: Preferred\_PM\_Profile, PSTATE\_CNT, CST\_CNT, and IAPC\_BOOT\_FLAGS.)

Fixed a problem where the Global Lock handle was not properly updated if a thread that acquired the Global Lock via executing AML code then attempted to acquire the lock via the AcpiAcquireGlobalLock interface. Reported by Joe Liu.

Fixed a problem in AcpiEvDeleteGpeXrupt where the global interrupt list could be corrupted if the interrupt being removed was at the head of the list. Reported by Linn Crosetto.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 78.0K Code, 17.1K Data,  
95.1K Total

Debug Version: 155.9K Code, 63.1K Data, 219.0K Total

Current Release:

Non-Debug Version: 78.3K Code, 17.0K Data, 95.3K Total

Debug Version: 156.3K Code, 63.1K Data, 219.4K Total

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20 March 2007. Summary of changes for version 20070320:

## 1) ACPI CA Core Subsystem:

Implemented a change to the order of interpretation and evaluation of AML operand objects within the AML interpreter. The interpreter now evaluates operands in the order that they appear in the AML stream (and the corresponding ASL code), instead of in the reverse order (after the entire operand list has been parsed). The previous behavior caused several subtle incompatibilities with the Microsoft AML interpreter as well as being somewhat non-intuitive. BZ 7871, local BZ 263. Valery Podrezov.

Implemented a change to the ACPI Global Lock support. All interfaces to the global lock now allow the same thread to acquire the lock multiple times.

This affects the AcpiAcquireGlobalLock external interface to the global lock as well as the internal use of the global lock to support AML fields -- a control method that is holding the global lock can now simultaneously access AML fields that require global lock protection. Previously, in both cases, this would have resulted in an AE\_ALREADY\_ACQUIRED exception. The change to AcpiAcquireGlobalLock is of special interest to drivers for the Embedded Controller. There is no change to the behavior of the AML Acquire operator, as this can already be used to acquire a mutex multiple times by the same thread. BZ 8066. With assistance from Alexey Starikovskiy.

Fixed a problem where invalid objects could be referenced in the AML Interpreter after error conditions. During operand evaluation, ensure that the internal "Return Object" field is cleared on error and only valid pointers are stored there. Caused occasional access to deleted objects that resulted in "large reference count" warning messages. Valery Podrezov.

Fixed a problem where an AE\_STACK\_OVERFLOW internal exception could occur on deeply nested control method invocations. BZ 7873, local BZ 487. Valery Podrezov.

Fixed an internal problem with the handling of result objects on the interpreter result stack. BZ 7872. Valery Podrezov.

Removed obsolete code that handled the case where AML\_NAME\_OP is the target of a reference (Reference.Opcode). This code was no longer necessary. BZ 7874. Valery Podrezov.

Removed obsolete ACPI\_NO\_INTEGER64\_SUPPORT from two header files. This was a remnant from the previously discontinued 16-bit support.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total

Debug Version:

155.8K Code, 63.3K Data, 219.1K Total

Current Release:

Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total

Debug Version: 155.9K Code, 63.1K Data, 219.0K Total

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26 January 2007. Summary of changes for version 20070126:

1) ACPI CA Core Subsystem:

Added the 2007 copyright to all module headers and signons. This affects virtually every file in the ACPICA core subsystem, the iASL compiler, and the utilities.

Implemented a fix for an incorrect parameter passed to AcpiTbDeleteTable during a table load. A bad pointer was passed in the case where the DSDT is overridden, causing a fault in this case.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 78.0K Code, 17.1K

Data, 95.1K Total

Debug Version: 155.8K Code, 63.3K Data, 219.1K Total

Current Release:

Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total

Debug Version: 155.8K Code, 63.3K Data, 219.1K Total

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15 December 2006. Summary of changes for version 20061215:

1) ACPI CA Core Subsystem:

Support for 16-bit ACPICA has been completely removed since it is no longer necessary and it clutters the code. All 16-bit macros, types, and conditional compiles have been removed, cleaning up and simplifying the code across the entire subsystem. DOS support is no longer needed since the bootable Linux firmware kit is now available.

The handler for the Global Lock is now removed during AcpiTerminate to enable a clean subsystem restart, via the implementation of the AcpiEvRemoveGlobalLockHandler function. (With assistance from Joel Bretz, HP)

Implemented enhancements to the multithreading support within the debugger to enable improved multithreading debugging and evaluation of the subsystem. (Valery Podrezov)

Debugger: Enhanced the Statistics/Memory command to emit the total (maximum) memory used during the execution, as well as the maximum memory consumed by each of the various object types. (Valery Podrezov)

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 77.9K Code, 17.0K Data, 94.9K Total

Debug Version: 155.2K Code, 63.1K Data, 218.3K Total

Current Release:

Non-Debug Version: 78.0K Code, 17.1K Data, 95.1K Total



Debug Version: 155.8K Code, 63.3K Data, 219.1K Total

## 2) iASL Compiler/Disassembler and Tools:

AcpiExec: Implemented a new option (-m) to display full memory use statistics upon subsystem/program termination. (Valery Podrezov)

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09 November 2006. Summary of changes for version 20061109:

### 1) ACPI CA Core Subsystem:

Optimized the Load ASL operator in the case where the source operand is an operation region. Simply map the operation region memory, instead of performing a bitwise read. (Region must be of type SystemMemory, see below.)

Fixed the Load ASL operator for the case where the source operand is a region field. A buffer object is also allowed as the source operand. BZ 480

Fixed a problem where the Load ASL operator allowed the source operand to be an operation region of any type. It is now restricted to regions of type SystemMemory, as per the ACPI specification. BZ 481

Additional cleanup and optimizations for the new Table Manager code.

AcpiEnable will now fail if all of the required ACPI tables are not loaded (FADT, FACS, DSDT). BZ 477

Added #pragma pack(8/4) to aobject.h to ensure that the structures in this header are always compiled as aligned. The ACPI\_OPERAND\_OBJECT has been manually optimized to be aligned and will not work if it is byte-packed.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 78.1K Code, 17.1K Data, 95.2K Total  
Debug Version: 155.4K Code, 63.1K Data, 218.5K Total  
Current Release:  
Non-Debug Version: 77.9K Code, 17.0K Data, 94.9K Total  
Debug Version: 155.2K Code, 63.1K Data, 218.3K Total

## 2) iASL Compiler/Disassembler and Tools:

Fixed a problem where the presence of the \_OSI predefined control method within complex expressions could cause an internal compiler error.

AcpiExec: Implemented full region support for multiple address spaces. SpaceId is now part of the REGION object. BZ 429

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11

October 2006. Summary of changes for version 20061011:

### 1) ACPI CA Core Subsystem:

Completed an AML interpreter performance enhancement for control method execution. Previously a 2-pass parse/execution, control methods are now completely parsed and executed in a single pass. This improves overall interpreter performance by ~25%, reduces code size, and reduces CPU stack use. (Valery Podrezov + interpreter changes in version 20051202 that eliminated namespace loading during the pass one parse.)

Implemented \_CID support for PCI Root Bridge detection. If the \_HID does not match the predefined PCI Root Bridge IDs, the \_CID list (if present) is now obtained and also checked for an ID match.

Implemented additional support for the PCI \_ADR execution: upsearch until a device scope is found before executing \_ADR. This allows PCI\_Config operation regions to be declared locally within control methods underneath PCI device objects.

Fixed a problem with a possible race condition between threads executing AcpiWalkNamespace and the AML interpreter. This condition was removed by modifying AcpiWalkNamespace to (by default) ignore all temporary namespace entries created during any concurrent control method execution. An additional namespace race condition is known to exist between

AcpiWalkNamespace and the Load/Unload ASL operators and is still under investigation.

Restructured the AML ParseLoop function, breaking it into several subfunctions in order to reduce CPU stack use and improve maintainability.

(Mikhail Kouzmich)

AcpiGetHandle: Fix for parameter validation to detect invalid combinations of prefix handle and pathname. BZ 478

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version:

77.9K Code, 17.1K Data, 95.0K Total

Debug Version: 154.6K Code, 63.0K Data, 217.6K Total

Current Release:

Non-Debug Version: 78.1K Code, 17.1K Data, 95.2K Total

Debug Version: 155.4K Code, 63.1K Data, 218.5K Total

2) iASL Compiler/Disassembler and Tools:

Ported the -g option (get local ACPI tables) to the new ACPICA Table Manager to restore original behavior.

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27 September 2006. Summary of changes for version 20060927:

1) ACPI CA Core Subsystem:

Removed the "Flags" parameter from AcpiGetRegister and AcpiSetRegister. These functions now use a spinlock for mutual exclusion and the interrupt level indication flag is not needed.

Fixed a problem with the Global Lock where the lock could appear to be obtained before it is actually obtained. The global lock semaphore was inadvertently created with one unit instead of zero units. (BZ 464)

Fiodor  
Suietov.

Fixed a possible memory leak and fault in AcpiExResolveObjectToValue

during  
a read from a buffer or region field. (BZ 458) Fiodor Suietov.

Example Code and Data Size: These are the sizes for the OS-independent  
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The  
debug version of the code includes the debug output trace mechanism and  
has  
a much larger code and data size.

Previous Release:

Non-Debug Version: 77.9K Code, 17.1K Data, 95.0K Total

Debug Version: 154.7K Code, 63.0K Data, 217.7K Total

Current Release:

Non-Debug Version: 77.9K Code, 17.1K Data, 95.0K Total

Debug Version: 154.6K Code, 63.0K Data, 217.6K Total

## 2) iASL Compiler/Disassembler and Tools:

Fixed a compilation problem with the pre-defined Resource Descriptor  
field  
names where an "object does not exist" error could be incorrectly  
generated  
if the parent ResourceTemplate pathname places the template within a  
different namespace scope than the current scope. (BZ 7212)

Fixed a problem where the compiler could hang  
after syntax errors  
detected  
in an ElseIf construct. (BZ 453)

Fixed a problem with the AmlFilename parameter to the DefinitionBlock()  
operator. An incorrect output filename was produced when this parameter  
was  
a null string (""). Now, the original input filename is used as the AML  
output filename, with an ".aml" extension.

Implemented a generic batch command mode for the AcpiExec utility  
(execute  
any AML debugger command) (Valery Podrezov).

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12 September 2006. Summary of changes for version 20060912:

### 1) ACPI CA Core Subsystem:

Enhanced the implementation of the "serialized mode" of the interpreter

(enabled via the `AcpiGbl_AllMethodsSerialized` flag.) When this mode is specified, instead of creating a serialization semaphore per control method, the interpreter lock is simply no longer released before a blocking operation during control method execution. This effectively makes the AML Interpreter single-threaded. The overhead of a semaphore per-method is eliminated.

Fixed a regression where an error was no longer emitted if a control method attempts to create 2 objects of the same name. This once again returns `AE_ALREADY_EXISTS`. When this exception occurs, it invokes the mechanism that will dynamically serialize the control method to possibly prevent future errors. (BZ 440)

Integrated a fix for a problem with PCI Express HID detection in the PCI Config Space setup procedure. (BZ 7145)

Moved all FADT-related functions to a new file, `tbfad.c`. Eliminated the `AcpiHwInitialize` function - the FADT registers are now validated when the table is loaded.

Added two new warnings during FADT verification - 1) if the FADT is larger than the largest known FADT version, and 2) if there is a mismatch between a 32-bit block address and the 64-bit X counterpart (when both are non-zero.)

Example Code and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 77.9K Code, 16.7K Data, 94.6K Total

Debug Version: 154.9K Code, 62.6K Data, 217.5K Total

Current Release:

Non-Debug Version: 77.9K Code, 17.1K Data, 95.0K Total

Debug Version: 154.7K Code, 63.0K Data, 217.7K Total

2) iASL Compiler/Disassembler and Tools:

Fixed a problem with the implementation of the Switch() operator where the temporary variable was declared too close to the actual Switch, instead of at method level. This could cause a problem if the Switch() operator is within a while loop, causing an error on the second iteration. (BZ 460)

Disassembler - fix for error emitted for unknown type for target of scope operator. Now, ignore it and continue.

Disassembly of an FADT now verifies the input FADT and reports any errors found. Fix for proper disassembly of full-sized (ACPI 2.0) FADTs.

Disassembly of raw data buffers with byte initialization data now prefixes each output line with the current buffer offset.

Disassembly of ASF! table now includes all variable-length data fields at the end of some of the subtables.

The disassembler now emits a comment if a buffer appears to be a ResourceTemplate, but cannot be disassembled as such because the EndTag does not appear at the very end of the buffer.

AcpiExec - Added the "-t" command line option to enable the serialized mode of the AML interpreter.

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31 August 2006. Summary of changes for version 20060831:

1) ACPI CA Core Subsystem:

Miscellaneous fixes for the Table Manager:

- Correctly initialize internal common FADT for all 64-bit "X" fields
- Fixed a couple table mapping issues during table load
- Fixed a couple alignment issues for IA64
- Initialize input array to zero in AcpiInitializeTables
- Additional parameter validation for AcpiGetTable, AcpiGetTableHeader,

AcpiGetTableByIndex

Change for GPE support: when a "wake" GPE is received, all wake GPEs are now immediately disabled to prevent the waking GPE from firing again and to

prevent other wake GPEs from interrupting the wake process.

Added the AcpiGpeCount global that tracks the number of processed GPEs, to be used for debugging systems with a large number of ACPI interrupts.

Implemented support for the "DMAR" ACPI table (DMA Redirection Table) in both the ACPICA headers and the disassembler.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 77.8K Code, 16.5K Data, 94.3K Total

Debug Version: 154.6K Code, 62.3K Data, 216.9K Total

Current Release:

Non-Debug Version: 77.9K Code, 16.7K Data, 94.6K Total

Debug Version: 154.9K Code, 62.6K Data, 217.5K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler support for the DMAR ACPI table.

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23 August 2006. Summary of changes for version 20060823:

### 1) ACPI CA Core Subsystem:

The Table Manager component has been completely redesigned and reimplemented. The new design is much simpler, and reduces the overall code and data size of the kernel-resident ACPICA by approximately 5%. Also, it is now possible to obtain the ACPI tables very early during kernel initialization, even before dynamic memory management is initialized. (Alexey Starikovskiy, Fiodor Suietov, Bob Moore)

Obsolete ACPICA interfaces:

- AcpiGetFirmwareTable: Use AcpiGetTable instead (works at early kernel init time).
- AcpiLoadTable: Not needed.
- AcpiUnloadTable: Not needed.

New ACPICA interfaces:

- AcpiInitializeTables: Must be called before the table manager can be used.
- AcpiReallocateRootTable: Used to transfer the root table to dynamically allocated memory after it becomes available.
- AcpiGetTableByIndex: Allows the host to easily enumerate all ACPI tables in the RSDT/XSDT.

Other ACPICA changes:

- AcpiGetTableHeader returns the actual mapped table header, not a copy. Use AcpiOsUnmapMemory to free this mapping.
- AcpiGetTable returns the actual mapped table. The mapping is managed internally and must not be deleted by the caller. Use of this interface causes no additional dynamic memory allocation.
- AcpiFindRootPointer: Support for physical addressing has been eliminated, it appeared to be unused.
- The interface to AcpiOsMapMemory has changed to be consistent with the other allocation interfaces.
- The interface to AcpiOsGetRootPointer has changed to eliminate unnecessary parameters.
- ACPI\_PHYSICAL\_ADDRESS is now 32 bits on 32-bit platforms, 64 bits on 64-bit platforms. Was previously 64 bits on all platforms.
- The interface to the ACPI Global Lock acquire/release macros have changed slightly since ACPICA no longer keeps a local copy of the FACS with a constructed pointer to the actual global lock.

Porting to the new table manager:

- AcpiInitializeTables: Must be called once, and can be called anytime during the OS initialization process. It allows the host to specify an area of memory to be used to store the internal version of the RSDT/XSDT (root table). This allows the host to access ACPI tables before memory management is initialized and running.
- AcpiReallocateRootTable: Can be called after memory management is running



to copy the root table to a dynamically allocated array, freeing up the scratch memory specified in the call to AcpiInitializeTables.

- AcpiSubsystemInitialize: This existing interface is independent of the Table Manager, and does not have to be called before the Table Manager can

be used, it only must be called before the rest of ACPICA can be used.

- ACPI Tables: Some changes have been made to the names and structure of the

actbl.h and actbl1.h header files and may require changes to existing code.

For example, bitfields have been completely removed because of their lack of

portability across C compilers.

- Update interfaces to the Global Lock acquire/release macros if local versions are used. (see acwin.h)

Obsolete files: tbconvrt.c, tbget.c, tbgetall.c, tbrsdt.c

New files: tbfind.c

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has

a much larger code and data size.

Previous Release:

Non-Debug Version: 80.7K Code, 17.9K Data, 98.6K Total

Debug Version: 161.0K Code, 65.1K Data, 226.1K Total

Current Release:

Non-Debug Version: 77.8K Code, 16.5K Data, 94.3K Total

Debug Version: 154.6K Code, 62.3K Data, 216.9K Total

2) iASL Compiler/Disassembler and Tools:

No changes for this release.

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21 July 2006. Summary of changes for version 20060721:

1) ACPI CA Core Subsystem:

The full source code for the ASL test suite used to validate the iASL compiler and the ACPICA core subsystem is being released with the ACPICA source for the first time. The source is contained in a separate package

and  
consists of over 1100 files that exercise all ASL/AML operators. The  
package  
should appear on the Intel/ACPI web site shortly. (Valery Podrezov,  
Fiodor  
Suietov)

Completed a new design and implementation for support of the ACPI Global  
Lock. On the OS side, the global lock is now treated as a standard AML  
mutex. Previously, multiple OS threads could "acquire" the global lock  
simultaneously. However, this could cause the BIOS to be starved out of  
the  
lock - especially in cases such as the Embedded Controller driver where  
there is a tight coupling between the OS and the BIOS.

Implemented an optimization for the ACPI Global  
Lock interrupt mechanism.  
The Global Lock interrupt handler no longer queues the execution of a  
separate thread to signal the global lock semaphore. Instead, the  
semaphore  
is signaled directly from the interrupt handler.

Implemented support within the AML interpreter for package objects that  
contain a larger AML length (package list length) than the package  
element  
count. In this case, the length of the package is truncated to match the  
package element count. Some BIOS code apparently modifies the package  
length  
on the fly, and this change supports this behavior. Provides  
compatibility  
with the MS AML interpreter. (With assistance from Fiodor Suietov)

Implemented a temporary fix for the BankValue parameter of a Bank Field  
to  
support all constant values, now including the Zero and One opcodes.  
Evaluation of this parameter must eventually be converted to a full  
TermArg  
evaluation. A not-implemented error is now returned (temporarily) for  
non-  
constant values for this  
parameter.

Fixed problem reports (Fiodor Suietov) integrated:  
- Fix for premature object deletion after CopyObject on Operation Region  
(BZ  
350)

Example Code and Data Size: These are the sizes for the OS-independent

acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 80.7K Code, 18.0K Data, 98.7K Total

Debug Version: 160.9K Code, 65.1K Data, 226.0K Total

Current Release:

Non-Debug Version: 80.7K Code, 17.9K Data, 98.6K Total

Debug Version: 161.0K Code, 65.1K Data, 226.1K Total

2) iASL Compiler/Disassembler and Tools:

No changes for this release.

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07 July 2006. Summary of changes for version 20060707:

1) ACPI CA Core Subsystem:

Added the `ACPI_PACKED_POINTERS_NOT_SUPPORTED` macro to support C compilers that do not allow the initialization of address pointers within packed structures - even though the hardware itself may support misaligned transfers. Some of the debug data structures are packed by default to minimize size.

Added an error message for the case where `AcpiOsGetThreadId()` returns zero.

A non-zero value is required by the core ACPICA code to ensure the proper operation of AML mutexes and recursive control methods.

The DSDT is now the only ACPI table that determines whether the AML interpreter is in 32-bit or 64-bit mode. Not really a functional change, but the hooks for per-table 32/64 switching have been removed from the code. A clarification to the ACPI specification is forthcoming in ACPI 3.0B.

Fixed a possible leak of an `OwnerId` in the error path of `AcpiTbInitTableDescriptor` (`tbinstal.c`), and migrated all table `OwnerId` deletion to a single place in `AcpiTbUninstallTable` to correct possible leaks when using the `AcpiTbDeleteTablesByType` interface (with assistance from Lance Ortiz.)

Fixed

a problem with Serialized control methods where the semaphore associated with the method could be over-signaled after multiple method invocations.

Fixed two issues with the locking of the internal namespace data structure.

Both the Unload() operator and AcpiUnloadTable interface now lock the namespace during the namespace deletion associated with the table unload (with assistance from Linn Crosetto.)

Fixed problem reports (Valery Podrezov) integrated:

- Eliminate unnecessary memory allocation for CreateXxxxField (BZ 5426)

Fixed problem reports (Fiodor Suietov) integrated:

- Incomplete cleanup branches in AcpiTbGetTableRsdtd (BZ 369)
- On Address Space handler deletion, needless deactivation call (BZ 374)
- AcpiRemoveAddressSpaceHandler: validate Device handle parameter (BZ 375)
- Possible memory leak, Notify sub-objects of Processor, Power, ThermalZone (BZ 376)
- AcpiRemoveAddressSpaceHandler: validate Handler parameter (BZ 378)
- Minimum Length of RSDT should be validated (BZ 379)
- AcpiRemoveNotifyHandler: return AE\_NOT\_EXIST if Processor Obj has no Handler (BZ (380)
- AcpiUnloadTable: return AE\_NOT\_EXIST if no table of specified type loaded (BZ 381)

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 80.5K Code, 17.8K Data, 98.3K Total

Debug Version: 160.8K Code, 64.8K Data, 225.6K Total

Current Release:

Non-Debug Version: 80.7K Code, 17.9K Data, 98.6K Total

Debug Version: 161.0K Code, 65.1K Data, 226.1K Total

2) iASL Compiler/Disassembler and Tools:

Fixed problem reports:

Compiler segfault when ASL contains a long (>1024) String declaration (BZ 436)

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23 June 2006. Summary of changes for version 20060623:

1) ACPI CA Core Subsystem:

Implemented

a new ACPI\_SPINLOCK type for the OSL lock interfaces. This allows the type to be customized to the host OS for improved efficiency (since a spinlock is usually a very small object.)

Implemented support for "ignored" bits in the ACPI registers. According to

the ACPI specification, these bits should be preserved when writing the registers via a read/modify/write cycle. There are 3 bits preserved in this

manner: PM1\_CONTROL[0] (SCI\_EN), PM1\_CONTROL[9], and PM1\_STATUS[11].

Implemented the initial deployment of new OSL mutex interfaces. Since some

host operating systems have separate mutex and semaphore objects, this feature was requested. The base code now uses mutexes (and the new mutex interfaces) wherever a binary semaphore was used previously. However, for the current release, the mutex interfaces are defined as macros to map them

to the existing semaphore interfaces. Therefore, no OSL changes are required

at this time. (See acpiosxf.h)

Fixed several

problems with the support for the control method SyncLevel parameter. The SyncLevel now works according to the ACPI specification and

in concert with the Mutex SyncLevel parameter, since the current SyncLevel

is a property of the executing thread. Mutual exclusion for control methods

is now implemented with a mutex instead of a semaphore.

Fixed three instances of the use of the C shift operator in the bitfield support code (exfldio.c) to avoid the use of a shift value larger than the

target data width. The behavior of C compilers is undefined in this case and

can cause unpredictable results, and therefore the case must be detected and

avoided. (Fiodor Suietov)

Added an info message whenever an SSDT or OEM table is loaded dynamically via the Load() or LoadTable() ASL operators. This should improve debugging capability since it will show exactly what tables have been loaded (beyond the tables present in the RSDT/XSDT.)

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 80.0K Code, 17.6K Data, 97.6K Total

Debug Version: 160.2K Code, 64.7K Data, 224.9K Total

Current Release:

Non-Debug Version: 80.5K Code, 17.8K Data, 98.3K Total

Debug Version: 160.8K Code, 64.8K Data, 225.6K Total

## 2) iASL Compiler/Disassembler and Tools:

No changes for this release.

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08 June 2006. Summary of changes for version 20060608:

### 1) ACPI CA Core Subsystem:

Converted the locking mutex used for the ACPI hardware to a spinlock.

This

change should eliminate all problems caused by attempting to acquire a semaphore at interrupt level, and it means that all ACPICA external interfaces that directly access the ACPI hardware can be safely called from

interrupt

level. OSL code that implements the semaphore interfaces should

be

able to eliminate any workarounds for being called at interrupt level.

Fixed a regression introduced in 20060526 where the ACPI device initialization could be prematurely aborted with an AE\_NOT\_FOUND if a device

did not have an optional \_INI method.

Fixed an IndexField issue where a write to the Data Register should be limited in size to the AccessSize (width) of the IndexField itself. (BZ 433, Fiodor Suietov)

Fixed problem reports (Valery Podrezov) integrated:  
- Allow store of ThermalZone objects to Debug object (BZ 5369/5370)

Fixed problem reports (Fiodor Suietov) integrated:  
- AcpiGetTableHeader doesn't handle multiple instances correctly (BZ 364)

Removed four global mutexes that were obsolete and were no longer being used.

Example Code and Data Size: These are the sizes for the OS-independent acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 80.0K Code, 17.7K Data, 97.7K Total

Debug Version: 160.3K Code, 64.9K Data, 225.2K Total

Current Release:

Non-Debug Version: 80.0K Code, 17.6K Data, 97.6K Total

Debug Version: 160.2K Code, 64.7K Data, 224.9K Total

## 2) iASL Compiler/Disassembler and Tools:

Fixed a fault when using -g option (get tables from registry) on Windows machines.

Fixed problem reports integrated:

- Generate error if CreateField NumBits parameter is zero. (BZ 405)
- Fault if Offset/Length in Field unit is very large (BZ 432, Fiodor Suietov)
- Global table revision override (-r) is ignored (BZ 413)

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26 May 2006. Summary of changes for version 20060526:

### 1) ACPI CA Core Subsystem:

Restructured, flattened, and simplified the internal interfaces for namespace object evaluation - resulting in smaller code, less CPU stack

use,

and fewer interfaces. (With assistance from Mikhail Kouzmich)

Fixed a problem with the CopyObject operator where the first parameter was not typed correctly for the parser, interpreter, compiler, and disassembler.

Caused various errors and unexpected behavior.

Fixed a problem where a ShiftLeft or ShiftRight of more than 64 bits produced incorrect results with some C compilers. Since the behavior of C compilers when the shift value is larger than the datatype width is apparently not well defined, the interpreter now detects this condition and simply returns zero as expected in all such cases. (BZ 395)

Fixed problem reports (Valery Podrezov) integrated:

- Update String-to-Integer conversion to match ACPI 3.0A spec (BZ 5329)
- Allow interpreter to handle nested method declarations (BZ 5361)

Fixed problem reports (Fiodor Suietov) integrated:

- AcpiTerminate doesn't free debug memory allocation list objects (BZ 355)
- After Core Subsystem shutdown, AcpiSubsystemStatus returns AE\_OK (BZ 356)
- AcpiOsUnmapMemory for RSDP can be invoked inconsistently (BZ 357)
- Resource Manager should return AE\_TYPE for non-device objects (BZ 358)
- Incomplete cleanup branch in AcpiNsEvaluateRelative (BZ 359)
- Use AcpiOsFree instead of ACPI\_FREE in AcpiRsSetSrsMethodData (BZ 360)
- Incomplete cleanup branch in AcpiPsParseAml (BZ 361)
- Incomplete cleanup branch in AcpiDsDeleteWalkState (BZ 362)
- AcpiGetTableHeader returns AE\_NO\_ACPI\_TABLES until DSDT is loaded (BZ 365)
- Status of the Global Initialization Handler call not used (BZ 366)
- Incorrect object parameter to Global Initialization Handler (BZ 367)

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 79.8K Code, 17.7K Data, 97.5K Total

Debug Version: 160.5K



Code, 65.1K Data, 225.6K Total

Current Release:

Non-Debug Version: 80.0K Code, 17.7K Data, 97.7K Total

Debug Version: 160.3K Code, 64.9K Data, 225.2K Total

## 2) iASL Compiler/Disassembler and Tools:

Modified the parser to allow the names IO, DMA, and IRQ to be used as namespace identifiers with no collision with existing resource descriptor macro names. This provides compatibility with other ASL compilers and is most useful for disassembly/recompilation of existing tables without parse errors. (With assistance from Thomas Renninger)

Disassembler: fixed an incorrect disassembly problem with the DataTableRegion and CopyObject operators. Fixed a possible fault during disassembly of some Alias operators.

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12 May 2006. Summary of changes for version 20060512:

### 1) ACPI CA Core Subsystem:

Replaced the AcpiOsQueueForExecution interface with a new interface named AcpiOsExecute. The major difference is that the new interface does not have a Priority parameter, this appeared to be useless and has been replaced by a Type parameter. The Type tells the host what type of execution is being requested, such as global lock handler, notify handler, GPE handler, etc. This allows the host to queue and execute the request as appropriate for the request type, possibly using different work queues and different priorities for the various request types. This enables fixes for multithreading deadlock problems such as BZ #5534, and will require changes to all existing OS interface layers. (Alexey Starikovskiy and Bob Moore)

Fixed a possible memory leak associated with the support for the so-called "implicit return" ACPI extension. Reported by FreeBSD, BZ #6514. (Fiodor Suietov)

Fixed a problem with the Load() operator where a table load from an

operation region could overwrite an internal table buffer by up to 7 bytes and cause alignment faults on IPF systems. (With assistance from Luming Yu)

#### Example Code

and Data Size: These are the sizes for the OS-independent `apica.lib` produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Previous Release:

Non-Debug Version: 79.7K Code, 17.7K Data, 97.4K Total

Debug Version: 160.1K Code, 65.2K Data, 225.3K Total

#### Current Release:

Non-Debug Version: 79.8K Code, 17.7K Data, 97.5K Total

Debug Version: 160.5K Code, 65.1K Data, 225.6K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Implemented support to cross reference the internal namespace and automatically generate `ASL External()` statements for symbols not defined within the current table being disassembled. This will simplify the disassembly and recompilation of interdependent tables such as SSDTs since these statements will no longer have to be added manually.

Disassembler: Implemented experimental support to automatically detect invocations of external control methods and generate appropriate `External()` statements. This is problematic because the AML cannot be correctly parsed until the number of arguments for each control method is known. Currently, standalone method invocations and invocations as the source operand of a `Store()` statement are supported.

Disassembler: Implemented support for the ASL pseudo-operators `LNotEqual`, `LLessEqual`, and `LGreaterEqual`. Previously disassembled as `LNot(LEqual())`, `LNot(LGreater())`, and `LNot(LLess())`, this makes the disassembled ASL code more readable and likely closer to the original ASL source.

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21 April 2006. Summary of changes for version 20060421:

1) ACPI CA Core Subsystem:

Removed a device initialization optimization introduced in 20051216 where the \_STA method was not run unless an \_INI was also present for the same device. This optimization could cause problems because it could allow \_INI methods to be run within a not-present device subtree. (If a not-present device had no \_INI, \_STA would not be run, the not-present status would not be discovered, and the children of the device would be incorrectly traversed.)

Implemented a new \_STA optimization where namespace subtrees that do not contain \_INI are identified and ignored during device initialization. Selectively running \_STA can significantly improve boot time on large machines (with assistance from Len Brown.)

Implemented support for the device initialization case where the returned \_STA flags indicate a device not-present but functioning. In this case, \_INI is not run, but the device children are examined for presence, as per the ACPI specification.

Implemented an additional change to the IndexField support in order to conform to MS behavior. The value written to the Index Register is not simply a byte offset, it is a byte offset in units of the access width of the parent Index Field. (Fiodor Suietov)

Defined and deployed a new OSL interface, AcpiOsValidateAddress. This interface is called during the creation of all AML operation regions, and allows the host OS to exert control over what addresses it will allow the AML code to access. Operation Regions whose addresses are disallowed will cause a runtime exception when they are actually accessed (will not affect or abort table loading.) See oswinxf or osunixxf for an example implementation.

Defined and deployed a new OSL interface, AcpiOsValidateInterface. This interface allows the host OS to match the various "optional" interface/behavior strings for the \_OSI predefined control method as appropriate (with assistance from Bjorn Helgaas.) See oswinxf or osunixxf for an example implementation.

Restructured and corrected various problems in the exception handling code paths within DsCallControlMethod and DsTerminateControlMethod in dsmethod (with assistance from Takayoshi Kochi.)

Modified the Linux source converter to ignore quoted string literals while converting identifiers from mixed to lower case. This will correct problems with the disassembler and other areas where such strings must not be modified.

The ACPI\_FUNCTION\_\* macros no longer require quotes around the function name. This allows the Linux source converter to convert the names, now that the converter ignores quoted strings.

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 81.1K Code, 17.7K Data, 98.8K Total

Debug Version: 158.9K Code, 64.9K Data, 223.8K Total

Current Release:

Non-Debug Version: 79.7K Code, 17.7K Data, 97.4K Total

Debug Version: 160.1K Code, 65.2K Data, 225.3K Total

2) iASL Compiler/Disassembler and Tools:

Implemented 3 new warnings for iASL, and implemented multiple warning levels (w2 flag).

1) Ignored timeouts: If the TimeoutValue parameter to Wait or Acquire is not WAIT\_FOREVER (0xFFFF) and the code does not examine the return value to check for the possible timeout, a warning is issued.

2) Useless operators: If an ASL operator does not specify an optional target operand and it also does not use the function return value from the

operator, a warning is issued since the operator effectively does nothing.

3) Unreferenced objects: If a namespace object is created, but never referenced, a warning is issued. This is a warning level 2 since there are cases where this is ok, such as when a secondary table is loaded that uses the unreferenced objects. Even so, care is taken to only flag objects that don't look like they will ever be used. For example, the reserved methods (starting with an underscore) are usually not referenced because it is expected that the OS will invoke them.

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March 2006. Summary of changes for version 20060331:

1) ACPI CA Core Subsystem:

Implemented header file support for the following additional ACPI tables: ASF!, BOOT, CPEP, DBGP, MCFG, SPCR, SPMI, TCPA, and WDRT. With this support, all current and known ACPI tables are now defined in the ACPICA headers and are available for use by device drivers and other software.

Implemented support to allow tables that contain ACPI names with invalid characters to be loaded. Previously, this would cause the table load to fail, but since there are several known cases of such tables on existing machines, this change was made to enable ACPI support for them. Also, this matches the behavior of the Microsoft ACPI implementation.

Fixed a couple regressions introduced during the memory optimization in the 20060317 release. The namespace node definition required additional reorganization and an internal datatype that had been changed to 8-bit was restored to 32-bit. (Valery Podrezov)

Fixed a problem where a null pointer passed to AcpiUtDeleteGenericState could be passed through to AcpiOsReleaseObject which is unexpected. Such null pointers are now trapped and ignored, matching the behavior of the previous implementation before the deployment of AcpiOsReleaseObject. (Valery Podrezov, Fiodor Suietov)

Fixed a memory mapping leak during the deletion of a SystemMemory operation region where a cached memory mapping was not deleted. This became a noticeable problem for operation regions that are defined within frequently used control methods. (Dana Meyers)

Reorganized the ACPI table header files into two main files: one for the ACPI tables consumed by the ACPICA core, and another for the miscellaneous ACPI tables that are consumed by the drivers and other software. The various FADT definitions were merged into one common section and three different tables (ACPI 1.0, 1.0+, and 2.0)

Example Code and Data Size: These are the sizes for the OS-independent apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Previous Release:

Non-Debug Version: 80.9K Code, 17.7K Data, 98.6K Total

Debug Version: 158.7K Code, 64.8K Data, 223.5K Total

Current Release:

Non-Debug Version: 81.1K Code, 17.7K Data, 98.8K Total

Debug Version: 158.9K Code, 64.9K Data, 223.8K Total

## 2) iASL Compiler/Disassembler and Tools:

Disassembler: Implemented support to decode and format all non-AML ACPI tables (tables other than DSDTs and SSDTs.) This includes the new tables added to the ACPICA headers, therefore all current and known ACPI tables are supported.

Disassembler: The change to allow ACPI names with invalid characters also enables the disassembly of such tables. Invalid characters within names are changed to '\*' to make the name printable; the iASL compiler will still generate an error for such names, however, since this is an invalid ACPI character.

Implemented an option for AcpiXtract (-a) to extract all tables found in the

input file. The default invocation extracts only the DSDTs and SSDTs.

Fixed a couple of gcc generation issues for iASL and AcpiExec and added a makefile for the AcpiXtract utility.

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17 March 2006. Summary of changes for version 20060317:

1) ACPI CA Core Subsystem:

Implemented the use of a cache object for all internal namespace nodes. Since there are about 1000 static nodes in a typical system, this will decrease memory use for cache implementations that minimize per-allocation overhead (such as a slab allocator.)

Removed the reference count mechanism for internal namespace nodes, since it was deemed unnecessary. This reduces the size of each namespace node by about 5%-10% on all platforms. Nodes are now 20 bytes for the 32-bit case, and 32 bytes for the 64-bit case.

Optimized

several internal data structures to reduce object size on 64-bit platforms by packing data within the 64-bit alignment. This includes the frequently used ACPI\_OPERAND\_OBJECT, of which there can be ~1000 static instances corresponding to the namespace objects.

Added two new strings for the predefined \_OSI method: "Windows 2001.1 SP1" and "Windows 2006".

Split the allocation tracking mechanism out to a separate file, from utalloc.c to uttrack.c. This mechanism appears to be only useful for application-level code. Kernels may wish to not include uttrack.c in distributions.

Removed all remnants of the obsolete ACPI\_REPORT\_\* macros and the associated code. (These macros have been replaced by the ACPI\_ERROR and ACPI\_WARNING macros.)

Code and Data Size: These are the sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. The values do not include any ACPI

driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total

Debug Version: 161.6K Code, 65.7K Data, 227.3K Total

Current Release:

Non-Debug Version: 80.9K Code, 17.7K Data, 98.6K Total

Debug Version: 158.7K Code, 64.8K Data, 223.5K Total

2) iASL Compiler/Disassembler and Tools:

Implemented an ANSI C version of the acpixtract utility. This version will automatically extract the DSDT and all SSDTs from the input acpidump text file and dump the binary output to separate files. It can also display a summary of the input file including the headers for each table found and will extract any single ACPI table, with any signature. (See source/tools/acpixtract)

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10 March 2006. Summary of changes for version 20060310:

1) ACPI CA

Core Subsystem:

Tagged all external interfaces to the subsystem with the new ACPI\_EXPORT\_SYMBOL macro. This macro can be defined as necessary to assist kernel integration. For Linux, the macro resolves to the EXPORT\_SYMBOL macro. The default definition is NULL.

Added the ACPI\_THREAD\_ID type for the return value from AcpiOsGetThreadId.

This allows the host to define this as necessary to simplify kernel integration. The default definition is ACPI\_NATIVE\_UINT.

Fixed two interpreter problems related to error processing, the deletion of objects, and placing invalid pointers onto the internal operator result stack. BZ 6028, 6151 (Valery Podrezov)

Increased the reference count threshold where a warning is emitted for



large

reference counts in order to eliminate unnecessary warnings on systems with large namespaces (especially 64-bit.) Increased the value from 0x400 to 0x800.

Due to universal disagreement as to the meaning of the 'c' in the calloc()

function, the ACPI\_MEM\_CALLOCATE

macro has been renamed to

ACPI\_ALLOCATE\_ZEROED so that the purpose of the interface is 'clear'.

ACPI\_MEM\_ALLOCATE and ACPI\_MEM\_FREE are renamed to ACPI\_ALLOCATE and ACPI\_FREE.

Code and Data Size: These are the sizes for the acpica.lib produced by the

Microsoft Visual C++ 6.0 32-bit compiler. The values do not include any ACPI

driver or OSPM code. The debug version of the code includes the debug output

trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 81.0K Code, 17.8K Data, 98.8K Total

Debug Version: 161.4K Code, 65.7K Data, 227.1K Total

Current Release:

Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total

Debug Version: 161.6K Code, 65.7K Data, 227.3K Total

## 2) iASL Compiler/Disassembler:

Disassembler: implemented support for symbolic resource descriptor references.

If a CreateXxxxField operator references a fixed offset within

a

resource descriptor, a name is assigned to the descriptor and the offset is

translated to the appropriate resource tag and pathname. The addition of this support brings the disassembled code very close to the original ASL source code and helps eliminate run-time errors when the disassembled code

is modified (and recompiled) in such a way as to invalidate the original fixed offsets.

Implemented support for a Descriptor Name as the last parameter to the ASL Register() macro. This parameter was inadvertently left out of the ACPI specification, and will be added for ACPI 3.0b.

Fixed a problem where the use of the "\_OSI" string (versus the full path "\_\OSI") caused an internal compiler error. ("No back ptr to op")

Fixed a problem with the error message that occurs when an invalid string is used for a \_HID object (such as one with an embedded asterisk: "\*PNP010A".)  
The correct message is now displayed.

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17

February 2006. Summary of changes for version 20060217:

1) ACPI CA Core Subsystem:

Implemented a change to the IndexField support to match the behavior of the Microsoft AML interpreter. The value written to the Index register is now a byte offset, no longer an index based upon the width of the Data register.

This should fix IndexField problems seen on some machines where the Data register is not exactly one byte wide. The ACPI specification will be clarified on this point.

Fixed a problem where several resource descriptor types could overrun the internal descriptor buffer due to size miscalculation: VendorShort, VendorLong, and Interrupt. This was noticed on IA64 machines, but could affect all platforms.

Fixed a problem where individual resource descriptors were misaligned within the internal buffer, causing alignment faults on IA64 platforms.

Code and Data Size: These are the sizes for the acpica.lib produced by the

Microsoft Visual C++ 6.0 32-bit compiler. The values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the

compiler options used during generation.

Previous Release:

Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total

Debug Version: 161.3K Code, 65.6K Data, 226.9K Total

Current Release:

Non-Debug Version: 81.0K Code, 17.8K Data, 98.8K Total

Debug Version: 161.4K Code, 65.7K Data, 227.1K Total

2) iASL Compiler/Disassembler:

Implemented support for new reserved names: `_WDG` and `_WED` are Microsoft extensions for Windows Instrumentation Management, `_TDL` is a new ACPI-defined method (Throttling Depth Limit.)

Fixed a problem where a zero-length `VendorShort` or `VendorLong` resource descriptor was incorrectly emitted as a descriptor of length one.

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10

February 2006. Summary of changes for version 20060210:

1) ACPI CA Core Subsystem:

Removed a couple of extraneous `ACPI_ERROR` messages that appeared during normal execution. These became apparent after the conversion from `ACPI_DEBUG_PRINT`.

Fixed a problem where the `CreateField` operator could hang if the `BitIndex` or `NumBits` parameter referred to a named object. (Valery Podrezov, BZ 5359)

Fixed a problem where a `DeRefOf` operation on a buffer object incorrectly failed with an exception. This also fixes a couple of related `RefOf` and `DeRefOf` issues. (Valery Podrezov, BZ 5360/5392/5387)

Fixed a problem where the `AE_BUFFER_LIMIT` exception was returned instead of `AE_STRING_LIMIT` on an out-of-bounds `Index()` operation. (Valery Podrezov, BZ 5480)

Implemented a memory cleanup at the end of the execution of each iteration of an AML `While()` loop, preventing the accumulation of outstanding objects. (Valery Podrezov, BZ 5427)

Eliminated a chunk of  
duplicate code in the object resolution code.  
(Valery  
Podrezov, BZ 5336)

Fixed several warnings during the 64-bit code generation.

The AcpiSrc source code conversion tool now inserts one line of  
whitespace  
after an if() statement that is followed immediately by a comment,  
improving  
readability of the Linux code.

Code and Data Size: The current and previous library sizes for the core  
subsystem are shown below. These are the code and data sizes for the  
acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler.  
These  
values do not include any ACPI driver or OSPM code. The debug version of  
the  
code includes the debug output trace mechanism and has a much larger code  
and data size. Note that these values will vary depending on the  
efficiency  
of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 81.0K Code, 17.9K Data, 98.9K Total

Debug Version: 161.3K Code, 65.7K Data, 227.0K Total

Current Release:

Non-Debug Version: 81.1K Code, 17.8K Data, 98.9K Total

Debug Version: 161.3K Code, 65.6K Data, 226.9K Total

2) iASL Compiler/Disassembler:

Fixed a problem with the disassembly of a BankField operator with a  
complex  
expression for the BankValue parameter.

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27 January 2006. Summary of changes for version 20060127:

1) ACPI CA Core Subsystem:

Implemented support in the Resource Manager to allow unresolved  
namestring  
references within resource package objects for the \_PRT method. This  
support

is in addition to the previously implemented unresolved reference support within the AML parser. If the interpreter slack mode is enabled, these unresolved references will be passed through to the caller as a NULL package entry.

Implemented and deployed new macros and functions for error and warning messages across the subsystem. These macros are simpler and generate less code than their predecessors. The new macros ACPI\_ERROR, ACPI\_EXCEPTION, ACPI\_WARNING, and ACPI\_INFO replace the ACPI\_REPORT\_\* macros. The older macros remain defined to allow ACPI drivers time to migrate to the new macros.

Implemented the ACPI\_CPU\_FLAGS type to simplify host OS integration of the Acquire/Release Lock OSL interfaces.

Fixed a problem where Alias ASL operators are sometimes not correctly resolved, in both the interpreter and the iASL compiler.

Fixed several problems with the implementation of the ConcatenateResTemplate ASL operator. As per the ACPI specification, zero length buffers are now treated as a single EndTag. One-length buffers always cause a fatal exception. Non-zero length buffers that do not end with a full 2-byte EndTag cause a fatal exception.

Fixed a possible structure overwrite in the AcpiGetObjectInfo external interface. (With assistance from Thomas Renninger)

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 83.1K Code, 18.4K Data, 101.5K Total

Debug Version: 163.2K Code, 66.2K Data, 229.4K Total

Current Release:

Non-Debug Version: 81.0K Code, 17.9K Data, 98.9K Total

Debug Version: 161.3K Code, 65.7K Data, 227.0K Total

## 2) iASL Compiler/Disassembler:

Fixed an internal error that was generated for any forward references to ASL

Alias objects.

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13 January 2006. Summary of changes for version 20060113:

### 1) ACPI CA Core Subsystem:

Added 2006 copyright to all module headers and signons. This affects virtually every file in the ACPICA core subsystem, iASL compiler, and the utilities.

Enhanced the ACPICA error reporting in order to simplify user migration to the non-debug version of ACPICA. Replaced all instances of the ACPI\_DEBUG\_PRINT macro invoked at the ACPI\_DB\_ERROR and ACPI\_DB\_WARN debug levels with the ACPI\_REPORT\_ERROR and ACPI\_REPORT\_WARNING macros, respectively. This preserves all error and warning messages in the non-debug version of the ACPICA code (this has been referred to as the "debug lite" option.) Over 200 cases were converted to create a total of over 380 error/warning messages across the ACPICA code. This increases the code and data size of the default non-debug version of the code somewhat (about 13K), but all error/warning reporting may be disabled if desired (and code eliminated) by specifying the ACPI\_NO\_ERROR\_MESSAGES compile-time configuration option. The size of the debug version of ACPICA remains about the same.

Fixed a memory leak within the AML Debugger "Set" command. One object was not properly deleted for every successful invocation of the command.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These

values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.6K Code, 12.3K Data, 88.9K Total

Debug Version: 163.7K Code, 67.5K Data, 231.2K Total

Current Release:

Non-Debug Version: 83.1K Code, 18.4K Data, 101.5K Total

Debug Version: 163.2K Code, 66.2K Data, 229.4K Total

2) iASL Compiler/Disassembler:

The compiler now officially supports the ACPI 3.0a specification that was released on December 30, 2005. (Specification is available at [www.acpi.info](http://www.acpi.info))

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16 December 2005. Summary of changes for version 20051216:

1) ACPI CA Core Subsystem:

Implemented optional support to allow unresolved names within ASL Package objects. A null object is inserted in the package when a named reference cannot be located in the current namespace. Enabled via the interpreter slack flag, this should eliminate AE\_NOT\_FOUND exceptions seen on machines that contain such code.

Implemented an optimization to the initialization sequence that can improve boot time. During ACPI device initialization, the `_STA` method is now run if and only if the `_INI` method exists. The `_STA` method is used to determine if the device is present; An `_INI` can only be run if `_STA` returns present, but it is a waste of time to run the `_STA` method if the `_INI` does not exist. (Prototype and assistance from Dong Wei)

Implemented use of the C99 `uintptr_t` for the pointer casting macros if it is

available in the current compiler. Otherwise, the default (void \*) cast is used as before.

Fixed some possible memory leaks found within the execution path of the Break, Continue, If, and CreateField operators. (Valery Podrezov)

Fixed a problem introduced in the 20051202 release where an exception is generated during method execution if a control method attempts to declare another method.

Moved resource descriptor string constants that are used by both the AML disassembler and AML debugger to the common utilities directory so that these components are independent.

Implemented support in the AcpiExec utility (-e switch) to globally ignore exceptions during control method execution (method is not aborted.)

Added the rsinfo.c source file to the AcpiExec makefile for Linux/Unix generation.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total

Debug Version: 163.2K Code, 67.4K Data, 230.6K Total

Current Release:

Non-Debug Version: 76.6K Code, 12.3K Data, 88.9K Total

Debug Version: 163.7K Code, 67.5K Data, 231.2K Total

2) iASL Compiler/Disassembler:

Fixed a problem where a CPU stack overflow fault could occur if a recursive method call was made from within a Return statement.



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02 December 2005. Summary of changes for version 20051202:

1) ACPI CA Core Subsystem:

Modified the parsing of control methods to no longer create namespace objects during the first pass of the parse. Objects are now created only during the execute phase, at the moment the namespace creation operator is encountered in the AML (Name, OperationRegion, CreateByteField, etc.) This should eliminate ALREADY\_EXISTS exceptions seen on some machines where reentrant control methods are protected by an AML mutex. The mutex will now correctly block multiple threads from attempting to create the same object more than once.

Increased the number of available Owner Ids for namespace object tracking from 32 to 255. This should eliminate the OWNER\_ID\_LIMIT exceptions seen on some machines with a large number of ACPI tables (either static or dynamic).

Fixed a problem with the AcpiExec utility where a fault could occur when the -b switch (batch mode) is used.

Enhanced the namespace dump routine to output the owner ID for each namespace object.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total

Debug Version: 163.0K Code, 67.4K Data, 230.4K Total

Current Release:

Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total

Debug Version: 163.2K Code, 67.4K Data, 230.6K Total

## 2) iASL Compiler/Disassembler:

Fixed a parse error during compilation of certain Switch/Case constructs.

To

simplify the parse, the grammar now allows for multiple Default statements

and this error is now detected and flagged during the analysis phase.

Disassembler: The disassembly now includes the contents of the original table header within a comment at the start of the file. This includes the name and version of the original ASL compiler.

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17 November 2005. Summary of changes for version 20051117:

### 1) ACPI CA Core Subsystem:

Fixed a problem in the AML parser where the method thread count could be decremented below zero if any errors occurred during the method parse phase.

This should eliminate AE\_AML\_METHOD\_LIMIT exceptions seen on some machines.

This also fixed a related regression with the mechanism that detects and corrects methods that cannot properly handle reentrancy (related to the deployment of the new OwnerId mechanism.)

Eliminated the pre-parsing of control methods (to detect errors) during table load. Related to the problem above, this was causing unwind issues if

any errors occurred during the parse, and it seemed to be overkill. A table

load should

not be aborted if there are problems with any single control method, thus rendering this feature rather pointless.

Fixed a problem with the new table-driven resource manager where an internal

buffer overflow could occur for small resource templates.

Implemented a new external interface, AcpiGetVendorResource. This interface

will find and return a vendor-defined resource descriptor within a \_CRS or

\_PRS method via an ACPI 3.0 UUID match. With assistance from Bjorn Helgaas.

Removed the length limit (200) on string objects as per the upcoming ACPI 3.0A specification. This affects the following areas of the interpreter:

1)

any implicit conversion of a Buffer to a String, 2) a String object result

of the ASL Concatenate operator, 3) the String object result of the ASL ToString operator.

Fixed a problem in the Windows OS interface layer (OSL) where a WAIT\_FOREVER

on a semaphore object would incorrectly timeout. This allows the multithreading features of the AcpiExec utility

to work properly under Windows.

Updated the Linux makefiles for the iASL compiler and AcpiExec to include the recently added file named "utresrc.c".

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler.

These

values do not include any ACPI driver or OSPM code. The debug version of the

code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency

of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.2K Code, 12.3K Data, 88.5K Total

Debug Version: 163.0K Code, 67.4K Data, 230.4K Total

Current Release:

Non-Debug Version: 76.3K Code, 12.3K Data, 88.6K Total

Debug Version: 163.0K Code, 67.4K Data, 230.4K Total

2) iASL Compiler/Disassembler:

Removed

the limit (200) on string objects as per the upcoming ACPI 3.0A specification. For the iASL compiler, this means that string literals within

the source ASL can be of any length.

Enhanced the listing output to dump the AML code for resource descriptors immediately after the ASL code for each descriptor, instead of in a block at the end of the entire resource template.

Enhanced the compiler debug output to dump the entire original parse tree constructed during the parse phase, before any transforms are applied to the tree. The transformed tree is dumped also.

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02 November 2005. Summary of changes for version 20051102:

1) ACPI CA Core Subsystem:

Modified the subsystem initialization sequence to improve GPE support. The GPE initialization has been split into two parts in order to defer execution of the `_PRW` methods (Power Resources for Wake) until after the hardware is fully initialized and the SCI handler is installed. This allows the `_PRW` methods to access fields protected by the Global Lock. This will fix systems where a `NO_GLOBAL_LOCK` exception has been seen during initialization.

Converted the ACPI internal object disassemble and display code within the AML debugger to fully table-driven operation, reducing code size and increasing maintainability.

Fixed a regression with the `ConcatenateResTemplate()` ASL operator introduced in the 20051021 release.

Implemented support for "local" internal ACPI object types within the debugger "Object" command and the `AcpiWalkNamespace` external interfaces. These local types include `RegionFields`, `BankFields`, `IndexFields`, `Alias`, and reference objects.

Moved common AML resource handling code into a new file, "utresrc.c". This code is shared by both the Resource Manager and the AML Debugger.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the

acpica.lib produced by the  
Microsoft Visual C++ 6.0 32-bit compiler.  
These  
values do not include any ACPI driver or OSPM code. The debug version of  
the  
code includes the debug output trace mechanism and has a much larger code  
and data size. Note that these values will vary depending on the  
efficiency  
of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.1K Code, 12.2K Data, 88.3K Total

Debug Version: 163.5K Code, 67.0K Data, 230.5K Total

Current Release:

Non-Debug Version: 76.2K Code, 12.3K Data, 88.5K Total

Debug Version: 163.0K Code, 67.4K Data, 230.4K Total

2) iASL Compiler/Disassembler:

Fixed a problem with very large initializer lists (more than 4000  
elements)  
for both Buffer and Package objects where the parse stack could overflow.

Enhanced the pre-compile source code scan for non-ASCII characters to  
ignore  
characters within comment fields. The scan is now always performed and is  
no  
longer optional, detecting  
invalid characters within a source file  
immediately rather than during the parse phase or later.

Enhanced the ASL grammar definition to force early reductions on all  
list-  
style grammar elements so that the overall parse stack usage is greatly  
reduced. This should improve performance and reduce the possibility of  
parse  
stack overflow.

Eliminated all reduce/reduce conflicts in the iASL parser generation.  
Also,  
with the addition of a %expected statement, the compiler generates from  
source with no warnings.

Fixed a possible segment fault in the disassembler if the input filename  
does not contain a ".dot" extension (Thomas Renninger).

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21 October 2005. Summary of changes for version 20051021:

1) ACPI CA Core Subsystem:

Implemented support for the EM64T and other x86-64 processors. This essentially entails recognizing that these processors support non-aligned memory transfers. Previously, all 64-bit processors were assumed to lack hardware support for non-aligned transfers.

Completed conversion of the Resource Manager to nearly full table-driven operation. Specifically, the resource conversion code (convert AML to internal format and the reverse) and the debug code to dump internal resource descriptors are fully table-driven, reducing code and data size and improving maintainability.

The OSL interfaces for Acquire and Release Lock now use a 64-bit flag word on 64-bit processors instead of a fixed 32-bit word. (With assistance from Alexey Starikovskiy)

Implemented support within the resource conversion code for the Type-Specific byte within the various ACPI 3.0 \*WordSpace macros.

Fixed some issues within the resource conversion code for the type-specific flags for both Memory and I/O address resource descriptors. For Memory, implemented support for the MTP and TTP flags. For I/O, split the TRS and TTP flags into two separate fields.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.1K Code, 12.1K Data, 89.2K Total

Debug Version: 168.0K Code, 68.3K Data, 236.3K Total

Current Release:

Non-Debug Version: 76.1K Code, 12.2K Data, 88.3K Total

Debug Version: 163.5K Code, 67.0K Data, 230.5K Total

## 2) iASL Compiler/Disassembler:

Relaxed a compiler restriction that disallowed a ResourceIndex byte if the corresponding ResourceSource string was not also present in a resource descriptor declaration. This restriction caused problems with existing AML/ASL code that includes the Index byte without the string. When such AML was disassembled, it could not be compiled without modification. Further, the modified code created a resource template with a different size than the original, breaking code that used fixed offsets into the resource template buffer.

Removed a recent feature of the disassembler to ignore a lone ResourceIndex byte. This byte is now emitted if present so that the exact AML can be reproduced when the disassembled code is recompiled.

Improved comments and text alignment for the resource descriptor code emitted by the disassembler.

Implemented disassembler support for the ACPI 3.0 AccessSize field within a Register() resource descriptor.

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30 September 2005. Summary of changes for version 20050930:

### 1) ACPI CA Core Subsystem:

Completed a major overhaul of the Resource Manager code - specifically, optimizations in the area of the AML/internal resource conversion code.

The code has been optimized to simplify and eliminate duplicated code, CPU stack

use has been decreased by optimizing function parameters and local variables, and naming conventions across the manager have been standardized

for clarity and ease of maintenance (this includes function, parameter,

variable, and struct/typedef names.) The update may force changes in some driver code, depending on how resources are handled by the host OS.

All Resource Manager dispatch and information tables have been moved to a single location for clarity and ease of maintenance. One new file was created, named "rsinfo.c".

The ACPI return macros (return\_ACPI\_STATUS, etc.) have been modified to guarantee that the argument is not evaluated twice, making them less prone to macro side-effects. However, since there exists the possibility of additional stack use if a particular compiler cannot optimize them (such as in the debug generation case), the original macros are optionally available.

Note that some invocations of the return\_VALUE macro may now cause size mismatch warnings; the return\_UINT8 and return\_UINT32 macros are provided to eliminate these. (From Randy Dunlap)

Implemented a new mechanism to enable debug tracing for individual control methods. A new external interface, AcpiDebugTrace, is provided to enable this mechanism. The intent is to allow the host OS to easily enable and disable tracing for problematic control methods. This interface can be easily exposed to a user or debugger interface if desired. See the file psxface.c for details.

AcpiUtCallocate will now return a valid pointer if a length of zero is specified - a length of one is used and a warning is issued. This matches the behavior of AcpiUtAllocate.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.5K Code, 12.0K Data, 89.5K Total

Debug Version: 168.1K Code, 68.4K Data, 236.5K Total



Current Release:

Non-Debug Version: 77.1K Code, 12.1K Data, 89.2K Total

Debug Version: 168.0K Code, 68.3K Data, 236.3K Total

2) iASL Compiler/Disassembler:

A remark is issued if the effective compile-time length of a package or buffer is zero. Previously, this was a warning.

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16 September 2005. Summary of changes for version 20050916:

1) ACPI CA Core Subsystem:

Fixed a problem within the Resource Manager where support for the Generic Register descriptor was not fully implemented. This descriptor is now

fully recognized, parsed, disassembled, and displayed.

Completely restructured the Resource Manager code to utilize table-driven dispatch and lookup, eliminating many of the large switch() statements.

This reduces overall subsystem code size and code complexity. Affects the resource parsing and construction, disassembly, and debug dump output.

Cleaned up and restructured the debug dump output for all resource descriptors. Improved readability of the output and reduced code size.

Fixed a problem where changes to internal data structures caused the optional ACPI\_MUTEX\_DEBUG code to fail compilation if specified.

Code and Data Size: The current and previous library sizes for the core subsystem are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 32-bit compiler.

These values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.4K Code, 11.8K Data, 90.2K Total

Debug Version: 169.6K Code, 69.9K Data, 239.5K Total

Current Release:

Non-Debug Version: 77.5K Code, 12.0K Data, 89.5K Total

Debug Version: 168.1K Code, 68.4K Data, 236.5K Total

## 2) iASL Compiler/Disassembler:

Updated the disassembler to automatically insert an EndDependentFn() macro into the ASL stream if this macro is missing in the original AML code, simplifying compilation of the resulting ASL module.

Fixed a problem in the disassembler where a disassembled ResourceSource string (within a large resource descriptor) was not surrounded by quotes and not followed by a comma, causing errors when the resulting ASL module was compiled. Also, escape sequences within a ResourceSource string are now handled correctly (especially "\\")

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02 September 2005. Summary of changes for version 20050902:

### 1) ACPI CA Core Subsystem:

Fixed a problem with the internal Owner ID allocation and deallocation mechanisms for control method execution and recursive method invocation. This should eliminate the OWNER\_ID\_LIMIT exceptions and "Invalid OwnerId" messages seen on some systems. Recursive method invocation depth is currently limited to 255. (Alexey Starikovskiy)

Completely eliminated all vestiges of support for the "module-level executable code" until this support is fully implemented and debugged. This should eliminate the NO\_RETURN\_VALUE exceptions seen during table load on some systems that invoke this support.

Fixed a problem within the resource manager code where the transaction flags for a 64-bit address descriptor were handled incorrectly in the type-specific flag byte.

Consolidated duplicate code within the address descriptor resource manager code, reducing overall subsystem code size.

Fixed a fault when using the AML debugger "disassemble" command to

disassemble individual control methods.

Removed references to the "release\_current" directory within the Unix release package.

Code and Data Size: The current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler. These values do not include any ACPI driver or OSPM code. The debug version of the code includes

the debug output trace mechanism and has a much larger code and data size.

Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.6K Code, 11.7K Data, 90.3K Total

Debug Version: 170.0K Code, 69.9K Data, 239.9K Total

Current Release:

Non-Debug Version: 78.4K Code, 11.8K Data, 90.2K Total

Debug Version: 169.6K Code, 69.9K Data,  
239.5K Total

2) iASL Compiler/Disassembler:

Implemented an error check for illegal duplicate values in the interrupt and dma lists for the following ASL macros: Dma(), Irq(), IrqNoFlags(), and Interrupt().

Implemented error checking for the Irq() and IrqNoFlags() macros to detect too many values in the interrupt list (16 max) and invalid values in the list (range 0 - 15)

The maximum length string literal within an ASL file is now restricted to 200 characters as per the ACPI specification.

Fixed a fault when using the -ln option (generate namespace listing).

Implemented an error check to determine if a DescriptorName within a resource descriptor has already been used within the current scope.

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15 August 2005. Summary of changes for version 20050815:

## 1) ACPI CA Core Subsystem:

Implemented a full bitwise compare to determine if a table load request is attempting to load a duplicate table. The compare is performed if the table

signatures and table lengths match. This will allow different tables with the same OEM Table ID and revision to be loaded - probably against the ACPI specification, but discovered in the field nonetheless.

Added the changes.txt logfile to each of the zipped release packages.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

### Previous Release:

Non-Debug Version: 78.6K Code, 11.7K Data, 90.3K Total

Debug Version: 167.0K Code, 69.9K Data, 236.9K Total

### Current Release:

Non-Debug Version: 78.6K Code, 11.7K Data,  
90.3K Total

Debug Version: 170.0K Code, 69.9K Data, 239.9K Total

## 2) iASL Compiler/Disassembler:

Fixed a problem where incorrect AML code could be generated for Package objects if optimization is disabled (via the -oa switch).

Fixed a problem with where incorrect AML code is generated for variable-length packages when the package length is not specified and the number of initializer values is greater than 255.

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29 July 2005. Summary of changes for version 20050729:

## 1) ACPI CA Core Subsystem:

Implemented support to ignore an attempt to install/load a particular ACPI table more than once. Apparently there exists BIOS code that repeatedly attempts to load the same SSDT upon certain events. With assistance from Venkatesh Pallipadi.

Restructured the main interface to the AML parser in order to correctly handle all exceptional conditions. This will prevent leakage of the OwnerId resource and should eliminate the AE\_OWNER\_ID\_LIMIT exceptions seen on some machines. With assistance from Alexey Starikovskiy.

Support for "module level code" has been disabled in this version due to a number of issues that have appeared on various machines. The support can be enabled by defining ACPI\_ENABLE\_MODULE\_LEVEL\_CODE during subsystem compilation. When the issues are fully resolved, the code will be enabled by default again.

Modified the internal functions for debug print support to define the FunctionName parameter as a (const char \*) for compatibility with compiler built-in macros such as \_\_FUNCTION\_\_, etc.

Linted the entire ACPICA source tree for both 32-bit and 64-bit.

Implemented support to display an object count summary for the AML Debugger commands Object and Methods.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include

any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.6K Code, 11.6K Data, 90.2K Total

Debug Version: 170.0K Code, 69.7K Data, 239.7K Total

Current Release:

Non-Debug Version: 78.6K Code, 11.7K Data, 90.3K Total

Debug Version: 167.0K Code, 69.9K Data, 236.9K Total

## 2) iASL Compiler/Disassembler:

Fixed a regression that appeared in the 20050708 version of the compiler where an error message was inadvertently emitted for invocations of the `_OSI` reserved control method.

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08 July 2005. Summary of changes for version 20050708:

### 1) ACPI CA Core Subsystem:

The use of the CPU stack in the debug version of the subsystem has been considerably reduced. Previously, a debug structure was declared in every function that used the debug macros. This structure has been removed in favor of declaring the individual elements as parameters to the debug functions. This reduces the cumulative stack use during nested execution of ACPI function calls at the cost of a small increase in the code size of the debug version of the subsystem. With assistance from Alexey Starikovskiy and Len Brown.

Added the `ACPI_GET_FUNCTION_NAME` macro to enable the compiler-dependent headers to define a macro that will return the current function name at runtime (such as `__FUNCTION__` or `_func_`, etc.) The function name is used by the debug trace output. If `ACPI_GET_FUNCTION_NAME` is not defined in the compiler-dependent header, the function name is saved on the CPU stack (one pointer per function.) This mechanism is used because apparently there exists no standard ANSI-C defined macro that that returns the function name.

Redesigned and reimplemented the "Owner ID" mechanism used to track namespace objects created/deleted by ACPI tables and control method execution. A bitmap is now used to allocate and free the IDs, thus

solving  
the wraparound problem present in the previous implementation. The size  
of  
the namespace node descriptor was reduced by 2 bytes as a result (Alexey  
Starikovskiy).

Removed the UINT32\_BIT and UINT16\_BIT types that were used for the  
bitfield  
flag definitions within the headers for the predefined ACPI tables. These  
have been replaced by UINT8\_BIT in order to increase the code portability  
of  
the subsystem. If the use of UINT8 remains a problem, we may be forced to  
eliminate bitfields entirely because of a lack of portability.

Enhanced the performance of the AcpiUtUpdateObjectReference procedure.  
This  
is a frequently used function and this improvement increases the  
performance  
of the entire subsystem (Alexey Starikovskiy).

Fixed several possible memory leaks and the inverse - premature object  
deletion  
(Alexey Starikovskiy).

Code and Data Size: Current and previous core subsystem library sizes are  
shown below. These are the code and data sizes for the acpica.lib  
produced  
by the Microsoft Visual C++ 6.0 compiler, and these values do not include  
any ACPI driver or OSPM code. The debug version of the code includes the  
debug output trace mechanism and has a much larger code and data size.  
Note  
that these values will vary depending on the efficiency of the compiler  
and  
the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.6K Code, 11.5K Data, 90.1K Total

Debug Version: 165.2K Code, 69.6K Data, 234.8K Total

Current Release:

Non-Debug Version: 78.6K Code, 11.6K Data, 90.2K Total

Debug Version: 170.0K Code, 69.7K Data, 239.7K Total

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24 June 2005. Summary of changes for version 20050624:

1) ACPI CA Core Subsystem:

Modified the new OSL cache interfaces to use ACPI\_CACHE\_T as

the type for the host-defined cache object. This allows the OSL implementation to define and type this object in any manner desired, simplifying the OSL implementation. For example, ACPI\_CACHE\_T is defined as kmem\_cache\_t for Linux, and should be defined in the OS-specific header file for other operating systems as required.

Changed the interface to AcpiOsAcquireObject to directly return the requested object as the function return (instead of ACPI\_STATUS.) This change was made for performance reasons, since this is the purpose of the interface in the first place. AcpiOsAcquireObject is now similar to the AcpiOsAllocate interface.

Implemented a new AML debugger command named Businfo. This command displays information about all devices that have an associate \_PRT object. The \_ADR, \_HID, \_UID, and \_CID are displayed for these devices.

Modified the initialization sequence in AcpiInitializeSubsystem to call the OSL interface AcpiOsInitialize first, before any local initialization.

This change was required because the global initialization now calls OSL interfaces.

Enhanced the Dump command to display the entire contents of Package objects (including all sub-objects and their values.)

Restructured the code base to split some files because of size and/or because the code logically belonged in a separate file. New files are listed below. All makefiles and project files included in the ACPI CA release have been updated.

```
utilities/utcache.c      /* Local cache interfaces */
utilities/utmutex.c     /* Local mutex support */
utilities/utstate.c     /* State object support */
interpreter/parser/psloop.c /* Main AML parse loop */
```

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code



includes the  
debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler  
and  
the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.3K Code, 11.6K Data, 89.9K Total

Debug Version: 164.0K Code, 69.1K Data, 233.1K Total

Current Release:

Non-Debug Version: 78.6K Code, 11.5K Data, 90.1K Total

Debug Version: 165.2K Code, 69.6K Data, 234.8K Total

2) iASL Compiler/Disassembler:

Fixed a regression introduced in version 20050513 where the use of a  
Package  
object within a Case() statement caused a compile time exception. The  
original behavior has been restored (a Match() operator is emitted.)

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17 June 2005. Summary of changes for version 20050617:

1) ACPI CA Core Subsystem:

Moved the object cache operations into the OS interface layer (OSL) to  
allow  
the host OS to handle these operations if  
desired (for example, the Linux  
OSL will invoke the slab allocator). This support is optional; the  
compile  
time define `ACPI_USE_LOCAL_CACHE` may be used to utilize the original  
cache  
code in the ACPI CA core. The new OSL interfaces are shown below. See  
`utalloc.c` for an example implementation, and `acpiosxf.h` for the exact  
interface definitions. With assistance from Alexey Starikovskiy.

`AcpiOsCreateCache`

`AcpiOsDeleteCache`

`AcpiOsPurgeCache`

`AcpiOsAcquireObject`

`AcpiOsReleaseObject`

Modified the interfaces to `AcpiOsAcquireLock` and `AcpiOsReleaseLock` to  
return

and restore a flags parameter. This fits better with many OS lock models.

Note: the current execution state (interrupt handler or not) is no longer

passed to these interfaces. If necessary, the OSL must determine this state by itself, a simple and fast operation. With assistance from Alexey Starikovskiy.

Fixed a problem in the ACPI table handling where a valid XSDT was assumed present if the revision of the RSDP was 2 or greater. According to the ACPI specification, the XSDT is optional in all cases, and the table manager therefore now checks for both an RSDP  $\geq 2$  and a valid XSDT pointer. Otherwise, the RSDT pointer is used. Some ACPI 2.0 compliant BIOSs contain only the RSDT.

Fixed an interpreter problem with the Mid() operator in the case of an input string where the resulting output string is of zero length. It now correctly returns a valid, null terminated string object instead of a string object with a null pointer.

Fixed a problem with the control method argument handling to allow a store to an Arg object that already contains an object of type Device. The Device object is now correctly overwritten. Previously, an error was returned.

Enhanced the debugger Find command to emit object values in addition to the found object pathnames. The output format is the same as the dump namespace command.

Enhanced the debugger Set command. It now has the ability to set the value of any Named integer object in the namespace (Previously, only method locals and args could be set.)

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.1K Code, 11.6K Data, 89.7K Total

Debug Version: 164.0K Code, 69.3K Data, 233.3K Total

Current Release:

Non-Debug Version: 78.3K Code, 11.6K Data, 89.9K Total

Debug Version: 164.0K Code, 69.1K Data, 233.1K Total

## 2) iASL Compiler/Disassembler:

Fixed a regression in the disassembler where if/else/while constructs

were

output incorrectly. This problem was introduced in the previous release (20050526). This problem also affected the single-step disassembly in the debugger.

Fixed a problem where compiling the reserved \_OSI method would randomly (but rarely) produce compile errors.

Enhanced the disassembler to emit compilable code in the face of incorrect

AML resource descriptors. If the optional ResourceSourceIndex is present, but the ResourceSource is not, do not emit the ResourceSourceIndex in the disassembly. Otherwise, the resulting code cannot be compiled without errors.

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26 May 2005. Summary of changes for version 20050526:

### 1) ACPI CA Core Subsystem:

Implemented support to execute Type 1 and Type 2 AML opcodes appearing at the module level (not within a control method.) These opcodes are executed

exactly once at the time the table is loaded. This type of code was legal up

until the release of ACPI 2.0B (2002) and is now supported within ACPI CA

in

order to provide backwards compatibility with earlier BIOS implementations.

This eliminates the "Encountered executable code at module level" warning that was previously generated upon detection of such code.

Fixed a problem in the interpreter where an AE\_NOT\_FOUND exception could inadvertently be generated during the lookup of namespace objects in the second pass parse of ACPI tables and control methods. It appears that this problem could occur during the resolution of forward references to namespace objects.

Added the ACPI\_MUTEX\_DEBUG #ifdef to the AcpiUtReleaseMutex function, corresponding to the same #ifdef in the AcpiUtAcquireMutex function. This allows the deadlock detection debug code to be compiled out in the normal case, improving mutex performance (and overall subsystem performance) considerably.

Implemented a handful of miscellaneous fixes for possible memory leaks on error conditions and error handling control paths. These fixes were suggested by FreeBSD and the Coverity Prevent source code analysis tool.

Added a check for a null RSDT pointer in AcpiGetFirmwareTable (tbxfroot.c) to prevent a fault in this error case.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total

Debug Version: 163.7K Code, 69.3K Data, 233.0K Total

Current Release:

Non-Debug Version: 78.1K Code, 11.6K Data, 89.7K Total

Debug Version: 164.0K Code, 69.3K Data, 233.3K Total

2) iASL Compiler/Disassembler:

Implemented

support to allow Type 1 and Type 2 ASL operators to appear at the module level (not within a control method.) These operators will be executed once at the time the table is loaded. This type of code was legal up until the release of ACPI 2.0B (2002) and is now supported by the iASL compiler in order to provide backwards compatibility with earlier BIOS ASL code.

The ACPI integer width (specified via the table revision ID or the -r override, 32 or 64 bits) is now used internally during compile-time constant folding to ensure that constants are truncated to 32 bits if necessary. Previously, the revision ID value was only emitted in the AML table header.

An error message is now generated for the Mutex and Method operators if the SyncLevel parameter is outside the legal range of 0 through 15.

Fixed a problem with the Method operator ParameterTypes list handling (ACPI 3.0). Previously, more than 2 types or 2 arguments generated a syntax error.

The actual underlying implementation of method argument typechecking is still under development, however.

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13 May 2005. Summary of changes for version 20050513:

1) ACPI CA Core Subsystem:

Implemented support for PCI Express root bridges -- added support for device PNP0A08 in the root bridge search within AcpiEvPciConfigRegionSetup.

The interpreter now automatically truncates incoming 64-bit constants to 32 bits if currently executing out of a 32-bit ACPI table (Revision < 2). This also affects the iASL compiler constant folding. (Note: as per below, the iASL compiler no longer allows 64-bit constants within 32-bit tables.)

Fixed a problem where string and buffer objects with "static" pointers (pointers to initialization data within an ACPI table) were not handled consistently. The internal object copy operation now always copies the data

to a newly allocated buffer, regardless of whether the source object is static or not.

Fixed

a problem with the FromBCD operator where an implicit result conversion was improperly performed while storing the result to the target operand. Since this is an "explicit conversion" operator, the implicit conversion should never be performed on the output.

Fixed a problem with the CopyObject operator where a copy to an existing named object did not always completely overwrite the existing object stored at name. Specifically, a buffer-to-buffer copy did not delete the existing buffer.

Replaced "InterruptLevel" with "InterruptNumber" in all GPE interfaces and structs for consistency.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total

Debug Version: 163.7K Code, 69.3K Data, 233.0K Total

Current Release: (Same sizes)

Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total

Debug Version: 163.7K Code, 69.3K Data, 233.0K Total

2) iASL Compiler/Disassembler:

The compiler now emits a warning if an attempt is made to generate a 64-bit integer constant from within a 32-bit ACPI table (Revision < 2). The integer is truncated to 32 bits.

Fixed a problem with large package objects: if the static length of the package is greater than 255, the "variable length package" opcode is emitted. Previously, this caused an error. This requires an update to the ACPI spec, since it currently (incorrectly) states that packages larger than 255 elements are not allowed.

The disassembler now correctly handles variable length packages and packages larger than 255 elements.

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08 April 2005. Summary of changes for version 20050408:

1) ACPI CA Core Subsystem:

Fixed three cases in the interpreter where an "index" argument to an ASL function was still (internally) 32 bits instead of the required 64 bits. This was the Index argument to the Index, Mid, and Match operators.

The "strupr" function is now permanently local (AcpiUtStrupr), since this is not a POSIX-defined function and not present in most kernel-level C libraries. All references to the C library strupr function have been removed from the headers.

Completed the deployment of static functions/prototypes. All prototypes with the static attribute have been moved from the headers to the owning C file.

Implemented an extract option (-e) for the AcpiBin utility (AML binary utility). This option allows the utility to extract individual ACPI tables from the output of AcpiDmp. It provides the same functionality of the acpextract.pl perl script without the worry of setting the correct perl options. AcpiBin runs on Windows and has not yet been generated/validated in the Linux/Unix environment (but should be soon).

Updated and fixed the table dump option for AcpiBin (-d). This option converts a single ACPI table to a hex/ascii file, similar to the output of AcpiDmp.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced

by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.0K Code, 11.6K Data, 89.6K Total

Debug Version: 163.5K

Code, 69.3K Data, 232.8K Total

Current Release:

Non-Debug Version: 78.2K Code, 11.6K Data, 89.8K Total

Debug Version: 163.7K Code, 69.3K Data, 233.0K Total

## 2) iASL Compiler/Disassembler:

Disassembler fix: Added a check to ensure that the table length found in the

ACPI table header within the input file is not longer than the actual input

file size. This indicates some kind of file or table corruption.

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29 March 2005. Summary of changes for version 20050329:

### 1) ACPI CA Core Subsystem:

An error is now generated if an attempt is made to create a Buffer Field of

length zero (A CreateField with a length operand of zero.)

The interpreter now issues a warning whenever executable code at the module

level is detected during ACPI table load. This will give some idea of the prevalence of this type of code.

Implemented support for references to named objects (other than control methods) within package objects.

Enhanced



package object output for the debug object. Package objects are now completely dumped, showing all elements.

Enhanced miscellaneous object output for the debug object. Any object can now be written to the debug object (for example, a device object can be written, and the type of the object will be displayed.)

The "static" qualifier has been added to all local functions across both the core subsystem and the iASL compiler.

The number of "long" lines (> 80 chars) within the source has been significantly reduced, by about 1/3.

Cleaned up all header files to ensure that all CA/iASL functions are prototyped (even static functions) and the formatting is consistent.

Two new header files have been added, acopcode.h and acnames.h.

Removed several obsolete functions that were no longer used.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 165.4K Code, 69.7K Data, 236.1K Total

Current Release:

Non-Debug Version: 78.0K Code, 11.6K Data, 89.6K Total

Debug Version: 163.5K Code, 69.3K Data, 232.8K Total

2) iASL Compiler/Disassembler:

Fixed a problem with the resource descriptor generation/support. For the ResourceSourceIndex and the ResourceSource fields, both must be present, or

both must be not present - can't have one without the other.

The compiler now returns non-zero from the main procedure if any errors have occurred during the compilation.

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09

March 2005. Summary of changes for version 20050309:

#### 1) ACPI CA Core Subsystem:

The string-to-buffer implicit conversion code has been modified again after a change to the ACPI specification. In order to match the behavior of the other major ACPI implementation, the target buffer is no longer truncated if the source string is smaller than an existing target buffer. This change requires an update to the ACPI spec, and should eliminate the recent AE\_AML\_BUFFER\_LIMIT issues.

The "implicit return" support was rewritten to a new algorithm that solves the general case. Rather than attempt to determine when a method is about to exit, the result of every ASL operator is saved momentarily until the very next ASL operator is executed. Therefore, no matter how the method exits, there will always be a saved implicit return value. This feature is only enabled with the AcpiGbl\_EnableInterpreterSlack flag, and should eliminate AE\_AML\_NO\_RETURN\_VALUE errors when enabled.

Implemented implicit conversion support for the predicate (operand) of the If, Else, and While operators. String and Buffer arguments are automatically converted to Integers.

Changed the string-to-integer conversion behavior to match the new ACPI errata: "If no integer object exists, a new integer is created. The ASCII string is interpreted as a hexadecimal constant. Each string character is interpreted as a hexadecimal value ('0'-'9', 'A'-'F', 'a', 'f'), starting with the first character as the most significant digit, and ending with the

first non-hexadecimal character or end-of-string." This means that the first non-hex character terminates the conversion and this is the code that was changed.

Fixed a problem where the ObjectType operator would fail (fault) when used on an Index of a Package which pointed to a null package element. The operator now properly returns zero (Uninitialized) in this case.

Fixed a problem where the While operator used excessive memory by not properly popping the result stack during execution. There was no memory leak after execution, however. (Code provided by Valery Podrezov.)

Fixed a problem where references to control methods within Package objects caused the method to be invoked, instead of producing a reference object pointing to the method.

Restructured and simplified the pswalk.c module (AcpiPsDeleteParseTree) to improve performance and reduce code size. (Code provided by Alexey Starikovskiy.)

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 165.4K Code, 69.6K Data, 236.0K Total

Current Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 165.4K Code, 69.7K Data, 236.1K Total

2) iASL Compiler/Disassembler:

Fixed a problem with the Return operator with no arguments. Since the AML

grammar for the byte encoding requires an operand for the Return opcode, the compiler now emits a Return(Zero) for this case. An ACPI specification update has been written for this case.

For tables other than the DSDT, namepath optimization is automatically disabled. This is because SSDTs can be loaded anywhere in the namespace, the compiler has no knowledge of where, and thus cannot optimize namepaths.

Added "ProcessorObj" to the ObjectTypeKeyword list. This object type was inadvertently omitted from the ACPI specification, and will require an update to the spec.

The source file scan for ASCII characters is now optional (-a). This change was made because some vendors place non-ascii characters within comments. However, the scan is simply a brute-force byte compare to ensure all characters in the file are in the range 0x00 to 0x7F.

Fixed a problem with the CondRefOf operator where the compiler was inappropriately checking for the existence of the target. Since the point of the operator is to check for the existence of the target at run-time, the compiler no longer checks for the target existence.

Fixed a problem where errors generated from the internal AML interpreter during constant folding were not handled properly, causing a fault.

Fixed a problem with overly aggressive range checking for the Stall operator. The valid range (max 255) is now only checked if the operand is of type Integer. All other operand types cannot be statically checked.

Fixed a problem where control method references within the RefOf, DeRefOf, and ObjectType operators were not treated properly. They are now treated as actual references, not method invocations.

Fixed and enhanced the "list namespace" option (-ln). This option was broken a number of releases ago.

Improved error handling for the Field, IndexField, and BankField operators.

The compiler now cleanly reports and recovers from errors in the field component (FieldUnit) list.

Fixed a disassembler problem where the optional ResourceDescriptor fields TRS and TTP were not always handled correctly.

Disassembler - Comments in output now use "/" instead of "/\*"

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28 February 2005. Summary of changes for version 20050228:

1) ACPI CA Core Subsystem:

Fixed a problem where the result of an Index() operator (an object reference) must increment the reference count on the target object for the life of the object reference.

Implemented AML Interpreter and Debugger support for the new ACPI 3.0 Extended Address (IO, Memory, Space), QwordSpace, DwordSpace, and WordSpace resource descriptors.

Implemented support in the \_OSI method for the ACPI 3.0 "Extended Address Space Descriptor" string, indicating interpreter support for the descriptors above.

Implemented header support for the new ACPI 3.0 FADT flag bits.

Implemented header support for the new ACPI 3.0 PCI Express bits for the PM1 status/enable registers.

Updated header support for the MADT processor local Apic struct and MADT platform interrupt source struct for new ACPI 3.0 fields.

Implemented header support for the SRAT and SLIT ACPI tables.

Implemented the -s switch in AcpiExec to enable the "InterpreterSlack" flag at runtime.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include

any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.2K Code, 11.5K Data, 89.7K Total

Debug Version: 164.9K Code, 69.2K Data, 234.1K Total

Current Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 165.4K Code, 69.6K Data, 236.0K Total

## 2) iASL Compiler/Disassembler:

Fixed a problem with the internal 64-bit String-to-integer conversion with strings less than two characters long.

Fixed a problem with constant folding where the result of the Index() operator can not be considered a constant. This means that Index() cannot be a type3 opcode and this will require an update to the ACPI specification.

Disassembler: Implemented support for the TTP, MTP, and TRS resource descriptor fields. These fields were inadvertently ignored and not output in the disassembly of the resource descriptor.

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11

February 2005. Summary of changes for version 20050211:

## 1) ACPI CA Core Subsystem:

Implemented ACPI 3.0 support for implicit conversion within the Match() operator. MatchObjects can now be of type integer, buffer, or string instead of just type integer. Package elements are implicitly converted to the type of the MatchObject. This change aligns the behavior of Match() with the behavior of the other logical operators (LLess(), etc.) It also requires an errata change to the ACPI specification as this support was intended for

ACPI 3.0, but was inadvertently omitted.

Fixed a problem with the internal implicit "to buffer" conversion.

Strings

that are converted to buffers will cause buffer truncation if the string is smaller than the target buffer. Integers that are converted to buffers will not cause buffer truncation, only zero extension (both as per the ACPI spec.) The problem was introduced when code was added to truncate the buffer, but this should not be performed in all cases, only the string case.

Fixed a problem with the Buffer and Package operators where the interpreter

would get confused if two such operators were used as operands to an ASL operator (such as LLess(Buffer(1){0},Buffer(1){1})). The internal result stack was not being popped after the execution of these operators, resulting in an AE\_NO\_RETURN\_VALUE exception.

Fixed a problem with constructs of the form Store(Index(...),...). The reference object returned from Index was inadvertently resolved to an actual value. This problem was introduced in version 20050114 when the behavior of Store() was modified to restrict the object types that can be used as the source operand (to match the ACPI specification.)

Reduced excessive stack use within the AcpiGetObjectInfo procedure.

Added a fix to aclinux.h to allow generation of AcpiExec on Linux.

Updated the AcpiSrc utility to add the FADT\_DESCRIPTOR\_REV2\_MINUS struct.

Code and Data

Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.1K Code, 11.5K Data, 89.6K Total

Debug Version: 164.8K Code, 69.2K Data, 234.0K Total

Current Release:

Non-Debug Version: 78.2K Code, 11.5K Data, 89.7K Total

Debug Version: 164.9K Code, 69.2K Data, 234.1K Total

## 2) iASL Compiler/Disassembler:

Fixed a code generation problem in the constant folding optimization code where incorrect code was generated if a constant was reduced to a buffer object (i.e., a reduced type 5 opcode.)

Fixed

a typechecking problem for the ToBuffer operator. Caused by an incorrect return type in the internal opcode information table.

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25 January 2005. Summary of changes for version 20050125:

### 1) ACPI CA Core Subsystem:

Fixed a recently introduced problem with the Global Lock where the underlying semaphore was not created. This problem was introduced in version 20050114, and caused an AE\_AML\_NO\_OPERAND exception during an Acquire() operation on \_GL.

The local object cache is now optional, and is disabled by default. Both AcpiExec and the iASL compiler enable the cache because they run in user mode and this enhances their performance. #define ACPI\_ENABLE\_OBJECT\_CACHE to enable the local cache.

Fixed an issue in the internal function AcpiUtEvaluateObject concerning the optional "implicit return" support where an error was returned if no return object was expected, but one was implicitly returned. AE\_OK is now returned in this case and the implicitly returned object is deleted. AcpiUtEvaluateObject is only occasionally used, and only to execute reserved methods such as \_STA and \_INI where the return type is known up front.

Fixed a few issues with the internal convert-to-integer code. It now returns



an error if an attempt is made to convert a null string, a string of only blanks/tabs, or a zero-length buffer. This affects both implicit conversion and explicit conversion via the ToInteger() operator.

The internal debug code in AcpiUtAcquireMutex has been commented out. It is not needed for normal operation and should increase the performance of the entire subsystem. The code remains in case it is needed for debug purposes again.

The AcpiExec source and makefile are included in the Unix/Linux package for the first time.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.4K Code, 11.5K Data, 89.9K Total

Debug Version: 165.4K Code, 69.4K Data, 234.8K Total

Current Release:

Non-Debug Version: 78.1K Code, 11.5K Data, 89.6K Total

Debug Version: 164.8K Code, 69.2K Data, 234.0K Total

2) iASL Compiler/Disassembler:

Switch/Case support: A warning is now issued if the type of the Switch value cannot be determined at compile time. For example, Switch(Arg0) will generate the warning, and the type is assumed to be an integer. As per the ACPI spec, use a construct such as Switch(ToInteger(Arg0)) to eliminate the warning.

Switch/Case support: Implemented support

for buffer and string objects as the switch value. This is an ACPI 3.0 feature, now that LEqual supports buffers and strings.

Switch/Case support: The emitted code for the LEqual() comparisons now uses the switch value as the first operand, not the second. The case value is now the second operand, and this allows the case value to be implicitly converted to the type of the switch value, not the other way around.

Switch/Case support: Temporary variables are now emitted immediately within the control method, not at the global level. This means that there are now 36 temps available per-method, not 36 temps per-module as was the case with the earlier implementation (\_T\_0 through \_T\_9 and \_T\_A through \_T\_Z.)

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14 January 2005. Summary of changes for version 20050114:

Added 2005 copyright to all module headers. This affects every module in the core subsystem, iASL compiler, and the utilities.

1) ACPI CA Core Subsystem:

Fixed an issue with the String-to-Buffer conversion code where the string null terminator was not included in the buffer after conversion, but there is existing ASL that assumes the string null terminator is included. This is the root of the ACPI\_AML\_BUFFER\_LIMIT regression. This problem was introduced in the previous version when the code was updated to correctly set the converted buffer size as per the ACPI specification. The ACPI spec is ambiguous and will be updated to specify that the null terminator must be included in the converted buffer. This also affects the ToBuffer() ASL operator.

Fixed a problem with the Mid() ASL/AML operator where it did not work correctly on Buffer objects. Newly created sub-buffers were not being marked as initialized.

Fixed a problem in AcpiTbFindTable where incorrect string compares were performed on the OemId and OemTableId table header fields. These fields are not null terminated, so strcmp is now used instead of strcmp.

#### Implemented

a restriction on the Store() ASL/AML operator to align the behavior with the ACPI specification. Previously, any object could be used as the source operand. Now, the only objects that may be used are Integers, Buffers, Strings, Packages, Object References, and DDB Handles. If necessary, the original behavior can be restored by enabling the EnableInterpreterSlack flag.

Enhanced the optional "implicit return" support to allow an implicit return value from methods that are invoked externally via the AcpiEvaluateObject interface. This enables implicit returns from the \_STA and \_INI methods, for example.

Changed the Revision() ASL/AML operator to return the current version of the AML interpreter, in the YYYYMMDD format. Previously, it incorrectly returned the supported ACPI version (This is the function of the \_REV method).

Updated the \_REV predefined method to return the currently supported version of ACPI, now 3.

Implemented batch mode option for the AcpiExec utility (-b).

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

#### Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 165.3K Code, 69.4K Data, 234.7K Total

Current Release:

Non-Debug Version: 78.4K Code, 11.5K Data, 89.9K Total

Debug Version: 165.4K Code, 69.4K Data, 234.8K Total

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10 December 2004. Summary of changes for version 20041210:

ACPI 3.0 support is nearing completion in both the iASL compiler and the ACPI CA core subsystem.

1)

ACPI CA Core Subsystem:

Fixed a problem in the ToDecimalString operator where the resulting string length was incorrectly calculated. The length is now calculated exactly, eliminating incorrect AE\_STRING\_LIMIT exceptions.

Fixed a problem in the ToHexString operator to allow a maximum 200 character string to be produced.

Fixed a problem in the internal string-to-buffer and buffer-to-buffer copy routine where the length of the resulting buffer was not truncated to the new size (if the target buffer already existed).

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.  
Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 164.7K Code, 68.5K Data, 233.2K Total

Current Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 165.3K Code, 69.4K Data, 234.7K Total

2) iASL Compiler/Disassembler:

Implemented the new ACPI 3.0 resource template macros - DWordSpace, ExtendedIO, ExtendedMemory, ExtendedSpace, QWordSpace, and WordSpace. Includes support in the disassembler.

Implemented support for the new (ACPI 3.0) parameter to the Register macro, AccessSize.

Fixed a problem where the \_HE resource name for the Interrupt macro was referencing bit 0 instead of bit 1.

Implemented check for maximum 255 interrupts in the Interrupt macro.

Fixed a problem with the predefined resource descriptor names where incorrect AML code was generated if the offset within the resource buffer was 0 or 1. The optimizer shortened the AML code to a single byte opcode but did not update the surrounding package lengths.

Changes to the Dma macro: All channels within the channel list must be in the range 0-7. Maximum 8 channels can be specified. BusMaster operand is optional (default is BusMaster).

Implemented check for maximum 7 data bytes for the VendorShort macro.

The ReadWrite parameter is now optional for the Memory32 and similar macros.

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03 December 2004. Summary of changes for version 20041203:

1) ACPI CA Core Subsystem:

The low-level field insertion/extraction code (exfldio) has been completely rewritten to eliminate unnecessary complexity, bugs, and boundary conditions.

Fixed a problem in the ToInteger, ToBuffer, ToHexString, and ToDecimalString operators where the input operand could be inadvertently deleted if no conversion was necessary (e.g., if the input to ToInteger was an Integer object.)

Fixed a problem with the ToDecimalString and ToHexString

where an  
incorrect  
exception code was returned if the resulting string would be > 200 chars.  
AE\_STRING\_LIMIT is now returned.

Fixed a problem with the Concatenate operator where AE\_OK was always  
returned, even if the operation failed.

Fixed a problem in oswinxf (used by AcpiExec and iASL) to allow > 128  
semaphores to be allocated.

Code and Data Size: Current and previous core subsystem library sizes are  
shown below. These are the code and data sizes for the acpica.lib  
produced  
by the Microsoft Visual C++ 6.0 compiler, and these values do not include  
any ACPI driver or OSPM code. The debug version of the code includes the  
debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler  
and  
the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.5K Code, 11.5K Data, 90.0K Total

Debug Version: 165.2K Code, 68.6K Data, 233.8K Total

Current Release:

Non-Debug Version: 78.3K Code, 11.5K Data, 89.8K Total

Debug Version: 164.7K Code, 68.5K Data, 233.2K Total

2) iASL Compiler/Disassembler:

Fixed typechecking for the ObjectType and SizeOf operators. Problem was  
recently introduced in 20041119.

Fixed a problem with the ToUUID macro where the upper nybble of each  
buffer  
byte was inadvertently set to zero.

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19 November 2004. Summary of changes for version 20041119:

1) ACPI CA Core Subsystem:

Fixed a problem in the internal ConvertToInteger routine where new  
integers  
were not truncated to 32 bits for 32-bit ACPI tables. This routine  
converts

buffers and strings to integers.

Implemented support to store a value to an Index() on a String object. This is an ACPI 2.0 feature that had not yet been implemented.

Implemented new behavior for storing objects to individual package elements (via the Index() operator). The previous behavior was to invoke the implicit conversion rules if an object was already present at the index. The new behavior is to simply delete any existing object and directly store the new object. Although the ACPI specification seems unclear on this subject, other ACPI implementations behave in this manner. (This is the root of the AE\_BAD\_HEX\_CONSTANT issue.)

Modified the RSDP memory scan mechanism to support the extended checksum for ACPI 2.0 (and above) RSDPs. Note that the search continues until a valid RSDP signature is found with a valid checksum.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.5K Code, 11.5K Data, 90.0K Total

Debug Version: 165.2K Code, 68.6K Data, 233.8K Total

Current Release:

Non-Debug Version: 78.5K Code, 11.5K Data, 90.0K Total

Debug Version: 165.2K Code, 68.6K Data, 233.8K Total

2) iASL Compiler/Disassembler:

Fixed a missing semicolon in the aslcompiler.y file.

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05 November 2004. Summary of changes for version 20041105:

1) ACPI CA Core Subsystem:

Implemented support for FADT revision 2. This was an interim table (between ACPI 1.0 and ACPI 2.0) that adds support for the FADT reset register.

Implemented optional support to allow uninitialized LocalX and ArgX variables in a control method. The variables are initialized to an Integer object with a value of zero. This support is enabled by setting the AcpiGbl\_EnableInterpreterSlack flag to TRUE.

Implemented support for Integer objects for the SizeOf operator. Either 4 or 8 is returned, depending on the current integer size (32-bit or 64-bit, depending on the parent table revision).

Fixed a problem in the implementation of the SizeOf and ObjectType operators where the operand was resolved to a value too early, causing incorrect return values for some objects.

Fixed some possible memory leaks during exceptional conditions.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.  
Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K

Total

Debug Version: 164.8K Code, 68.6K Data, 233.4K Total

Current Release:

Non-Debug Version: 78.5K Code, 11.5K Data, 90.0K Total

Debug Version: 165.2K Code, 68.6K Data, 233.8K Total



## 2) iASL Compiler/Disassembler:

Implemented support for all ACPI 3.0 reserved names and methods.

Implemented all ACPI 3.0 grammar elements in the front-end, including support for semicolons.

Implemented the ACPI 3.0 Function() and ToUUID() macros

Fixed a problem in the disassembler where a Scope() operator would not be emitted properly if the target of the scope was in another table.

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15 October 2004. Summary of changes for version 20041015:

Note: ACPI CA is currently undergoing an in-depth and complete formal evaluation to test/verify the following areas. Other suggestions are welcome. This will result in an increase in the frequency of releases and the number of bug fixes in the next few months.

- Functional tests for all ASL/AML operators
- All implicit/explicit type conversions
- Bit fields and operation regions
- 64-bit math support and 32-bit-only "truncated" math support
- Exceptional conditions, both compiler and interpreter
- Dynamic object deletion and memory leaks
- ACPI 3.0 support when implemented
- External interfaces to the ACPI subsystem

## 1) ACPI CA Core Subsystem:

Fixed two alignment issues on 64-bit platforms - within debug statements in AcpiEvGpeDetect and AcpiEvCreateGpeBlock. Removed references to the Address field within the non-aligned ACPI generic address structure.

Fixed a problem in the Increment and Decrement operators where incorrect operand resolution could result in the inadvertent modification of the original integer when the integer is passed into another method as an argument and the arg is then incremented/decremented.

Fixed a problem in the FromBCD operator where the upper 32-bits of a 64-bit BCD number were truncated during conversion.

Fixed

a problem in the ToDecimal operator where the length of the resulting string could be set incorrectly too long if the input operand was a Buffer object.

Fixed a problem in the Logical operators (LLess, etc.) where a NULL byte (0) within a buffer would prematurely terminate a compare between buffer objects.

Added a check for string overflow (>200 characters as per the ACPI specification) during the Concatenate operator with two string operands.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.  
Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug

Version: 77.8K Code, 11.5K Data, 89.3K Total

Debug Version: 164.6K Code, 68.5K Data, 233.1K Total

Current Release:

Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K Total

Debug Version: 164.8K Code, 68.6K Data, 233.4K Total

2) iASL Compiler/Disassembler:

Allow the use of the ObjectType operator on uninitialized Locals and Args (returns 0 as per the ACPI specification).

Fixed a problem where the compiler would fault if there was a syntax error in the FieldName of all of the various CreateXXXField operators.

Disallow the use of lower case letters within the EISAID macro, as per the ACPI specification. All EISAID strings must be of the form "UUUNNNN"

Where

U is an uppercase letter and N is a hex digit.

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06 October 2004. Summary of changes for version 20041006:

1) ACPI CA Core Subsystem:

Implemented support for the ACPI 3.0 Timer operator. This ASL function implements a 64-bit timer with 100 nanosecond granularity.

Defined a new OSL interface, AcpiOsGetTimer. This interface is used to implement the ACPI 3.0 Timer operator. This allows the host OS to implement the timer with the best clock available. Also, it keeps the core subsystem out of the clock handling business, since the host OS (usually) performs this function.

Fixed an alignment issue on 64-bit platforms. The HwLowLevelRead(Write) functions use a 64-bit address which is part of the packed ACPI Generic Address Structure. Since the structure is non-aligned, the alignment macros are now used to extract the address to a local variable before use.

Fixed a problem where the ToInteger operator assumed all input strings were hexadecimal. The operator now handles both decimal strings and hex strings (prefixed with "0x").

Fixed a problem where the string length in the string object created as a result of the internal ConvertToString procedure could be incorrect. This potentially affected all implicit conversions and also the ToDecimalString and ToHexString operators.

Fixed two problems in the ToString operator. If the length parameter was zero, an incorrect string object was created and the value of the input length parameter was inadvertently changed from zero to Ones.

Fixed a problem where the optional ResourceSource string in the ExtendedIRQ resource macro was ignored.

Simplified the interfaces to the internal division functions, reducing code size and complexity.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.9K Code, 11.4K Data, 89.3K Total

Debug Version: 164.5K Code, 68.3K Data, 232.8K Total

Current Release:

Non-Debug Version: 77.8K Code, 11.5K Data, 89.3K Total

Debug Version: 164.6K Code, 68.5K Data, 233.1K Total

## 2) iASL Compiler/Disassembler:

Implemented support for the ACPI 3.0 Timer operator.

Fixed a problem where the Default() operator was inadvertently ignored in a Switch/Case block. This was a problem in the translation of the Switch statement to If...Else pairs.

Added support to allow a standalone Return operator, with no parentheses (or operands).

Fixed a problem with code generation for the ElseIf operator where the translated Else...If parse tree was improperly constructed leading to the loss of some code.

-----  
22 September 2004. Summary of changes for version 20040922:

### 1) ACPI CA Core Subsystem:

Fixed a problem with the implementation of the LNot() operator where

"Ones"

was not returned for the TRUE case. Changed the code to return Ones instead of (!Arg) which was usually 1. This change affects iASL constant folding for this operator also.

Fixed a problem in AcpiUtInitializeBuffer where an existing buffer was not initialized properly -- Now zero the entire buffer in this case where the buffer already exists.

Changed the interface to AcpiOsSleep from (UINT32 Seconds, UINT32 Milliseconds) to simply (ACPI\_INTEGER Milliseconds). This simplifies all related code considerably. This will require changes/updates to all OS interface layers (OSLs.)

Implemented a new external interface, AcpiInstallExceptionHandler, to allow a system exception handler to be installed. This handler is invoked upon any run-time exception that occurs during control method execution.

Added support for the DSDT in AcpiTbFindTable. This allows the DataTableRegion() operator to access the local copy of the DSDT.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.8K Code, 11.4K Data, 89.2K Total

Debug Version: 164.2K Code, 68.2K Data, 232.4K Total

Current Release:

Non-Debug Version: 77.9K Code, 11.4K Data, 89.3K Total

Debug Version: 164.5K Code, 68.3K Data, 232.8K Total

2) iASL Compiler/Disassembler:

Fixed a problem with constant folding and the LNot operator. LNot was

returning 1 in the TRUE case, not Ones as per the ACPI specification.

This

could result in the generation of an incorrect folded/reduced constant.

End-Of-File

is now allowed within a "/\*"-style comment. A parse error no longer occurs if such a comment is at the very end of the input ASL source file.

Implemented the "-r" option to override the Revision in the table header.

The initial use of this option will be to simplify the evaluation of the AML

interpreter by allowing a single ASL source module to be compiled for either

32-bit or 64-bit integers.

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27 August 2004. Summary of changes for version 20040827:

1) ACPI CA Core Subsystem:

- Implemented support for implicit object conversion in the non-numeric logical operators (LEqual, LGreater, LGreaterEqual, LLess, LLessEqual, and LNotEqual.) Any combination of Integers/Strings/Buffers may now be used; the second operand is implicitly converted on the fly to match the type of the first operand. For example:

LEqual (Source1, Source2)

Source1 and Source2 must each evaluate to an integer, a string, or a buffer.

The

data type of Source1 dictates the required type of Source2. Source2 is

implicitly converted if necessary to match the type of Source1.

- Updated and corrected the behavior of the string conversion support.

The

rules concerning conversion of buffers to strings (according to the ACPI specification) are as follows:

ToDecimalString - explicit byte-wise conversion of buffer to string of decimal values (0-255) separated by commas. ToHexString - explicit byte-wise

conversion of buffer to string of hex values (0-FF) separated by commas.  
ToString - explicit byte-wise conversion of buffer to string. Byte-by-byte  
copy with no transform except NULL terminated. Any other implicit buffer-to-  
string conversion - byte-wise conversion of buffer to string of hex  
values  
(0-FF) separated by spaces.

- Fixed typo in definition of AcpiGbl\_EnableInterpreterSlack.

- Fixed a problem in AcpiNsGetPathnameLength where the returned length was  
one byte too short in the case of a node in the  
root scope. This could  
cause a fault during debug output.

- Code and Data Size: Current and previous core subsystem library sizes  
are  
shown below. These are the code and data sizes for the acpica.lib  
produced  
by the Microsoft Visual C++ 6.0 compiler, and these values do not include  
any ACPI driver or OSPM code. The debug version of the code includes the  
debug output trace mechanism and has a much larger code and data size.  
Note  
that these values will vary depending on the efficiency of the compiler  
and  
the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.9K Code, 11.5K Data, 89.4K Total

Debug Version: 164.1K Code, 68.3K Data, 232.4K Total

Current Release:

Non-Debug Version: 77.8K Code, 11.4K Data, 89.2K Total

Debug Version: 164.2K Code, 68.2K Data, 232.4K Total

2) iASL Compiler/Disassembler:

- Fixed a Linux generation error.

-----  
16 August 2004. Summary of  
changes for version 20040816:

1) ACPI CA Core Subsystem:

Designed and implemented support within the AML interpreter for the so-called "implicit return". This support returns the result of the last ASL operation within a control method, in the absence of an explicit Return() operator. A few machines depend on this behavior, even though it is not explicitly supported by the ASL language. It is optional support that can be enabled at runtime via the AcpiGbl\_EnableInterpreterSlack flag.

Removed support for the PCI\_Config address space from the internal low level hardware interfaces (AcpiHwLowLevelRead and AcpiHwLowLevelWrite). This support was not used internally, and would not work correctly anyway because the PCI bus number and segment number were not supported. There are separate interfaces for PCI configuration space access because of the unique interface.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.  
Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K Total

Debug Version: 164.1K Code, 68.2K Data, 232.3K Total

Current Release:

Non-Debug Version: 77.9K Code, 11.5K Data, 89.4K Total

Debug Version: 164.1K Code, 68.3K Data, 232.4K Total

2) iASL Compiler/Disassembler:

Fixed a problem where constants in ASL expressions at the root level (not within a control method) could be inadvertently truncated during code generation. This problem was introduced in the 20040715 release.

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15 July 2004. Summary



of changes for version 20040715:

1) ACPI CA Core Subsystem:

Restructured the internal HW GPE interfaces to pass/track the current state of interrupts (enabled/disabled) in order to avoid possible deadlock and increase flexibility of the interfaces.

Implemented a "lexicographical compare" for String and Buffer objects within the logical operators -- LGreater, LLess, LGreaterEqual, and LLessEqual - as per further clarification to the ACPI specification. Behavior is similar to C library "strcmp".

Completed a major reduction in CPU stack use for the AcpiGetFirmwareTable external function. In the 32-bit non-debug case, the stack use has been reduced from 168 bytes to 32 bytes.

Deployed a new run-time configuration flag, AcpiGbl\_EnableInterpreterSlack, whose purpose is to allow the AML interpreter to forgive certain bad AML constructs. Default setting is FALSE.

Implemented the first use of AcpiGbl\_EnableInterpreterSlack in the Field IO support code. If enabled, it allows field access to go beyond the end of a region definition if the field is within the region length rounded up to the next access width boundary (a common coding error.)

Renamed OSD\_HANDLER to ACPI\_OSD\_HANDLER, and OSD\_EXECUTION\_CALLBACK to ACPI\_OSD\_EXEC\_CALLBACK for consistency with other ACPI symbols. Also, these symbols are lowercased by the latest version of the AcpiSrc tool.

The prototypes for the PCI interfaces in acpiosxf.h have been updated to rename "Register" to simply "Reg" to prevent certain compilers from complaining.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include

any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.8K Code, 11.5K Data, 89.3K Total

Debug Version: 163.8K Code, 68.2K Data, 232.0K Total

Current Release:

Non-Debug Version: 78.0K Code, 11.5K Data, 89.5K Total

Debug Version: 164.1K Code, 68.2K Data, 232.3K Total

## 2) iASL Compiler/Disassembler:

Implemented full support for Package objects within the Case() operator.

Note: The Break() operator is currently not supported within Case blocks (TermLists) as there is some question about backward compatibility with ACPI

1.0 interpreters.

Fixed a problem where complex terms were not supported properly within the Switch() operator.

Eliminated extraneous warning for compiler-emitted reserved names of the form "\_T\_x". (Used in Switch/Case operators.)

Eliminated optimization messages for "\_T\_x" objects and small constants within the DefinitionBlock operator.

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15

June 2004. Summary of changes for version 20040615:

### 1) ACPI CA Core Subsystem:

Implemented support for Buffer and String objects (as per ACPI 2.0) for the following ASL operators: LEqual, LGreater, LLess, LGreaterEqual, and LLessEqual.

All directory names in the entire source package are lower case, as they

were in earlier releases.

Implemented "Disassemble" command in the AML debugger that will disassemble a single control method.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug

Version: 77.7K Code, 11.5K Data, 89.2K Total

Debug Version: 163.3K Code, 67.2K Data, 230.5K Total

Current Release:

Non-Debug Version: 77.8K Code, 11.5K Data, 89.3K Total

Debug Version: 163.8K Code, 68.2K Data, 232.0K Total

2) iASL Compiler/Disassembler:

Implemented support for Buffer and String objects (as per ACPI 2.0) for the following ASL operators: LEqual, LGreater, LLess, LGreaterEqual, and LLessEqual.

All directory names in the entire source package are lower case, as they were in earlier releases.

Fixed a fault when using the -g or -d<nofilename> options if the FADT was not found.

Fixed an issue with the Windows version of the compiler where later versions of Windows place the FADT in the registry under the name "FADT" and not "FACP" as earlier versions did. This applies when using the -g or -d<nofilename> options. The compiler now looks for both strings as necessary.

Fixed a problem with compiler namepath optimization where

a namepath  
within  
the Scope() operator could not be optimized if the namepath was a subpath  
of  
the current scope path.

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27 May 2004. Summary of changes for version 20040527:

1) ACPI CA Core Subsystem:

Completed a new design and implementation for EBDA (Extended BIOS Data Area) support in the RSDP scan code. The original code improperly scanned for the EBDA by simply scanning from memory location 0 to 0x400. The correct method is to first obtain the EBDA pointer from within the BIOS data area, then scan 1K of memory starting at the EBDA pointer. There appear to be few if any machines that place the RSDP in the EBDA, however.

Integrated a fix for a possible fault during evaluation of BufferField arguments. Obsolete code that was causing the problem was removed.

Found and fixed a problem in the Field Support Code where data could be corrupted on a bit field read that starts on an aligned boundary but does not end on an aligned boundary. Merged the read/write "datum length" calculation code into a common procedure.

Rolled in a couple of changes to the FreeBSD-specific header.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.6K Code, 11.5K Data, 89.1K Total

Debug Version: 163.2K Code, 67.2K Data, 230.4K Total

Current Release:

Non-Debug Version: 77.7K Code, 11.5K Data, 89.2K Total

Debug Version: 163.3K Code, 67.2K Data, 230.5K Total

## 2) iASL Compiler/Disassembler:

Fixed

a generation warning produced by some overly-verbose compilers for  
a  
64-bit constant.

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14 May 2004. Summary of changes for version 20040514:

### 1) ACPI CA Core Subsystem:

Fixed a problem where hardware GPE enable bits sometimes not set properly during and after GPE method execution. Result of 04/27 changes.

Removed extra "clear all GPEs" when sleeping/waking.

Removed AcpiHwEnableGpe and AcpiHwDisableGpe, replaced by the single AcpiHwWriteGpeEnableReg. Changed a couple of calls to the functions above to the new AcpiEv\* calls as appropriate.

ACPI\_OS\_NAME was removed from the OS-specific headers. The default name is now "Microsoft Windows NT" for maximum compatibility. However this can be changed by modifying the acconfig.h file.

Allow a single invocation of AcpiInstallNotifyHandler for a handler that traps both types of notifies (System, Device). Use ACPI\_ALL\_NOTIFY flag.

Run \_INI methods on ThermalZone objects. This is against the ACPI specification, but there is apparently ASL code in the field that has these \_INI methods, and apparently "other" AML interpreters execute them.

Performed a full 16/32/64 bit lint that resulted in some small changes.

Added a sleep simulation command to the AML debugger to test sleep code.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib

produced

by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.6K Code, 11.5K Data, 89.1K Total

Debug Version: 162.9K Code, 67.0K Data, 229.9K Total

Current Release:

Non-Debug Version:

77.6K Code, 11.5K Data, 89.1K Total

Debug Version: 163.2K Code, 67.2K Data, 230.4K Total

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27 April 2004. Summary of changes for version 20040427:

#### 1) ACPI CA Core Subsystem:

Completed a major overhaul of the GPE handling within ACPI CA. There are now three types of GPEs: wake-only, runtime-only, and combination wake/run.

The only GPEs allowed to be combination wake/run are for button-style devices such as a control-method power button, control-method sleep button,

or a notebook lid switch. GPEs that have an `_Lxx` or `_Exx` method and are not

referenced by any `_PRW` methods are marked for "runtime" and hardware enabled. Any GPE that is referenced by a `_PRW` method is marked for "wake"

(and disabled at runtime). However, at sleep time, only those GPEs that have been specifically enabled for wake via the `AcpiEnableGpe` interface will

actually be hardware enabled.

A new external interface has been added, `AcpiSetGpeType()`,

that is meant

to

be used by device drivers to force a GPE to a particular type. It will

be

especially useful for the drivers for the button devices mentioned above.

Completed restructuring of the ACPI CA initialization sequence so that default operation region handlers are installed before GPEs are initialized

and the `_PRW` methods are executed. This will prevent errors when the `_PRW` methods attempt to access system memory or I/O space.

GPE enable/disable no longer reads the GPE enable register. We now keep the enable info for runtime and wake separate and in the `GPE_EVENT_INFO`. We thus no longer depend on the hardware to maintain these bits.

Always clear the wake status and fixed/GPE status bits before sleep, even for state S5.

Improved the AML debugger output for displaying the GPE blocks and their current status.

Added new strings for the `_OSI` method, of the form "Windows 2001 SPx" where  $x = 0,1,2,3,4$ .

Fixed a problem where the physical address was incorrectly calculated when the `Load()` operator was used to directly load from an Operation Region (vs. loading from a Field object.) Also added check for minimum table length for this case.

Fix for multiple mutex acquisition. Restore original thread `SyncLevel` on mutex release.

Added `ACPI_VALID_SXDS` flag to the `AcpiGetObjectInfo` interface for consistency with the other fields returned.

Shrunk the `ACPI_GPE_EVENT_INFO` structure by 40%. There is one such structure for each GPE in the system, so the size of this structure is important.

CPU stack requirement reduction: Cleaned up the method execution and object evaluation paths so that now a parameter structure is passed, instead of copying the various method parameters over and over again.

In `evregion.c`: Correctly exit and reenter the interpreter region if and only if dispatching an operation region request to a user-installed handler.

Do not exit/reenter when dispatching to a default handler (e.g., default system

memory or I/O handlers)

Notes for updating drivers for the new GPE support. The following changes must be made to ACPI-related device drivers that are attached to one or more GPEs: (This information will be added to the ACPI CA Programmer Reference.)

- 1) AcpiInstallGpeHandler no longer automatically enables the GPE, you must explicitly call AcpiEnableGpe.
- 2) There is a new interface called AcpiSetGpeType. This should be called before enabling the GPE. Also, this interface will automatically disable the GPE if it is currently enabled.
- 3) AcpiEnableGpe no longer supports a GPE type flag.

Specific drivers that must be changed:

1) EC driver:

```
AcpiInstallGpeHandler (NULL, GpeNum, ACPI_GPE_EDGE_TRIGGERED,
AeGpeHandler, NULL);
AcpiSetGpeType (NULL, GpeNum, ACPI_GPE_TYPE_RUNTIME);
AcpiEnableGpe (NULL, GpeNum, ACPI_NOT_ISR);
```

2) Button Drivers (Power, Lid, Sleep):

Run \_PRW method under parent device

If \_PRW exists: /\* This is a control-method button \*/

```
Extract GPE
number and possibly GpeDevice
AcpiSetGpeType (GpeDevice, GpeNum, ACPI_GPE_TYPE_WAKE_RUN);
AcpiEnableGpe (GpeDevice, GpeNum, ACPI_NOT_ISR);
```

For all other devices that have \_PRWs, we automatically set the GPE type to ACPI\_GPE\_TYPE\_WAKE, but the GPE is NOT automatically (wake) enabled. This must be done on a selective basis, usually requiring some kind of user app to allow the user to pick the wake devices.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.



Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 77.0K Code, 11.4K Data,  
88.4K Total

Debug Version: 161.0K Code, 66.3K Data, 227.3K Total

Current Release:

Non-Debug Version: 77.6K Code, 11.5K Data, 89.1K Total

Debug Version: 162.9K Code, 67.0K Data, 229.9K Total

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02 April 2004. Summary of changes for version 20040402:

1) ACPI CA Core Subsystem:

Fixed an interpreter problem where an indirect store through an ArgX parameter was incorrectly applying the "implicit conversion rules" during the store. From the ACPI specification: "If the target is a method local or argument (LocalX or ArgX), no conversion is performed and the result is stored directly to the target". The new behavior is to disable implicit conversion during ALL stores to an ArgX.

Changed the behavior of the \_PRW method scan to ignore any and all errors returned by a given \_PRW. This prevents the scan from aborting from the failure of any single \_PRW.

Moved the runtime configuration parameters from the global init procedure to static variables in acglobal.h. This will allow the host to override the default values easily.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size.

Note

that these values will vary depending on the efficiency of the compiler and

the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.9K Code, 11.4K Data, 88.3K Total

Debug Version: 160.8K Code, 66.1K Data, 226.9K Total

Current Release:

Non-Debug Version: 77.0K Code, 11.4K Data, 88.4K Total

Debug Version: 161.0K Code, 66.3K Data, 227.3K Total

2) iASL Compiler/Disassembler:

iASL now fully disassembles SSDTs. However, External()

statements are

not

generated automatically for unresolved symbols at this time. This is a planned feature for future implementation.

Fixed a scoping problem in the disassembler that occurs when the type of the

target of a Scope() operator is overridden. This problem caused an incorrectly nested internal namespace to be constructed.

Any warnings or errors that are emitted during disassembly are now commented

out automatically so that the resulting file can be recompiled without any

hand editing.

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26 March 2004. Summary of changes for version 20040326:

1) ACPI CA Core Subsystem:

Implemented support for "wake" GPEs via interaction between GPEs and the \_PRW methods. Every GPE that is pointed to by one or more \_PRWs is identified as a WAKE GPE and by default will no longer be enabled at runtime. Previously, we were blindly enabling all GPEs with a corresponding

\_Lxx or \_Exx method - but most of these turn out to be WAKE GPEs anyway.

We

believe this has been the cause of thousands of "spurious" GPEs on some systems.

This new GPE behavior is can be reverted to the original behavior (enable ALL GPEs at runtime) via a runtime flag.

Fixed a problem where aliased control methods could not access objects properly. The proper scope within the namespace was not initialized (transferred to the target of the aliased method) before executing the target method.

Fixed a potential race condition on internal object deletion on the return object in AcpiEvaluateObject.

Integrated a fix for resource descriptors where both \_MEM and \_MTP were being extracted instead of just \_MEM. (i.e. bitmask was incorrectly too wide, 0x0F instead of 0x03.)

Added a special case for ACPI\_ROOT\_OBJECT in AcpiUtGetNodeName, preventing a fault in some cases.

Updated Notify() values for debug statements in evmisc.c

Return proper status from AcpiUtMutexInitialize, not just simply AE\_OK.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 76.5K Code, 11.3K Data, 87.8K Total

Debug Version: 160.3K Code, 66.0K Data, 226.3K Total

Current Release:

Non-Debug Version: 76.9K Code, 11.4K Data, 88.3K Total

Debug Version: 160.8K Code, 66.1K Data, 226.9K Total

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11 March 2004. Summary of changes for version 20040311:

1) ACPI CA Core Subsystem:

Fixed a problem where errors occurring during the parse phase of control

method execution did not abort cleanly. For example, objects created and installed in the namespace were not deleted. This caused all subsequent invocations of the method to return the AE\_ALREADY\_EXISTS exception.

Implemented a mechanism to force a control method to "Serialized" execution if the method attempts to create namespace objects. (The root of the AE\_ALREADY\_EXISTS problem.)

Implemented support for the predefined \_OSI "internal" control method. Initial supported strings are "Linux", "Windows 2000", "Windows 2001", and "Windows 2001.1", and can be easily upgraded for new strings as necessary. This feature will allow "other" operating systems to execute the fully tested, "Windows" code path through the ASL code

Global Lock Support: Now allows multiple acquires and releases with any internal thread. Removed concept of "owning thread" for this special mutex.

Fixed two functions that were inappropriately declaring large objects on the CPU stack: PsParseLoop, NsEvaluateRelative. Reduces the stack usage during method execution considerably.

Fixed a problem in the ACPI 2.0 FACS descriptor (actbl2.h) where the S4Bios\_f field was incorrectly defined as UINT32 instead of UINT32\_BIT.

Fixed a problem where AcpiEvGpeDetect would fault if there were no GPEs defined on the machine.

Implemented two runtime options: One to force all control method execution to "Serialized" to mimic Windows behavior, another to disable \_OSI support if it causes problems on a given machine.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note

that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 74.8K Code, 10.1K Data, 84.9K Total

Debug Version: 158.7K Code, 65.1K Data, 223.8K Total

Current Release:

Non-Debug Version: 76.5K Code, 11.3K Data, 87.8K Total

Debug Version: 160.3K Code, 66.0K Data, 226.3K Total

2) iASL Compiler/Disassembler:

Fixed an array size problem for FreeBSD that would cause the compiler to fault.

-----  
20 February 2004. Summary of changes for version 20040220:

1) ACPI CA Core Subsystem:

Implemented execution of `_SxD` methods for Device objects in the `GetObjectInfo` interface.

Fixed calls to `_SST` method to pass the correct arguments.

Added a call to `_SST` on wake to restore to "working" state.

Check for End-Of-Buffer failure case in the `WalkResources` interface.

Integrated fix for 64-bit alignment issue in `acglobal.h` by moving two structures to the beginning of the file.

After wake, clear GPE status register(s) before enabling GPEs.

After

wake, clear/enable power button. (Perhaps we should clear/enable all fixed events upon wake.)

Fixed a couple of possible memory leaks in the Namespace manager.

Integrated latest `acnetbsd.h` file.

-----  
11 February 2004. Summary of changes for version 20040211:

1) ACPI CA Core Subsystem:

Completed investigation and implementation of the call-by-reference mechanism for control method arguments.

Fixed a problem where a store of an object into an indexed package could fail if the store occurs within a different method than the method that created the package.

Fixed a problem where the ToDecimal operator could return incorrect results.

Fixed a problem where the CopyObject operator could fail on some of the more obscure objects (e.g., Reference objects.)

Improved the output of the Debug object to display buffer, package, and index objects.

Fixed a problem where constructs of the form "RefOf (ArgX)" did not return the expected result.

Added permanent ACPI\_REPORT\_ERROR macros for all instances of the ACPI\_AML\_INTERNAL exception.

Integrated latest version of acfreebsd.h

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16 January 2004. Summary of changes for version 20040116:

The purpose of this release is primarily to update the copyright years in each module, thus causing a huge number of diffs. There are a few small functional changes, however.

1) ACPI CA Core Subsystem:

Improved error messages when there is a problem finding one or more of the required base ACPI tables

Reintroduced the definition of APIC\_HEADER in actbl.h

Changed definition of MADT\_ADDRESS\_OVERRIDE to 64 bits (actbl.h)

Removed extraneous reference to NewObj in dsmtthdat.c

## 2) iASL compiler

Fixed a problem introduced in December that disabled the correct disassembly of Resource Templates

-----  
03 December 2003. Summary of changes for version 20031203:

### 1) ACPI CA Core Subsystem:

Changed the initialization of Operation Regions during subsystem init to perform two entire walks of the ACPI namespace; The first to initialize the regions themselves, the second to execute the \_REG methods. This fixed some interdependencies across \_REG methods found on some machines.

Fixed a problem where a Store(Local0, Local1) could simply update the object reference count, and not create a new copy of the object if the Local1 is uninitialized.

Implemented support for the \_SST reserved method during sleep transitions.

Implemented support to clear the SLP\_TYP and SLP\_EN bits when waking up, this is apparently required by some machines.

When sleeping, clear the wake status only if SleepState is not S5.

Fixed a problem in AcpiRsExtendedIrqResource() where an incorrect pointer arithmetic advanced a string pointer too far.

Fixed a problem in AcpiTbGetTablePtr() where a garbage pointer could be returned if the requested table has not been loaded.

Within the support for IRQ resources, restructured the handling of the active and edge/level bits.

Fixed a few problems in AcpiPsxExecute() where memory could be leaked under certain error conditions.

Improved error messages for the cases where the ACPI mode could not be entered.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (20031029):

Non-Debug Version: 74.4K Code, 10.1K Data, 84.5K Total

Debug Version: 158.3K Code, 65.0K Data, 223.3K Total

Current Release:

Non-Debug Version: 74.8K Code, 10.1K Data, 84.9K Total

Debug Version: 158.7K

Code, 65.1K Data, 223.8K Total

2) iASL Compiler/Disassembler:

Implemented a fix for the iASL disassembler where a bad index was generated. This was most noticeable on 64-bit platforms

-----  
29 October 2003. Summary of changes for version 20031029:

1) ACPI CA Core Subsystem:

Fixed a problem where a level-triggered GPE with an associated \_Lxx control method was incorrectly cleared twice.

Fixed a problem with the Field support code where an access can occur beyond the end-of-region if the field is non-aligned but extends to the very end of the parent region (resulted in an AE\_AML\_REGION\_LIMIT exception.)

Fixed a problem with ACPI Fixed Events where an RT Clock handler would not get invoked on an RTC event. The RTC event bitmasks for the PM1 registers were not being initialized properly.

Implemented support for executing \_STA and \_INI methods for Processor objects. Although this is currently not part of the ACPI specification, there is existing ASL code that depends on the init-time execution of these methods.

Implemented and deployed a GetDescriptorName function to decode



the various types of internal descriptors. Guards against null descriptors during debug output also.

Implemented and deployed a GetNodeName function to extract the 4-character namespace node name. This function simplifies the debug and error output, as well as guarding against null pointers during output.

Implemented and deployed the ACPI\_FORMAT\_UINT64 helper macro to simplify the debug and error output of 64-bit integers. This macro replaces the HIDWORD and LODWORD macros for dumping these integers.

Updated the implementation of the Stall() operator to only call AcpiOsStall(), and also return an error if the operand is larger than 255. This preserves the required behavior of not relinquishing the processor, as would happen if AcpiOsSleep() was called for "long stalls".

Constructs of the form "Store(LocalX,LocalX)" where LocalX is not initialized are now treated as NOOPs.

Cleaned up a handful of warnings during 64-bit generation.

Fixed a reported error where and incorrect GPE number was passed to the GPE dispatch handler. This value is only used for error output, however. Used this opportunity to clean up and streamline the GPE dispatch code.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The

debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (20031002):

Non-Debug Version: 74.1K Code, 9.7K Data, 83.8K Total

Debug Version: 157.9K Code, 64.8K Data, 222.7K Total

Current Release:

Non-Debug

Version: 74.4K Code, 10.1K Data, 84.5K Total

Debug Version: 158.3K Code, 65.0K Data, 223.3K Total

## 2) iASL Compiler/Disassembler:

Updated the iASL compiler to return an error if the operand to the Stall() operator is larger than 255.

-----  
02 October 2003. Summary of changes for version 20031002:

### 1) ACPI CA Core Subsystem:

Fixed a problem with Index Fields where the index was not incremented for fields that require multiple writes to the index/data registers (Fields that are wider than the data register.)

Fixed a problem with all Field objects where a write could go beyond the end-of-field if the field was larger than the access granularity and therefore required multiple writes to complete the request. An extra write beyond the end of the field could happen inadvertently.

Fixed a problem with Index Fields where a BUFFER\_OVERFLOW error would incorrectly be returned if the width of the Data Register was larger than the specified field access width.

Completed fixes for LoadTable() and Unload() and verified their operation. Implemented full support for the "DdbHandle" object throughout the ACPI CA subsystem.

Implemented full support for the MADT and ECDDT tables in the ACPI CA header files. Even though these tables are not directly consumed by ACPI CA, the header definitions are useful for ACPI device drivers.

Integrated resource descriptor fixes posted to the Linux ACPI list. This included checks for minimum descriptor length, and support for trailing NULL strings within descriptors that have optional string elements.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace

mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (20030918):

Non-Debug Version: 73.9K Code, 9.7K Data, 83.6K Total

Debug Version: 157.3K Code, 64.5K Data, 221.8K Total

Current Release:

Non-Debug Version: 74.1K Code, 9.7K Data, 83.8K Total

Debug Version: 157.9K Code, 64.8K Data, 222.7K Total

## 2) iASL Compiler:

Implemented detection of non-ASCII characters within the input source ASL file. This catches attempts to compile binary (AML) files early in the compile, with an informative error message.

Fixed a problem where the disassembler would fault if the output filename could not be generated or if the output file could not be opened.

-----  
18 September 2003. Summary of changes for version 20030918:

### 1) ACPI CA Core Subsystem:

Found and fixed a longstanding problem with the late execution of the various deferred AML opcodes (such as Operation Regions, Buffer Fields, Buffers, and Packages). If the name string specified for the name of the new object placed the object in a scope other than the current scope, the initialization/execution of the opcode failed. The solution to this problem was to implement a mechanism where the late execution of such opcodes does not attempt to lookup/create the name a second time in an incorrect scope. This fixes the "region size computed incorrectly" problem.

Fixed a call to AcpiHwRegisterWrite in hwregs.c that was causing a Global Lock AE\_BAD\_PARAMETER error.

Fixed several 64-bit issues with prototypes, casting and data types.

Removed duplicate prototype from acdisasm.h

Fixed an issue involving EC Operation Region Detach (Shaohua Li)

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib` produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release:

Non-Debug Version: 73.7K Code, 9.7K Data, 83.4K Total

Debug Version: 156.9K Code, 64.2K Data, 221.1K Total

Current Release:

Non-Debug Version: 73.9K Code, 9.7K Data, 83.6K Total

Debug Version: 157.3K Code, 64.5K Data, 221.8K Total

2) Linux:

Fixed the `AcpiOsSleep` implementation in `osunixxf.c` to pass the correct sleep time in seconds.

-----  
14 July 2003. Summary of changes for version 20030619:

1) ACPI CA Core Subsystem:

Parse SSDTs in order discovered, as opposed to reverse order (Hrvoje Habjanic)

Fixes from FreeBSD and NetBSD. (Frank van der Linden, Thomas Klausner, Nate Lawson)

2) Linux:

Dynamically allocate SDT list (suggested by Andi Kleen)

proc function return value cleanups (Andi Kleen)

Correctly handle NMI watchdog during long stalls (Andrew Morton)

Make it so acpism=force works (reported by Andrew Morton)

-----  
19 June 2003. Summary of changes for version 20030619:

1) ACPI CA Core Subsystem:

Fix To/FromBCD, eliminating the need for an arch-specific #define.

Do not acquire a semaphore in the S5 shutdown path.

Fix ex\_digits\_needed for 0. (Takayoshi Kochi)

Fix sleep/stall code reversal. (Andi Kleen)

Revert a change having to do with control method calling semantics.

2) Linux:

acpiphp update (Takayoshi Kochi)

Export acpi\_disabled for sonypi (Stelian Pop)

Mention acpism=force in config help

Re-add acpitable.c and acpism=force. This improves backwards

compatibility and also cleans up the code to a significant degree.

Add ASUS Value-add driver (Karol Kozimor and Julien Lerouge)

-----  
22 May 2003. Summary of changes  
for version 20030522:

1) ACPI CA Core Subsystem:

Found and fixed a reported problem where an AE\_NOT\_FOUND error occurred occasionally during \_BST evaluation. This turned out to be an Owner ID allocation issue where a called method did not get a new ID assigned to it. Eventually, (after 64k calls), the Owner ID UINT16 would wraparound so that the ID would be the same as the caller's and the called method would delete the caller's namespace.

Implemented extended error reporting for control methods that are aborted due to a run-time exception. Output includes the exact AML instruction that caused the method abort, a dump of the method locals and arguments at the time of the abort, and a trace of all nested control method calls.

Modified the interpreter to allow the creation of buffers of zero length from the AML code. Implemented new code to ensure that no attempt is made to actually allocate a memory buffer (of length zero) - instead, a simple buffer object with a NULL buffer pointer and length zero is created. A warning is no longer issued when the AML attempts to create a zero-length buffer.

Implemented a workaround for the "leading asterisk issue" in `_HIDs`, `_UIDs`, and `_CIDs` in the AML interpreter. One leading asterisk is automatically removed if present in any HID, UID, or CID strings. The iASL compiler will still flag this asterisk as an error, however.

Implemented full support for `_CID` methods that return a package of multiple CIDs (Compatible IDs). The `AcpiGetObjectInfo()` interface now additionally returns a device `_CID` list if present. This required a change to the external interface in order to pass an `ACPI_BUFFER` object as a parameter since the `_CID` list is of variable length.

Fixed a problem with the new `AE_SAME_HANDLER` exception where handler initialization code did not know about this exception.

Code and Data Size: Current and previous core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib` produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (20030509):

Non-Debug Version: 73.4K Code, 9.7K Data, 83.1K Total

Debug Version: 156.1K Code, 63.9K Data, 220.0K Total

Current Release:

Non-Debug Version: 73.7K Code, 9.7K Data, 83.4K Total

Debug Version: 156.9K Code, 64.2K Data, 221.1K Total

## 2) Linux:

Fixed a bug in which we would reinitialize the ACPI interrupt after it was already working, thus disabling all ACPI and the IRQs for any other device sharing the interrupt. (Thanks to Stian Jordet)

Toshiba driver update (John Belmonte)

Return only 0 or 1 for our interrupt handler status (Andrew Morton)

## 3) iASL Compiler:

Fixed a reported problem where multiple (nested) ElseIf() statements were not handled correctly by the compiler, resulting in incorrect warnings and incorrect AML code. This was a problem in both the ASL parser and the code generator.

## 4) Documentation:

Added changes to existing interfaces, new exception codes, and new text concerning reference count object management versus garbage collection.

-----  
09 May 2003. Summary of changes for version 20030509.

### 1) ACPI CA Core Subsystem:

Changed the subsystem initialization sequence to hold off installation of address space handlers until the hardware has been initialized and the system has entered ACPI mode. This is because the installation of space handlers can cause \_REG methods to be run. Previously, the \_REG methods could potentially be run before ACPI mode was enabled.

Fixed some memory leak issues related to address space handler and notify handler installation. There were some problems with the reference

count mechanism caused by the fact that the handler objects are shared across several namespace objects.

Fixed a reported problem where reference counts within the

namespace were not properly updated when named objects created by method execution were deleted.

Fixed a reported problem where multiple SSDTs caused a deletion issue during subsystem termination. Restructured the table data structures to simplify the linked lists and the related code.

Fixed a problem where the table ID associated with secondary tables (SSDTs) was not being propagated into the namespace objects created by those tables. This would only present a problem for tables that are unloaded at run-time, however.

Updated AcpiOsReadable and AcpiOsWritable to use the ACPI\_SIZE type as the length parameter (instead of UINT32).

Solved a long-standing problem where an ALREADY\_EXISTS error appears on various systems. This problem could happen when there are multiple PCI\_Config operation regions under a single PCI root bus. This doesn't happen very frequently, but there are some systems that do this in the ASL.

Fixed a reported problem where the internal DeleteNode function was incorrectly handling the case where a namespace node was the first in the parent's child list, and had additional peers (not the only child, but first in the list of children.)

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 73.7K Code, 9.5K Data, 83.2K Total

Debug Version: 156.1K Code, 63.6K Data, 219.7K Total

#### Current Release:

Non-Debug Version: 73.4K Code, 9.7K Data, 83.1K Total

Debug Version: 156.1K Code, 63.9K Data, 220.0K Total

## 2) Linux:

Allow ":" in OS override string (Ducrot Bruno)



Kobject fix (Greg KH)

### 3 iASL Compiler/Disassembler:

Fixed a problem in the generation of the C source code files (AML is emitted in C source statements for BIOS inclusion) where the Ascii dump that appears within a C comment at the end of each line could cause a compile time error if the AML sequence happens to have an open comment or close comment sequence embedded.

-----  
24 April 2003. Summary of changes for version 20030424.

#### 1) ACPI CA Core Subsystem:

Support for big-endian systems has been implemented. Most of the support has been invisibly added behind big-endian versions of the ACPI\_MOVE\_\* macros.

Fixed a problem in AcpiHwDisableGpeBlock() and AcpiHwClearGpeBlock() where an incorrect offset was passed to the low level hardware write routine. The offset parameter was actually eliminated from the low level read/write routines because they had become obsolete.

Fixed a problem where a handler object was deleted twice during the removal of a fixed event handler.

#### 2) Linux:

A fix for SMP systems with link devices was contributed by

Compaq's Dan Zink.

(2.5) Return whether we handled the interrupt in our IRQ handler. (Linux ISRs no longer return void, so we can propagate the handler return value from the ACPI CA core back to the OS.)

#### 3) Documentation:

The ACPI CA Programmer Reference has been updated to reflect new

interfaces and changes to existing interfaces.

-----  
28 March 2003. Summary of changes for version 20030328.

1) ACPI CA Core Subsystem:

The GPE Block Device support has been completed. New interfaces are AcpiInstallGpeBlock and AcpiRemoveGpeBlock. The Event interfaces (enable, disable, clear, getstatus) have been split into separate interfaces for Fixed Events and General Purpose Events (GPEs) in order to support GPE Block Devices properly.

Fixed a problem where the error message "Failed to acquire semaphore" would appear during operations on the embedded controller (EC).

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release

Non-Debug Version: 72.3K Code, 9.5K Data, 81.8K Total

Debug Version: 154.0K Code, 63.4K Data, 217.4K Total

Current Release:

Non-Debug Version: 73.7K Code, 9.5K Data, 83.2K Total

Debug Version: 156.1K Code, 63.6K Data, 219.7K Total

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28

February 2003. Summary of changes for version 20030228.

1) ACPI CA Core Subsystem:

The GPE handling and dispatch code has been completely overhauled in preparation for support of GPE Block Devices (ID ACPI0006). This affects internal data structures and code only; there should be no differences visible externally. One new file has been added, evgpeblk.c

The FADT fields GPE0\_BLK\_LEN and GPE1\_BLK\_LEN are now the only fields that are used to determine the GPE block lengths. The REGISTER\_BIT\_WIDTH field of the X\_GPEX\_BLK extended address structures are ignored. This is per the ACPI specification but it isn't very clear. The full 256 Block 0/1 GPEs are now supported (the use of REGISTER\_BIT\_WIDTH limited the number of GPEs to 128).

In the SCI interrupt handler, removed the read of the PM1\_CONTROL register to look at the SCI\_EN bit. On some machines, this read causes an SMI event and greatly slows down SCI events. (This may in fact be the cause of slow battery status response on some systems.)

Fixed a problem where a store of a NULL string to a package object could cause the premature deletion of the object. This was seen during execution of the battery \_BIF method on some systems, resulting in no battery data being returned.

Added AcpiWalkResources interface to simplify parsing of resource lists.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total

Debug Version: 153.0K Code, 62.9K Data, 215.9K Total

#### Current Release:

Non-Debug Version: 72.3K Code, 9.5K Data, 81.8K Total

Debug Version: 154.0K Code, 63.4K Data, 217.4K Total

## 2) Linux

S3 fixes (Ole Rohne)

Update ACPI PHP driver with to use new acpi\_walk\_resource API (Bjorn Helgaas)

Add S4BIOS support (Pavel Machek)

Map in entire table before performing checksum (John Stultz)

Expand the mem= cmdline to allow the specification of reserved and ACPI DATA blocks (Pavel Machek)

Never use ACPI on VISWS

Fix derive\_pci\_id (Ducrot Bruno, Alvaro Lopez)

Revert a change that allowed P\_BLK lengths to be 4 or 5. This is causing us to think that some systems support C2 when they really don't.

Do not count processor objects for non-present CPUs (Thanks to Dominik Brodowski)

### 3) iASL Compiler:

Fixed a problem where ASL include files could not be found and opened.

Added support for the \_PDC reserved name.

-----  
22 January 2003. Summary of changes for version 20030122.

### 1) ACPI CA Core Subsystem:

Added

a check for constructs of the form: Store (Local0, Local0) where Local0 is not initialized. Apparently, some BIOS programmers believe that this is a NOOP. Since this store doesn't do anything anyway, the new prototype behavior will ignore this error. This is a case where we can relax the strict checking in the interpreter in the name of compatibility.

### 2) Linux

The AcpiSrc Source Conversion Utility has been released with the Linux package for the first time. This is the utility that is used to convert the ACPI CA base source code to the Linux version.

(Both) Handle P\_BLK lengths shorter than 6 more gracefully

(Both) Move more headers to include/acpi, and delete an unused header.

(Both) Move drivers/acpi/include directory to include/acpi

(Both) Boot functions don't use cmdline, so don't pass it around

(Both) Remove include of unused header (Adrian Bunk)

(Both) acpiphp.h includes both linux/acpi.h and acpi\_bus.h. Since the former now also includes the latter, acpiphp.h only needs the one, now.

(2.5) Make it possible to select method of bios restoring after S3 resume. [=> no more ugly ifdefs] (Pavel Machek)

(2.5) Make proc write interfaces work (Pavel Machek)

(2.5) Properly init/clean up in cpufreq/acpi (Dominik Brodowski)

(2.5) Break out ACPI Perf code into its own module, under cpufreq (Dominik Brodowski)

(2.4) S4BIOS support (Ducrot Bruno)

(2.4) Fix acpiphp\_glue.c for latest ACPI struct changes (Sergio Visinoni)

3) iASL Compiler:

Added support to disassemble SSDT and PSDTs.

Implemented support to obtain SSDTs from the Windows registry if available.

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09 January 2003. Summary of changes for version 20030109.

1) ACPI CA Core Subsystem:

Changed the behavior of the internal Buffer-to-String conversion function. The current ACPI specification states that the contents of the buffer are "converted to a string of two-character

hexadecimal numbers, each separated by a space". Unfortunately, this definition is not backwards compatible with existing ACPI 1.0 implementations (although the behavior was not defined in the ACPI 1.0 specification). The new behavior simply copies data from the buffer to the string until a null character is found or the end of the buffer is reached. The new String object is always null terminated. This problem was seen during the generation of \_BIF battery data where incorrect strings were returned for battery type, etc. This will also require an errata to the ACPI specification.

Renamed all instances of NATIVE\_UINT and NATIVE\_INT to ACPI\_NATIVE\_UINT and ACPI\_NATIVE\_INT, respectively.

Copyright in all module headers (both Linux and non-Linux) has been updated to 2003.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total

Debug Version: 153.0K Code, 62.9K Data, 215.9K Total

#### Current Release:

Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total

Debug Version: 153.0K Code, 62.9K Data, 215.9K Total

## 2) Linux

Fixed an oops on module insertion/removal (Matthew Tippet)

(2.4) Fix to handle dynamic size of mp\_irqs (Joerg Prante)

(2.5) Replace pr\_debug (Randy Dunlap)

(2.5) Remove usage of CPUFREQ\_ALL\_CPUS (Dominik Brodowski)

(Both) Eliminate spawning of thread from timer callback, in favor of schedule\_work()

(Both) Show Lid status in /proc (Zdenek OGAR Skalak)

(Both) Added define for Fixed Function HW region (Matthew Wilcox)

(Both) Add missing statics to button.c (Pavel Machek)

Several changes have been made to the source code translation utility that generates the Linux Code in order to make the code more "Linux-like":

All typedefs on structs and unions have been removed in keeping with the Linux coding style.

Removed the non-Linux SourceSafe module revision number from each module header.

Completed major overhaul of symbols to be lowercased for linux. Doubled the number of symbols that are lowercased.

Fixed a problem where identifiers within procedure headers and within quotes were not fully lower cased (they were left with a starting capital.)

Some C macros whose only purpose is to allow the generation of 16-bit code are now completely removed in the Linux code, increasing readability and maintainability.

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12 December 2002. Summary of changes for version 20021212.

#### 1) ACPI CA Core Subsystem:

Fixed a problem where the creation of a zero-length AML Buffer would cause a fault.

Fixed a problem where a Buffer object that pointed to a static AML buffer (in an ACPI table) could inadvertently be deleted, causing memory corruption.

Fixed a problem where a user buffer (passed in to the external ACPI CA interfaces) could be overwritten if the buffer was too small to complete the operation, causing memory corruption.

Fixed a problem in the Buffer-to-String conversion code where a string of length one was always returned, regardless of the size of the input Buffer object.

Removed the NATIVE\_CHAR data type across the entire source due to lack of need and lack of consistent use.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 72.1K Code, 9.5K Data, 81.6K Total

Debug Version: 152.7K Code, 62.7K Data, 215.4K Total

#### Current Release:

Non-Debug Version: 72.0K Code, 9.5K Data, 81.5K Total

Debug Version: 153.0K Code, 62.9K Data, 215.9K Total

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05 December 2002. Summary of changes for version 20021205.

#### 1) ACPI CA Core Subsystem:

Fixed a problem where a store to a String or Buffer object could cause corruption of the DSDT if the object type being stored was the same as the target object type and the length of the object being stored was equal to or smaller than the original (existing) target object. This was seen to cause corruption of battery \_BIF buffers if the \_BIF method modified the buffer on the fly.

Fixed a problem where an internal error was generated if a control method invocation was used in an OperationRegion, Buffer, or Package declaration. This was caused by the deferred parsing of the control method and thus the deferred creation of the internal method object. The solution to this problem was to create the internal method object at the moment the method is encountered in the first pass - so that subsequent references to the method will be able to obtain the required parameter count and thus properly parse the method invocation. This problem presented itself as an AE\_AML\_INTERNAL during the pass 1 parse phase during table load.



Fixed a problem where the internal String object copy routine did not always allocate sufficient memory for the target String object and caused memory corruption. This problem was seen to cause "Allocation already present in list!" errors as memory allocation became corrupted.

Implemented a new function for the evaluation of namespace objects that allows the specification of the allowable return object types. This simplifies a lot of code that checks for a return object of one or more specific objects returned from the evaluation (such as `_STA`, etc.) This may become an external function if it would be useful to ACPI-related drivers.

Completed another round of prefixing `#defines` with "ACPI\_" for clarity.

Completed additional code restructuring to allow more modular linking for iASL compiler and AcpiExec. Several files were split creating new files. New files: `nsparse.c` `dsinit.c` `evgpe.c`

Implemented an abort mechanism to terminate an executing control method via the AML debugger. This feature is useful for debugging control methods that depend (wait) for specific hardware responses.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib` produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total

Debug Version: 152.9K Code, 63.3K Data, 216.2K Total

#### Current Release:

Non-Debug Version: 72.1K Code, 9.5K Data, 81.6K Total

Debug Version: 152.7K Code, 62.7K Data, 215.4K Total

## 2) iASL Compiler/Disassembler

Fixed a compiler code generation problem for "Interrupt" Resource

Descriptors. If specified in the ASL, the optional "Resource Source Index" and "Resource Source" fields were not inserted into the correct location within the AML resource descriptor, creating an invalid descriptor.

Fixed a disassembler problem for "Interrupt" resource descriptors. The optional "Resource Source Index" and "Resource Source" fields were ignored.

-----  
22 November 2002. Summary of changes for version 20021122.

#### 1) ACPI CA Core Subsystem:

Fixed a reported problem where an object stored to a Method Local or Arg was not copied to a new object during the store - the object pointer was simply copied to the Local/Arg. This caused all subsequent operations on the Local/Arg to also affect the original source of the store operation.

Fixed a problem where a store operation to a Method Local or Arg was not completed properly if the Local/Arg contained a reference (from RefOf) to a named field. The general-purpose store-to-namespace-node code is now used so that this case is handled automatically.

Fixed a problem where the internal object copy routine would cause a protection fault if the object being copied was a Package and contained either 1) a NULL package element or 2) a nested sub-package.

Fixed a problem with the GPE initialization that resulted from an ambiguity in the ACPI specification. One section of the specification states that both the address and length of the GPE block must be zero if the block is not supported. Another section implies that only the address need be zero if the block is not supported. The code has been changed so that both the address and the length must be non-zero to indicate a valid GPE block (i.e., if either the address or the length is zero, the GPE block is invalid.)

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these

values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 71.3K Code, 9.0K Data, 80.3K Total

Debug Version: 152.7K Code, 63.2K Data, 215.5K Total

#### Current Release:

Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total

Debug Version: 152.9K

Code, 63.3K Data, 216.2K Total

## 2) Linux

Cleaned up EC driver. Exported an external EC read/write interface. By going through this, other drivers (most notably sonypi) will be able to serialize access to the EC.

## 3) iASL Compiler/Disassembler

Implemented support to optionally generate include files for both ASM and C (the `-i` switch). This simplifies BIOS development by automatically creating include files that contain external declarations for the symbols that are created within the

(optionally generated) ASM and C AML source files.

-----  
15 November 2002. Summary of changes for version 20021115.

### 1) ACPI CA Core Subsystem:

Fixed a memory leak problem where an error during resolution of method arguments during a method invocation from another method failed to cleanup properly by deleting all successfully resolved argument objects.

Fixed a problem where the target of the `Index()` operator was not correctly constructed if the source object was a package. This problem has not been detected because the use of a target operand with `Index()` is very rare.

Fixed a problem with the Index() operator where an attempt was made to delete the operand objects twice.

Fixed a problem where an attempt was made to delete an operand twice during execution of the CondRefOf() operator if the target did not exist.

Implemented the first of perhaps several internal create object functions that create and initialize a specific object type. This consolidates duplicated code wherever the object is created, thus shrinking the size of the subsystem.

Implemented improved debug/error messages for errors that occur during nested method invocations. All executing method pathnames are displayed (with the error) as the call stack is unwound - thus simplifying debug.

Fixed a problem introduced in the 10/02 release that caused premature deletion of a buffer object if a buffer was used as an ASL operand where an integer operand is required (Thus causing an implicit object conversion from Buffer to Integer.) The change in the 10/02 release was attempting to fix a memory leak (albeit incorrectly.)

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 71.9K Code, 9.1K Data, 81.0K Total

Debug Version: 153.1K Code, 63.3K Data, 216.4K Total

#### Current Release:

Non-Debug Version: 71.3K Code, 9.0K Data, 80.3K Total

Debug Version: 152.7K Code, 63.2K Data, 215.5K Total

## 2) Linux

Changed the implementation of the ACPI semaphores to use down() instead

of `down_interruptable()`. It is important that the execution of ACPI control methods not be interrupted by signals. Methods must run to completion, or the system may be left in an unknown/unstable state.

Fixed a compilation error when `CONFIG_SOFTWARE_SUSPEND` is not set.  
(Shawn Starr)

### 3) iASL Compiler/Disassembler

Changed the default location of output files. All output files are now placed in the current directory by default instead of in the directory of the source file. This change may affect some existing makefiles, but it brings the behavior of the compiler in line with other similar tools. The location of the output files can be overridden with the `-p` command line switch.

-----  
11 November 2002. Summary of changes for version 20021111.

0) ACPI Specification 2.0B is released and is now available at:  
<http://www.acpi.info/index.html>

#### 1) ACPI CA Core Subsystem:

Implemented support for the ACPI 2.0 SMBus Operation Regions. This includes the early detection and handoff of the request to the SMBus region handler (avoiding all of the complex field support code), and support for the bidirectional return packet from an SMBus write operation. This paves the way for the development of SMBus drivers in each host operating system.

Fixed a problem where the semaphore `WAIT_FOREVER` constant was defined as 32 bits, but must be 16 bits according to the ACPI specification. This had the side effect of causing ASL Mutex/Event timeouts even though the ASL code requested a wait forever. Changed all internal references to the ACPI timeout parameter to 16 bits to prevent future problems. Changed the name of `WAIT_FOREVER` to `ACPI_WAIT_FOREVER`.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib`

produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total

Debug Version: 152.3K Code, 63.0K Data, 215.3K Total

#### Current Release:

Non-Debug Version: 71.9K Code, 9.1K Data, 81.0K Total

Debug Version: 153.1K Code, 63.3K Data, 216.4K Total

## 2) Linux

Module loading/unloading fixes (John Cagle)

## 3) iASL Compiler/Disassembler

Added support for the SMBBlockProcessCall keyword (ACPI 2.0)

Implemented support for the disassembly of all SMBus protocol keywords (SMBQuick, SMBWord, etc.)

-----  
01 November 2002. Summary of changes for version 20021101.

### 1) ACPI CA Core Subsystem:

Fixed a problem where platforms that have a GPE1 block but no GPE0 block were not handled correctly. This resulted in a "GPE overlap" error message. GPE0 is no longer required.

Removed code added in the previous release that inserted nodes into the namespace in alphabetical order. This caused some side-effects on various machines. The root cause of the problem is still under investigation since in theory, the internal ordering of the namespace nodes should not matter.

Enhanced error reporting for the case where a named object is not found during control method execution. The full ACPI namepath

(name reference) of the object that was not found is displayed in this case.

Note: as a result of the overhaul of the namespace object types in the previous release, the namespace nodes for the predefined scopes (`_TZ`, `_PR`, etc.) are now of the type `ACPI_TYPE_LOCAL_SCOPE` instead of `ACPI_TYPE_ANY`. This simplifies the namespace management code but may affect code that walks the namespace tree looking for specific object types.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib` produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 70.7K Code, 8.6K Data, 79.3K Total

Debug Version: 151.7K Code, 62.4K Data, 214.1K Total

#### Current Release:

Non-Debug Version: 71.4K Code, 9.0K Data, 80.4K Total

Debug Version: 152.3K Code, 63.0K Data, 215.3K Total

## 2) Linux

Fixed a problem introduced in the previous release where the Processor and Thermal objects were not recognized and installed in `/proc`. This was related to the scope type change described above.

## 3) iASL Compiler/Disassembler

Implemented the `-g` option to get all of the required ACPI tables from the registry and save them to files (Windows version of the compiler only.) The required tables are the FADT, FACS, and DSDT.

Added ACPI table checksum validation during table disassembly in order to catch corrupted tables.

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22 October 2002. Summary of changes for version 20021022.

## 1) ACPI CA Core Subsystem:

Implemented a restriction on the Scope operator that the target must already exist in the namespace at the time the operator is encountered (during table load or method execution). In other words, forward references are not allowed and Scope() cannot create a new object. This changes the previous behavior where the interpreter would create the name if not found. This new behavior correctly enables the search-to-root algorithm during namespace lookup of the target name. Because of this upsearch, this fixes the known Compaq \_SB\_.OKEC problem and makes both the AML interpreter and iASL compiler compatible with other ACPI implementations.

### Completed

a major overhaul of the internal ACPI object types for the ACPI Namespace and the associated operand objects. Many of these types had become obsolete with the introduction of the two-pass namespace load. This cleanup simplifies the code and makes the entire namespace load mechanism much clearer and easier to understand.

Improved debug output for tracking scope opening/closing to help diagnose scoping issues. The old scope name as well as the new scope name are displayed. Also improved error messages for problems with ASL Mutex objects and error messages for GPE problems.

Cleaned up the namespace dump code, removed obsolete code.

All string output (for all namespace/object dumps) now uses the common ACPI string output procedure which handles escapes properly and does not emit non-printable characters.

Fixed some issues with constants in the 64-bit version of the local C library (utclib.c)

## 2) Linux

EC Driver: No longer attempts to acquire the Global Lock at interrupt level.

## 3) iASL Compiler/Disassembler



Implemented ACPI 2.0B grammar change that disallows all Type 1 and 2 opcodes outside of a control method. This means that the "executable" operators (versus the "namespace" operators) cannot be used at the table level; they can only be used within a control method.

Implemented the restriction on the Scope() operator where the target must already exist in the namespace at the time the operator is encountered (during ASL compilation). In other words, forward references are not allowed and Scope() cannot create a new object. This makes the iASL compiler compatible with other ACPI implementations and makes the Scope() implementation adhere to the ACPI specification.

Fixed a problem where namepath optimization for the Alias operator was optimizing the wrong path (of the two namepaths.) This caused a "Missing alias link" error message.

Fixed a problem where an "unknown reserved name" warning could be incorrectly generated for names like "\_SB" when the trailing underscore is not used in the original ASL.

Fixed a problem where the reserved name check did not handle NamePaths with multiple NameSegs correctly. The first nameseg of the NamePath was examined instead of the last NameSeg.

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02 October 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem version 20021002:

Fixed a problem where a store/copy of a string to an existing string did not always set the string length properly in the String object.

Fixed a reported problem with the ToString operator where the behavior was identical to the ToHexString operator instead of just simply converting a raw buffer to a string data type.

Fixed a problem where CopyObject and the other "explicit" conversion operators were not updating the internal namespace node type as part of the store operation.

Fixed a memory leak during implicit source operand conversion

where the original object was not deleted if it was converted to  
a  
new object of a different type.

Enhanced error messages for all problems associated with namespace lookups. Common procedure generates and prints the lookup name as well as the formatted status.

Completed implementation of a new design for the Alias support within the namespace. The existing design did not handle the case where a new object was assigned to one of the two names due to the use of an explicit conversion operator, resulting in the two names pointing to two different objects. The new design simply points the Alias name to the original name node - not to the object. This results in a level of indirection that must be handled in the name resolution mechanism.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib` produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 69.6K Code, 8.3K Data, 77.9K Total

Debug Version: 150.0K Code, 61.7K Data, 211.7K Total

#### Current Release:

Non-Debug Version: 70.7K Code, 8.6K Data, 79.3K Total

Debug Version: 151.7K Code, 62.4K Data, 214.1K Total

## 2) Linux

Initialize thermal driver's timer before it is used. (Knut Neumann)

Allow handling negative celsius values. (Kochi Takayoshi)

Fix thermal management and make trip points. R/W (Pavel Machek)

Fix `/proc/acpi/sleep`. (P. Christeas)

IA64 fixes. (David Mosberger)

Fix reversed logic in blacklist code. (Sergio Monteiro Basto)

Replace ACPI\_DEBUG define with ACPI\_DEBUG\_OUTPUT. (Dominik Brodowski)

### 3) iASL Compiler/Disassembler

Clarified some warning/error messages.

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18 September 2002. Summary  
of changes for this release.

#### 1) ACPI CA Core Subsystem version 20020918:

Fixed a reported problem with reference chaining (via the Index() and RefOf() operators) in the ObjectType() and SizeOf() operators. The definition of these operators includes the dereferencing of all chained references to return information on the base object.

Fixed a problem with stores to indexed package elements - the existing code would not complete the store if an "implicit conversion" was not performed. In other words, if the existing object (package element) was to be replaced completely, the code didn't handle this case.

Relaxed typechecking on the ASL "Scope" operator to allow the target name to refer to an object of type Integer, String, or Buffer, in addition to the scoping object types (Device, predefined Scopes, Processor, PowerResource, and ThermalZone.) This allows existing AML code that has workarounds for a bug in Windows to function properly. A warning is issued, however. This affects both the AML interpreter and the iASL compiler. Below is an example of this type of ASL code:

```
Name(DEB,0x00)
Scope(DEB)
{
```

Fixed some reported problems with 64-bit integer support in the local implementation of C library functions (clib.c)

#### 2) Linux

Use ACPI fix map region instead of IOAPIC region, since it is undefined in non-SMP.

Ensure that the SCI has the proper polarity and trigger, even on systems that do not have an interrupt override entry in the MADT.

2.5 big driver reorganization (Pat Mochel)

Use early table mapping code from acpitable.c (Andi Kleen)

New blacklist entries (Andi Kleen)

Blacklist improvements. Split blacklist code out into a separate file. Move checking the blacklist to very early. Previously, we would use ACPI tables, and then halfway through init, check the blacklist -- too late. Now, it's early enough to completely fall-back to non-ACPI.

3) iASL Compiler/Disassembler version 20020918:

Fixed a problem where the typechecking code didn't know that an alias could point to a method. In other words, aliases were not being dereferenced during typechecking.

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29 August 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020829:

If the target of a Scope() operator already exists, it must be an object type that actually opens a scope -- such as a Device, Method, Scope, etc. This is a fatal runtime error. Similar error check has been added to the iASL compiler also.

Tightened up the namespace load to disallow multiple names in the same scope. This previously was allowed if both objects were of the same type. (i.e., a lookup was the same as entering a new name).

2) Linux

Ensure that the ACPI interrupt has the proper trigger and polarity.

local\_irq\_disable is extraneous. (Matthew Wilcox)

Make "acpi=off" actually do what it says, and not use the ACPI interpreter \*or\* the tables.

Added arch-neutral support for parsing SLIT and SRAT tables  
(Kochi Takayoshi)

### 3) iASL Compiler/Disassembler Version 20020829:

Implemented namepath optimization for name declarations. For example, a declaration like "Method (\\_SB\_.ABCD)" would get optimized to "Method (ABCD)" if the declaration is within the \\_SB\_ scope. This optimization is in addition to the named reference path optimization first released in the previous version. This would seem to complete all possible optimizations for namepaths within the ASL/AML.

If the target of a Scope() operator already exists, it must be an object type that actually opens a scope -- such as a Device, Method, Scope, etc.

Implemented a check and warning for unreachable code in the same block below a Return() statement.

Fixed a problem where the listing file was not generated if the compiler aborted if the maximum error count was exceeded (200).

Fixed a problem where the typechecking of method return values was broken. This includes the check for a return value when the method is invoked as a TermArg (a return value is expected.)

Fixed a reported problem where EOF conditions during a quoted string or comment caused a fault.

-----  
15 August 2002. Summary of changes for this release.

### 1) ACPI CA Core Subsystem Version 20020815:

Fixed a reported problem where a Store to a method argument that contains a reference did not perform the indirect store correctly. This problem was created during the conversion to the new

reference object model - the indirect store to a method argument code was not updated to reflect the new model.

Reworked the ACPI mode change code to better conform to ACPI 2.0, handle corner cases, and improve code legibility (Kochi Takayoshi)

Fixed a problem with the pathname parsing for the caret (^) prefix. The heavy use of the caret operator by the new namepath optimization in the iASL compiler uncovered a problem with the AML interpreter handling of this prefix. In the case where one or more carats precede a single nameseg, the nameseg was treated as standalone and the search rule (to root) was inadvertently applied. This could cause both the iASL compiler and the interpreter to find the wrong object or to miss the error that should occur if the object does not exist at that exact pathname.

Found and fixed the problem where the HP Pavilion DSDT would not load. This was a relatively minor tweak to the table loading code (a problem caused by the unexpected encounter with a method invocation not within a control method), but it does not solve the overall issue of the execution of AML code at the table level. This investigation is still ongoing.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 69.1K Code, 8.2K Data, 77.3K Total

Debug Version: 149.4K Code, 61.6K Data, 211.0K Total

#### Current Release:

Non-Debug Version: 69.6K Code, 8.3K Data, 77.9K Total

Debug Version: 150.0K Code, 61.7K Data, 211.7K Total

## 2) Linux

Remove redundant slab.h include (Brad Hards)

Fix several bugs in thermal.c (Herbert Nachtnebel)

Make CONFIG\_ACPI\_BOOT work properly (Pavel Machek)

Change acpi\_system\_suspend to use updated irq functions (Pavel Machek)

Export acpi\_get\_firmware\_table (Matthew Wilcox)

Use proper root proc entry for ACPI (Kochi Takayoshi)

Fix early-boot table parsing (Bjorn Helgaas)

### 3) iASL Compiler/Disassembler

Reworked the compiler options to make them more consistent and to use two-letter options where appropriate. We were running out of sensible letters. This may break some makefiles, so check the current options list by invoking the compiler with no parameters.

Completed the design and implementation of the ASL namepath optimization option for the compiler. This option optimizes all references to named objects to the shortest possible path. The first attempt tries to utilize a single nameseg (4 characters) and the "search-to-root" algorithm used by the interpreter. If that cannot be used (because either the name is not in the search path or there is a conflict with another object with the same name), the pathname is optimized using the carat prefix (usually a shorter string than specifying the entire path from the root.)

Implemented support to obtain the DSDT from the Windows registry (when the disassembly option is specified with no input file). Added this code as the implementation for AcpiOsTableOverride in the Windows OSL. Migrated the 16-bit code (used in the AcpiDump utility) to scan memory for the DSDT to the AcpiOsTableOverride function in the DOS OSL to make the disassembler truly OS independent.

Implemented a new option to disassemble and compile in one step. When used without an input filename, this option will grab the DSDT from the local machine, disassemble it, and compile it in one step.

Added a warning message for invalid escapes (a backslash followed by any character other than the allowable escapes). This catches the quoted string error "\\\_SB\_" (which should be "\\\_SB\_").

Also, there are numerous instances in the ACPI specification where this error occurs.

Added a compiler option to disable all optimizations. This is basically the "compatibility mode" because by using this option, the AML code will come out exactly the same as other ASL compilers.

Added error messages for incorrectly ordered dependent resource functions. This includes: missing EndDependentFn macro at end of dependent resource list, nested dependent function macros (both start and end), and missing StartDependentFn macro. These are common errors that should be caught at compile time.

Implemented \_OSI support for the disassembler and compiler. \_OSI must be included in the namespace for proper disassembly (because the disassembler must know the number of arguments.)

Added an "optimization" message type that is optional (off by default). This message is used for all optimizations - including constant folding, integer optimization, and namepath optimization.

-----  
25 July 2002. Summary of changes for this release.

#### 1) ACPI CA Core Subsystem Version 20020725:

The AML Disassembler has been enhanced to produce compilable ASL code and has been integrated into the iASL compiler (see below) as well as the single-step disassembly for the AML debugger and the disassembler for the AcpiDump utility. All ACPI 2.0A opcodes, resource templates and macros are fully supported. The disassembler has been tested on over 30 different AML files, producing identical AML when the resulting disassembled ASL file is recompiled with the same ASL compiler.

Modified the Resource Manager to allow zero interrupts and zero dma channels during the GetCurrentResources call. This was causing problems on some platforms.

Added the AcpiOsRedirectOutput interface to the OSL to simplify output redirection for the AcpiOsPrintf and AcpiOsVprintf interfaces.

Code and Data Size: Current core subsystem library sizes are shown



below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 68.7K Code, 7.4K Data, 76.1K Total

Debug Version: 142.9K Code, 58.7K Data, 201.6K Total

#### Current Release:

Non-Debug Version: 69.1K Code, 8.2K Data, 77.3K Total

Debug Version: 149.4K Code, 61.6K Data, 211.0K Total

## 2) Linux

Fixed a panic in the EC driver (Dominik Brodowski)

Implemented checksum of the R/XSDT itself during Linux table scan (Richard Schaal)

## 3) iASL compiler

The AML disassembler is integrated into the compiler. The "-d" option invokes the disassembler to completely disassemble an input AML file, producing as output a text ASL file with the extension ".dsl" (to avoid name collisions with existing .asl source files.) A future enhancement will allow the disassembler to obtain the BIOS DSDT from the registry under Windows.

Fixed a problem with the VendorShort and VendorLong resource descriptors where an invalid AML sequence was created.

Implemented a fix for BufferData term in the ASL parser. It was inadvertently defined twice, allowing invalid syntax to pass and causing reduction conflicts.

Fixed a problem where the Ones opcode could get converted to a value of zero if "Ones" was used where a byte, word or dword value was expected. The 64-bit value is now truncated to the correct size with the correct value.

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02 July 2002. Summary of changes for this release.

#### 1) ACPI CA Core Subsystem Version 20020702:

The Table Manager code has been restructured to add several new features. Tables that are not required by the core subsystem (other than the FADT, DSDT, FACS, PSDTs, etc.) are no longer validated in any way and are returned from AcpiGetFirmwareTable if requested. The AcpiOsTableOverride interface is now called for each table that is loaded by the subsystem in order to allow the host to override any table it chooses. Previously, only the DSDT could be overridden. Added one new files, tbrsdt.c and tbgetall.c.

Fixed a problem with the conversion of internal package objects to external objects (when a package is returned from a control method.) The return buffer length was set to zero instead of the proper length of the package object.

Fixed a reported problem with the use of the RefOf and DeRefOf operators when passing reference arguments to control methods. A new type of Reference object is used internally for references produced by the RefOf operator.

Added additional error messages in the Resource Manager to explain AE\_BAD\_DATA errors when they occur during resource parsing.

Split the AcpiEnableSubsystem into two primitives to enable a finer granularity initialization sequence. These two calls should be called in this order: AcpiEnableSubsystem (flags), AcpiInitializeObjects (flags). The flags parameter remains the same.

#### 2) Linux

Updated the ACPI utilities module to understand the new style of fully resolved package objects that are now returned from the core subsystem. This eliminates errors of the form:

```
ACPI: PCI Interrupt Routing Table [_SB_.PCI0.PPB._.PRT]
acpi_utils-0430 [145] acpi_evaluate_reference:
  Invalid element in package
```

(not a device reference)

The method evaluation utility uses the new buffer allocation scheme instead of calling AcpiEvaluate Object twice.

Added support for ECDT. This allows the use of the Embedded

Controller before the namespace has been fully initialized, which is necessary for ACPI 2.0 support, and for some laptops to initialize properly. (Laptops using ECDT are still rare, so only limited testing was performed of the added functionality.)

Fixed memory leaks in the EC driver.

Eliminated a brittle code structure in acpi\_bus\_init().

Eliminated the acpi\_evaluate() helper function in utils.c. It is no longer needed since acpi\_evaluate\_object can optionally allocate memory for the return object.

Implemented fix for keyboard hang when getting battery readings on some systems (Stephen White)

PCI IRQ routing update (Dominik Brodowski)

Fix an ifdef to allow compilation on UP with LAPIC but no IOAPIC support

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11 June 2002. Summary of changes  
for this release.

1) ACPI CA Core Subsystem Version 20020611:

Fixed a reported problem where constants such as Zero and One appearing within \_PRT packages were not handled correctly within the resource manager code. Originally reported against the ASL compiler because the code generator now optimizes integers to their minimal AML representation (i.e. AML constants if possible.) The \_PRT code now handles all AML constant opcodes correctly (Zero, One, Ones, Revision).

Fixed a problem with the Concatenate operator in the AML interpreter where a buffer result object was incorrectly marked as not fully evaluated, causing a run-time error of AE\_AML\_INTERNAL.

All package sub-objects are now fully resolved before they are

returned from the external ACPI interfaces. This means that name strings are resolved to object handles, and constant operators (Zero, One, Ones, Revision) are resolved to Integers.

Implemented immediate resolution of the AML Constant opcodes (Zero, One, Ones, Revision) to Integer objects upon detection within the AML stream. This has simplified and reduced the generated code size of the subsystem by eliminating about 10 switch statements for these constants (which previously were contained in Reference objects.) The complicating issues are that the Zero opcode is used as a "placeholder" for unspecified optional target operands and stores to constants are defined to be no-ops.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib` produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 69.3K Code, 7.4K Data, 76.7K Total

Debug Version:

143.8K Code, 58.8K Data, 202.6K Total

#### Current Release:

Non-Debug Version: 68.7K Code, 7.4K Data, 76.1K Total

Debug Version: 142.9K Code, 58.7K Data, 201.6K Total

## 2) Linux

Added preliminary support for obtaining `_TRA` data for PCI root bridges (Bjorn Helgaas).

## 3) iASL Compiler Version X2046:

Fixed a problem where the `"_DDN"` reserved name was defined to be a control method with one argument. There are no arguments, and `_DDN` does not have to be a control method.

Fixed a problem with the Linux version of the compiler where the source lines printed with error messages were the wrong lines.

This turned out to be the "LF versus CR/LF" difference between Windows and Unix. This appears to be the longstanding issue concerning listing output and error messages.

Fixed a problem with the Linux version of compiler where opcode names within error messages were wrong. This was caused by a slight difference in the output of the Flex tool on Linux versus Windows.

Fixed

a problem with the Linux compiler where the hex output files contained some garbage data caused by an internal buffer overrun.

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17 May 2002. Summary of changes for this release.

1) ACPI CA Core Subsystem Version 20020517:

Implemented a workaround to an BIOS bug discovered on the HP OmniBook where the FADT revision number and the table size are inconsistent (ACPI 2.0 revision vs. ACPI 1.0 table size). The new behavior is to fallback to using only the ACPI 1.0 fields of the FADT if the table is too small to be a ACPI 2.0 table as claimed by the revision number. Although this is a BIOS bug, this is a case where the workaround is simple enough and with no side effects, so it seemed prudent to add it. A warning message is issued, however.

Implemented minimum size checks for the fixed-length ACPI tables - the FADT and FACS, as well as consistency checks between the revision number and the table size.

Fixed a reported problem in the table override support where the new table pointer was incorrectly treated as a physical address instead of a logical address.

Eliminated the use of the AE\_AML\_ERROR exception and replaced it with more descriptive codes.

Fixed a problem where an exception would occur if an ASL Field was defined with no named Field Units underneath it (used by some index fields).

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib

produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 68.8K Code, 7.1K Data, 75.9K Total

Debug Version: 142.9K Code, 58.4K Data, 201.3K Total

#### Current

#### Release:

Non-Debug Version: 69.3K Code, 7.4K Data, 76.7K Total

Debug Version: 143.8K Code, 58.8K Data, 202.6K Total

## 2) Linux

Much work done on ACPI init (MADT and PCI IRQ routing support).  
(Paul D. and Dominik Brodowski)

Fix PCI IRQ-related panic on boot (Sam Revitch)

Set BM\_ARB\_DIS when entering a sleep state (Ducrot Bruno)

Fix "MHz" typo (Dominik Brodowski)

Fix RTC year 2000 issue (Dominik Brodowski)

Preclude multiple button proc entries (Eric Brunet)

Moved arch-specific code out of include/platform/aclinux.h

## 3) iASL Compiler Version X2044:

Implemented error checking for the string used in the EISAID macro (Usually used in the definition of the \_HID object.) The code now strictly enforces the PnP format - exactly 7 characters, 3 uppercase letters and 4 hex digits.

If a raw string is used in the definition of the \_HID object (instead of the EISAID macro), the string must contain all alphanumeric characters (e.g., "\*PNP0011" is not allowed because of the asterisk.)

Implemented checking for invalid use of ACPI reserved names for

most of the name creation operators (Name, Device, Event, Mutex, OperationRegion, PowerResource, Processor, and ThermalZone.) Previously, this check was only performed for control methods.

Implemented an additional check on the Name operator to emit an error if a reserved name that must be implemented in ASL as a control method is used. We know that a reserved name must be a method if it is defined with input arguments.

The warning emitted when a namespace object reference is not found during the cross reference phase has been changed into an error. The "External" directive should be used for names defined in other modules.

#### 4) Tools and Utilities

The 16-bit tools (adump16 and aexec16) have been regenerated and tested.

Fixed a problem with the output of both acpidump and adump16 where the indentation of closing parentheses and brackets was not

aligned properly with the parent block.

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03

May 2002. Summary of changes for this release.

#### 1) ACPI CA Core Subsystem Version 20020503:

Added support a new OSL interface that allows the host operating system software to override the DSDT found in the firmware - AcpiOsTableOverride. With this interface, the OSL can examine the version of the firmware DSDT and replace it with a different one if desired.

Added new external interfaces for accessing ACPI registers from device drivers and other system software - AcpiGetRegister and AcpiSetRegister. This was simply an externalization of the existing AcpiHwBitRegister interfaces.

Fixed a regression introduced in the previous build where the ASL/AML CreateField operator always returned an error, "destination must be a NS Node".

Extended the maximum time (before failure) to successfully enable ACPI mode to 3 seconds.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the `acpica.lib` produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 68.5K Code, 7.0K Data, 75.5K Total

Debug Version: 142.4K Code, 58.3K Data, 200.7K Total

#### Current Release:

Non-Debug Version: 68.8K Code, 7.1K Data, 75.9K Total

Debug Version: 142.9K Code, 58.4K Data, 201.3K Total

## 2) Linux

Enhanced ACPI init code for SMP. We are now fully MPS and \$PIR-free. While 3 out of 4 of our in-house systems work fine, the last one still hangs when testing the LAPIC timer.

Renamed many files in 2.5 kernel release to omit "acpi\_" from the name.

Added warning on boot for Presario 711FR.

Sleep improvements (Pavel Machek)

ACPI can now be built without CONFIG\_PCI enabled.

IA64: Fixed memory map functions (JI Lee)

## 3) iASL Compiler Version X2043:

Added support to allow the compiler to be integrated into the MS VC++ development environment for one-button compilation of single files or entire projects -- with error-to-source-line mapping.

Implemented support for compile-time constant folding for the



Type3, Type4, and Type5 opcodes first defined in the ACPI 2.0 specification. This allows the ASL writer to use expressions instead of Integer/Buffer/String constants in terms that must evaluate to constants at compile time and will also simplify the emitted AML in any such sub-expressions that can be folded (evaluated at compile-time.) This increases the size of the compiler significantly because a portion of the ACPI CA AML interpreter is included within the compiler in order to pre-evaluate constant expressions.

Fixed a problem with the "Unicode" ASL macro that caused the compiler to fault. (This macro is used in conjunction with the `_STR` reserved name.)

Implemented an AML opcode optimization to use the Zero, One, and Ones opcodes where possible to further reduce the size of integer constants and thus reduce the overall size of the generated AML code.

Implemented error checking for new reserved terms for ACPI version 2.0A.

Implemented the `-qr` option to display the current list of ACPI reserved names known to the compiler.

Implemented the `-qc` option to display the current list of ASL operators that are allowed within constant expressions and can therefore be folded at compile time if the operands are constants.

#### 4) Documentation

Updated the Programmer's Reference for new interfaces, data types, and memory allocation model options.

Updated the iASL Compiler User Reference to apply new format and add information about new features and options.

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19 April 2002. Summary of changes for this release.

#### 1) ACPI CA Core Subsystem Version 20020419:

The source code base for the Core Subsystem has been completely cleaned with PC-lint (FlexLint) for both 32-bit and 64-bit

versions. The Lint option files used are included in the /acpi/generate/lint directory.

Implemented enhanced status/error checking across the entire Hardware manager subsystem. Any hardware errors (reported from the OSL) are now bubbled up and will abort a running control method.

Fixed a problem where the per-ACPI-table integer width (32 or 64) was stored only with control method nodes, causing a fault when non-control method code was executed during table loading. The solution implemented uses a global variable to indicate table width across the entire ACPI subsystem. Therefore, ACPI CA does not support mixed integer widths across different ACPI tables (DSDT, SSDT).

Fixed a problem where NULL extended fields (X fields) in an ACPI 2.0 ACPI FADT caused the table load to fail. Although the existing ACPI specification is a bit fuzzy on this topic, the new behavior is to fall back on a ACPI 1.0 field if the corresponding ACPI 2.0 X field is zero (even though the table revision indicates a full ACPI 2.0 table.) The ACPI specification will be updated to clarify this issue.

Fixed a problem with the SystemMemory operation region handler where memory was always accessed byte-wise even if the AML-specified access width was larger than a byte. This caused problems on systems with memory-mapped I/O. Memory is now accessed with the width specified. On systems that do not support non-aligned transfers, a check is made to guarantee proper address alignment before proceeding in order to avoid an AML-caused alignment fault within the kernel.

Fixed a problem with the ExtendedIrq resource where only one byte of the 4-byte Irq field was extracted.

Fixed the AcpiExDigitsNeeded() procedure to support \_UID. This function was out of date and required a rewrite.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and

has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 66.6K Code, 6.5K Data, 73.1K Total

Debug Version: 139.8K Code, 57.4K Data, 197.2K Total

#### Current Release:

Non-Debug Version: 68.5K Code, 7.0K Data, 75.5K Total

Debug Version: 142.4K Code, 58.3K Data, 200.7K Total

## 2) Linux

PCI IRQ routing fixes (Dominik Brodowski)

## 3) iASL Compiler Version X2042:

Implemented an additional compile-time error check for a field unit whose size + minimum access width would cause a run-time access beyond the end-of-region. Previously, only the field size itself was checked.

The Core subsystem and iASL compiler now share a common parse object in preparation for compile-time evaluation of the type 3/4/5 ASL operators.

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Summary of changes for this release: 03\_29\_02

## 1) ACPI CA Core Subsystem Version 20020329:

Implemented support for late evaluation of TermArg operands to Buffer and Package objects. This allows complex expressions to be used in the declarations of these object types.

Fixed an ACPI 1.0 compatibility issue when reading Fields. In ACPI 1.0, if the field was larger than 32 bits, it was returned as a buffer - otherwise it was returned as an integer. In ACPI 2.0, the field is returned as a buffer only if the field is larger than 64 bits. The TableRevision is now considered when making this conversion to avoid incompatibility with existing ASL code.

Implemented logical addressing for AcpiOsGetRootPointer. This allows an RSDP with either a logical or physical address. With

this support, the host OS can now override all ACPI tables with one

logical RSDP. Includes implementation of "typed" pointer support to allow a common data type for both physical and logical pointers internally. This required a change to the AcpiOsGetRootPointer interface.

Implemented the use of ACPI 2.0 Generic Address Structures for all GPE, Fixed Event, and PM Timer I/O. This allows the use of memory mapped I/O for these ACPI features.

Initialization now ignores not only non-required tables (All tables other than the FADT, FACS, DSDT, and SSDTs), but also does not validate the table headers of unrecognized tables.

Fixed a problem where a notify handler could only be installed/removed on an object of type Device. All "notify"

objects are now supported -- Devices, Processor, Power, and Thermal.

Removed most verbosity from the ACPI\_DB\_INFO debug level. Only critical information is returned when this debug level is enabled.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the apica.lib produced

by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

#### Previous Release

Non-Debug Version: 65.4K Code, 6.2K Data, 71.6K Total

Debug Version: 138.0K Code, 56.6K Data, 194.6K Total

#### Current Release:

Non-Debug Version: 66.6K Code, 6.5K Data, 73.1K Total

Debug Version: 139.8K Code, 57.4K Data, 197.2K Total

## 2) Linux:

The processor driver (acpi\_processor.c) now fully supports ACPI 2.0-based processor performance control (e.g. Intel(R) SpeedStep(TM) technology) Note that older laptops that only have the Intel "applet" interface are not supported through this. The

'limit' and 'performance' interface (/proc) are fully functional.

[Note that basic policy

for controlling performance state

transitions will be included in the next version of ospmd.] The

idle handler was modified to more aggressively use C2, and PIIX4

errata handling underwent a complete overhaul (big thanks to

Dominik Brodowski).

Added support for ACPI-PCI device binding (acpi\_pci\_root.c). \_ADR-

based devices in the ACPI namespace are now dynamically bound

(associated) with their PCI counterparts (e.g. PCI1->01:00.0).

This allows, among other things, ACPI to resolve bus numbers for

subordinate PCI bridges.

Enhanced PCI IRQ routing to get the proper bus number for \_PRT

entries defined underneath PCI bridges.

Added IBM 600E to bad bios list due to invalid \_ADR value for

PIIX4 PCI-ISA bridge, resulting in improper PCI IRQ routing.

In the process of adding full MADT support (e.g. IOAPIC) for IA32

(acpi.c, mpparse.c) -- stay tuned.

Added back visual differentiation between fixed-feature and

control-method buttons in dmesg. Buttons are also subtyped (e.g.

button/power/PWRF)

to simplify button identification.

We no longer use -Wno-unused when compiling debug. Please ignore

any "\_THIS\_MODULE defined but not used" messages.

Can now shut down the system using "magic sysrq" key.

3) iASL Compiler version 2041:

Fixed a problem where conversion errors for hex/octal/decimal

constants were not reported.

Implemented a fix for the General Register template Address field.

This field was 8 bits when it should be 64.

Fixed a problem where errors/warnings were no longer being emitted

within the listing output file.

Implemented the ACPI 2.0A restriction on ACPI Table Signatures to

exactly 4 characters, alphanumeric only.

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Summary of changes for this release: 03\_08\_02

1) ACPI CA Core Subsystem Version 20020308:

Fixed a problem with AML Fields where the use of the "AccessAny" keyword could cause an interpreter error due to attempting to read or write beyond the end of the parent Operation Region.

Fixed a problem in the SystemMemory Operation Region handler where an attempt was made to map memory beyond the end of the region. This was the root cause of the "AE\_ERROR" and "AE\_NO\_MEMORY" errors on some Linux systems.

Fixed a problem where the interpreter/namespace "search to root" algorithm was not functioning for some object types. Relaxed the internal restriction on the search to allow upsearches for all external object types as well as most internal types.

2) Linux:

We now use safe\_halt() macro versus individual calls to sti | hlt.

Writing to the processor limit interface should now work. "echo 1" will increase the limit, 2 will decrease, and 0 will reset to the default.

3) ASL compiler:

Fixed segfault on Linux version.

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Summary of changes for this release: 02\_25\_02

1) ACPI CA Core Subsystem:

Fixed a problem where the GPE bit masks were not initialized properly, causing erratic GPE behavior.

Implemented limited support for multiple calling conventions. The code can be generated with either the VPL (variable parameter list, or "C") convention, or the FPL (fixed parameter list, or "Pascal") convention. The core subsystem is about 3.4% smaller when generated with FPL.

## 2) Linux

Re-add some /proc/acpi/event functionality that was lost during the rewrite

Resolved issue with /proc events for fixed-feature buttons showing up as the system device.

Fixed checks on C2/C3 latencies to be inclusive of maximum values.

Replaced AE\_ERRORS in acpi\_osl.c with more specific error codes.

Changed ACPI PRT option from "pci=noacpi-routing" to "pci=noacpi"

Fixed limit interface & usage to fix bugs with passive cooling hysteresis.

Restructured PRT support.

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Summary of changes for this label: 02\_14\_02

### 1) ACPI CA Core Subsystem:

Implemented support in AcpiLoadTable to allow loading of FACS and FADT tables.

Support for the now-obsolete interim 0.71 64-bit ACPI tables has been removed. All

64-bit platforms should be migrated to the ACPI 2.0 tables. The actbl71.h header has been removed from the source tree.

All C macros defined within the subsystem have been prefixed with "ACPI\_" to avoid collision with other system include files.

Removed the return value for the two AcpiOsPrint interfaces, since

it is never used and causes lint warnings for ignoring the return value.

Added error checking to all internal mutex acquire and release calls. Although a failure from one of these interfaces is probably a fatal system error, these checks will cause the immediate abort of the currently executing method or interface.

Fixed a problem where the AcpiSetCurrentResources interface could fault. This was a side effect of the deployment of the new memory allocation model.

Fixed a couple of problems with the Global Lock support introduced in the last major build. The "common" (1.0/2.0) internal FACS was being overwritten with the FACS signature and clobbering the Global Lock pointer.

Also, the actual firmware FACS was being unmapped after construction of the "common" FACS, preventing access to the actual Global Lock field within it. The "common" internal FACS is no longer installed as an actual ACPI table; it is used simply as a global.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (02\_07\_01)

Non-Debug Version: 65.2K Code, 6.2K Data, 71.4K Total

Debug Version: 136.9K Code, 56.4K Data, 193.3K Total

Current Release:

Non-Debug Version: 65.4K Code, 6.2K Data, 71.6K Total

Debug Version:

138.0K Code, 56.6K Data, 194.6K Total

## 2) Linux

Updated Linux-specific code for core macro and OSL interface changes described above.

Improved /proc/acpi/event. It now can be opened only once and has proper poll functionality.



Fixed and restructured power management (acpi\_bus).

Only create /proc "view by type" when devices of that class exist.

Fixed "charging/discharging" bug (and others) in acpi\_battery.

Improved thermal zone code.

### 3) ASL Compiler, version X2039:

Implemented the new compiler restriction on ASL String hex/octal escapes to non-null, ASCII values. An error results if an invalid value is used. (This will require an ACPI 2.0 specification change.)

AML object labels that are output to the optional C and ASM source are now prefixed with both the ACPI table signature and table ID to help guarantee uniqueness within a large BIOS project.

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Summary of changes for this label: 02\_01\_02

#### 1) ACPI CA Core Subsystem:

##### ACPI

2.0 support is complete in the entire Core Subsystem and the ASL compiler. All new ACPI 2.0 operators are implemented and all other changes for ACPI 2.0 support are complete. With simultaneous code and data optimizations throughout the subsystem, ACPI 2.0 support has been implemented with almost no additional cost in terms of code and data size.

Implemented a new mechanism for allocation of return buffers. If the buffer length is set to ACPI\_ALLOCATE\_BUFFER, the buffer will be allocated on behalf of the caller. Consolidated all return buffer validation and allocation to a common procedure. Return buffers will be allocated via the primary OSL allocation interface since it appears that a separate pool is not needed by most users. If a separate pool is required for these buffers, the caller can still use the original mechanism and pre-allocate the buffer(s).

Implemented support for string operands within the DerefOf operator.

Restructured the Hardware and Event managers to be table

driven,  
simplifying the source code and reducing the amount of generated code.

Split the common read/write low-level ACPI register bitfield procedure into a separate read and write, simplifying the code considerably.

Obsoleted the AcpiOsCallocate OSL interface. This interface was used only a handful of times and didn't have enough critical mass for a separate interface. Replaced with a common calloc procedure in the core.

Fixed a reported problem with the GPE number mapping mechanism that allows GPE1 numbers to be non-contiguous with GPE0. Reorganized the GPE information and shrunk a large array that was originally large enough to hold info for all possible GPEs (256) to simply large enough to hold all GPEs up to the largest GPE number on the machine.

Fixed a reported problem with resource structure alignment on 64-bit platforms.

Changed the AcpiEnableEvent and AcpiDisableEvent external interfaces to not require any flags for the common case of enabling/disabling a GPE.

Implemented support to allow a "Notify" on a Processor object.

Most TBDs in comments within the source code have been resolved and eliminated.

Fixed a problem in the interpreter where a standalone parent prefix (^) was not handled correctly in the interpreter and debugger.

Removed obsolete and unnecessary GPE save/restore code.

Implemented Field support in the ASL Load operator. This allows a table to be loaded from a named field, in addition to loading a table directly from an Operation Region.

Implemented timeout and handle support in the external Global Lock interfaces.

Fixed a problem in the AcpiDump utility where pathnames were no

longer being generated correctly during the dump of named objects.

Modified the AML debugger to give a full display of if/while predicates instead of just one AML opcode at a time. (The predicate can have several nested ASL statements.) The old method was confusing during single stepping.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (12\_18\_01)

Non-Debug Version: 66.1K Code, 5.5K Data, 71.6K Total

Debug Version: 138.3K Code, 55.9K Data, 194.2K Total

Current Release:

Non-Debug Version: 65.2K Code, 6.2K Data, 71.4K Total

Debug Version: 136.9K Code, 56.4K Data, 193.3K Total

## 2) Linux

Implemented fix for PIIX reverse throttling errata (Processor driver)

Added new Limit interface (Processor and Thermal drivers)

New thermal policy (Thermal driver)

Many updates to /proc

Battery "low" event support (Battery driver)

Supports ACPI PCI IRQ routing  
(PCI Link and PCI root drivers)

IA32 - IA64 initialization unification, no longer experimental

Menuconfig options redesigned

## 3) ASL Compiler, version X2037:

Implemented several new output features to simplify integration of AML code into firmware: 1) Output the AML in C source code with

labels for each named ASL object. The original ASL source code is interleaved as C comments. 2) Output the AML in ASM source code with labels and interleaved ASL source. 3) Output the AML in raw hex table form, in either C or ASM.

Implemented support for optional string parameters to the LoadTable operator.

Completed support for embedded escape sequences within string literals. The compiler now supports all single character escapes as well as the Octal and Hex escapes. Note: the insertion of a null byte into a string literal (via the hex/octal escape) causes the string to be immediately terminated. A warning is issued.

Fixed a problem where incorrect AML was generated for the case where an ASL namepath consists of a single parent prefix ( ) with no trailing name segments.

The compiler has been successfully generated with a 64-bit C compiler.

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Summary of changes for this label: 12\_18\_01

#### 1) Linux

Enhanced blacklist with reason and severity fields. Any table's signature may now be used to identify a blacklisted system.

Call \_PIC control method to inform the firmware which interrupt model the OS is using. Turn on any disabled link devices.

Cleaned up busmgr /proc error handling (Andreas Dilger)

#### 2) ACPI CA Core Subsystem:

Implemented ACPI 2.0 semantics for the "Break" operator (Exit from while loop)

Completed implementation of the ACPI 2.0 "Continue", "ConcatenateResTemplate", "DataTableRegion", and "LoadTable" operators. All new ACPI 2.0 operators are now implemented in both the ASL compiler and the AML interpreter. The only remaining ACPI

2.0 task is support for the String data type in the Derefof operator.

Fixed a problem with AcquireMutex where the status code was lost if the caller had to actually wait for the mutex.

Increased the maximum ASL Field size from 64K bits to 4G bits.

Completed implementation of the external Global Lock interfaces -- AcpiAcquireGlobalLock and AcpiReleaseGlobalLock. The Timeout and Handler parameters were added.

Completed another pass at removing warnings and issues when compiling with 64-bit compilers. The code now compiles cleanly with the Intel 64-bit C/C++ compiler. Most notably, the pointer add and subtract (diff) macros have changed considerably.

Created and deployed a new ACPI\_SIZE type that is 64-bits wide on 64-bit platforms, 32-bits on all others. This type is used wherever memory allocation and/or the C sizeof() operator is used, and affects the OSL memory allocation interfaces AcpiOsAllocate and AcpiOsCallocate.

Implemented sticky user breakpoints in the AML debugger.

Code and Data Size: Current core subsystem library sizes are shown below.

These are the code and data sizes for the apica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (12\_05\_01)

Non-Debug Version: 64.7K Code, 5.3K Data, 70.0K Total

Debug Version: 136.2K Code, 55.6K Data, 191.8K Total

Current Release:

Non-Debug Version: 66.1K Code, 5.5K Data, 71.6K Total

Debug Version: 138.3K Code, 55.9K Data, 194.2K Total

3) ASL Compiler, version X2034:

Now checks for (and generates an error if detected) the use of a Break or Continue statement without an enclosing While statement.

Successfully generated the compiler with the Intel 64-bit C compiler.

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Summary

of changes for this label: 12\_05\_01

1) ACPI CA Core Subsystem:

The ACPI 2.0 CopyObject operator is fully implemented. This operator creates a new copy of an object (and is also used to bypass the "implicit conversion" mechanism of the Store operator.)

The ACPI 2.0 semantics for the SizeOf operator are fully implemented. The change is that performing a SizeOf on a reference object causes an automatic dereference of the object to the actual value before the size is evaluated. This behavior was undefined in ACPI 1.0.

The ACPI 2.0 semantics for the Extended IRQ resource descriptor have been implemented. The interrupt polarity and mode are now independently set.

Fixed a problem where ASL Constants (Zero, One, Ones, Revision) appearing in Package objects were not properly converted to integers when the internal Package was converted to an external object (via the AcpiEvaluateObject interface.)

Fixed a problem with the namespace object deletion mechanism for objects created by control methods. There were two parts to this problem: 1) Objects created during the initialization phase method parse were not being deleted, and 2) The object owner ID mechanism to track objects was broken.

Fixed a problem where the use of the ASL Scope operator within a control method would result in an invalid opcode exception.

Fixed a problem introduced in the previous label where the buffer length required for the \_PRT structure was not being returned correctly.

Code and Data Size: Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary

depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (11\_20\_01)

Non-Debug Version:

64.1K Code, 5.3K Data, 69.4K Total

Debug Version: 135.1K Code, 55.4K Data, 190.5K Total

Current Release:

Non-Debug Version: 64.7K Code, 5.3K Data, 70.0K Total

Debug Version: 136.2K Code, 55.6K Data, 191.8K Total

2) Linux:

Updated all files to apply cleanly against 2.4.16.

Added basic PCI Interrupt Routing Table (PRT) support for IA32 (acpi\_pci.c), and unified the PRT code for IA32 and IA64. This version supports both static and dynamic PRT entries, but dynamic entries are treated as if they were static (not yet reconfigurable). Architecture-specific code to use this data is absent on IA32 but should be available shortly.

Changed the initialization sequence to start the ACPI interpreter (acpi\_init) prior to initialization of the PCI driver (pci\_init) in init/main.c. This ordering is required to support PRT and facilitate other (future) enhancement. A side effect is that the ACPI bus driver and certain device drivers can no longer be loaded as modules.

Modified the 'make menuconfig' options to allow PCI Interrupt Routing support to be included without the ACPI Bus and other device drivers.

3) ASL Compiler, version X2033:

Fixed some issues with the use of the new CopyObject and DataTableRegion operators. Both are fully functional.

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Summary of changes for this label: 11\_20\_01

20 November 2001. Summary of changes for this release.

1) ACPI CA Core Subsystem:

Updated Index support to match ACPI 2.0 semantics. Storing a

Integer, String, or Buffer to an Index of a Buffer will store only the least-significant byte of the source to the Indexed buffer byte. Multiple writes are not performed.

Fixed a problem where the access type used in an AccessAs ASL operator was not recorded correctly into the field object.

Fixed a problem where ASL Event objects were created in a signalled state. Events are now created in an unsignalled state.

The internal object cache is now purged after table loading and initialization to reduce the use of dynamic kernel memory -- on the assumption that object use is greatest during the parse phase of the entire table (versus the run-time use of individual control methods.)

ACPI 2.0 variable-length packages are now fully operational.

Code and Data Size: Code and Data optimizations have permitted new feature development with an actual reduction in the library size. Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (11\_09\_01):

Non-Debug Version: 63.7K Code, 5.2K Data, 68.9K Total

Debug Version:

134.5K Code, 55.4K Data, 189.9K Total

Current Release:

Non-Debug Version: 64.1K Code, 5.3K Data, 69.4K Total

Debug Version: 135.1K Code, 55.4K Data, 190.5K Total

2) Linux:

Enhanced the ACPI boot-time initialization code to allow the use of Local APIC tables for processor enumeration on IA-32, and to pave the way for a fully MPS-free boot (on SMP systems) in the near future. This functionality replaces arch/i386/kernel/acpitables.c, which was introduced in an earlier 2.4.15-preX release. To enable this feature you must add "acpi\_boot=on" to the kernel command line -- see the help entry



for CONFIG\_ACPI\_BOOT for more information. An IA-64 release is in the works...

Restructured the configuration options to allow boot-time table parsing support without inclusion of the ACPI Interpreter (and other) code.

NOTE: This release does not include fixes for the reported events, power-down, and thermal passive cooling issues (coming soon).

### 3) ASL Compiler:

Added

additional typechecking for Fields within restricted access Operation Regions. All fields within EC and CMOS regions must be declared with ByteAcc. All fields withing SMBus regions must be declared with the BufferAcc access type.

Fixed a problem where the listing file output of control methods no longer interleaved the actual AML code with the ASL source code.

-----  
Summary of changes for this label: 11\_09\_01

#### 1) ACPI CA Core Subsystem:

Implemented ACPI 2.0-defined support for writes to fields with a Buffer, String, or Integer source operand that is smaller than the target field. In these cases, the source operand is zero-extended to fill the target field.

Fixed a problem where a Field starting bit offset (within the parent operation region) was calculated incorrectly if the

alignment of the field differed from the access width. This affected CreateWordField, CreateDwordField, CreateQwordField, and possibly other fields that use the "AccessAny" keyword.

Fixed a problem introduced in the 11\_02\_01 release where indirect stores through method arguments did not operate correctly.

#### 2) Linux:

Implemented boot-time ACPI table parsing support (CONFIG\_ACPI\_BOOT) for IA32 and IA64 UP/SMP systems. This code facilitates the use of ACPI tables (e.g. MADT, SRAT) rather than legacy BIOS interfaces (e.g. MPS) for the configuration of system processors, memory, and interrupts during setup\_arch(). Note that this patch does not include the required architecture-specific changes required to apply this information -- subsequent patches will be posted for both IA32 and IA64 to achieve this.

Added low-level sleep support for IA32 platforms, courtesy of Pat Mochel. This allows IA32 systems to transition to/from various sleeping states (e.g. S1, S3), although the lack of a centralized driver model and power-manageable drivers will prevent its (successful) use on most systems.

Revamped the ACPI 'menuconfig' layout: created new "ACPI Support" submenu, unified IA32 and IA64 options, added new "Boot using ACPI tables" option, etc.

Increased the default timeout for the EC driver from 1ms to 10ms (1000 cycles of 10us) to try to address AE\_TIME errors during EC transactions.

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Summary of changes for this label: 11\_02\_01

#### 1) ACPI CA Core Subsystem:

ACPI 2.0 Support: Implemented ACPI 2.0 64-bit Field access (QWordAcc keyword). All ACPI 2.0 64-bit support is now implemented.

OSL Interfaces: Several of the OSL (AcpiOs\*) interfaces required changes to support ACPI 2.0 Qword field access. Read/Write PciConfiguration(), Read/Write Memory(), and Read/Write Port() now accept an ACPI\_INTEGER (64 bits) as the value parameter. Also, the value parameter for the address space handler interface is now an ACPI\_INTEGER. OSL implementations of these interfaces must now handle the case where the Width parameter is 64.

Index Fields: Fixed a problem where unaligned bit assembly and disassembly for IndexFields was not supported correctly.

Index and Bank Fields: Nested Index and Bank Fields are now supported. During field access, a check is performed to ensure that the value written to an Index or Bank register is not out of

the range of the register. The Index (or Bank) register is written before each access to the field data. Future support will include allowing individual IndexFields to be wider than the DataRegister width.

Fields: Fixed a problem where the AML interpreter was incorrectly attempting to write beyond the end of a Field/OpRegion. This was a boundary case that occurred when a DWORD field was written to a BYTE access OpRegion, forcing multiple writes and causing the interpreter to write one datum too many.

Fields: Fixed a problem with Field/OpRegion access where the starting bit address of a field was incorrectly calculated if the current access type was wider than a byte (WordAcc, DwordAcc, or QwordAcc).

Fields: Fixed a problem where forward references to individual FieldUnits (individual Field names within a Field definition) were not resolved during the AML table load.

Fields: Fixed a problem where forward references from a Field definition to the parent Operation Region definition were not resolved during the AML table load.

Fields: Duplicate FieldUnit names within a scope are now detected during AML table load.

Acpi Interfaces: Fixed a problem where the AcpiGetName() interface returned an incorrect name for the root node.

Code and Data Size: Code and Data optimizations have permitted new feature development with an actual reduction in the library size. Current core subsystem library sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the debug output trace mechanism and has a larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Release (10\_18\_01):

Non-Debug Version: 63.9K Code, 5.1K Data, 69.0K Total

Debug Version: 136.7K Code, 57.4K Data, 194.2K Total

Current Release:

Non-Debug Version: 63.7K Code, 5.2K Data, 68.9K Total

Debug Version: 134.5K Code, 55.4K Data, 189.9K Total

## 2) Linux:

Improved /proc processor output (Pavel Machek) Re-added MODULE\_LICENSE("GPL") to all modules.

## 3) ASL Compiler version X2030:

Duplicate FieldUnit names within a scope are now detected and flagged as errors.

## 4) Documentation:

Programmer Reference updated to reflect OSL and address space handler interface changes described above.

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Summary of changes for this label: 10\_18\_01

### ACPI CA Core Subsystem:

Fixed a problem with the internal object reference count mechanism that occasionally caused premature object deletion. This resolves all of the outstanding problem reports where an object is deleted in the middle of an interpreter evaluation. Although this problem only showed up in rather obscure cases, the solution to the problem involved an adjustment of all reference counts involving objects attached to namespace nodes.

Fixed a problem with Field support in the interpreter where writing to an aligned field whose length is an exact multiple (2 or greater) of the field access granularity would cause an attempt to write beyond the end of the field.

The top level AML opcode execution functions within the interpreter have been renamed with a more meaningful and consistent naming convention. The modules exmonad.c and exdyadic.c were eliminated. New modules are exoparg1.c, exoparg2.c, exoparg3.c, and exoparg6.c.

Support for the ACPI 2.0 "Mid" ASL operator has been implemented.

Fixed a problem where the AML debugger was causing some internal objects to not be deleted during subsystem termination.

Fixed a problem with the external AcpiEvaluateObject interface where the subsystem would fault if the named object to be evaluated referred to a constant such as Zero, Ones, etc.

Fixed a problem with IndexFields and BankFields where the subsystem would fault if the index, data, or bank registers were not defined in the same scope as the field itself.

Added printf format string checking for compilers that support this feature. Corrected more than 50 instances of issues with format specifiers within invocations of ACPI\_DEBUG\_PRINT throughout the core subsystem code.

The ASL "Revision" operator now returns the ACPI support level implemented in the core - the value "2" since the ACPI 2.0 support is more than 50% implemented.

Enhanced the output of the AML debugger "dump namespace" command to output in a more human-readable form.

Current core subsystem library code sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the full debug trace mechanism -- leading to a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Previous Label (09\_20\_01):

Non-Debug Version: 65K Code, 5K Data, 70K Total

Debug Version: 138K Code, 58K Data, 196K Total

This Label:

Non-Debug Version: 63.9K Code, 5.1K Data, 69.0K Total

Debug Version: 136.7K Code, 57.4K Data, 194.2K Total

Linux:

Implemented a "Bad BIOS Blacklist" to track machines that have known ASL/AML problems.

Enhanced the /proc interface for the thermal zone driver and added

support for `_HOT` (the critical suspend trip point). The 'info' file now includes threshold/policy information, and allows setting of `_SCP` (cooling preference) and `_TZP` (polling frequency) values to the 'info' file. Examples: "echo tzp=5 > info" sets the polling frequency to 5 seconds, and "echo scp=1 > info" sets the cooling preference to the passive/quiet mode (if supported by the ASL).

Implemented a workaround for a gcc bug that resulted in an OOPs when loading the control method battery driver.

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Summary of changes for this label: 09\_20\_01

ACPI CA Core Subsystem:

The `AcpiEnableEvent` and `AcpiDisableEvent` interfaces have been modified to allow individual GPE levels to be flagged as wake-enabled (i.e., these GPEs are to remain enabled when the platform sleeps.)

The `AcpiEnterSleepState` and `AcpiLeaveSleepState` interfaces now support wake-enabled GPEs. This means that upon entering the sleep state, all GPEs that are not wake-enabled are disabled. When leaving the sleep state, these GPEs are reenabled.

A local double-precision divide/modulo module has been added to enhance portability to OS kernels where a 64-bit math library is not available. The new module is "utmath.c".

Several optimizations have been made to reduce the use of CPU stack. Originally over 2K, the maximum stack usage is now below 2K at 1860 bytes (1.82k)

Fixed a problem with the `AcpiGetFirmwareTable` interface where the root table pointer was not mapped into a logical address properly.

Fixed a problem where a NULL pointer was being dereferenced in the interpreter code for the ASL Notify operator.

Fixed a problem where the use of the ASL Revision operator returned an error. This operator now returns the current version of the ACPI CA core subsystem.

Fixed a problem where objects passed as control method parameters to `AcpiEvaluateObject` were always deleted at method termination. However, these objects may end up being stored into the namespace

by the called method. The object reference count mechanism was applied to these objects instead of a force delete.

Fixed a problem where static strings or buffers (contained in the AML code) that are declared as package elements within the ASL code could cause a fault because the interpreter would attempt to delete them. These objects are now marked with the "static object" flag to prevent any attempt to delete them.

Implemented an interpreter optimization to use operands directly from the state object instead of extracting the operands to local variables. This reduces stack use and code size, and improves performance.

The module exxface.c was eliminated as it was an unnecessary extra layer of code.

Current core subsystem library code sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the full debug trace mechanism -- leading to a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Non-Debug Version: 65K Code, 5K Data, 70K Total  
(Previously 69K) Debug Version: 138K Code, 58K Data, 196K Total (Previously 195K)

Linux:

Support for ACPI 2.0 64-bit integers has been added. All ACPI Integer objects are now 64 bits wide

All Acpi data types and structures are now in lower case. Only Acpi macros are upper case for differentiation.

Documentation:

Changes to the external interfaces as described above.

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Summary of changes for this label: 08\_31\_01

ACPI CA Core Subsystem:

A bug with interpreter implementation of the ASL Divide operator was found and fixed. The implicit function return value (not the explicit store operands) was returning the remainder instead of the quotient. This was a longstanding bug and it fixes several known outstanding issues on various platforms.

The ACPI\_DEBUG\_PRINT and function trace entry/exit macros have been further optimized for size. There are 700 invocations of the DEBUG\_PRINT macro alone, so each optimization reduces the size of the debug version of the subsystem significantly.

A stack trace mechanism has been implemented. The maximum stack usage is about 2K on 32-bit platforms. The debugger command "stat stack" will display the current maximum stack usage.

All public symbols and global variables within the subsystem are now prefixed with the string "Acpi". This keeps all of the symbols grouped together in a kernel map, and avoids conflicts with other kernel subsystems.

Most of the internal fixed lookup tables have been moved into the code segment via the const operator.

Several enhancements have been made to the interpreter to both reduce the code size and improve performance.

Current core subsystem library code sizes are shown below. These are the code and data sizes for the acpica.lib produced by the Microsoft Visual C++ 6.0 compiler, and these values do not include any ACPI driver or OSPM code. The debug version of the code includes the full debug trace mechanism which contains over 700 invocations of the DEBUG\_PRINT macro, 500 function entry macro invocations, and over 900 function exit macro invocations -- leading to a much larger code and data size. Note that these values will vary depending on the efficiency of the compiler and the compiler options used during generation.

Non-Debug Version: 64K Code, 5K Data, 69K Total  
Debug Version: 137K Code, 58K Data, 195K Total

Linux:

Implemented wbinvd() macro, pending a kernel-wide definition.

Fixed /proc/acpi/event to handle poll() and short reads.



ASL Compiler, version X2026:

Fixed a problem introduced in the previous label where the AML code emitted for package objects produced packages with zero length.

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Summary of changes for this label: 08\_16\_01

ACPI CA Core Subsystem:

The following ACPI 2.0 ASL operators have been implemented in the AML interpreter (These are already supported by the Intel ASL compiler): ToDecimalString, ToHexString, ToString, ToInteger, and ToBuffer.

Support for 64-bit AML constants is implemented in the AML parser, debugger, and disassembler.

The internal memory tracking mechanism (leak detection code) has been upgraded to reduce the memory overhead (a separate tracking block is no longer allocated for each memory allocation), and now supports all of the internal object caches.

The data structures and code for the internal object caches have been coalesced and optimized so that there is a single cache and memory list data structure and a single group of functions that implement generic cache management. This has reduced the code size in both the debug and release versions of the subsystem.

The DEBUG\_PRINT macro(s) have been optimized for size and replaced by ACPI\_DEBUG\_PRINT. The syntax for this macro is slightly different, because it generates a single call to an internal function. This results in a savings of about 90 bytes per invocation, resulting in an overall code and data savings of about 16% in the debug version of the subsystem.

Linux:

Fixed C3 disk corruption problems and re-enabled C3 on supporting machines.

Integrated low-level sleep code by Patrick Mochel.

Further tweaked source code Linuxization.

Other minor fixes.

ASL Compiler:

Support for ACPI 2.0 variable length packages is fixed/completed.

Fixed a problem where the optional length parameter for the ACPI 2.0 ToString operator.

Fixed multiple extraneous error messages when a syntax error is detected within the declaration line of a control method.

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Summary of changes for this label: 07\_17\_01

ACPI CA Core Subsystem:

Added a new interface named AcpiGetFirmwareTable to obtain any ACPI table via the ACPI signature. The interface can be called at any time during kernel initialization, even before the kernel virtual memory manager is initialized and paging is enabled. This allows kernel subsystems to obtain ACPI tables very early, even before the ACPI CA subsystem is initialized.

Fixed

a problem where Fields defined with the AnyAcc attribute could be resolved to the incorrect address under the following conditions: 1) the field width is larger than 8 bits and 2) the parent operation region is not defined on a DWORD boundary.

Fixed a problem where the interpreter is not being locked during namespace initialization (during execution of the \_INI control methods), causing an error when an attempt is made to release it later.

ACPI 2.0 support in the AML Interpreter has begun and will be ongoing throughout the rest of this year. In this label, The Mod operator is implemented.

Added a new data type to contain full PCI addresses named ACPI\_PCI\_ID. This structure contains the PCI Segment, Bus, Device, and Function values.

Linux:

Enhanced the Linux version of the source code to change most capitalized ACPI type names to lowercase. For example, all instances of ACPI\_STATUS are changed to acpi\_status. This will

result in a large diff, but the change is strictly cosmetic and aligns the CA code closer to the Linux coding standard.

#### OSL Interfaces:

The interfaces to the PCI configuration space have been changed to add the PCI Segment number and to split the single 32-bit combined DeviceFunction field into two 16-bit fields. This was accomplished by moving the four values that define an address in PCI configuration space (segment, bus, device, and function) to the new ACPI\_PCI\_ID structure.

The changes to the PCI configuration space interfaces led to a reexamination of the complete set of address space access interfaces for PCI, I/O, and Memory. The previously existing 18 interfaces have proven difficult to maintain (any small change must be propagated across at least 6 interfaces) and do not easily allow for future expansion to 64 bits if necessary. Also, on some systems, it would not be appropriate to demultiplex the access width (8, 16, 32, or 64) before calling the OSL if the corresponding native OS interfaces contain a similar access width parameter.

For these reasons, the 18 address space interfaces have been replaced by these 6 new ones:

- AcpiOsReadPciConfiguration
- AcpiOsWritePciConfiguration
- AcpiOsReadMemory
- AcpiOsWriteMemory
- AcpiOsReadPort
- AcpiOsWritePort

Added a new interface named AcpiOsGetRootPointer to allow the OSL to perform the platform and/or OS-specific actions necessary to obtain the ACPI RSDP table pointer. On IA-32 platforms, this interface will simply call down to the CA core to perform the low-memory search for the table. On IA-64, the RSDP is obtained from EFI. Migrating this interface to the OSL allows the CA core to remain OS and platform independent.

Added a new interface named AcpiOsSignal to provide a generic "function code and pointer" interface for various miscellaneous signals and notifications that must be made to the host OS. The first such signals are intended to support the ASL Fatal and Breakpoint operators. In the latter case, the AcpiOsBreakpoint interface has been obsoleted.

The definition of the AcpiFormatException interface has been changed to simplify its use. The caller no longer must supply a buffer to the call; A pointer to a const string is now returned directly. This allows the call to be easily used in printf statements, etc. since the caller does not have to manage a local buffer.

ASL Compiler, Version X2025:

The ACPI 2.0 Switch/Case/Default operators have been implemented and are fully functional. They will work with all ACPI 1.0 interpreters, since the operators are simply translated to If/Else pairs.

The ACPI 2.0 ElseIf operator is implemented and will also work with 1.0 interpreters, for the same reason.

Implemented support for ACPI 2.0 variable-length packages. These packages have a separate opcode, and their size is determined by the interpreter at run-time.

Documentation The ACPI CA Programmer Reference has been updated to reflect the new interfaces and changes to existing interfaces.

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Summary  
of changes for this label: 06\_15\_01

ACPI CA Core Subsystem:

Fixed a problem where a DWORD-accessed field within a Buffer object would get its byte address inadvertently rounded down to the nearest DWORD. Buffers are always Byte-accessible.

ASL Compiler, version X2024:

Fixed a problem where the Switch() operator would either fault or hang the compiler. Note however, that the AML code for this ACPI 2.0 operator is not yet implemented.

Compiler uses the new AcpiOsGetTimer interface to obtain compile timings.

Implementation of the CreateField operator automatically converts a reference to a named field within a resource descriptor from a

byte offset to a bit offset if required.

Added some missing named fields from the resource descriptor support. These are the names that are automatically created by the compiler to reference fields within a descriptor. They are only valid at compile time and are not passed through to the AML interpreter.

Resource descriptor named fields are now typed as Integers and subject to compile-time typechecking when used in expressions.

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Summary of changes for this label: 05\_18\_01

ACPI CA Core Subsystem:

Fixed a couple of problems in the Field support code where bits from adjacent fields could be returned along with the proper field bits. Restructured the field support code to improve performance, readability and maintainability.

New DEBUG\_PRINTP macro automatically inserts the procedure name into the output, saving hundreds of copies of procedure name strings within the source, shrinking the memory footprint of the debug version of the core subsystem.

Source Code Structure:

The source code directory tree was restructured to reflect the current organization of the component architecture. Some files and directories have been moved and/or renamed.

Linux:

Fixed leaking kacpidpc processes.

Fixed queuing event data even when /proc/acpi/event is not opened.

ASL Compiler,  
version X2020:

Memory allocation performance enhancement - over 24X compile time improvement on large ASL files. Parse nodes and namestring buffers are now allocated from a large internal compiler buffer.

The temporary .SRC file is deleted unless the "-s" option is

specified

The "-d" debug output option now sends all output to the .DBG file instead of the console.

"External" second parameter is now optional

"ElseIf" syntax now properly allows the predicate

Last operand to "Load" now recognized as a Target operand

Debug object can now be used anywhere as a normal object.

ResourceTemplate now returns an object of type BUFFER

EISAID now returns an object of type INTEGER

"Index" now works with a STRING operand

"LoadTable" now accepts optional parameters

"ToString" length parameter is now optional

"Interrupt (ResourceType," parse error fixed.

"Register" with a user-defined region space parse error fixed

Escaped backslash at the end of a string ("\\") scan/parse error fixed

"Revision"

is now an object of type INTEGER.

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Summary of changes for this label: 05\_02\_01

Linux:

/proc/acpi/event now blocks properly.

Removed /proc/sys/acpi. You can still dump your DSDT from /proc/acpi/dsdt.

ACPI CA Core Subsystem:

Fixed a problem introduced in the previous label where some of the

"small" resource descriptor types were not recognized.

Improved error messages for the case where an ASL Field is outside the range of the parent operation region.

ASL Compiler, version X2018:

Added error detection for ASL Fields that extend beyond the length of the parent operation region (only if the length of the region is known at compile time.) This includes fields that have a minimum access width that is smaller than the parent region, and individual field units that are partially or entirely beyond the extent of the parent.

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Summary of changes for this label: 04\_27\_01

ACPI CA

Core Subsystem:

Fixed a problem where the namespace mutex could be released at the wrong time during execution of AcpiRemoveAddressSpaceHandler.

Added optional thread ID output for debug traces, to simplify debugging of multiple threads. Added context switch notification when the debug code realizes that a different thread is now executing ACPI code.

Some additional external data types have been prefixed with the string "ACPI\_" for consistency. This may effect existing code. The data types affected are the external callback typedefs - e.g.,

WALK\_CALLBACK becomes ACPI\_WALK\_CALLBACK.

Linux:

Fixed an issue with the OSL semaphore implementation where a thread was waking up with an error from receiving a SIGCHLD signal.

Linux version of ACPI CA now uses the system C library for string manipulation routines instead of a local implementation.

Cleaned up comments and removed TBDs.

ASL Compiler, version X2017:

Enhanced error detection and reporting for all file I/O operations.

Documentation:

Programmer

Reference updated to version 1.06.

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Summary of changes for this label: 04\_13\_01

ACPI CA Core Subsystem:

Restructured support for BufferFields and RegionFields. BankFields support is now fully operational. All known 32-bit limitations on field sizes have been removed. Both BufferFields and (Operation) RegionFields are now supported by the same field management code.

Resource support now supports QWORD address and IO resources. The 16/32/64 bit address structures and the Extended IRQ structure have been changed to properly handle Source Resource strings.

A ThreadId of -1 is now used to indicate a "mutex not acquired" condition internally and must never be returned by AcpiOsThreadId. This reserved value was changed from 0 since Unix systems allow a thread ID of 0.

Linux:

Driver code reorganized to enhance portability

Added a kernel configuration option to control ACPI\_DEBUG

Fixed the EC driver to honor \_GLK.

ASL

Compiler, version X2016:

Fixed support for the "FixedHw" keyword. Previously, the FixedHw address space was set to 0, not 0x7f as it should be.

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Summary of changes for this label: 03\_13\_01



## ACPI CA Core Subsystem:

During ACPI initialization, the `_SB_.INI` method is now run if present.

Notify handler fix - notifies are deferred until the parent method completes execution. This fixes the "mutex already acquired" issue seen occasionally.

Part of the "implicit conversion" rules in ACPI 2.0 have been found to cause compatibility problems with existing ASL/AML. The convert "result-to-target-type" implementation has been removed for stores to method Args and Locals. Source operand conversion is still fully implemented. Possible changes to ACPI 2.0 specification pending.

Fix to `AcpiRsCalculatePciRoutingTableLength` to return correct length.

Fix for compiler warnings for 64-bit compiles.

## Linux:

/proc output aligned for easier parsing.

Release-version  
compile problem fixed.

New kernel configuration options documented in `Configure.help`.

IBM 600E - Fixed Sleep button may generate "Invalid <NULL> context" message.

## OSPM:

Power resource driver integrated with bus manager.

Fixed kernel fault during active cooling for thermal zones.

## Source Code:

The source code tree has been restructured.

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Summary of changes for this label: 03\_02\_01

Linux OS Services Layer (OSL):

Major revision of all Linux-specific code.

Modularized all ACPI-specific drivers.

Added new thermal zone and power resource drivers.

Revamped /proc interface (new functionality is under /proc/acpi).

New kernel configuration options.

Linux known issues:

New kernel configuration options not documented in Configure.help yet.

Module dependencies not currently implemented. If used, they should be loaded in this order: busmgr, power, ec, system, processor, battery, ac\_adapter, button, thermal.

Modules

will not load if CONFIG\_MODVERSION is set.

IBM 600E - entering S5 may reboot instead of shutting down.

IBM 600E - Sleep button may generate "Invalid <NULL> context" message.

Some systems may fail with "execution mutex already acquired" message.

ACPI CA Core Subsystem:

Added a new OSL Interface, AcpiOsGetThreadId. This was required for the deadlock detection code. Defined to return a non-zero, 32-bit thread ID for the currently executing thread. May be a non-zero constant integer on single-thread systems.

Implemented deadlock detection for internal subsystem mutexes. We may add conditional compilation for this code (debug only) later.

ASL/AML Mutex object semantics are now fully supported. This includes multiple acquires/releases by owner and support for the

Mutex SyncLevel parameter.

A new "Force Release" mechanism automatically frees all ASL Mutexes that have been acquired but not released when a thread exits the interpreter. This forces conformance to the ACPI spec ("All mutexes must be released when an invocation exits") and prevents deadlocked ASL threads. This mechanism can be expanded (later) to monitor other resource acquisitions if OEM ASL code continues to misbehave (which it will).

Several new ACPI exception codes have been added for the Mutex support.

Recursive method calls are now allowed and supported (the ACPI spec does in fact allow recursive method calls.) The number of recursive calls is subject to the restrictions imposed by the `SERIALIZED` method keyword and `SyncLevel` (ACPI 2.0) method parameter.

Implemented support for the `SyncLevel` parameter for control methods (ACPI 2.0 feature)

Fixed a deadlock problem when multiple threads attempted to use the interpreter.

Fixed a problem where the string length of a String package element was not always set in a package returned from `AcpiEvaluateObject`.

Fixed a problem where the length of a String package element was not always included in the length of the overall package returned from `AcpiEvaluateObject`.

Added external interfaces (`Acpi*`) to the ACPI debug memory manager. This manager keeps a list of all outstanding allocations, and can therefore detect memory leaks and attempts to free memory blocks more than once. Useful for code such as the power manager, etc. May not be appropriate for device drivers. Performance with the debug code enabled is slow.

The ACPI Global Lock is now an optional hardware element.

ASL Compiler Version X2015:

Integrated changes to allow the compiler to be generated on multiple platforms.

Linux makefile added to generate the compiler on Linux

Source Code:

All platform-specific headers have been moved to their own subdirectory, Include/Platform.

New source file added, Interpreter/ammutex.c

New header file, Include/acstruct.h

Documentation:

The programmer reference has been updated for the following new interfaces: AcpiOsGetThreadId AcpiAllocate AcpiCallocate AcpiFree

-----  
Summary

of changes for this label: 02\_08\_01

Core ACPI CA Subsystem: Fixed a problem where an error was incorrectly returned if the return resource buffer was larger than the actual data (in the resource interfaces).

References to named objects within packages are resolved to the full pathname string before packages are returned directly (via the AcpiEvaluateObject interface) or indirectly via the resource interfaces.

Linux OS Services Layer (OSL):

Improved /proc battery interface.

Added C-state debugging output and other miscellaneous fixes.

ASL Compiler Version X2014:

All defined method arguments can now be used as local variables, including the ones that are not actually passed in as parameters. The compiler tracks initialization of the arguments and issues an exception if they are used without prior assignment (just like locals).

The -o option now specifies a filename prefix that is used for all output files, including the AML output file. Otherwise, the default behavior is as follows:

1) the AML goes to the file specified in the DSDT. 2) all other output files use the input source filename as the base.

-----  
Summary of changes for this label: 01\_25\_01

Core ACPI CA Subsystem: Restructured the implementation of object store support within the interpreter. This includes support for the Store operator as well as any ASL operators that include a target operand.

Partially implemented support for Implicit Result-to-Target conversion. This is when a result object is converted on the fly to the type of an existing target object. Completion of this support is pending further analysis of the ACPI specification concerning this matter.

CPU-specific code has been removed from the subsystem (hardware directory).

New Power Management Timer functions added

Linux OS Services Layer (OSL): Moved system state transition code to the core, fixed it, and modified Linux OSL accordingly.

Fixed C2 and C3 latency calculations.

We no longer use the compilation date for the version message on initialization, but retrieve the version from AcpiGetSystemInfo().

Incorporated for fix Sony VAIO machines.

Documentation: The Programmer Reference has been updated and reformatted.

ASL Compiler: Version X2013: Fixed a problem where the line numbering and error reporting could get out of sync in the presence of multiple include files.

-----  
Summary of changes for this label: 01\_15\_01

Core ACPI CA Subsystem:

Implemented support for type conversions in the execution of the ASL Concatenate operator (The second operand is converted to match the type of the first operand before concatenation.)

Support for implicit source operand conversion is partially implemented. The ASL source operand types Integer, Buffer, and String are freely interchangeable for most ASL operators and are converted by the interpreter on the fly as required. Implicit Target operand conversion (where the result is converted to the target type before storing) is not yet implemented.

Support for 32-bit and 64-bit BCD integers is implemented.

Problem fixed where a field read on an aligned field could cause a read past the end of the field.

New exception, AE\_AML\_NO\_RETURN\_VALUE, is returned when a method does not return a value, but the caller expects one. (The ASL compiler flags this as a warning.)

ASL Compiler:

Version X2011:

1. Static typechecking of all operands is implemented. This prevents the use of invalid objects (such as using a Package where an Integer is required) at compile time instead of at interpreter run-time.
2. The ASL source line is printed with ALL errors and warnings.
3. Bug fix for source EOF without final linefeed.
4. Debug option is split into a parse trace and a namespace trace.
5. Namespace output option (-n) includes initial values for integers and strings.
6. Parse-only option added for quick syntax checking.
7. Compiler checks for duplicate ACPI name declarations

Version

X2012:

1. Relaxed typechecking to allow interchangeability between strings, integers, and buffers. These types are now converted by the interpreter at runtime.
2. Compiler reports time taken by each internal subsystem in the debug output file.

-----  
Summary of changes for this label: 12\_14\_00

## ASL Compiler:

This is the first official release of the compiler. Since the compiler requires elements of the Core Subsystem, this label synchronizes everything.

-----  
Summary of changes for this label: 12\_08\_00

Fixed a problem where named references within the ASL definition of both OperationRegions and CreateXXXFields did not work properly. The symptom was an AE\_AML\_OPERAND\_TYPE during initialization of the region/field. This is similar (but not related internally) to the problem that was fixed in the last label.

Implemented both 32-bit and 64-bit support for the BCD ASL functions ToBCD and FromBCD.

Updated all legal headers to include "2000" in the copyright years.

-----  
Summary of changes for this label: 12\_01\_00

Fixed a problem where method invocations within the ASL definition of both OperationRegions and CreateXXXFields did not work properly. The symptom was an AE\_AML\_OPERAND\_TYPE during initialization of the region/field:

nsinit-0209: AE\_AML\_OPERAND\_TYPE while getting region arguments  
[DEBUG] ammonad-0284: Exec\_monadic2\_r/Not: bad operand(s)  
(0x3005)

Fixed a problem where operators with more than one nested subexpression would fail. The symptoms were varied, by mostly AE\_AML\_OPERAND\_TYPE errors. This was actually a rather serious problem that has gone unnoticed until now.

Subtract (Add (1,2), Multiply (3,4))

Fixed a problem where AcpiGetHandle didn't quite get fixed in the previous build (The prefix part of a relative path was handled incorrectly).

Fixed a problem where Operation Region initialization failed

if  
the operation region name was a "namepath" instead of a simple  
"nameseg". Symptom was an AE\_NO\_OPERAND error.

Fixed a problem where an assignment to a local variable via the  
indirect RefOf mechanism only worked for the first such  
assignment. Subsequent assignments were ignored.

-----  
Summary of changes for this label: 11\_15\_00

ACPI 2.0 table support with backwards support for ACPI 1.0 and the  
0.71 extensions. Note: although we can read ACPI 2.0 BIOS tables,  
the AML interpreter does NOT have support for the new 2.0 ASL  
grammar terms at this time.

All ACPI hardware access is via the GAS structures in the ACPI 2.0  
FADT.

All physical memory addresses across all platforms are now 64 bits  
wide. Logical address width remains dependent on the platform  
(i.e., "void \*").

AcpiOsMapMemory interface changed to a 64-bit physical address.

The AML interpreter integer size is now 64 bits, as per the ACPI  
2.0 specification.

For backwards compatibility  
with ACPI 1.0, ACPI tables with a  
revision number less than 2 use 32-bit integers only.

Fixed a problem where the evaluation of OpRegion operands did not  
always resolve them to numbers properly.

-----  
Summary of changes for this label: 10\_20\_00

Fix for CBN\_.\_STA issue. This fix will allow correct access to  
CBN\_ OpRegions when the \_STA returns 0x8.

Support to convert ACPI constants (Ones, Zeros, One) to actual  
values before a package object is returned

Fix for method call as predicate to if/while construct causing  
incorrect if/while behavior

Fix for Else block package lengths sometimes calculated wrong (if



block > 63 bytes)

Fix for Processor object length field, was always zero

Table load abort if FACP sanity check fails

Fix for problem with Scope(name) if name already exists

Warning emitted if a named object referenced cannot be found (resolved) during method execution.

-----  
Summary of changes

for this label: 9\_29\_00

New table initialization interfaces: AcpiInitializeSubsystem no longer has any parameters AcpiFindRootPointer - Find the RSDP (if necessary) AcpiLoadTables (RSDP) - load all tables found at RSDP->RSDT Obsolete Interfaces AcpiLoadFirmwareTables - replaced by AcpiLoadTables

Note: These interface changes require changes to all existing OSDs

The PCI\_Config default address space handler is always installed at the root namespace object.

-----  
Summary of changes for this label: 09\_15\_00

The new initialization architecture is implemented. New interfaces are: AcpiInitializeSubsystem (replaces AcpiInitialize) AcpiEnableSubsystem Obsolete Interfaces: AcpiLoadNamespace

(Namespace is automatically loaded when a table is loaded)

The ACPI\_OPERAND\_OBJECT has been optimized to shrink its size from 52 bytes to 32 bytes. There is usually one of these for every namespace object, so the memory savings is significant.

Implemented just-in-time evaluation of the CreateField operators.

Bug fixes for IA-64 support have been integrated.

Additional code review comments have been implemented

The so-called "third pass parse" has been replaced by a final walk through the namespace to initialize all operation regions (address spaces) and fields that have not yet been initialized during the execution of the various \_INI and REG methods.

New file - namespace/nsinit.c

-----  
Summary of changes for this label: 09\_01\_00

Namespace manager data structures have been reworked to change the primary object from a table to a single object. This has resulted in dynamic memory savings of 3X within the namespace and 2X overall in the ACPI CA subsystem.

Fixed problem where the call to AcpiEvFindPciRootBuses was inadvertently left commented out.

Reduced the warning count when generating the source with the GCC compiler.

Revision numbers added to each module header showing the SourceSafe version of the file. Please refer to this version number when giving us feedback or comments on individual modules.

The main object types within the subsystem have been renamed to clarify their purpose:

ACPI\_INTERNAL\_OBJECT -> ACPI\_OPERAND\_OBJECT  
ACPI\_GENERIC\_OP -> ACPI\_PARSE\_OBJECT  
ACPI\_NAME\_TABLE\_ENTRY -> ACPI\_NAMESPACE\_NODE

NOTE: no changes to the initialization sequence are included in this label.

-----  
Summary of changes for this label: 08\_23\_00

Fixed problem where TerminateControlMethod was being called multiple times per method

Fixed debugger problem where single stepping caused a semaphore to be oversignalled

Improved performance through additional parse object caching -

added ACPI\_EXTENDED\_OP type

-----  
Summary of changes for this label: 08\_10\_00

Parser/Interpreter integration: Eliminated the creation of complete parse trees for ACPI tables and control methods. Instead, parse subtrees are created and then deleted as soon as they are processed (Either entered into the namespace or executed by the interpreter). This reduces the use of dynamic kernel memory significantly. (about 10X)

Exception codes broken into classes and renumbered. Be sure to recompile all code that includes acexcep.h. Hopefully we won't have to renumber the codes again now that they are split into classes (environment, programmer, AML code, ACPI table, and internal).

Fixed some additional alignment issues in the Resource Manager subcomponent

Implemented semaphore tracking in the AcpiExec utility, and fixed several places where mutexes/semaphores were being unlocked without a corresponding lock operation. There are no known semaphore or mutex "leaks" at this time.

Fixed the case where an ASL Return operator is used to return an unnamed package.

-----  
Summary of changes for this label: 07\_28\_00

Fixed a problem with the way addresses were calculated in AcpiAmlReadFieldData() and AcpiAmlWriteFieldData(). This problem manifested itself when a Field was created with WordAccess or DwordAccess, but the field unit defined within the Field was less than a Word or Dword.

Fixed a problem in AmlDumpOperands() module's loop to pull operands off of the operand stack to display information. The problem manifested itself as a TLB error on 64-bit systems when accessing an operand stack with two or more operands.

Fixed a problem with the PCI configuration space handlers where context was getting confused between accesses. This required a

change to the generic address space handler and address space setup definitions. Handlers now get both a global handler context (this is the one passed in by the user when executing AcpiInstallAddressSpaceHandler()) and a specific region context that is unique to each region (For example, the \_ADR, \_SEG and \_BBN values associated with a specific region). The generic function definitions have changed to the following:

```
typedef ACPI_STATUS (*ADDRESS_SPACE_HANDLER) ( UINT32 Function,
UINT32 Address, UINT32 BitWidth, UINT32 *Value, void
*HandlerContext, // This used to be void *Context void
*RegionContext); // This is an additional parameter
```

```
typedef ACPI_STATUS (*ADDRESS_SPACE_SETUP) ( ACPI_HANDLE
RegionHandle, UINT32 Function, void *HandlerContext, void
**RegionContext); // This used to be **ReturnContext
```

-----  
Summary of changes for this label: 07\_21\_00

Major file consolidation and rename. All files within the interpreter have been renamed as well as most header files. This was done to prevent collisions with existing files in the host OSs -- filenames such as "config.h" and "global.h" seem to be quite common. The VC project files have been updated. All makefiles will require modification.

The parser/interpreter integration continues in Phase 5 with the implementation of a complete 2-pass parse (the AML is parsed twice) for each table;

This avoids the construction of a huge parse tree and therefore reduces the amount of dynamic memory required by the subsystem. Greater use of the parse object cache means that performance is unaffected.

Many comments from the two code reviews have been rolled in.

The 64-bit alignment support is complete.

-----  
Summary of changes for this label: 06\_30\_00

With a nod and a tip of the hat to the technology of yesteryear, we've added support in the source code for 80 column output devices. The code is now mostly constrained to 80 columns or less to support environments and editors that 1) cannot display or print more than 80 characters on a single line, and 2) cannot

disable line wrapping.

A major restructuring of the namespace data structure has been completed. The result is 1) cleaner and more understandable/maintainable code, and 2) a significant reduction in the dynamic memory requirement for each named ACPI object (almost half).

-----  
Summary

of changes for this label: 06\_23\_00

Linux support has been added. In order to obtain approval to get the ACPI CA subsystem into the Linux kernel, we've had to make quite a few changes to the base subsystem that will affect all users (all the changes are generic and OS-independent). The effects of these global changes have been somewhat far reaching. Files have been merged and/or renamed and interfaces have been renamed. The major changes are described below.

Osd\* interfaces renamed to AcpiOs\* to eliminate namespace pollution/confusion within our target kernels. All OSD interfaces must be modified to match the new naming convention.

Files merged across the subsystem. A number of the smaller source and header files have been merged to reduce the file count and increase the density of the existing files. There are too many to list here. In general, makefiles that call out individual files will require rebuilding.

Interpreter

files renamed. All interpreter files now have the prefix am\* instead of ie\* and is\*.

Header files renamed: The acapi.h file is now acpixf.h. The acpiosd.h file is now acpiosxf.h. We are removing references to the acronym "API" since it is somewhat windowsy. The new name is "external interface" or xface or xf in the filenames.j

All manifest constants have been forced to upper case (some were mixed case.) Also, the string "ACPI\_" has been prepended to many (not all) of the constants, typedefs, and structs.

The globals "DebugLevel" and "DebugLayer" have been renamed "AcpiDbgLevel" and "AcpiDbgLayer" respectively.

All other globals within the subsystem are now prefixed with

"AcpiGbl\_" Internal procedures within the subsystem are now prefixed with "Acpi" (with only a few exceptions). The original two-letter abbreviation for the subcomponent remains after "Acpi" - for example, CmCallocate became AcpiCmCallocate.

Added a source code translation/conversion utility.

Used to

generate the Linux source code, it can be modified to generate other types of source as well. Can also be used to cleanup existing source by removing extraneous spaces and blank lines.

Found in tools/acpiscrc/\*

OsdUnMapMemory was renamed to OsdUnmapMemory and then AcpiOsUnmapMemory. (UnMap became Unmap).

A "MaxUnits" parameter has been added to AcpiOsCreateSemaphore. When set to one, this indicates that the caller wants to use the

semaphore as a mutex, not a counting semaphore. ACPI CA uses both types. However, implementers of this call may want to use different OS primitives depending on the type of semaphore requested. For example, some operating systems provide separate

"mutex" and "semaphore" interfaces - where the mutex interface is much faster because it doesn't have all the overhead of a full semaphore implementation.

Fixed a deadlock problem where a method that accesses the PCI address space can block forever if it is the first access to the space.

-----  
Summary

of changes for this label: 06\_02\_00

Support for environments that cannot handle unaligned data accesses (e.g. firmware and OS environments devoid of alignment handler technology namely SAL/EFI and the IA-64 Linux kernel) has been added (via configurable macros) in these three areas: - Transfer of data from the raw AML byte stream is done via byte moves instead of word/dword/qword moves. - External objects are aligned within the user buffer, including package elements (sub-objects). - Conversion of name strings to UINT32 Acpi Names is now done byte-wise.

The Store operator was modified to mimic Microsoft's implementation when storing to a Buffer Field.

Added a check of the BM\_STS bit before entering C3.

The methods subdirectory has been obsoleted and removed. A new file, cmeval.c subsumes the functionality.

A 16-bit (DOS) version of AcpiExec has been developed. The makefile is under the acpiexec directory.

Found

in path(s):

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/changes.txt

No license file was found, but licenses were detected in source scan.

/\*

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\*/

//

//

// Grammar.asl - Minimally exercises most ASL constructs

```

//
// NOTE -- use: iasl -f -of grammar.asl to compile
//
//   This 1) Ignores errors (checks compiler error handling)
//   2) Disables constant folding
//
//
//
/*****
Compilation should look like
this:

C:\acpica\tests\misc>iasl -f -of grammar.asl

Intel ACPI Component Architecture
ASL Optimizing Compiler version 20090422 [Apr 22 2009]
Copyright (C) 2000 - 2009 Intel Corporation
Supports ACPI Specification Revision 3.0a

grammar.asl 187:  Name (_NPK, Package (8)
Warning 1098 -      ^ Unknown reserved name (_NPK)

grammar.asl 510:  NAME (ESC1, "abcdefg\x00hijklmn")
Warning 1042 -      ^ Invalid Hex/Octal Escape - Non-ASCII or NULL

grammar.asl 511:  NAME (ESC2, "abcdefg\000hijklmn")
Warning 1042 -      ^ Invalid Hex/Octal Escape - Non-ASCII or NULL

grammar.asl 601:  Method (RCIV, 1)
Warning 1087 -      ^ Not all control paths return a value (RCIV)

grammar.asl 608:  RCIV (Subtract (Arg0, 1))
Remark 5073 -      ^ Recursive method call (RCIV)

grammar.asl 937:  Method (_ERR, 2)
Warning 1077 -      ^ Reserved method has too few arguments (_ERR
requires 3)

grammar.asl 1377:  Store (0x1234567887654321, QWD2)
Warning 1032 -      ^ 64-bit integer in 32-bit table, truncating

grammar.asl 1379:  if (LNotEqual (Local0, 0x1234567887654321))
Warning 1032 -      64-bit integer in 32-bit table, truncating ^

grammar.asl 1459:  SizeOf (BUFO)
Warning 1105 -      ^ Result is not used, operator has no effect

grammar.asl 1485:  Acquire (MTX2, 1)

```



Warning 1104 - ^ Possible operator timeout is ignored

grammar.asl 1633: Add (Local0, Local1)

Warning 1105 - ^ Result is not used, operator has no effect

grammar.asl 1804: Method (COND)

Warning 1087 - ^ Not all control paths return a value (COND)

grammar.asl 6010: Name (\_HID, "\*PNP0A06")

Error 4001 - ^ String must be entirely alphanumeric (\*PNP0A06)

grammar.asl 6461:

Name (\_CRS, Buffer(26) {"\\_SB\\_PCI2\\_CRS....."})

Warning 1038 - Invalid or unknown escape sequence ^

grammar.asl 6800: And (Local0, 1, Local0) // Local0 &= 1

Error 4050 - ^ Method local variable is not initialized (Local0)

grammar.asl 6886: Name (\_HID, "\*PNP0C0A") // Control Method Battery ID

Error 4001 - ^ String must be entirely alphanumeric (\*PNP0C0A)

ASL Input: grammar.asl - 10254 lines, 322162 bytes, 4810 keywords

AML Output: grammar.aml - 43392 bytes, 669 named objects, 4141 executable opcodes

Compilation complete. 3 Errors, 12 Warnings, 1 Remarks, 1101 Optimizations

```
*****  
*****/
```

DefinitionBlock (

"grammar.aml", //Output filename

"DSDT", //Signature

0x01, //DSDT Revision ---> 32-bit table

"Intel", //OEMID

"GRMTEST", //TABLE ID

0x20090511 //OEM Revision

)

{

External (\ABCD, UnknownObj)

/\* Device with \_STA and \_INI \*/

Device (A1)

{

Method (\_STA)

```

    {
        Return (0x0F)
    }

    Method (_INI)
    {
        Return
    }
}

/* Device with no _STA, has _INI */

Device (A2)
{
    Method (_INI)
    {
        Return
    }
}

/* Device with _STA, no _INI */

Device (A3)
{
    Method (_STA)
    {
        Return (0x0F)
    }
}

/* Device with _STA and _INI, but not present */

Device (A4)
{
    Method (_STA)
    {
        Return (Zero)
    }

    Method (_INI)
    {
        Return
    }
}

/* Resource descriptors */

```

```

Device (IRES)
{
  Name (PRT0, ResourceTemplate ()
  {
    IRQ (Edge, ActiveHigh, Exclusive) {3,4,5,6,7,9,10,11,14,15}

    StartDependentFn (1,1)
    {
      IRQNoFlags () {0,1,2}
    }
    EndDependentFn ()
  })

```

```

Method (_CRS, 0, NotSerialized)
{
  Store ("_CRS:", Debug)
  Store (PRT0, Debug)
  Return (PRT0)
}

```

```

Method (_SRS, 1, Serialized)
{
  Store ("_SRS:", Debug)
  Store (Arg0, Debug)
  Return (Zero)
}
}

```

```

Name (_NPK, Package ()
{
  0x1111,
  0x2222,
  0x3333,
  0x4444
})

```

```

Device (RES)
{
  Name (_PRT, Package (0x04)
  {
    Package (0x04)
    {
      0x0002FFFF,
      Zero,
      Zero,
      Zero
    },

```

Package (0x04)

```
{
    0x0002FFFF,
    One,
    Zero,
    Zero
},
```

Package (0x04)

```
{
    0x000AFFFF,
    Zero,
```

Zero,

```
    Zero
```

```
},
```

Package (0x04)

```
{
    0x000BFFFF,
    Zero,
    Zero,
    Zero
}
```

```
}}
```

Method (\_CRS, 0, Serialized)

```
{
```

```
    Name (PRT0, ResourceTemplate ()
```

```
    {
```

```
        WordBusNumber (ResourceConsumer, MinFixed, MaxFixed, SubDecode,
```

```
            0x0000, // Address Space Granularity
```

```
            0xFFF2, // Address Range Minimum
```

```
            0xFFF3, // Address Range Maximum
```

```
            0x0032, // Address Translation Offset
```

```
            0x0002,,,)
```

```
        WordBusNumber (ResourceProducer, MinFixed, MaxFixed, PosDecode,
```

```
            0x0000, // Address Space Granularity
```

```
            0x0000, // Address Range Minimum
```

```
            0x00FF, // Address Range Maximum
```

```
            0x0000, // Address Translation Offset
```

```
            0x0100,,,)
```

```
        WordSpace
```

```
(0xC3, ResourceConsumer, PosDecode, MinFixed, MaxFixed, 0xA5,
```

```
    0x0000, // Address Space Granularity
```

```
    0xA000, // Address Range Minimum
```

```
    0xBFFF, // Address Range Maximum
```

```

    0x0000, // Address Translation Offset
    0x2000,,,)
IO (Decode16, 0x0CF8, 0x0CFF, 0x01, 0x08)
WordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
    0x0000, // Address Space Granularity
    0x0000, // Address Range Minimum
    0x0CF7, // Address Range Maximum
    0x0000, // Address Translation Offset
    0x0CF8,,,)
    , TypeStatic)
WordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
    0x0000, // Address Space Granularity
    0x0D00, // Address Range Minimum
    0xFFFF, // Address Range Maximum

0x0000, // Address Translation Offset
    0xF300,,,)
    , TypeStatic)
DWordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
    0x00000000, // Address Space Granularity
    0x00000000, // Address Range Minimum
    0x00000CF7, // Address Range Maximum
    0x00000000, // Address Translation Offset
    0x00000CF8,,,)
    , TypeStatic)
DWordMemory (ResourceProducer, PosDecode, MinFixed, MaxFixed, Cacheable, ReadWrite,
    0x00000000, // Address Space Granularity
    0x000C8000, // Address Range Minimum
    0x000EFFFF, // Address Range Maximum
    0x00000000, // Address Translation Offset
    0x00028000,,,)
    , AddressRangeMemory, TypeStatic)
DWordSpace (0xC3, ResourceConsumer, PosDecode, MinFixed,
MaxFixed, 0xA5,
    0x00000000, // Address Space Granularity
    0x000C8000, // Address Range Minimum
    0x000EFFFF, // Address Range Maximum
    0x00000000, // Address Translation Offset
    0x00028000,,,)
QWordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
    0x0000000000000000, // Address Space Granularity
    0x0000000000000000, // Address Range Minimum
    0x0000000000000CF7, // Address Range Maximum
    0x0000000000000000, // Address Translation Offset
    0x0000000000000CF8, 0x44, "This is a ResouceSource string",
    , TypeStatic)
QWordIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
    0x0000000000000000, // Address Space Granularity

```

```

0x0000000000000000, // Address Range Minimum

0x0000000000000CF7, // Address Range Maximum
    0x0000000000000000, // Address Translation Offset
    0x0000000000000CF8,,
    , TypeStatic)
QWordMemory (ResourceProducer, PosDecode, MinFixed, MaxFixed, Cacheable, ReadWrite,
    0x0000000000000000, // Address Space Granularity
    0x000000000100000, // Address Range Minimum
    0x00000000FFDFFFFFF, // Address Range Maximum
    0x0000000000000000, // Address Translation Offset
    0x00000000FFD00000,,
    , AddressRangeMemory, TypeStatic)
QWordSpace (0xC3, ResourceConsumer, PosDecode, MinFixed, MaxFixed, 0xA5,
    0x0000000000000000, // Address Space Granularity
    0x0000000000000000, // Address Range Minimum
    0x0000000000000CF7, // Address Range Maximum
    0x0000000000000000, // Address Translation
Offset
    0x0000000000000CF8,,)
ExtendedIO (ResourceProducer, MinFixed, MaxFixed, PosDecode, EntireRange,
    0x0000000000000000, // Address Space Granularity
    0x0000000000000000, // Address Range Minimum
    0x0000000000000CF7, // Address Range Maximum
    0x0000000000000000, // Address Translation Offset
    0x0000000000000CF8, // Address Length
    0x0000000000000000, // Type Specific Attributes
    , TypeStatic)
ExtendedMemory (ResourceProducer, PosDecode, MinFixed, MaxFixed, Cacheable, ReadWrite,
    0x0000000000000000, // Address Space Granularity
    0x000000000100000, // Address Range Minimum
    0x00000000FFDFFFFFF, // Address Range Maximum
    0x0000000000000000, // Address Translation Offset
    0x00000000FFD00000, // Address
Length
    0x0000000000000000, // Type Specific Attributes
    , AddressRangeMemory, TypeStatic)
ExtendedSpace (0xC3, ResourceProducer, PosDecode, MinFixed, MaxFixed, 0xA3,
    0x0000000000000000, // Address Space Granularity
    0x000000000100000, // Address Range Minimum
    0x00000000FFDFFFFFF, // Address Range Maximum
    0x0000000000000000, // Address Translation Offset
    0x00000000FFD00000, // Address Length
    0x0000000000000000) // Type Specific Attributes
IO (Decode16, 0x0010, 0x0020, 0x01, 0x10)
IO (Decode16, 0x0090, 0x00A0, 0x01, 0x10)
FixedIO (0x0061, 0x01)
IRQNoFlags () {2}

```

```

DMA (Compatibility, BusMaster, Transfer8_16) {4}
DMA (Compatibility, BusMaster, Transfer8) {2,5,7}
Memory32Fixed (ReadWrite, 0x00100000, 0x00000000)
Memory32Fixed (ReadOnly, 0xFFFE0000, 0x00020000)
Memory32 (ReadOnly, 0x00020000, 0xFFFE0000, 0x00000004, 0x00000200)
Memory24 (ReadOnly, 0x1111, 0x2222, 0x0004, 0x0200)
Interrupt (ResourceConsumer, Level, ActiveLow, Exclusive, 0xE, "\\_SB_.TEST")
{
    0x00000E01,
}
Interrupt (ResourceConsumer, Edge, ActiveHigh, Exclusive, 0x6, "xxxx")
{
    0x00000601,
    0x00000003,
    0x00000002,
    0x00000001,
}
Interrupt (ResourceProducer, Edge, ActiveHigh, Exclusive)
{
    0xFFFF0000,
    0x00000003,
    0x00000002,
    0x00000001,
    0x00000005,
    0x00000007,
    0x00000009,
}
VendorShort () {0x01,
0x02, 0x03}
VendorLong ()
{
    0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07, 0x08,
    0x09
}
Register (SystemIO, 0x08, 0x00, 0x00000000000000B2, , R000)
Register (SystemMemory, 0x08, 0x00, 0x00000000000000B2)
StartDependentFnNoPri ()
{
    IRQNoFlags () {0,1,2}
    IRQ (Level, ActiveLow, Shared) {3,4,5,6,7,9,10,11,14,15}
}
EndDependentFn ()
})
CreateWordField (PRT0, 0x08, BMIN)
CreateByteField (PRT0, R000._ASZ, RSIZ)
Store (0x03, BMIN)
Return (PRT0)
}

```

```

Method (_PRS, 0, Serialized)
{
    Name (BUF0, ResourceTemplate ()
    {
        StartDependentFn (0x01, 0x02)
        {
            IO (Decode16, 0x03D8, 0x03F8, 0x01, 0x08)
            IRQNoFlags ()
        }
    {4}
    }
    StartDependentFn (0x02, 0x01)
    {
        IO (Decode16, 0x03D8, 0x03E8, 0x01, 0x08)
        IRQNoFlags () {4}
    }
    StartDependentFn (0x00, 0x02)
    {
        IO (Decode16, 0x02E8, 0x02F8, 0x01, 0x08)
        IRQNoFlags () {3}
    }
    StartDependentFn (0x00, 0x02)
    {
        IO (Decode16, 0x02D8, 0x02E8, 0x01, 0x08)
        IRQNoFlags () {3}
    }
    StartDependentFn (0x02, 0x00)
    {
        IO (Decode16, 0x0100, 0x03F8, 0x08, 0x08)
        IRQNoFlags () {1,3,4,5,6,7,8,10,11,12,13,14,15}
    }
    EndDependentFn ()
    })
    Return (BUF0)
}

```

```

Method (_SRS, 1, Serialized)
{
    Return (Zero)
}
}

```

```

Name(\_S0,Package(0x04){
    0x00,
    0x00,
    0x00,
    0x00
}

```



```

    })
    Name(\_S3,Package(0x04){
        0x05,
        0x05,
        0x00,
        0x00
    })
    Name(\_S4,Package(0x04){
        0x06,
        0x06,
        0x00,
        0x00
    })
    Name(\_S5,Package(0x04){
        0x07,
        0x07,
        0x00,
        0x00
    })

/* Examine this table header (DSDT) */

/*
DataTableRegion (HDR, "DSDT", "", "")
Field (HDR, AnyAcc, NoLock, Preserve)
{
    SIG, 32,
    LENG, 32,
    REV, 8,
    SUM, 8,
    OID, 48,
    OTID, 64,
    OREV, 32,
    CID, 32,
    CREV, 32
}

Method (SIZE)
{
    If (LLess (REV, 2))
    {
        Store ("32-bit table", Debug)
    }
    else
    {
        Store ("64-bit table", Debug)
    }
    Return (0)
}

```

```

}

*/
Name (SIZE, 0)

/* Custom operation region */

OperationRegion(MYOP,0x80,0xFD60,0x6)
Field(MYOP,ByteAcc,NoLock,Preserve)
{
    MFLD,8
}

Method (TCOP,, Serialized)
{
    Name (_STR, Unicode ("test"))
    Store (4, MFLD)
    Store (MFLD, Local0)
}

Name (ERRS, 0x0)

/* Warning should be issued for premature string termination */

NAME (ESC1, "abcdefg\x00hijklmn")
NAME (ESC2, "abcdefg\000hijklmn")
Name (ESC3, "abc\a\bdef\f\n\r\t\v\x03ffff\432")

Name(CRSA,ResourceTemplate()
{
WORDBusNumber(ResourceProducer,MinFixed,MaxFixed,PosDecode,0x0000,0x0019,0x001D,0x0000,0x0005)
WORDIO(ResourceProducer,MinFixed,MaxFixed,PosDecode,NonISAOnlyRanges,0x0000,0xC000,0xCFFF,0x000
0,0x1000)
DWORDMemory(ResourceProducer,PosDecode,MinFixed,MaxFixed,NonCacheable,ReadWrite,0x00000000,0xD8
000000,0xDBFFFFFF,0x00000000,0x04000000)

})
Name(CRSB,ResourceTemplate()
{
DWORDMemory(ResourceProducer,PosDecode,MinFixed,MaxFixed,NonCacheable,ReadWrite,0x00000000,0xD8
000000,0xDBFFFFFF,0x00000000,0x04000000)

})

Name(CRSC,ResourceTemplate()
{

```

```

    VendorShort () {0x1, 0x2, 0x3}
})
Name(CRSD,ResourceTemplate()
{
    VendorLong (VNDL) {0x1, 0x2, 0x3, 0x4, 0x5, 0x6, 0x7, 0x8, 0x9}
})

Name(CRSE,ResourceTemplate()
{
    IRQNoFlags(){3,4,10,11}
    IRQNoFlags(xxxt){3,4,10,11}
})
Name(CRSR, Buffer (Add (SizeOf(CRSA),SizeOf(CRSB)))){ })
Method(_CRS,0,NotSerialized)
{
    Return(CRSR)
}

//
// Unnamed scope
//
Scope (\)
{
    Name(Bxxx,0xFFFFFFFF)
}

Name (LANS, 0x0)

PowerResource(LANP,1,0)
{
    Method(_STA){
        If(LEqual(And(LANS,0x30),0x30)){
            Return(One)
        } Else {
            Return(Zero)
        }
    }
    Method(_ON){
        If(LNot(_STA())){
            Store (0x30, LANS)
        }
    }
    Method(_OFF){
        If(_STA()){
            Store (0, LANS)
        }
    }
}

```

```

}

/* Can a method define another method? */

/*****
Method (TASK, 2, SERIALIZED)
{
    Sleep (100)

    Method (TAS2)
    {
        Sleep (100)
    }

    TAS2()
    Return

}
*****/

/* A recursive method */

Method (RCIV, 1)
{
    Store (Arg0, Debug)
    If (Lequal (Arg0, 0))
    {
        Return ()
    }
    RCIV (Subtract (Arg0, 1))
}

Method (RTOP)
{
    RCIV (100)
}

Scope(\_PR)
{
    Processor(CPU0,0x0,0xFFFFFFFF,0x0) {}
}

Name(B1TP,0xFFFFFFFF)

Name(B2TP,0xFFFFFFFF)
Name(ADPS,0xFFFFFFFF)

```

```
Name(B1PS,0xFFFFFFFF)
Name(B1RS,0xFFFFFFFF)
Name(B1CS,0xFFFFFFFF)
Name(B2PS,0xFFFFFFFF)
Name(B2RS,0xFFFFFFFF)
Name(B2CS,0xFFFFFFFF)
Name(B1DC,3000)
Name(B2DC,2600)
Name(B1LF,3000)
Name(B2LF,2600)
Name(BPIF,0)
Name(PBLL,0)
```

```
Name(RBIF,Package())
```

```
{
    0x1,
    2200,
    2200,
    0x1,

    10800,
    0,
    0,
    1,
    1,
    "CA54200-5003/5",
    "1",
    "LION",
    "Fujitsu"
})
```

```
Method(SMWE, 4)
```

```
{
    return(ONES)
}
```

```
Method(SMRE, 4)
```

```
{
    return(ONES)
}
```

```
/*
```

```
Method(RDBT,0,Serialized){
    If(LNot(SMWE(0x09,0x15,1,1))){
        Store(0x18,Local2)
    }
}
```

```
*/
```

```

Scope(_SB)
{

    Name (SBUF, Buffer (128) {})

    CreateBitField (SBUF, 3, BITY)
    CreateByteField (SBUF, 1, BYTY)
    CreateWordField (SBUF, 2, WRDZ)
    CreateDwordField (SBUF, 4, DWDZ)
    CreateQwordField (SBUF, 8, QWDZ)
    CreateField (SBUF, 128, 12, FLDZ)
    CreateField (SBUF, 148, 96, FLDY)
    CreateField (SBUF, 148, 96, \_SB_.FLDW)

    Method (_INI)
    {
        CreateField (\_SB_.SBUF, 148, 96, FLDV)
    }

    Device(PCI0)
    {
        Name(_HID,EISAID("PNP0A03"))
        Name(_ADR,0x0)

        Method(_CRS,, Serialized)
        {
            Name(PRT0, ResourceTemplate() {
                WORDBusNumber(           // Bus number resource(0)
                    ResourceConsumer,    // bit 0 of general flags is 1
                    MinFixed,             // Range is notfixed
                    MaxFixed,             // Range is not fixed
                    SubDecode,           // SubDecode
                    0x0000,               // Granularity
                    0xfff1,               // Min
                    0xfff2,               // Max
                    0x0032,               // Translation
                    0x0002,,              // Range Length
                    BUS0
                ) } // PRT0

            CreateWordField(PRT0, BUS0._MIN, BMIN) //Minimum bus number
supported under this bridge.

            Store(3, BMIN)
            Return(PRT0)

        } // _CRS

```

Method(\_SRS)

```
{  
    Return ()  
}
```

Device(EIO)

```
{  
    OperationRegion(FJIO,SystemIO,0xFD60,0x6)  
        Field(FJIO,ByteAcc,NoLock,Preserve)  
        {  
            GIDX,8,  
  
            GDTA,8,  
  
            PIDX,8,  
  
            PDTA,8,  
  
            SIDX,8,  
  
            SDTA,8  
        }  
    IndexField(GIDX,GDTA,ByteAcc,NoLock,Preserve)  
    {  
        Offset(0x2),  
        ,5,  
        VGAS,2,  
        Offset(0x4),  
        ,4,  
        DCKE,1,  
        Offset(0x5),  
        ,6,  
        ACPW,1,  
  
        Offset(0xA),  
        B1P,1,  
  
        B2P,1,  
  
        B1C,1,  
  
        B2C,1,  
  
        B1ER,1,  
  
        B2ER,1,
```

```

    Offset(0xB),
    B1CP,8,

    B2CP,8,

    BCP,8,

    B1VH,8,

    B1VL,8,

    B2VH,8,

    B2VL,8,

    B1TM,8,

    B2TM,8,

    B1CH,8,

    B1CL,8,

    B2CH,8,

    B2CL,8
  }
}
}
}

```

```

Method(RDBT,3,Serialized){
  Store(0x1FFF,Local1)
  If( Arg0 ){
    Store(0x2FFF,Local1)
  }
  Store(0x18,Local2)
  If( Arg1 ){
    Store(0x10,Local2)
  }
  If(LNot(SMRE(0x09,0x15,1,RefOf(Local0)))){
    If(LNot(SMWE(0x08,0x14,1,Local1))){
      If(LNot(SMRE(0x09,0x17,Local2,RefOf(Local3)))){
        Store(Local1,Arg2)
      }
    }
  }
  Or(Local0,0xFFF,Local0)
  SMWE(0x08,0x14,1,Local0)
}

```



```

    }
}
Method(MKWD,2)
{
    If(And(Arg1,0x80)) {
        Or(0xFFFF0000,Arg0,Local0)
        Or(Local0,ShiftLeft(Arg1,8),Local0)
        Subtract(Zero,Local0,Local0)
    } else {
        Store(Arg0,Local0)
        Or(Local0,ShiftLeft(Arg1,8),Local0)
    }
    Return(Local0)
}

Device(CMB1)
{
    Name(_HID,EISAID("PNP0C0A"))
    Name(_UID,0x1)
    Alias(\_SB.PCI0.EIO.B1P,\_SB_.PCI0.XXXX)
    Alias(\_SB.PCI0.EIO.B1P,B1P)
    Alias(\_SB.PCI0.EIO.B1C,B1C)
    Alias(\_SB.PCI0.EIO.B1CH,B1CH)
    Alias(\_SB.PCI0.EIO.B1CL,B1CL)
    Alias(\_SB.PCI0.EIO.B1VH,B1VH)
    Alias(\_SB.PCI0.EIO.B1VL,B1VL)
    Alias(\_SB.PCI0.EIO.B1CP,B1CP)

    Method(_INI)
    {
        Store(B1P, B1PS)
        Store(B1CP,B1RS)
        Store(B1C, B1CS)
    }

    Method(_BIF){
        RDBT(Zero,Zero,RefOf(B1DC))
        RDBT(Zero,One,RefOf(B1LF))
        Store(B1DC,Index(RBIF,1))
        Store(B1LF,Index(RBIF,2))
        Store("CA54200-5003/5",Index(RBIF,9))
        Store("1",Index(RBIF,10))
        Return(RBIF)
    }

    Method(_BST,, Serialized) {

        _INI()

```

```

Store(Zero,Local0)

if (LAnd(B1P,LNot(B1C))){
    Or(Local0,1,Local0)
}

if (LAnd(B1P,B1C)) {
    Or(Local0,2,Local0)
}

if (LLessEqual(B1CP,1)) {

    Or(Local0,4,Local0)
}

Store(MKWD(B1CL,B1CH),Local1)

Store(Divide(Add(Multiply(B1CP,B1LF),99),100),Local2)

Store(MKWD(B1VL,B1VH),Local3)

Name(STAT,Package(4){ })
Store(Local0,Index(STAT,0))
Store(Local1,Index(STAT,1))
Store(Local2,Index(STAT,2))
Store(Local3,Index(STAT,3))

If(LNot(BPIF)){
//     \_SB.PCI0.EIO.EC0.IECT()
//     \_SB.PCI0.EIO.EC0.SECT()
    Store(One,BPIF)
}
return(STAT)
}

}

Device (DEV1)
{
}

Scope(\_TZ)
{
    ThermalZone(TZ1)
    {
        Name(_PSL,Package()
        {

```

```

        \_PR.CPU0
    })
}
}

Method (TZ2, 0, SERIALIZED)
{
    Name(_PSL,Package())
    {
        \_PR.CPU0
    })

    Return (_PSL)

}

ThermalZone (THM1)
{
}

Method (NOTI)
{
    Notify (\DEV1, 0)
    Notify (\THM1, 0)
    Notify (\_PR.CPU0, 0)
}

Method (_ERR, 3)
{
    Increment (ERRS)
    Store ("Run-time exception:", Debug)
    Store (Arg0, Debug)
    Store (Arg1, Debug)

    Return (0)    // Map error to AE_OK
}

Method (DIV0)
{
    Store (1, Local0)
    Store (0, Local1)
    Divide (Local0, Local1, Local3)

    Store ("DIV0 - noabort", Debug)
}

Method (ERR_, 2)
{

```

```

Local0 = ToDecimalString (Arg1)
if (LEqual (Arg0, 0))
{
    Printf ("++++* MTHD_ERROR at line %o: Results not equal!", Local0)
}
if (LEqual (Arg0, 1))
{
    Printf ("++++* MTHD_ERROR at line %o: Numeric result is incorrect!", Local0)
}
if (LEqual (Arg0, 2))
{
    Printf ("++++* MTHD_ERROR at line %o: Operand was clobbered!", Local0)
}

}

Notify (DEV1, Arg0)
Increment (ERRS)
}

Method (R226, 2)
{
}
Method (R225, 2)
{
    R226 (Arg0, Arg1)
}
Method (R224, 2)
{
    R225 (Arg1, Arg0)
}
Method (R223, 2)
{
    R224 (Arg0, Arg1)
}
Method (R222, 2)
{
    R223 (Arg1, Arg0)
}
Method (R111)
{
    Store (0x01010101, Local0)
    R222 (0xABAB, Local0)
    Store (Local0, Local1)
}

Method (MAIN)
{

```

```

// SIZE()
Store (NUM1(), Local0)
\CMB1._BST()
RDBT(1,2,3)
OBJ1(1)
OBJ2(2)
CHEK()
RETZ()
BITZ()
LOGS()
REFS()
COND()
TZ2()

//
// iPCO tests added
//
Store (\IFEL.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\NOSV.TEST(), Local0)
if (LGreater (Local0, 0))
{

ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\IDXf.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\_SB_.NSTL.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\RTBF.TEST(), Local0)
if (LGreater (Local0, 0))

```

```

{
  ERR_ (1, __LINE__)
  Return(Local0)
}

Store (\_SB_.RTL.V.TEST(), Local0)
if (LGreater (Local0, 0))
{
  ERR_ (1, __LINE__)
  Return(Local0)
}

Store (\_SB_.RETP.TEST(), Local0)
if (LGreater (Local0, 0))
{
  ERR_ (1, __LINE__)
  Return(Local0)
}

Store (\WHLR.TEST(), Local0)
if (LGreater (Local0, 0))
{
  ERR_ (1, __LINE__)
  Return(Local0)
}

Store (\AND0.TEST(),
Local0)
if (LGreater (Local0, 0))
{
  ERR_ (1, __LINE__)
  Return(Local0)
}

Store (\BRKP.TEST(), Local0)
if (LGreater (Local0, 0))
{
  ERR_ (1, __LINE__)
  Return(Local0)
}

Store (\ADSU.TEST(), Local0)
if (LGreater (Local0, 0))
{
  ERR_ (1, __LINE__)
  Return(Local0)
}

```

```
Store (\INDC.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\LOPS.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\FDSO.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\MLDV.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\NBIT.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\SHFT.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\XORD.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\CRBF.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\IDX4.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\EVNT.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\SZLV.TEST(), Local0)
if (LGreater (Local0, 0))

{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\_SB_.BYTF.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\DWDF.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}
```

```
Store (\DVAX.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
}
```



```

    Return(Local0)
}

Store (\IDX6.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\IDX5.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\_SB_.IDX0.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\_SB_.IDX3.TEST(),
Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\IDX7.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\MTCH.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\WHLB.TEST(), Local0)
if (LGreater (Local0, 0))

```

```

{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\_SB\_IDX2.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\_SIZE.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1, __LINE__)
    Return(Local0)
}

Store (\_SB\_SMIS.TEST(), Local0)
if (LGreater (Local0, 0))
{
    ERR_ (1,
__LINE__)
    Return(Local0)
}

if (LGreater (ERRS, 0))
{
    Store ("***** There were errors during the execution of the test *****", Debug)
}

// Flush all notifies

Sleep (250)

//
// Last Test
//

Return(0) // Success
}

Method (OBJ1, 1, SERIALIZED)
{

    Store (3, Local0)

```

```

Name(BUFR, Buffer (Local0) { })
Name(BUF1, Buffer (4) { 1,2,3,4})
Name(BUF2, Buffer (4) { })

Store (BUF1, BUF2)
Mutex (MTX1, 4)

Alias (MTX1, MTX2)
}

Mutex (MTXT, 0)
Mutex (MTXX, 0)

/*
 * Field Creation
 */

Method (FLDS,, Serialized)
{
    Store ("+++++++ Creating BufferFields", Debug)
    Name (BUF2, Buffer (128) { })

    CreateBitField (BUF2, 3, BIT2)
    CreateByteField (BUF2, 1, BYT2)
    CreateWordField (BUF2, 2, WRD2)
    CreateDwordField (BUF2, 4, DWD2)
    CreateQwordField (BUF2,
8, QWD2)
    CreateField (BUF2, 128, 12, FLD2)
    CreateField (BUF2, 148, 96, FLD3)

    Store (0x1, BIT2)
    Store (BIT2, Local0)
    if (LNotEqual (Local0, 0x1))
    {
        ERR_ (1, __LINE__)
    }
    else
    {
        Store (DerefOf (Index (BUF2, 0)), Local0)
        if (LNotEqual (Local0, 0x08))
        {
            ERR_ (1, __LINE__)
        }
        else
        {
            Store ("+++++++ Bit BufferField I/O PASS", Debug)

```

```

    }
}

Store (0x1A, BYT2)
Store (BYT2, Local0)
if (LNotEqual (Local0, 0x1A))
{
    ERR_ (1, __LINE__)
}
else
{
    Store ("+++++++ Byte BufferField I/O PASS", Debug)
}

Store (0x1234, WRD2)
Store (WRD2, Local0)
if (LNotEqual (Local0, 0x1234))
{
    ERR_ (1, __LINE__)
}
else
{
    Store ("+++++++ Word BufferField
I/O PASS", Debug)
}

Store (0x123, FLD2)
Store (FLD2, Local0)
if (LNotEqual (Local0, 0x123))
{
    ERR_ (1, __LINE__)
}
else
{
    Store ("+++++++ 12-bit BufferField I/O PASS", Debug)
}

Store (0x12345678, DWD2)
Store (DWD2, Local0)
if (LNotEqual (Local0, 0x12345678))
{
    ERR_ (1, __LINE__)
}
else
{
    Store ("+++++++ Dword BufferField I/O PASS", Debug)
}

```

```

Store (0x1234567887654321, QWD2)
Store (QWD2, Local0)
if (LNotEqual (Local0, 0x1234567887654321))
{
    ERR_ (1, __LINE__)
}
else
{
    Store ("+++++++ Qword BufferField I/O PASS", Debug)
}
}

/* Field execution */

Method (FLDX,, Serialized)
{
    Field (\_SB\_MEM.SMEM, AnyAcc, NoLock, Preserve)
    { // Field: SMEM overlay using 32-bit field elements
        SMD0, 32, // 32-bits
        SMD1, 32, // 32-bits
        SMD2, 32, // 32-bits
        SMD3, 32 // 32-bits
    } // Field: SMEM overlay using 32-bit field elements
    Field (\_SB\_MEM.SMEM, AnyAcc, NoLock, Preserve)
    { // Field: SMEM overlay using greater than 32-bit field elements
        SME0, 69, // larger than an integer (32 or 64)
        SME1, 97 // larger than an integer
    } // Field: SMEM overlay using greater than 32-bit field elements
}

Method (MTX_, )
{
    /* Test "Force release" of mutex on method exit */

    Acquire (MTXT, 0xFFFF)
    Acquire (MTXX, 0xFFFF)

    Store ("+++++++ Acquiring Mutex MTX2", Debug)
    Acquire (_GL_, 0xFFFF)

    Store ("+++++++ Releasing Mutex MTX2", Debug)
    Release (_GL_)
}

```

```

Method (OBJ2, 1, Serialized)
{
    Store ("+++++++ Creating Buffer BUFO", Debug)
    Name (BUFO, Buffer (32)
{ })

    Store ("+++++++ Creating OpRegion OPR2", Debug)
    OperationRegion (OPR2, SystemMemory, Arg0, 256)

    Store ("+++++++ Creating Field(s) in OpRegion OPR2", Debug)
    Field (OPR2, ByteAcc, NoLock, Preserve)
    {
        IDX2, 8,
        DAT2, 8,
        BNK2, 4
    }

    Store ("+++++++ Creating BankField BNK2 in OpRegion OPR2", Debug)
    //
    // mcw 3/20/00 - changed FET0, 4, FET1, 3 to FET0, 1, FET1, 1
    //
    BankField (OPR2, BNK2, 0, ByteAcc, NoLock, Preserve)
    {
        FET0, 4,
        FET1, 3
    }

    Store ("+++++++ Creating IndexField", Debug)
    IndexField (IDX2, DAT2, ByteAcc, NoLock, Preserve)
    {
        FET2, 4,
        FET3, 3
    }

    Store ("+++++++ SizeOf (BUFO)", Debug)
    SizeOf (BUFO)

    Store ("+++++++ Store (SizeOf (BUFO), Local0)", Debug)
    Store (SizeOf (BUFO), Local0)

    Store ("+++++++ Concatenate (\"abd\",
\"def\", Local0)", Debug)
    Concatenate ("abd", "def", Local0)
    Store (Local0, Debug)

    Store ("+++++++ Concatenate (\"abd\", 0x7B, Local0)", Debug)
    Concatenate ("abd", 0x7B, Local0)
    Store (Local0, Debug)

```

```

Store ("+++++++ Creating Event EVT2", Debug)
Event (EVT2)

Store ("+++++++ Creating Mutex MTX2", Debug)
Mutex (MTX2, 0)

Store ("+++++++ Creating Alias MTXA to MTX2", Debug)
Alias (MTX2, MTXA)

Store ("+++++++ Acquiring Mutex MTX2", Debug)
Acquire (MTX2, 0xFFFF)

Store ("+++++++ Acquiring Mutex MTX2 (2nd acquire)", Debug)
Acquire (MTX2, 1)

Store ("+++++++ Releasing Mutex MTX2", Debug)
Release (MTX2)

// Type 1 opcodes

Store ("+++++++ Signalling Event EVT2", Debug)
Signal (EVT2)

Store ("+++++++ Resetting Event EVT2", Debug)
Reset (EVT2)

Store ("+++++++ Signalling Event EVT2", Debug)

Signal (EVT2)

Store ("+++++++ Waiting Event EVT2", Debug)
Wait (EVT2, 0xFFFF)

Store ("+++++++ Sleep", Debug)
Sleep (100)

Store ("+++++++ Stall", Debug)
Stall (254)

Store ("+++++++ NoOperation", Debug)
Noop

// Type 2 Opcodes

Store ("+++++++ Return from Method OBJ2", Debug)
return (4)
}

```

```

Method (NUM1, 0)
{
    /* ADD */

    Store ("+++++++ Add (0x12345678, 0x11111111, Local0)", Debug)
    Add (0x12345678, 0x11111111, Local0)

    Store ("+++++++ Store (Add (0x12345678, 0x11111111), Local1)", Debug)
    Store (Add (0x12345678, 0x11111111), Local1)

    Store ("+++++++ Checking result from ADD", Debug)
    if (LNotEqual (Local0, Local1))
    {
        ERR_ (0, __LINE__)
    }

    /* SUBTRACT */

    Store ("+++++++ Subtract (0x87654321, 0x11111111, Local4)", Debug)
    Subtract (0x87654321, 0x11111111, Local4)

    Store ("+++++++ Store (Subtract (0x87654321, 0x11111111), Local5)", Debug)
    Store (Subtract (0x87654321, 0x11111111), Local5)

    Store ("+++++++ Checking result from SUBTRACT", Debug)
    if (LNotEqual (Local4, Local5))
    {
        ERR_ (0, __LINE__)
    }

    /* MULTIPLY */

    Store ("+++++++ Multiply (33, 10, Local6)", Debug)
    Multiply (33, 10, Local6)

    Store ("+++++++ Store (Multiply (33, 10), Local7)", Debug)
    Store (Multiply (33, 10), Local7)

    Store ("+++++++ Checking result from MULTIPLY", Debug)
    if (LNotEqual (Local6, Local7))
    {
        ERR_ (0, __LINE__)
    }
}

```



```

}

/* DIVIDE */

Store ("+++++++ Divide (100, 9, Local1, Local2)", Debug)
Divide (100, 9, Local1, Local2)

Store ("+++++++ Store (Divide (100, 9), Local3)", Debug)
Store (Divide (100, 9), Local3)

Store ("+++++++ Checking (quotient) result from DIVIDE", Debug)
if
(LNotEqual (Local2, Local3))
{
    ERR_ (0, __LINE__)
}

/* INCREMENT */

Store ("+++++++ Increment (Local0)", Debug)
Store (1, Local0)
Store (2, Local1)
Increment (Local0)

Store ("+++++++ Checking result from INCREMENT", Debug)
if (LNotEqual (Local0, Local1))
{
    ERR_ (0, __LINE__)
}

/* DECREMENT */

Store ("+++++++ Decrement (Local0)", Debug)
Store (2, Local0)
Store (1, Local1)
Decrement (Local0)

Store ("+++++++ Checking result from DECREMENT", Debug)
if (LNotEqual (Local0, Local1))
{
    ERR_ (0, __LINE__)
}

/* TOBCD */

```

```
/* FROMBCD */

Store ("+++++++ ToBCD (0x1234, Local5)", Debug)
ToBCD (0x1234, Local5)

Store ("+++++++ FromBCD (Local5, Local6)", Debug)
FromBCD (Local5, Local6)

Store ("+++++++ Return (Local6)", Debug)
Return
(Local6)
}
```

Method (CHEK)

```
{

Store (3, Local0)
Store (3, Debug)
Store (Local0, Debug)
Store (7, Local1)

Add (Local0, Local1)
if (LNotEqual (Local0, 3))
{
ERR_ (2, __LINE__)
}
if (LNotEqual (Local1, 7))
{
ERR_ (2, __LINE__)
}

Add (Local0, Local1, Local2)
if (LNotEqual (Local0, 3))
{
ERR_ (2, __LINE__)
}
if (LNotEqual (Local1, 7))
{
ERR_ (2, __LINE__)
}
}
```

Method (RET1)

```
{
Store (3, Local0)
```

```

    Return (Local0)
}

Method (RET2)
{
    Return (RET1())
}

Method (RETZ)
{
    RET2 ()
}

Method (BITZ)
{
    Store ("+++++++ FindSetLeftBit (0x00100100, Local0)", Debug)
    FindSetLeftBit (0x00100100, Local0)
    if (LNotEqual (Local0, 21))
    {
        ERR_ (1, __LINE__)
    }

    Store ("+++++++
FindSetRightBit (0x00100100, Local1)", Debug)
    FindSetRightBit (0x00100100, Local1)
    if (LNotEqual (Local1, 9))
    {
        ERR_ (1, __LINE__)
    }

    Store ("+++++++ And (0xF0F0F0F0, 0x11111111, Local2)", Debug)
    And (0xF0F0F0F0, 0x11111111, Local2)
    if (LNotEqual (Local2, 0x10101010))
    {
        ERR_ (1, __LINE__)
    }

    Store ("+++++++ NAnd (0xF0F0F0F0, 0x11111111, Local3)", Debug)
    NAnd (0xF0F0F0F0, 0x11111111, Local3)
    if (LNotEqual (Local3, 0xEF0F0F0F))
    {
        ERR_ (1, __LINE__)
    }

    Store ("+++++++ Or (0x11111111, 0x22222222, Local4)", Debug)
    Or (0x11111111, 0x22222222, Local4)
    if (LNotEqual (Local4, 0x33333333))

```

```

{
  ERR_ (1, __LINE__)
}

Store ("+++++++ NOR (0x11111111, 0x22222222, Local5)", Debug)
NOR (0x11111111, 0x22222222, Local5)
if (LNotEqual (Local5, 0xCCCCCCCC))
{

ERR_ (1, __LINE__)
}

Store ("+++++++ XOR (0x11113333, 0x22222222, Local6)", Debug)
XOR (0x11113333, 0x22222222, Local6)
if (LNotEqual (Local6, 0x33331111))
{
  ERR_ (1, __LINE__)
}

Store ("+++++++ ShiftLeft (0x11112222, 2, Local7)", Debug)
ShiftLeft (0x11112222, 2, Local7)
if (LNotEqual (Local7, 0x44448888))
{
  ERR_ (1, __LINE__)
}

Store ("+++++++ ShiftRight (Local7, 2, Local7)", Debug)
ShiftRight (Local7, 2, Local7)
if (LNotEqual (Local7, 0x11112222))
{
  ERR_ (1, __LINE__)
}

Store ("+++++++ Not (Local0, Local1)", Debug)
Store (0x22224444, Local0)
Not (Local0, Local1)
if (LNotEqual (Local0, 0x22224444))
{
  ERR_ (2, __LINE__)
}

if (LNotEqual (Local1, 0xDDDDBBBB))
{
  ERR_ (1, __LINE__)
}

Return (Local7)

```

```
}
```

Method (LOGS)

```
{
```

```
Store ("+++++++ Store (LAnd (0xFFFFFFFF, 0x11111111), Local0)", Debug)
```

```
Store (LAnd (0xFFFFFFFF, 0x11111111), Local0)
```

```
Store ("+++++++ Store (LEqual (0xFFFFFFFF, 0x11111111), Local)", Debug)
```

```
Store (LEqual (0xFFFFFFFF, 0x11111111), Local1)
```

```
Store ("+++++++ Store (LGreater (0xFFFFFFFF, 0x11111111), Local2)", Debug)
```

```
Store (LGreater (0xFFFFFFFF, 0x11111111), Local2)
```

```
Store ("+++++++ Store (LGreaterEqual (0xFFFFFFFF, 0x11111111), Local3)", Debug)
```

```
Store (LGreaterEqual (0xFFFFFFFF, 0x11111111), Local3)
```

```
Store ("+++++++ Store (LLess (0xFFFFFFFF, 0x11111111), Local4)", Debug)
```

```
Store (LLess (0xFFFFFFFF, 0x11111111), Local4)
```

```
Store ("+++++++ Store (LLessEqual (0xFFFFFFFF, 0x11111111), Local5)", Debug)
```

```
Store (LLessEqual (0xFFFFFFFF, 0x11111111), Local5)
```

```
Store ("+++++++ Store (LNot (0x31313131), Local6)", Debug)
```

```
Store (0x00001111, Local6)
```

```
Store (LNot (Local6),
```

```
Local7)
```

```
if (LNotEqual (Local6, 0x00001111))
```

```
{
```

```
ERR_ (2, __LINE__)
```

```
}
```

```
if (LNotEqual (Local7, 0x0))
```

```
{
```

```
ERR_ (1, __LINE__)
```

```
}
```

```
Store ("+++++++ Store (LNotEqual (0xFFFFFFFF, 0x11111111), Local7)", Debug)
```

```
Store (LNotEqual (0xFFFFFFFF, 0x11111111), Local7)
```

```
Store ("+++++++ Lor (0x0, 0x1)", Debug)
```

```
if (Lor (0x0, 0x1))
```

```
{
```

```
Store ("+_+_+_+_ Lor (0x0, 0x1) returned TRUE", Debug)
```

```
}
```

```

return (Local7)
}

Method (COND)
{
Store ("+++++++ Store (0x4, Local0)", Debug)
Store (0x4, Local0)

Store ("+++++++ While (Local0)", Debug)
While (Local0)
{
Store ("+++++++ Decrement (Local0)", Debug)
Decrement (Local0)
}

Store ("+++++++ Store (0x3, Local6)", Debug)
Store (0x3, Local6)

Store ("+++++++ While (Subtract (Local6, 1))", Debug)
While (Subtract
(Local6, 1))
{
Store ("+++++++ Decrement (Local6)", Debug)
Decrement (Local6)
}

Store ("+++++++ [LVL1] If (LGreater (0x2, 0x1))", Debug)
If (LGreater (0x2, 0x1))
{
Store ("+++++++ [LVL2] If (LEqual (0x11111111, 0x22222222))", Debug)
If (LEqual (0x11111111, 0x22222222))
{
Store ("+++++++ ERROR: If (LEqual (0x11111111, 0x22222222)) returned TRUE", Debug)
}
}

else
{
Store ("+++++++ [LVL3] If (LNot (0x0))", Debug)
If (LNot (0x0))
{
Store ("+++++++ [LVL4] If (LAnd (0xEEEEEEEE, 0x2))", Debug)
If (LAnd (0xEEEEEEEE, 0x2))
{
Store ("+++++++ [LVL5] If (LLess (0x44444444, 0x3))", Debug)
}
}
}
}

```

```

        If (LLess (0x44444444, 0x3))
        {
            Store ("++++++
ERROR: If (LLess (0x44444444, 0x3)) returned TRUE", Debug)
        }

        else
        {
            Store ("+++++++ Exiting from nested IF/ELSE statements", Debug)
        }
    }
}
}

Store ("+++++++ [LVL1] If (LGreater (0x2, 0x1))", Debug)
If (LGreater (0x2, 0x1))
{
    Store ("+++++++ [LVL2] If (LEqual (0x11111111, 0x22222222))", Debug)
    If (LEqual (0x11111111, 0x22222222))
    {
        Store ("+++++++ ERROR: If (LEqual (0x11111111, 0x22222222)) returned TRUE", Debug)
    }

    else
    {
        Store ("+++++++ [LVL3] If (LNot (0x0))", Debug)
        If (LNot (0x0))
        {
            Store ("+++++++ [LVL4] If (LAnd (0xEEEEEEEE, 0x2))", Debug)
            If (LAnd (0xEEEEEEEE, 0x2))
            {

                Store ("+++++++ [LVL5] If (LLess (0x44444444, 0x3))", Debug)
                If (LLess (0x44444444, 0x3))
                {
                    Store ("+++++++ ERROR: If (LLess (0x44444444, 0x3)) returned TRUE", Debug)
                }

                else
                {
                    Store ("+++++++ Returning from nested IF/ELSE statements", Debug)
                    Return (Local6)
                }
            }
        }
    }
}
}
}

```

```

    }
}

Method (REFS,, Serialized)
{
    Name (BBUF, Buffer() {0xB0, 0xB1, 0xB2, 0xB3, 0xB4, 0xB5, 0xB6, 0xB7})

    Name (NEST, Package ()
    {
        Package ()
        {
            0x01, 0x02, 0x03, 0x04, 0x05, 0x06
        },
        Package ()
        {
            0x11, 0x12, 0x12, 0x14, 0x15, 0x16
        }
    })

    Store (RefOf (MAIN), Local5)

    // For this to work, ABCD must NOT exist.

    Store (CondRefOf (ABCD, Local0), Local1)
    if (LNotEqual (Local1, 0))
    {
        ERR_ (2, __LINE__)
    }

    Store (CondRefOf (BBUF, Local0), Local1)
    if (LNotEqual (Local1, Ones))
    {
        ERR_ (2, __LINE__)
    }

    Store (DeRefOf (Index (BBUF, 3)), Local6)
    if (LNotEqual (Local6, 0xB3))
    {
        ERR_ (2, __LINE__)
    }

    Store (DeRefOf (Index (DeRefOf (Index (NEST, 1)), 3)), Local0)
    if (LNotEqual (Local0, 0x14))
    {
        ERR_ (2, __LINE__)
    }
}

```



```

}

Store (0x11223344, Local0)
Store (RefOf (Local0), Local1)

Store (DerefOf (Local1), Local2)
If (LNotEqual (Local2, 0x11223344))
{
    ERR_ (2, __LINE__)
}

/* Parser thinks this is a method invocation!! */

// RefOf (MAIN)

// RefOf (R___)
// RefOf (BBUF)

// Store (RefOf (Local0), Local1)

// CondRefOf (BBUF, Local2)
// CondRefOf (R___, Local3)

// Store (DerefOf (Local1), Local4)

// Return (Local4)
}

Method (INDX, 0, Serialized)
{
    Name(STAT,Package(4){ })
    Store(0x44443333,Index(STAT,0))
}

//=====
//=====
//===== iPCO TESTS =====
//=====
//
//
// test IfElseOp.asl
//
// test for IfOp and ElseOp, including validation of object stack cleanup

```

```

//
Device (IFEL)
{
  Name (DWRD, 1)
  Name (RSLT, 0)

  // IFNR control method executes IfOp branch with NO nested Return
  // and no Else branch
  Method (IFNR)
  {
    Store (DWRD, RSLT)
    If (LEqual (DWRD, 1))
    {

      Store (0, RSLT)
    }
  } // IFNR

  // NINR control method does not execute If branch and has no Else branch
  Method (NINR)
  {
    Store (0, RSLT)
    If (LNotEqual (DWRD, 1))
    {
      Store (DWRD, RSLT)
    }
  } // NINR

  // IENR control method executes IfOp branch with NO nested Return
  Method (IENR)
  {
    If (LEqual (DWRD, 1))
    {
      Store (0, RSLT)
    }
    Else
    {
      Store (DWRD, RSLT)
    }
  } // IENR

  // ELNR control method executes ElseOp branch with NO nested Return
  Method (ELNR)
  {
    If (LNotEqual (DWRD, 1))
    {
      Store (DWRD, RSLT)
    }
  }

```

```

    Else
    {
        Store (0, RSLT)
    }
} // ELNR

// IFRT control method executes IfOp branch with nested
Return with
// no Else branch
Method (IFRT)

{
    If (LEqual (DWRD, 1))
    {
        Return (0)
    }
    Return (DWRD)
} // IFRT

// IERT control method executes IfOp branch with nested Return with
// Else branch
Method (IERT)
{
    If (LEqual (DWRD, 1))
    {
        Return (0)
    }
    Else
    {
        Return (DWRD)
    }
} // IERT

// ELRT control method executes ElseOp branch with nested Return
Method (ELRT)
{
    If (LNotEqual (DWRD, 1))
    {
        Return (DWRD)
    }
    Else
    {
        Return (0)
    }
} // ELRT

Method (TEST)
{

```

```

Store ("+++++++ IfElseOp Test", Debug)

// IfOp with NO return value
IFNR()
If (LNotEqual (RSLT,
0))
{
    Return (RSLT)
}

// IfOp with NO return value
NINR()
If (LNotEqual (RSLT, 0))
{
    Return (RSLT)
}

// IfOp with NO return value
IENR()
If (LNotEqual (RSLT, 0))
{
    Return (RSLT)
}

// ElseOp with NO return value
ELNR()
If (LNotEqual (RSLT, 0))
{
    Return (RSLT)
}

// IfOp with return value
Store (IFRT, RSLT)
If (LNotEqual (RSLT, 0))
{
    Return (RSLT)
}

// IfOp with return value
Store (IERT, RSLT)
If (LNotEqual (RSLT, 0))
{
    Return (RSLT)
}

// ElseOp with return value
Store (ELRT, RSLT)
If (LNotEqual (RSLT, 0))

```

```

    {

    Return (RSLT)
    }

    Return (0)
  } // TEST
} // IFEL

//
// test NoSave.asl
//
//
// Internal test cases to validate IfOp (Operator (,)) where Operator
// target is ZeroOp to throw away the results.
// Includes internal test cases for logical operators with no destination
// operands.
//
Device (NOSV)
{
  Method (TEST,, Serialized)
  {
    Store ("+++++++ NoSave Test", Debug)

    Name (WRD, 0x1234)

    //
    // Begin test of nested operators without saving results
    //

    // Test If (And ()) with no save of And result
    If (And (3, 1, ))
    {
      Store (1, WRD) // pass -- just do something
    }
    else
    {
      Return (1) // fail
    }

    // Test If (And ()) with no save of And result
    If (And (4, 1, ))
    {
      Return (2) //
fail
    }
    else
    {

```

```

    Store (2, WRD) // pass -- just do something
}

// Test If (NAnd ()) with no save of NAnd result
If (NAnd (3, 1, ))
{
    Store (3, WRD) // pass -- just do something
}
else
{
    Return (3) // fail
}

// Test If (NAnd ()) with no save of NAnd result
If (NAnd (0xFFFFFFFF, 0xFFFFFFFF, ))
{
    Return (4) // fail
}
else
{
    Store (4, WRD) // pass -- just do something
}

// Test If (NOr ()) with no save of NOr result
If (NOr (0, 1, ))
{
    Store (5, WRD) // pass -- just do something
}
else
{
    Return (5) // fail
}

// Test If (NOr ()) with no save
of NOr result
If (NOr (0xFFFFFFFFE, 1, ))
{
    Return (6) // fail
}
else
{
    Store (6, WRD) // pass -- just do something
}

// Test If (Not ()) with no save of Not result

```

```

If (Not (1, ))
{
    Store (7, WRD) // pass -- just do something
}
else
{
    Return (7) // fail
}

// Test If (Not ()) with no save of Not result
If (Not (0xFFFFFFFF, ))
{
    Return (8) // fail
}
else
{
    Store (8, WRD) // pass -- just do something
}

// Test If (Or ()) with no save of Or result
If (Or (3, 1, ))
{
    Store (9, WRD) // pass -- just do something
}
else
{
    Return (9)
// fail
}

// Test If (Or ()) with no save of Or result
If (Or (0, 0, ))
{
    Return (10) // fail
}
else
{
    Store (10, WRD) // pass -- just do something
}

// Test If (XOr ()) with no save of XOr result
If (XOr (3, 1, ))
{
    Store (11, WRD) // pass -- just do something
}
else

```

```

{
    Return (11) // fail
}

// Test If (XOr ()) with no save of XOr result
If (XOr (3, 3, ))
{
    Return (12) // fail
}
else
{
    Store (12, WRD) // pass -- just do something
}

//
// Begin test of logical operators with no destination operands
//

// Test If (LAnd ()) with no save of LAnd result
If (LAnd (3, 3))
{
    Store (21, WRD) // pass -- just do something
}
else
{
    Return (21) // fail
}

// Test If (LAnd ()) with no save of LAnd result
If (LAnd (3, 0))
{
    Return (22) // fail
}
else
{
    Store (22, WRD) // pass -- just do something
}

// Test If (LAnd ()) with no save of LAnd result
If (LAnd (0, 3))
{
    Return (23) // fail
}
else
{
    Store (23, WRD) // pass -- just do something
}

```



```
// Test If (LAnd ()) with no save of LAnd result
If (LAnd (0, 0))
{
    Return (24) // fail
}
else
{
    Store (24, WRD) // pass -- just do something
}
}
```

```
// Test If (LEqual ()) with no save of LEqual result
If (LEqual (3, 3))
{
    Store (31, WRD) // pass -- just do something
}
else
{
    Return (31) // fail
}
}
```

```
// Test If (LEqual ()) with no save of LEqual result
If (LEqual (1, 3))
{
    Return (32) // fail
}
else
{
    Store (32, WRD) // pass -- just do something
}
}
```

```
// Test If (LGreater ()) with no save of LGreater result
If (LGreater (3, 1))
{
    Store (41, WRD) // pass -- just do something
}
else
{
    Return (41) // fail
}
}
```

```
// Test If (LGreater ()) with no save of LGreater result
If (LGreater (4, 4))
{
    Return (42) // fail
}
}
```

```

}
else
{
    Store (42, WRD) // pass -- just do something
}

// Test If (LGreater ()) with no save of LGreater result
If (LGreater (1, 4))
{
    Return (43) // fail
}
else
{
    Store (43, WRD) // pass -- just do something
}

// Test If (LGreaterEqual ()) with no save of LGreaterEqual result
If (LGreaterEqual (3, 1))
{
    Store (44, WRD) // pass -- just do something
}
else
{
    Return (44) // fail
}

// Test If (LGreaterEqual ()) with no save of LGreaterEqual result
If (LGreaterEqual (3, 3))
{
    Store (45, WRD) // pass -- just do something
}
else
{
    Return (45) // fail
}

// Test If (LGreaterEqual ()) with no save of LGreaterEqual result
If (LGreaterEqual (3, 4))
{
    Return (46) // fail
}
else
{
    Store (46, WRD) // pass -- just do something
}

```

```

// Test If (LLess ()) with no save of LLess result
If (LLess (1, 3))
{
    Store (51, WRD) // pass -- just do something
}
else
{
    Return (51) // fail
}

// Test If (LLess ()) with no save of LLess result
If (LLess (2, 2))
{
    Return (52) // fail
}
else
{
    Store (52, WRD) // pass -- just do something
}

// Test If (LLess ()) with no save of LLess result
If (LLess (4, 2))
{
    Return (53) // fail
}

else
{
    Store (53, WRD) // pass -- just do something
}

// Test If (LLessEqual ()) with no save of LLessEqual result
If (LLessEqual (1, 3))
{
    Store (54, WRD) // pass -- just do something
}
else
{
    Return (54) // fail
}

// Test If (LLessEqual ()) with no save of LLessEqual result
If (LLessEqual (2, 2))
{
    Store (55, WRD) // pass -- just do something
}

```

```

else
{
    Return (55) // fail
}

// Test If (LLessEqual ()) with no save of LLessEqual result
If (LLessEqual (4, 2))
{
    Return (56) // fail
}
else
{
    Store (56, WRD) // pass -- just do something
}

// Test If (LNot ()) with no save
of LNot result
If (LNot (0))
{
    Store (61, WRD) // pass -- just do something
}
else
{
    Return (61) // fail
}

// Test If (LNot ()) with no save of LNot result
If (LNot (1))
{
    Return (62) // fail
}
else
{
    Store (62, WRD) // pass -- just do something
}

// Test If (LNotEqual ()) with no save of LNotEqual result
If (LNotEqual (3, 3))
{
    Return (63) // fail
}
else
{
    Store (63, WRD) // pass -- just do something
}

```

```
// Test If (LNotEqual ()) with no save of LNotEqual result
If (LNotEqual (1, 3))
{
    Store (64, WRD) // pass -- just do something
}
else
{
    Return (64) // fail
}
```

```
// Test If (LOr ()) with no save of LOr result
If (LOr (3, 1))
{
    Store (71, WRD) // pass -- just do something
}
else
{
    Return (71) // fail
}
```

```
// Test If (LOr ()) with no save of LOr result
If (LOr (0, 1))
{
    Store (72, WRD) // pass -- just do something
}
else
{
    Return (72) // fail
}
```

```
// Test If (LOr ()) with no save of LOr result
If (LOr (3, 0))
{
    Store (73, WRD) // pass -- just do something
}
else
{
    Return (73) // fail
}
```

```
// Test If (LOr ()) with no save of LOr result
If (LOr (0, 0))
{
    Return (74) // fail
}
```

```

    }
    else
    {
        Store (74, WRD) // pass -- just do something
    }

    Return (0)
} // TEST
} // NOSV

//
// test IndxFld.asl
//
// IndexFld test
// This is just a subset of the many RegionOp/Index Field test cases.
// Tests index field element AccessAs macro.
//
Device (IDXF)
{ // Test device name

    OperationRegion (SIO, SystemIO, 0x100, 2)
    Field (SIO, ByteAcc, NoLock, Preserve)
    {
        INDX, 8,
        DATA, 8
    }
    IndexField (INDX, DATA, AnyAcc, NoLock, WriteAsOnes)
    {
        AccessAs (ByteAcc, 0),
        IFE0, 8,
        IFE1, 8,
        IFE2, 8,
        IFE3, 8,
        IFE4, 8,
        IFE5, 8,
        IFE6, 8,
        IFE7, 8,
        IFE8, 8,
        IFE9, 8,
    }

    Method (TEST)
    {
        Store ("+++++++ IndxFld Test", Debug)
    }
}

```

```

Store (IFE0, Local0)
    Store (IFE1, Local1)
    Store (IFE2, Local2)

    Return (0)
} // TEST
} // IDXF

//
// test NestdLor.asl
//
Scope (\_SB) // System Bus
{ // _SB system bus

    Name (ZER0, 0)
    Name (ZER1, 0)
    Name (ZER2, 0)
    Name (ONE0, 1)

    Device (NSTL)
    {
        Method (TEST)
        {
            Store ("+++++++ NestdLor Test", Debug)

            If (Lor (ZER0, Lor (ZER1, Lor (ZER2, ONE0))))
            { // Indicate Pass
                Store (0x00, Local0)
            }

            Else
            { // Indicate Fail
                Store (0x01, Local0)
            }

            Return (Local0)
        } // End Method TEST
    } // Device NSTL
} // _SB system bus

//
// test RetBuf.asl
//
// Test ReturnOp(Buffer)
// This is required to support Control Method Batteries on
// Dell
// Latitude Laptops (e.g., CP1-A)
//

```

```

Device (RTBF)
{
  Method (SUBR, 1)
  {
    Return (Arg0)
  }

  Method (RBUF,, Serialized)
  { // RBUF: Return Buffer from local variable
    Name (ABUF, Buffer() {"ARBITRARY_BUFFER"})

    // store local buffer ABUF into Local0
    Store (ABUF, Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Buffer
    If (LNotEqual (Local1, 3)) // Buffer type is 3
    {
      Return (1) // failure
    }

    // store value returned by control method SUBR into Local0
    Store (SUBR (ABUF), Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Buffer
    If (LNotEqual (Local1, 3)) // Buffer type is 3
    {

Return (2) // failure
    }

    // allocate buffer using Local1 as buffer size (run-time evaluation)
    Store (5, Local1)
    Name (BUFR, Buffer(Local1) {})

    // store value returned by control method SUBR into Local0
    Store (SUBR (BUFR), Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Buffer
    If (LNotEqual (Local1, 3)) // Buffer type is 3

```



```

    {
        Return (3)    // failure
    }

// store BUFR Buffer into Local0
Store (BUFR, Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Buffer
If (LNotEqual (Local1, 3)) // Buffer type is 3
{
    Return (4)    // failure
}

// return Local0 Buffer
Return (Local0)
} // RBUF

Method (TEST)
{
    Store ("+++++++ RetBuf Test", Debug)

// store RBUF Buffer return value into Local0
Store (RBUF, Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Buffer
If (LNotEqual (Local1, 3)) // Buffer type is 3
{
    Return (10)    // failure
}
Else
{
    Return (0)    // success
}
} // TEST
} // RTBF

//
// test RetLVal.asl
//
// Test ReturnOp(Lvalue)
// This is required to support _PSR on IBM ThinkPad 560D and

```

```

//  _DCK on Toshiba Tecra 8000.
//

Device (GPE2)
{
    Method (_L03)
    {
        Store ("Method GPE2._L03 invoked", Debug)
        Return ()
    }

    Method (_E05)
    {
        Store ("Method
GPE2._E05 invoked", Debug)
        Return ()
    }
}

Device (PRW2)
{
    Name (_PRW, Package(2) {Package(2){\GPE2, 0x05}, 3})
}

Scope (\_GPE)
{
    Name (ACST, 0xFF)

    Method (_L08)
    {
        Store ("Method _GPE._L08 invoked", Debug)
        Return ()
    }

    Method (_E09)
    {
        Store ("Method _GPE._E09 invoked", Debug)
        Return ()
    }

    Method (_E11)
    {
        Store ("Method _GPE._E11 invoked", Debug)
        Notify (\PRW1, 2)
    }

    Method (_L22)

```

```

    {
        Store ("Method _GPE._L22 invoked", Debug)
        Return ()
    }

Method (_L33)
{
    Store ("Method _GPE._L33 invoked", Debug)
    Return ()
}

Method (_E64)
{
    Store ("Method _GPE._E64 invoked", Debug)
    Return ()
}

} // _GPE

Device (PRW1)
{
    Name (_PRW, Package(2)
{0x11, 3})
}

Device (PWRB)
{
    Name (_HID, EISAID("PNP0C0C"))
    Name (_PRW, Package(2) {0x33, 3})
}

Scope (\_SB) // System Bus
{ // _SB system bus

    Device (ACAD)
    { // ACAD: AC adapter device
        Name (_HID, "ACPI0003") // AC adapter device

        Name (_PCL, Package () {\_SB})

        OperationRegion (AREG, SystemIO, 0x0372, 2)
        Field (AREG, ByteAcc, NoLock, Preserve)
        {
            AIDX, 8,
            ADAT, 8
        }
        IndexField (AIDX, ADAT, ByteAcc, NoLock, Preserve)
    }
}

```

```

{
    , 1, // skips
    ACIN, 1,
    , 2, // skips
    CHAG, 1,
    , 3, // skips
    , 7, // skips
    ABAT, 1,
} // IndexField

Method (_PSR)
{
    Store (\_GPE.ACST, Local0)
    Store
(ACIN, Local1)
    If (LNotEqual (\_GPE.ACST, Local1))
    {
        Store (Local1, \_GPE.ACST)
        // This Notify is commented because it causes a
        // method error when running on a system without the
        // specific device.
        // Notify (\_SB_.ACAD, 0)
    }
    Return (Local0)
} // _PSR

Method (_STA)
{
    Return (0x0F)
}

Method (_INI)
{
    Store (ACIN, \_GPE.ACST)
}
} // ACAD: AC adapter device

// test implicit return from control method
Method (DIS_, 1)
{
    Store (Arg0, Local0)
}

Device (RTLIV)
{
    // test implicit return inside nested if with explicit return of Lvalue
    Method (_DCK, 1)
    // Arg0: 1 == dock, 0 == undock

```

```

{
    If (Arg0)
    { // dock
        Store (0x87, Local0)

        If (Local0)
        {
            DIS_ (0x23)
            Return (1)
        }

        Return (0)
    } // dock
    Else
    { // undock
        Store (Arg0, Local0)

        If (Local0)
        {
            DIS_ (0x23)
            Return (1)
        }

        Return (0)
    } // undock
} // _DCK control method

Method (TEST)
{
    Store ("+++++++ RetLVal Test", Debug)

    // store _PSR return value into Local0
    Store (\_SB_.ACAD._PSR, Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0
    is a Number
    If (LNotEqual (Local1, 1)) // Number/Integer type is 1
    {
        Return (1) // failure
    }

    // test implicit return inside nested if with explicit return of Lvalue
    Store (_DCK (1), Local2)
}

```

```

// save Local2 object type value into Local3
Store (ObjectType (Local2), Local3)

// validate Local2 is a Number
If (LNotEqual (Local3, 1)) // Number/Integer type is 1
{
    Return (2) // failure
}

If (LNotEqual (Local2, 1))
{
    Return (3) // failure
}

Return (0) // success
} // TEST
} // RTL
} // _SB system bus

//
// test RetPkg.asl
//
// Test ReturnOp(Package)
// This is required to support _PRT on Dell Optiplex Workstations (e.g. GX1)
//

Scope (\_SB) // System Bus
{ // _SB system bus
    Device(LNKA)
    {
        Name (_HID, EISAID("PNP0C0F")) // PCI interrupt link
        Name (_UID, 1)
    }
    Device(LNKB)
    {
        Name (_HID, EISAID("PNP0C0F")) // PCI interrupt link
        Name (_UID, 2)
    }
    Device(LNKC)
    {
        Name (_HID, EISAID("PNP0C0F")) // PCI interrupt link
        Name (_UID, 3)
    }
    Device(LNKD)
    {
        Name (_HID, EISAID("PNP0C0F")) // PCI interrupt link
        Name (_UID, 4)
    }
}

```

```

Device (PCI1)
{ // PCI1: Root PCI Bus
  Name (_HID, "PNP0A03") // Need _HID for root device (String format)
  Name (_ADR,0x00000000)
  Name (_CRS,0)

  Name (_PRT, Package ()
  {
    Package () {0x0004ffff, 0, LNKA, 0}, // Slot 1, INTA
    Package () {0x0004ffff, 1, LNKB, 0},
// Slot 1, INTB
    Package () {0x0004ffff, 2, LNKC, 0}, // Slot 1, INTC
    Package () {0x0004ffff, 3, LNKD, 0}, // Slot 1, INTD
    Package () {0x0005ffff, 0, \_SB\_LNKB, 0}, // Slot 2, INTA
    Package () {0x0005ffff, 1, \_SB\_LNKC, 0}, // Slot 2, INTB
    Package () {0x0005ffff, 2, \_SB\_LNKD, 0}, // Slot 2, INTC
    Package () {0x0006ffff, 3, \_SB\_LNKA, 0}, // Slot 2, INTD
    Package () {0x0006ffff, 0, LNKC, 0}, // Slot 3, INTA
    Package () {0x0006ffff, 1, LNKD, 0}, // Slot 3, INTB
    Package () {0x0006ffff, 2, LNKA, 0}, // Slot 3, INTC
    Package () {0x0006ffff, 3, LNKB, 0}, // Slot 3, INTD
  })

Device (PX40)
{ // Map f0 space, Start PX40
  Name (_ADR,0x00070000) // Address+function.
}
} // PCI0:
Root PCI Bus

Device (RETP)
{
  Method (RPKG)
  { // RPKG: Return Package from local variable

    // store _PRT package into Local0
    Store (\_SB\_PCI1._PRT, Local0)

    // return Local0 Package
    Return (Local0)
  } // RPKG

  Method (TEST)
  {
    Store ("+++++++ RetPkg Test", Debug)

    // store RPKG package return value into Local0

```

```

Store (RPKG, Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Package
If (LNotEqual (Local1, 4)) // Package type is 4
    { Return (1) } // failure
Else
    { Return (0) } // success
} // TEST
} // RETP
} // _SB_

//
// test WhileRet.asl
//
// WhileRet.asl tests
a ReturnOp nested in a IfOp nested in a WhileOp.
//
Device (WHLR)
{
    Name (LCNT, 0)
    Method (WIR)
    { // WIR: control method that returns inside of IfOp inside of WhileOp
        While (LLess (LCNT, 4))
        {
            If (LEqual (LCNT, 2))
            {
                Return (0)
            }

            Increment (LCNT)
        }

        Return (LCNT)
    } // WIR: control method that returns inside of IfOp inside of WhileOp

    Method (TEST)
    {
        Store ("+++++++ WhileRet Test", Debug)

        Store (WIR, Local0)

        Return (Local0)
    } // TEST
} // WHLR

```



```

//
// test AndOrOp.asl
//
//This code tests the bitwise AndOp and OrOp Operator terms
//
//Syntax of Andop term
//And - Bitwise And
//AndTerm := And(
// Source1, //TermArg=>Integer
// Source2, //TermArg=>Integer
// Result //Nothing | SuperName
//) => Integer
//Source1
and Source2 are evaluated as integer data types,
// a bit-wise AND is performed, and the result is optionally
//stored into Result.
//
//
//Syntax of OrOp
//Or - Bit-wise Or
//OrTerm := Or(
// Source1, //TermArg=>Integer
// Source2 //TermArg=>Integer
// Result //Nothing | SuperName
//) => Integer
//Source1 and Source2 are evaluated as integer data types,
// a bit-wide OR is performed, and the result is optionally
//stored in Result
//
Device (AND0)
{
    OperationRegion (TMEM, SystemMemory, 0xC4, 0x02)
    Field (TMEM, ByteAcc, NoLock, Preserve)
    {
        , 3,
        TOUD, 13
    }

    //Create System Memory Operation Region and field overlays
    OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {
        SMDW, 32, // 32-bit DWORD
        SMWD, 16, // 16-bit WORD
        SMBY, 8, // 8-bit BYTE
    } // Field(RAM)
}

```

```

//And with Byte
Data
Name (BYT1, 0xff)
Name (BYT2, 0xff)
Name (BRSL, 0x00)

//And with Word Data
Name (WRD1, 0xffff)
Name (WRD2, 0xffff)
Name (WRSL, 0x0000)

//And with DWord Data
Name (DWD1, 0xffffffff)
Name (DWD2, 0xffffffff)
Name (DRSL, 0x00000000)

Method (ANDP)
{
    //Check with 1 And 1 on byte data
    And(BYT1, BYT2, BRSL)
    if(LNotEqual(BRSL,0xff))
    {Return(1)}

    //Check with 1 And 1 on Word data
    And(WRD1, WRD2, WRSL)
    if(LNotEqual(WRSL,0xffff))
    {
        Return (1)    // failure
    }

    //Check with 1 And 1 Dword
    And(DWD1, DWD2, DRSL)
    if(LNotEqual(DRSL,0xffffffff))
    {
        Return (1)    // failure
    }

    //Check with 0 And 0 on byte data
    Store(0x00,BYT1)
    Store(0x00,BYT2)
    Store(0x00,BRSL)
    And(BYT1, BYT2, BRSL)
    if(LNotEqual(BRSL,0x00))
    {
        Return (1)    // failure
    }

    //Check with 0 And 0 on Word data

```

```

Store (0x0000,WRD1)
Store (0x0000,WRD2)
Store (0x0000,WRSL)
And(WRD1, WRD2, WRSL)
if(LNotEqual(WRSL,0x0000))
{
    Return (1)    // failure
}

//Check with 0 And 0 Dword
Store (0x00000000,DWD1)
Store (0x00000000,DWD2)
Store (0x00000000,DRSL)
And(DWD1, DWD2, DRSL)
if(LNotEqual(DRSL,0x00000000))
{
    Return (1)    // failure
}

//Check with 1 And 0 on byte data
Store(0x55,BYT1)
Store(0xAA,BYT2)
Store(0x00,BRSL)
And(BYT1, BYT2, BRSL)
if(LNotEqual(BRSL,0x00))
{
    Return (1)    // failure
}

//Check with 1 And 0 on Word data
Store (0x5555,WRD1)
Store (0xAAAA,WRD2)
Store (0x0000,WRSL)
And(WRD1, WRD2, WRSL)
if(LNotEqual(WRSL,0x0000))
{
    Return (1)    // failure
}

//Check with 1 And 0 on Dword
Store (0x55555555,DWD1)
Store (0xAAAAAAAA,DWD2)
Store (0x00000000,DRSL)
And(DWD1, DWD2, DRSL)
if(LNotEqual(DRSL,0x00000000))
{
    Return (1)    // failure
}

```

```

}

Store (0x1FFF, TOUD)
Store (TOUD, Local0)
if(LNotEqual(Local0,0x1FFF))
{
    Return (1)    // failure
}

//TBD- Do We need to check for system memory data also for each test case ??

Return(0)

} //ANDP

Method (OROP)
{

    //Check with 1 Ored with 1 on byte data
    Store(0xff,BYT1)
    Store(0xff,BYT2)
    Store(0x00,BRSL)
    Or(BYT1, BYT2, BRSL)
    if(LNotEqual(BRSL,0xff))
    {
        Return (1)    // failure
    }

    //Check with 1 Ored with 1 on Word data
    Store(0xffff,WRD1)
    Store(0xffff,WRD2)
    Store(0x0000,WDSL)
    Or(WRD1, WRD2, WDSL)
    if(LNotEqual(WDSL,0xffff))
    {
        Return (1)    // failure
    }

    //Check with 1 Ored with 1 on Dword data
    Store(0xffffffff,DWD1)
    Store(0xffffffff,DWD2)
    Store(0x00000000,DRSL)
    Or(DWD1, DWD2, DRSL)
    if(LNotEqual(DRSL,0xffffffff))
    {
        Return (1)    // failure
    }
}

```

```
//Check with 0 Ored with 0 on byte data
Store(0x00,BYT1)
Store(0x00,BYT2)
Store(0x00,BRSL)
Or(BYT1, BYT2, BRSL)
if(LNotEqual(BRSL,0x00))
{
    Return (1)    // failure
}
}
```

```
//Check with 0 Ored with 0 on Word data
Store (0x0000,WRD1)
Store (0x0000,WRD2)
Store (0x0000,WRSL)
Or(WRD1, WRD2, WRSL)
if(LNotEqual(WRSL,0x0000))
{
    Return (1)    // failure
}
}
```

```
//Check with 0 Ored with 0 Dword data
Store (0x00000000,DWD1)
Store (0x00000000,DWD2)
Store (0x00000000,DRSL)
Or(DWD1, DWD2, DRSL)
if(LNotEqual(DRSL,0x00000000))
{
    Return (1)    // failure
}
}
```

```
//Check with 1 Ored with 0 on byte data
Store(0x55,BYT1)
Store(0xAA,BYT2)
Store(0x00,BRSL)
Or(BYT1, BYT2, BRSL)
if(LNotEqual(BRSL,0xff))
{
    Return (1)    // failure
}
}
```

```
//Check with 1 Ored with 0 on Word data
Store (0x5555,WRD1)
Store (0xAAAA,WRD2)
Store (0x0000,WRSL)
Or(WRD1, WRD2, WRSL)
```

```

if(LNotEqual(WRSL,0xffff)
{
    Return (1)    // failure
}

//Check with 1 Ored with 0 on Dword data
Store (0x55555555,DWD1)
Store (0xAAAAAAAA,DWD2)
Store (0x00000000,DRSL)
Or(DWD1, DWD2, DRSL)
if(LNotEqual(DRSL,0xffffffff)
{
    Return (1)    // failure
}

//TBD - Do We need to check for system memory data also for each test case ??

Return(0)

} //OROP

Method(TEST,, Serialized)
{
    Store ("+++++++ AndOrOp Test", Debug)

    Name(RSLT,1)
    //Call Andop method
    Store(ANDP,RSLT)
    if(LEqual(RSLT,1))
    {
        Return (RSLT)
    }
}

//Call OrOp Method
Store(OROP,RSLT)
if(LEqual(RSLT,1))
{
    Return(RSLT)
}

//
// Return original conditions to allow iterative execution
//
Store(0xff,BYT1)
Store(0xff,BYT2)
Store(0x00,BRSL)
Store (0xffff,WRD1)

```

```

    Store (0xffff,WRD2)
    Store (0x0000,WRSL)
    Store (0xffffffff,DWD1)
    Store (0xffffffff,DWD2)
    Store (0x00000000,DRSL)

    Return(0)
} //TEST
} //AND0

//
// test BreakPnt.asl
//
// This code tests the BreakPoint opcode term. The syntax of BreakPoint Term is
// BreakPointTerm := BreakPoint
// Used for debugging, the Breakpoint opcode stops the execution and enters the AML debugger.
// In the non-debug version of the interpreter, BreakPoint is equivalent to Noop.
//
Device (BRKP)
{
    Name(CNT0,0)

    Method (BK1)
    {
        BreakPoint
        Return(0)
    }

    Method (TEST)
    {
        Store ("+++++++ BreakPnt Test", Debug)

        Store(0,CNT0)

        //Check BreakPoint statement
        While(LLess(CNT0,10))
        {
            Increment(CNT0)
        }

        //Check the BreakPoint statement
        If(LEqual(CNT0,10))
        {
            // BreakPoint
            Return(0)
        }

        //failed

```

```

    Return(1)
  }
}

//
// test AddSubOp.asl
//
Device (ADSU)
{
  // create System Memory Operation Region and field overlays
  OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
  Field (RAM, AnyAcc, NoLock, Preserve)
  {
    SMDW, 32, // 32-bit DWORD
    SMWD, 16, // 16-bit WORD
    SMBY, 8, // 8-bit BYTE
  } // Field(RAM)

  Method (TEST, Serialized)
  {
    Store ("+++++++ AddSubOp Test",
Debug)

    Name (DWRD, 0x12345678)
    Name (WRD, 0x1234)
    Name (BYT, 0x12)

    // Test AddOp with DWORD data
    Store (0x12345678, DWRD)
    Add (DWRD, 7, DWRD)
    If (LNotEqual (DWRD, 0x1234567F))
      { Return (DWRD) }

    // Test AddOp with WORD data
    Add (WRD, 5, WRD)
    If (LNotEqual (WRD, 0x1239))
      { Return (WRD) }

    // Test AddOp with BYTE data
    Add (BYT, 3, BYT)
    If (LNotEqual (BYT, 0x15))
      { Return (BYT) }

    // Test SubtractOp with DWORD data
    Subtract (DWRD, 7, DWRD)
    If (LNotEqual (DWRD, 0x12345678))
      { Return (DWRD) }

```



```

// Test SubtractOp with WORD data
Subtract (WRD, 3, WRD)
If (LNotEqual (WRD, 0x1236))
    { Return (WRD) }

// Test SubtractOp with BYTE data
Subtract
(BYT, 3, BYT)
If (LNotEqual (BYT, 0x12))
    { Return (BYT) }

// test AddOp with DWORD SystemMemory OpRegion
Store (0x01234567, SMDW)
Add (SMDW, 8, SMDW)
If (LNotEqual (SMDW, 0x0123456F))
    { Return (SMDW) }

// test SubtractOp with DWORD SystemMemory OpRegion
Subtract (SMDW, 7, SMDW)
If (LNotEqual (SMDW, 0x01234568))
    { Return (SMDW) }

// test AddOp with WORD SystemMemory OpRegion
Store (0x0123, SMWD)
Add (SMWD, 6, SMWD)
If (LNotEqual (SMWD, 0x0129))
    { Return (SMWD) }

// test SubtractOp with WORD SystemMemory OpRegion
Subtract (SMWD, 5, SMWD)
If (LNotEqual (SMWD, 0x0124))
    { Return (SMWD) }

// test AddOp with BYTE SystemMemory OpRegion
Store (0x01, SMBY)
Add (SMBY,
4, SMBY)
If (LNotEqual (SMBY, 0x05))
    { Return (SMBY) }

// test SubtractOp with BYTE SystemMemory OpRegion
Subtract (SMBY, 3, SMBY)
If (LNotEqual (SMBY, 0x02))
    { Return (SMBY) }

```

```

    Return (0)
  } // TEST
} // ADSU

//
// test IncDecOp.asl
//
Device (INDC)
{
  // create System Memory Operation Region and field overlays
  OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
  Field (RAM, AnyAcc, NoLock, Preserve)
  {
    SMDW, 32, // 32-bit DWORD
    SMWD, 16, // 16-bit WORD
    SMBY, 8, // 8-bit BYTE
  } // Field(RAM)

  Method (TEST, Serialized)
  {
    Store ("+++++++ IncDecOp Test", Debug)

    Name (DWRD, 0x12345678)
    Name (WRD, 0x1234)
    Name (BYT, 0x12)

    // Test IncrementOp with DWORD data
    Store (0x12345678, DWRD)

    Increment (DWRD)
    If (LNotEqual (DWRD, 0x12345679))
      { Return (DWRD) }

    // Test IncrementOp with WORD data
    Increment (WRD)
    If (LNotEqual (WRD, 0x1235))
      { Return (WRD) }

    // Test IncrementOp with BYTE data
    Increment (BYT)
    If (LNotEqual (BYT, 0x13))
      { Return (BYT) }

    // Test DecrementOp with DWORD data
    Decrement (DWRD)
    If (LNotEqual (DWRD, 0x12345678))
      { Return (DWRD) }
  }
}

```

```

// Test DecrementOp with WORD data
Decrement (WRD)
If (LNotEqual (WRD, 0x1234))
    { Return (WRD) }

// Test DecrementOp with BYTE data
Decrement (BYT)
If (LNotEqual (BYT, 0x12))
    { Return (BYT) }

// test IncrementOp with DWORD SystemMemory OpRegion
Store (0x01234567, SMDW)

Increment (SMDW)
If (LNotEqual (SMDW, 0x01234568))
    { Return (SMDW) }

// test DecrementOp with DWORD SystemMemory OpRegion
Decrement (SMDW)
If (LNotEqual (SMDW, 0x01234567))
    { Return (SMDW) }

// test IncrementOp with WORD SystemMemory OpRegion
Store (0x0123, SMWD)
Increment (SMWD)
If (LNotEqual (SMWD, 0x0124))
    { Return (SMWD) }

// test DecrementOp with WORD SystemMemory OpRegion
Decrement (SMWD)
If (LNotEqual (SMWD, 0x0123))
    { Return (SMWD) }

// test IncrementOp with BYTE SystemMemory OpRegion
Store (0x01, SMBY)
Increment (SMBY)
If (LNotEqual (SMBY, 0x02))
    { Return (SMBY) }

// test DecrementOp with BYTE SystemMemory OpRegion
Decrement (SMBY)
If (LNotEqual
(SMBY, 0x01))
    { Return (SMBY) }

```

```

    Return (0)
  } // TEST
} // INDC

//
// test LOps.asl
//
//This source tests all the logical operators. Logical operators in ASL are as follows.
//LAnd, LEqual, LGreater, LLess, LNot, LNotEqual, LOr.
// Success will return 0 and failure will return a non zero number. Check the source code for
// non zero number to find where the test failed

```

Device (LOPS)

```

{
  //Create System Memory Operation Region and field overlays
  OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
  Field (RAM, AnyAcc, NoLock, Preserve)
  {
    SMDW, 32, // 32-bit DWORD
    SMWD, 16, // 16-bit WORD
    SMBY, 8, // 8-bit BYTE
  } // Field(RAM)

```

//And with Byte Data

```

Name (BYT1, 0xff)
Name (BYT2, 0xff)
Name (BRSL, 0x00)

```

//And with Word Data

```

Name (WRD1, 0xffff)
Name (WRD2, 0xffff)
Name (WRSL, 0x0000)

```

//And with DWord Data

```

Name (DWD1, 0xffffffff)
Name (DWD2, 0xffffffff)
Name (DRSL, 0x00000000)

```

Name(RSLT,1)

Method (ANDL,2) // Test Logical And

```

{
  //test with the arguments passed
  if(LEqual(Arg0,Arg1))
  { Store(LAnd(Arg0,Arg1),RSLT)
    if(LNotEqual(Ones,RSLT))
    {Return(1)}
  }
}

```

```

//test with he locals
Store(Arg0,Local0)
Store(Arg1,Local1)

if(LEqual(Local0,Local1))
{
    Store(LAnd(Local0,Local1),RSLT)
    if(LNotEqual(Ones,RSLT))
        {Return(12)}
}

//test with BYTE data
if(LEqual(BYT1,BYT2))
{ Store(LAnd(BYT1,BYT2),BRSL)
  if(LNotEqual(Ones,BRSL))
    {Return(13)}
}

//test with WORD data
if(LEqual(WRD1,WRD2))
{ Store(LAnd(WRD1,WRD2),WRSL)
  if(LNotEqual(Ones,WRSL))
    {Return(14)}
}

//test with DWORD data
if(LEqual(DWD1,DWD2))
{ Store(LAnd(DWD1,DWD2),DRSL)
  if(LNotEqual(Ones,DRSL))
    {Return(15)}
}

//Test for system memory data for each test case.

Store(0xff,BYT1)
Store(0xff,SMBY)
Store(0x00,BRSL)

//test with BYTE system memory data
if(LEqual(BYT1,SMBY))
{ Store(LAnd(BYT1,SMBY),BRSL)
  if(LNotEqual(Ones,BRSL))
    {Return(16)}
}

Store (0xffff,WRD1)
Store(0xffff,SMWD)

```

```

Store(0x0000,WRSL)
//test with WORD system memory data
if(LEqual(WRD1,SMWD))
{ Store(LAnd(WRD1,SMWD),WRSL)
  if(LNotEqual(Ones,WRSL))
  {Return(17)}
}

Store(0x000000,DRSL)

Store (0xffff,DWD1)
Store(0xffff,SMDW)

//test with DWORD system memory data
if(LEqual(DWD1,SMDW))
{ Store(LAnd(DWD1,SMDW),DRSL)
  if(LNotEqual(Ones,DRSL))
  {Return(18)}
}

Return(0)

} //ANDL

//Test the LOr Operator

Method (ORL_,2)
{ //ORL_

//test with the arguments passed
if(LEqual(Arg0,Arg1))
{
  Store(LOr(Arg0,Arg1),RSLT)
  if(LNotEqual(Ones,RSLT))
  {
    Return(21)
  }
}

//test with he locals
Store(Arg0,Local0)
Store(Arg1,Local1)

if(LEqual(Local0,Local1))
{
  Store(LOr(Local0,Local1),RSLT)
  if(LNotEqual(Ones,RSLT))
  {Return(22)}
}

```

```

}

//Check with 1 LOred with 0 on byte data
Store(0xff,BYT1)
Store(0x00,BYT2)
Store(0x00,BRSL)

if(LNotEqual(BYT1, BYT2))
{
    Store(LOr(BYT1, BYT2), BRSL)
    if(LNotEqual(Ones,BRSL))
    {Return(23)}
}

//Check with 1 LOred with 0 on WORD data
Store(0xffff,WRD1)
Store(0x0000,WRD2)
Store(0x0000,WRSL)

if(LNotEqual(WRD1, WRD2))
{
    Store(LOr(WRD1, WRD2), WRSL)
    if(LNotEqual(Ones,WRSL))
    {Return(24)}
}

//Check with 1 LOred with 0 on DWORD data
Store(0xffffffff,DWD1)
Store(0x00000000,DWD2)
Store(0x00000000,DRSL)

if(LNotEqual(DWD1, DWD2))
{
    Store(LOr(DWD1, DWD2), DRSL)
    if(LNotEqual(Ones,DRSL))
    {Return(25)}
}

Store(0x00,BYT1)
Store(0xff,SMBY)
Store(0x00,BRSL)

//test with BYTE system memory data
if(LEqual(BYT1,SMBY))
{ Store(LOr(BYT1,SMBY),BRSL)
    if(LNotEqual(Ones,BRSL))
    {Return(26)}
}

```

```
Store(0x0000,WRD1)
Store(0xffff,SMWD)
Store(0x0000,WRSL)

//test with WORD system memory data
if(LEqual(WRD1,SMWD))
{ Store(LOr(WRD1,SMWD),WRSL)
  if(LNotEqual(Ones,WRSL))
  {Return(27)}
}
```

```
Store(0x00000000,DWD1)
Store(0xffffffff,SMDW)
Store(0x00000000,DRSL)
```

```
//test with DWORD system memory data
if(LEqual(DWD1,SMDW))
{ Store(LAnd(DWD1,SMDW),DRSL)
  if(LNotEqual(Ones,DRSL))
  {Return(28)}
}
Return(0)
```

```
}//ORL_
```

```
//This method tests LGreater and LNot operator
Method(LSGR,2)
{//LSGR
```

```
    //Test on arguements
passed
```

```
    //in test data, Arg1 > Arg0
    if(LEqual(Ones,LNot(LGreater(Arg1,Arg0))))
    {Return(31)}
```

```
    //test LLessEqual
    if(LEqual(Ones,LNot(LGreaterEqual(Arg1,Arg0))))
    {Return(32)}
```

```
    if(LEqual(Ones,LLess(Arg1,Arg0)))
    {Return(33)}
```

```
    //test LLessEqual
    if(LEqual(Ones,LLessEqual(Arg1,Arg0)))
    {Return(34)}
```



```
Store(Arg0,Local0)
Store(Arg1,Local1)

//test with the locals
if(LNot(LGreater(Local1,Local0)))
    {Return(35)}

//test on Byte data
Store(0x12,BYT1)
Store(0x21,BYT2)

if(LNot(LGreater(BYT2,BYT1)))
    {Return(36)}

if(LNot(LLess(BYT1,BYT2)))
    {Return(37)}

//test LGreaterEqual with byte data
if(LNot(LGreaterEqual(BYT2,BYT1)))
    {Return(38)}

//test LLessEqual byte data

if(LNot(LLessEqual(BYT1,BYT2)))
    {Return(39)}

//test on Word data
Store(0x1212,WRD1)
Store(0x2121,WRD2)

if(LNot(LGreater(WRD2,WRD1)))
    {Return(310)}

if(LNot(LLess(WRD1,WRD2)))
    {Return(311)}

//Test LGreaterEqual with Word Data
if(LNot(LGreaterEqual(WRD2,WRD1)))
    {Return(312)}

//Test LLessEqual with Word Data
if(LNot(LLessEqual(WRD1,WRD2)))
    {Return(313)}

//test on DWord data
```

```

Store(0x12121212,DWD1)
Store(0x21212121,DWD2)

if(LNot(LGreater(DWD2,DWD1)))
    {Return(314)}

if(LNot(LLess(DWD1,DWD2)))
    {Return(315)}

//Test LGreaterEqual with Dword
if(LNot(LGreaterEqual(DWD2,DWD1)))
    {Return(316)}

//Test LLessEqual DWord
if(LNot(LLessEqual(DWD1,DWD2)))
    {Return(317)}

Return(0)
} //LSGR

//The test method
Method(TEST)
{
    Store ("+++++++ LOps Test", Debug)

    Store(0,RSLT)
    //Call LAndOp method
    Store(ANDL(2,2),RSLT)
    if(LNotEqual(RSLT,0))
        {Return(RSLT)}

    //Call LOrOp Method
    Store(ORL_(5,5),RSLT)
    if(LNotEqual(RSLT,0))
        {Return(RSLT)}

    //Call LSGR Method
    Store(LSGR(5,7),RSLT)
    if(LNotEqual(RSLT,0))
        {Return(RSLT)}

    Return(0)
} //TEST
} //LOPS

//
// test FdSetOps.asl

```

```

//
// FindSetLeftBit - Find Set Left Bit
// FindSetLeftBitTerm := FindSetLeftBit
// ( Source, //TermArg=>Integer
//   Result //Nothing | SuperName
// ) => Integer
// Source is evaluated as integer data type, and the one-based bit location of
// the first MSb (most significant set bit) is optionally stored into Result.
//
// The result of 0 means no bit was set, 1 means the left-most bit set is the
// first bit, 2 means the left-most bit set is the second bit, and so on.
// FindSetRightBit - Find Set Right Bit

// FindSetRightBitTerm := FindSetRightBit
// ( Source, //TermArg=>Integer
//   Result //Nothing | SuperName
// ) => Integer
// Source is evaluated as integer data type, and the one-based bit location of
// the most LSb (least significant set bit) is optionally stored in Result.
// The result of 0 means no bit was set, 32 means the first bit set is the
// 32nd bit, 31 means the first bit set is the 31st bit, and so on.

// If the Control method is success Zero is returned. Otherwise a non-zero
// number is returned.
//
Device (FDSO)
{ // FDSO

    // Create System Memory Operation Region and field overlays
    OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {
        SMDW, 32, // 32-bit DWORD
        SMWD, 16, // 16-bit WORD
        SMBY, 8, // 8-bit BYTE
    } // Field(RAM)

    // Byte Data
    Name (BYT1, 1)
    Name (BRSL, 0x00)

    // Word Data
    Name (WRD1, 0x100)
    Name (WRSL, 0x0000)

    // DWord Data
    Name (DWD1, 0x10000)
    Name (DRSL, 0x00000000)

```

Name (RSLT, 1)

Name (CNTR, 1)

Method (SHFT,2)

// Arg0 is the actual data and Arg1 is the bit position

{ // SHFT

Store (Arg0, Local0)

Store (Arg1, Local1)

FindSetLeftBit (Arg0, BRSL)

If (LNotEqual (BRSL, Arg1))

{ Return (0x11) }

If (LNotEqual (Arg0, Local0))

{ Return (0x12) }

FindSetLeftBit (Local0, BRSL)

If (LNotEqual (BRSL, Local1))

{ Return (0x13) }

If (LNotEqual (Arg0, Local0))

{ Return (0x14) }

// test the byte

value for SetLeftBit

Store (7, BYT1)

FindSetLeftBit (BYT1, BRSL)

If (LNotEqual (BRSL, 3))

{ Return (0x15) }

If (LNotEqual (BYT1, 7))

{ Return (0x16) }

Store (1, BYT1)

Store (1, CNTR)

While (LLessEqual (CNTR, 8))

{ // FindSetLeftBit check loop for byte data

FindSetLeftBit (BYT1, BRSL)

If (LNotEqual (BRSL, CNTR))

{ Return (0x17) }

// Shift the bits to check the same

ShiftLeft (BYT1, 1, BYT1)

Increment (CNTR)

} // FindSetLeftBit check loop for byte data

// Check BYTE value for SetRightBit

Store (7, BYT1)

FindSetRightBit (BYT1, BRSL)

If (LNotEqual (BRSL, 1))

```

    { Return (0x21) }
If (LNotEqual (BYT1, 7))
    { Return (0x22) }

```

Store (1, CNTR)

```

Store (0xFF, BYT1)
While (LLessEqual (CNTR, 8))
{ // FindSetRightBit check loop for byte data
  FindSetRightBit (BYT1, BRSL)
  If (LNotEqual (BRSL, CNTR))
    { Return (0x23) }

  ShiftLeft (BYT1, 1, BYT1)
  Increment (CNTR)
} // FindSetRightBit check loop for byte data

```

// Test Word value for SetLeftBit

```

Store (9, CNTR)
Store (0x100, WRD1)
While (LLessEqual (CNTR, 16))
{
  // FindSetLeftBit check loop for Word data
  FindSetLeftBit (WRD1, WRSL)
  If (LNotEqual (WRSL, CNTR))
    { Return (0x31) }

  // Shift the bits to check the same
  ShiftLeft (WRD1, 1, WRD1)
  Increment (CNTR)
} // FindSetLeftBit check loop for Word data

```

// Check Word value for SetRightBit

```

Store (9, CNTR)
Store (0xFF00, WRD1)
While (LLessEqual (CNTR, 16))
{
  // FindSetRightBit check loop for Word data
  FindSetRightBit (WRD1, WRSL)
  If (LNotEqual (WRSL, CNTR))
    { Return (0x32) }

  ShiftLeft (WRD1, 1, WRD1)
  Increment (CNTR)
} // FindSetRightBit check loop for Word data

```

// Test the DWord value for SetLeftBit

```

Store (17, CNTR)
Store (0x10000, DWD1)
While (LLessEqual (CNTR, 32))
{
    // FindSetLeftBit check loop for Dword
    FindSetLeftBit (DWD1, DRSL)
    If (LNotEqual (DRSL, CNTR))
        { Return (0x41) }

    // Shift the bits to check the same
    ShiftLeft (DWD1, 1, DWD1)
    Increment (CNTR)
} // FindSetLeftBit check loop for Dword

// Check DWord value for SetRightBit
Store (17, CNTR)
Store (0xFFFF0000, DWD1)
While (LLessEqual (CNTR, 32))
{ // FindSetRightBit Check loop for DWORD
    FindSetRightBit (DWD1, DRSL)
    If (LNotEqual (DRSL, CNTR))
        { Return (0x42) }

    ShiftLeft (DWD1, 1, DWD1)
    Increment (CNTR)
} // FindSetRightBit Check loop for DWORD

Return (0)
} // SHFT

// Test method called from amlexec
Method (TEST)
{ // TEST

    Store ("+++++++ FdSetOps Test", Debug)

    Store (SHFT (0x80, 8), RSLT)
    If (LNotEqual (RSLT, 0))
        { Return (RSLT) }

    Return (0) // pass
} // TEST
} // Device FDSO

//
// test MulDivOp.asl
//
Device (MLDV)

```

```

{
    // create System Memory Operation Region and field overlays
    OperationRegion
(RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {
        SMDW, 32, // 32-bit DWORD
        SMWD, 16, // 16-bit WORD
        SMBY, 8, // 8-bit BYTE
    } // Field(RAM)

    Method (TEST,, Serialized)
    {
        Store ("+++++++ MulDivOp Test", Debug)

        Name (RMDR, 0)
        Name (DWRD, 0x12345678)
        Name (WRD, 0x1234)
        Name (BYT, 0x12)

        // Test MultiplyOp with DWORD data
        Store (0x12345678, DWRD)
        Multiply (DWRD, 3, DWRD)
        If (LNotEqual (DWRD, 0x369D0368))
            { Return (DWRD) }

        // Test MultiplyOp with WORD data
        Multiply (WRD, 4, WRD)
        If (LNotEqual (WRD, 0x48D0))
            { Return (WRD) }

        // Test MultiplyOp with BYTE data
        Multiply (BYT, 5, BYT)
        If (LNotEqual (BYT, 0x5A))
            { Return (BYT) }

        // Test DivideOp with DWORD data
        Divide (DWRD, 3, DWRD, RMDR)
        If (LNotEqual (DWRD, 0x12345678))
            { Return (DWRD) }
        If (LNotEqual (RMDR, 0))
            { Return (RMDR) }

        // Test DivideOp with WORD data
        Divide (WRD, 4, WRD, RMDR)
        If (LNotEqual (WRD, 0x1234))
            { Return (WRD) }
        If (LNotEqual (RMDR, 0))

```

```

    { Return (RMDR) }

// Test DivideOp with BYTE data
Divide (BYT, 5, BYT, RMDR)
If (LNotEqual (BYT, 0x12))
    { Return (BYT) }
If (LNotEqual (RMDR, 0))
    { Return (RMDR) }

// test MultiplyOp with DWORD SystemMemory OpRegion
Store (0x01234567, SMDW)
Multiply (SMDW, 2, SMDW)
If (LNotEqual (SMDW, 0x02468ACE))
    { Return (SMDW) }

// test DivideOp with DWORD SystemMemory
OpRegion
Divide (SMDW, 3, SMDW, RMDR)
If (LNotEqual (SMDW, 0x00C22E44))
    { Return (SMDW) }
If (LNotEqual (RMDR, 2))
    { Return (RMDR) }

// test MultiplyOp with WORD SystemMemory OpRegion
Store (0x0123, SMWD)
Multiply (SMWD, 3, SMWD)
If (LNotEqual (SMWD, 0x369))
    { Return (SMWD) }

// test DivideOp with WORD SystemMemory OpRegion
Divide (SMWD, 2, SMWD, RMDR)
If (LNotEqual (SMWD, 0x01B4))
    { Return (SMWD) }
If (LNotEqual (RMDR, 1))
    { Return (RMDR) }

// test MultiplyOp with BYTE SystemMemory OpRegion
Store (0x01, SMBY)
Multiply (SMBY, 7, SMBY)
If (LNotEqual (SMBY, 0x07))
    { Return (SMBY) }

// test DivideOp with BYTE SystemMemory OpRegion
Divide (SMBY, 4, SMBY, RMDR)

```



```

    If (LNotEqual (SMBY, 0x01))
        { Return (SMBY) }
    If (LNotEqual (RMDR, 3))
        { Return (RMDR) }

    Return (0)
} // TEST
} // MLDV

//
// test NBitOps.asl
//
//NAnd - Bit-wise NAnd
//NAndTerm := NAnd(
// Source1, //TermArg=>Integer
// Source2 //TermArg=>Integer
// Result //Nothing | SuperName
//) => Integer
//Source1 and Source2 are evaluated as integer data types, a bit-wise NAND is performed, and the result is
optionally
//stored in Result.

//NOr - Bitwise NOR
//NOrTerm := NOR(
// Source1, //TermArg=>Integer
// Source2 //TermArg=>Integer
// Result //Nothing | SuperName
//) => Integer
//Source1 and Source2 are evaluated as integer data types, a bit-wise NOR is performed, and the result is optionally
//stored in Result.

// Not - Not
//NotTerm := Not(
// Source, //TermArg=>Integer
// Result //Nothing | SuperName
//) => Integer
//Source1 is evaluated as an integer data type, a bit-wise
NOT is performed, and the result is optionally stored in
//Result.

//If the Control method is success Zero is returned else a non-zero number is returned

Device (NBIT)
{ //NBIT

    //Create System Memory Operation Region and field overlays
    OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {

```

```
SMDW, 32, // 32-bit DWORD
SMWD, 16, // 16-bit WORD
SMBY, 8, // 8-bit BYTE
} // Field(RAM)
```

```
//And with Byte Data
Name (BYT1, 0xff)
Name (BYT2, 0xff)
Name (BRSL, 0x00)
```

```
//And with Word Data
Name (WRD1, 0xffff)
Name (WRD2, 0xffff)
Name (WRSL, 0x0000)
```

```
//And with DWord Data
Name (DWD1, 0xffffffff)
Name (DWD2, 0xffffffff)
Name (DRSL, 0x00000000)
Name(RSLT,1)
```

```
Name(ARSL,0x00)
Name(LRSL,0x00)
```

```
Method(NNDB,2)
{ //NNDB
```

```
    Store(0xffffffff,SMDW)
    Store(0xffff,SMWD)
    Store(0xff,SMBY)
```

```
    NAnd(Arg0,Arg1,ARSL)
    if(LNotEqual(ARSL,0xffffffffd))
    {Return(11)}
```

```
    Store(Arg0,local0)
    Store(Arg1,Local1)
```

```
    NAnd(Local0,Local1,LRSL)
    if(LNotEqual(LRSL,0xffffffffd))
    {Return(12)}
```

```
//Byte data
NAnd(BYT1,BYT2,BRSL)
```

```

if(LNotEqual(BRSL,0xfffff00))
{Return(13)}

//Word Data
NAnd(WRD1,WRD2,WRS�)
if(LNotEqual(WRS�,0xffff0000))
{Return(14)}

//DWord Data
NAnd(DWD1,DWD2,DRSL)
if(LNotEqual(DRSL,0x00000000))
{Return(15)}

//Byte data
NAnd(SMBY,0xff,BRSL)
if(LNotEqual(BRSL,0xfffff00))
{Return(16)}

//Word Data
NAnd(SMWD,0xffff,WRS�)
if(LNotEqual(WRS�,0xffff0000))
{Return(17)}

//DWord Data
NAnd(SMDW,0xffffffff,DRSL)
if(LNotEqual(DRSL,0x00000000))
{Return(18)}

Return(0)

} //NNDB

Method(NNOR,2)
{ //NNOR

NOr(Arg0,Arg1,ARSL)
if(LNotEqual(ARSL,0xffffffd))
{Return(21)}

Store(Arg0,local0)
Store(Arg1,Local1)

NOr(Local0,Local1,LRSL)
if(LNotEqual(LRSL,0xffffffd))
{Return(22)}

//Byte data

```

```

NOr(BYT1,BYT2,BRSL)
if(LNotEqual(BRSL,0xfffff00))
{Return(23)}

//Word Data
NOr(WRD1,WRD2,WRS�)
if(LNotEqual(WRS�,0xffff0000))
{Return(24)}

//DWord Data
NOr(DWD1,DWD2,DRSL)
if(LNotEqual(DRSL,0x00000000))
{Return(25)}

//System Memory Byte data
NOr(SMBY,0xff,BRSL)
if(LNotEqual(BRSL,0xfffff00))
{Return(26)}

//System Memory Word Data
NOr(SMWD,0xffff,WRS�)
if(LNotEqual(WRS�,0xffff0000))
{Return(27)}

//System Memory DWord Data
NOr(SMDW,0xffffffff,DRSL)
if(LNotEqual(DRSL,0x00000000))
{Return(28)}

Return(0)

} //NNOR

Method(NNOT,2)
{ //NNOT

Or(Arg0,Arg1,ARSL)
Not(ARSL,ARSL)
if(LNotEqual(ARSL,0xffffffd))
{Return(31)}

Store(Arg0,local0)
Store(Arg1,Local1)

Or(Local0,Local1,LRSL)
Not(LRSL,LRSL)
if(LNotEqual(LRSL,0xffffffd))
{Return(32)}

```

```

//Byte data
Or(BYT1,BYT2,BRSL)
Not(BRSL,BRSL)
if(LNotEqual(BRSL,0xffffffff00))
  {Return(33)}

//Word Data
Or(WRD1,WRD2,WDSL)
Not(WDSL,WDSL)
if(LNotEqual(WDSL,0xffff0000))
  {Return(34)}

//DWord Data
Or(DWD1,DWD2,DRSL)
Not(DRSL,DRSL)
if(LNotEqual(DRSL,0x00000000))
  {Return(35)}

//System Memory Byte data
Or(SMBY,0xff,BRSL)
Not(BRSL,BRSL)
if(LNotEqual(BRSL,0xffffffff00))
  {Return(36)}

//System Memory Word Data
Or(SMWD,0xffff,WDSL)
Not(WDSL,WDSL)
if(LNotEqual(WDSL,0xffff0000))
  {Return(37)}

//System Memory DWord Data
Or(SMDW,0xffffffff,DRSL)
Not(DRSL,DRSL)
if(LNotEqual(DRSL,0x00000000))
  {Return(38)}

Return(0)
} //NNOT

Method(TEST)
{

  Store ("+++++++ NBitOps Test", Debug)

  Store(NNDB(2,2),RSLT)

```

```

        if(LNotEqual(RSLT,0))
            {Return(RSLT)}

        Store(NNOR(2,2),RSLT)
        if(LNotEqual(RSLT,0))
            {Return(RSLT)}

    Store(NNOT(2,2),RSLT)
        if(LNotEqual(RSLT,0))
            {Return(RSLT)}

    Return(0)
}

} //Device NBIT

//
// test ShftOp.asl
//
//ShiftRightTerm := ShiftRight(
// Source, //TermArg=>Integer
// ShiftCount //TermArg=>Integer
// Result //Nothing | SuperName
//) => Integer
//Source and ShiftCount are evaluated as integer data types. Source is shifted right with the most significant bit
//zeroed ShiftCount times. The result is optionally stored into Result.

//ShiftLeft(
// Source, //TermArg=>Integer
// ShiftCount //TermArg=>Integer
// Result //Nothing | SuperName
//) => Integer
//Source and ShiftCount are evaluated as integer data types. Source is shifted left with the least significant
//bit zeroed ShiftCount times. The result is optionally stored into Result.

//If the Control method is success Zero is returned else a non-zero number is returned
Device (SHFT)
{ //SHFT

    //Create System Memory Operation Region and field overlays
    OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {
        SMDW, 32, // 32-bit DWORD
        SMWD, 16, // 16-bit WORD
        SMBY, 8, // 8-bit BYTE
    }
}

```

```

} // Field(RAM)

Name(SHFC,0x00)

//And with Byte Data
Name (BYT1, 0xff)
Name (BRSL, 0x00)

//And with Word Data
Name (WRD1, 0xffff)
Name (WRSL, 0x0000)

//And with DWord Data
Name (DWD1, 0xffffffff)
Name (DRSL, 0x00000000)

Name(RSLT,1)

Name(ARSL,0x00)
Name(LRSL,0x00)

Method(SLFT,2)
{ //SLFT

    Store(0xffffffff,SMDW)
    Store(0xffff,SMWD)
    Store(0xff,SMBY)

    //Arg0-> 2 & Arg1->2
    ShiftLeft(Arg0,Arg1,ARSL)
    if(LNotEqual(ARSL,8))
    {Return(11)}

    Store(Arg0,local0)
    Store(Arg1,Local1)

    //Local0->8 and Local1->2
    ShiftLeft(Local0,Local1,LRSL)
    if(LNotEqual(LRSL,8))
    {Return(12)}

    Store(2,SHFC)
    //Byte data
    ShiftLeft(BYT1,SHFC,BRSL)
    if(LNotEqual(BRSL,0x3FC))
    {Return(13)}

```

```

Store(4,SHFC)
//Word Data
ShiftLeft(WRD1,SHFC,WRSL)
if(LNotEqual(WRSL,0xFFFF0))
{Return(14)}

Store(8,SHFC)
//DWord Data
ShiftLeft(DWD1,SHFC,DRSL)
if(LNotEqual(DRSL,0xFFFFFFFF0))
{Return(15)}

//System Memory Byte data
Store(4,SHFC)
ShiftLeft(SMBY,SHFC,BRSL)
if(LNotEqual(BRSL,0xFF0))
{Return(16)}

//Word Data
Store(4,SHFC)
ShiftLeft(SMWD,SHFC,WRSL)
if(LNotEqual(WRSL,0xffff0))
{Return(17)}

//DWord Data
Store(8,SHFC)
ShiftLeft(SMDW,SHFC,DRSL)

if(LNotEqual(DRSL,0xFFFFFFFF0))
{Return(18)}

Return(0)

} //SLFT

Method(SRGT,2)
{ //SRGT
//And with Byte Data
Store (0xff,BYT1)
Store (0x00,BRSL)

//And with Word Data
Store (0xffff,WRD1)
Store (0x0000,WRSL)

//And with DWord Data

```



```

Store(0xffffffff,DWD1)
Store (0x00000000,DRSL)

//Reinitialize the result objects
Store(0x00,ARSL)
Store(0x00,LRSL)

Store(0xffffffff,SMDW)
Store(0xffff,SMWD)
Store(0xff,SMBY)

//Arg0-> 2 & Arg1->2
ShiftRight(Arg0,Arg1,ARSL)
if(LNotEqual(ARSL,0))
{Return(21)}

Store(Arg0,local0)
Store(Arg1,Local1)

//Local0->8 and Local1->2
ShiftRight(Local0,Local1,LRSL)
  if(LNotEqual(LRSL,0))
  {Return(22)}

Store(2,SHFC)
//Byte data
ShiftRight(BYT1,SHFC,BRSL)
if(LNotEqual(BRSL,0x3F))
  {Return(23)}

Store(4,SHFC)
//Word Data
  ShiftRight(WRD1,SHFC,WRSL)
if(LNotEqual(WRSL,0xFFF))
  {Return(24)}

Store(8,SHFC)
//DWord Data
ShiftRight(DWD1,SHFC,DRSL)
if(LNotEqual(DRSL,0xFFFFFFFF))
  {Return(25)}

//System Memory Byte data
Store(4,SHFC)
ShiftRight(SMBY,SHFC,BRSL)
if(LNotEqual(BRSL,0xF))
  {Return(26)}

```

```

//Word Data
Store(4,SHFC)
ShiftRight(SMWD,SHFC,WRS�)
if(LNotEqual(WRS�,0xFFF))
  {Return(27)}

//DWord Data
Store(8,SHFC)
ShiftRight(SMDW,SHFC,DRSL)
if(LNotEqual(DRSL,0xFFFFFFFF))
  {Return(28)}

Return(0)
} //SRGT

//Test method called from
amlexec
Method(TEST)
{
  Store ("+++++++ ShftOp Test", Debug)

  Store(SLFT(2,2),RSLT)
  if(LNotEqual(RSLT,0))
    {Return(RSLT)}
  Store(SRGT(2,2),RSLT)
  if(LNotEqual(RSLT,0))
    {Return(RSLT)}
  Return(0)
}

} //Device SHFT

//
// test Xor.asl and slightly modified
//
//This code tests the XOR opcode term
//Syntax of XOR term
//   XOr(
//       Source1 //TermArg=>BufferTerm
//       Source2 //TermArg=>Integer
//       Result //NameString
//   )
//"Source1" and "Source2" are evaluated as integers, a bit-wise XOR is performed, and the result is optionally stored
in
// Result
Device (XORD)
{
  //This Method tests XOr operator for all the data types i.e. BYTE, WORD and DWORD

```

```

Method (TEST,, Serialized)
{
    Store ("+++++++ Xor Test", Debug)

    //Overlay in system memory

    OperationRegion (RAM, SystemMemory, 0x800000, 256)
    Field (RAM, ByteAcc, NoLock, Preserve)
    {
        RES1, 1, //Offset
        BYT1, 8, //First BYTE
        BYT2, 8, //Second BYTE
        RBYT, 8, //Result Byte
        RES2, 1, //Offset
        WRD1, 16, //First WORD field
        WRD2, 16, //Second WORD field
        RWRD, 16, //RSLT WORD field
        RES3, 1, //Offset
        DWD1, 32, //First Dword
        DWD2, 32, //Second Dword
        RDWD, 32, //Result Dword
        RES4, 1, //Offset
    }

    // Store bits in the single bit fields for checking
    // at the end
    Store(1, RES1)
    Store(1, RES2)
    Store(1, RES3)
    Store(1, RES4)

    // Check the stored single bits
    if(LNotEqual(RES1, 1))
    {
        Return(1)
    }

    if(LNotEqual(RES2, 1))
    {
        Return(1)
    }

    if(LNotEqual(RES3, 1))
    {
        Return(1)
    }

    if(LNotEqual(RES4, 1))

```

```

{
    Return(1)
}

//*****
// (BYT1) Bit1 ->0 and (BYT2)Bit2 -> 0 condition
Store(0x00,BYT1)
Store(0x00,BYT2)
XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0))
{ Return(1)}

// (BYT1) Bit1 ->1 and (BYT2)Bit2 -> 1 condition
Store(0xff,BYT1)
Store(0xff,BYT2)
XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0))
{ Return(1)}

// (BYT1) Bit1 ->1 and (BYT)Bit2 -> 0 condition
Store(0x55,BYT1)
Store(0xAA,BYT2)
XOr(BYT1,BYT2,Local0)

Store (Local0, RBYT)
if(LNotEqual(RBYT,0xFF))
{ Return(1)}

//(BYT1) Bit1 ->0 and (BYT2)Bit2 -> 1 condition
Store(0xAA,BYT1)
Store(0x55,BYT2)
XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0xFF))
{ Return(1)}

Store(0x12,BYT1)
Store(0xED,BYT2)

XOr(BYT1,BYT2,Local0)
Store (Local0, RBYT)
if(LNotEqual(RBYT,0xFF))
{
    Return(1)
}

```

```

// Store known values for checking later
Store(0x12, BYT1)
if(LNotEqual(BYT1, 0x12))
{
    Return(1)
}

Store(0xFE, BYT2)
if(LNotEqual(BYT2, 0xFE))
{
    Return(1)
}

Store(0xAB, RBYT)
if(LNotEqual(RBYT, 0xAB))
{
    Return(1)
}

//*****
// (WRD1) Bit1 ->0 and (WRD2)Bit2 -> 0 condition
Store(0x0000,WRD1)
Store(0x0000,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0))
{ Return(1)}

// (WRD1) Bit1 ->1 and (WRD2)Bit2 -> 1 condition
Store(0xffff,WRD1)
Store(0xffff,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0))
{ Return(1)}

// (WRD1) Bit1 ->1 and (WRD2)Bit2 -> 0 condition
Store(0x5555,WRD1)
Store(0xAAAA,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0xFFFF))
{ Return(1)}

//(WRD1) Bit1 ->0 and (WRD2)Bit2 -> 1 condition
Store(0xAAAA,WRD1)
Store(0x5555,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0xFFFF))
{ Return(1)}

```

```

Store(0x1234,WRD1)
Store(0xEDCB,WRD2)
XOr(WRD1,WRD2,RWRD)
if(LNotEqual(RWRD,0xFFFF))
{ Return(1)}

// Store known values for checking later
Store(0x1234, WRD1)
if(LNotEqual(WRD1, 0x1234))
{
    Return(1)
}

Store(0xFEDC, WRD2)
if(LNotEqual(WRD2, 0xFEDC))
{
    Return(1)
}

Store(0x87AB, RWRD)
if(LNotEqual(RWRD, 0x87AB))
{
    Return(1)
}

//*****
// (DWD1) Bit1 ->0 and (DWD2)Bit2 -> 0 condition
Store(0x00000000,DWD1)
Store(0x00000000,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0))
{ Return(1)}

// (DWD1) Bit1 ->1 and (DWD2)Bit2 -> 1 condition
Store(0xffffffff,DWD1)
Store(0xffffffff,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0))
{ Return(1)}

// (DWD1) Bit1 ->1 and (DWD2)Bit2 -> 0 condition
Store(0x55555555,DWD1)
Store(0xAAAAAAAA,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0xFFFFFFFF))
{ Return(1)}

```

```

//(DWD1) Bit1 ->0 and (DWD2)Bit2 -> 1 condition
Store(0xAAAAAAAA,DWD1)
Store(0x55555555,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0xFFFFFFFF))
{ Return(1)}

// (DWD1) Bit1 ->1 and (DWD2)Bit2 -> 0 condition
Store(0x12345678,DWD1)
Store(0xEDCBA987,DWD2)
XOr(DWD1,DWD2,RDWD)
if(LNotEqual(RDWD,0xFFFFFFFF))
{ Return(1)}

Store(0x12345678,DWD1)
if(LNotEqual(DWD1,0x12345678))
{
Return(1)
}

Store(0xFEDCBA98,DWD2)
if(LNotEqual(DWD2,0xFEDCBA98))
{
Return(1)
}
}

Store(0x91827364,RDWD)
if(LNotEqual(RDWD,0x91827364))
{
Return(1)
}

//*****
// Check the stored single bits
if(LNotEqual(RES1, 1))
{
Return(1)
}

if(LNotEqual(RES2, 1))
{
Return(1)
}

if(LNotEqual(RES3, 1))
{
Return(1)
}

```

```

}

if(LNotEqual(RES4, 1))
{
    Return(1)
}

// Change all of the single bit fields to zero
Store(0, RES1)
Store(0, RES2)
Store(0, RES3)
Store(0, RES4)

// Now, check all of the fields

// Byte
if(LNotEqual(BYT1, 0x12))
{
    Return(1)
}

if(LNotEqual(BYT2, 0xFE))
{
Return(1)
}

if(LNotEqual(RBYT, 0xAB))
{
    Return(1)
}

// Word
if(LNotEqual(WRD1, 0x1234))
{
    Return(1)
}

if(LNotEqual(WRD2, 0xFEDC))
{
    Return(1)
}

if(LNotEqual(RWRD, 0x87AB))
{
    Return(1)
}

```



```

// Dword
if(LNotEqual(DWD1, 0x12345678))
{
    Return(1)
}

if(LNotEqual(DWD2, 0xFEDCBA98))
{
    Return(1)
}

if(LNotEqual(RDWD, 0x91827364))
{
    Return(1)
}

// Bits
if(LNotEqual(RES1, 0))
{
    Return(1)
}

if(LNotEqual(RES2, 0))
{
    Return(1)
}

if(LNotEqual(RES3, 0))
{

Return(1)
}

if(LNotEqual(RES4, 0))
{
    Return(1)
}

Return(0)
} // TEST
} // XORD

//
// test CrBytFld.asl
//
// CrBytFld test
// Test for CreateByteField.

```

```

// Tests creating byte field overlay of buffer stored in Local0.
// Tests need to be added for Arg0 and Name buffers.
//
Device (CRBF)
{ // Test device name
  Method (TEST)
  {
    Store ("+++++++ CrBytFld Test", Debug)

    // Local0 is uninitialized buffer with 4 elements
    Store (Buffer (4) {}, Local0)

    // create Byte Field named BF0 based on Local0 element 0
    CreateByteField (Local0, 0, BF0)

    // validate CreateByteField did not alter Local0
    Store (ObjectType (Local0), Local1) // Local1 = Local0 object type
    If (LNotEqual (Local1, 3)) // Buffer object type value is 3
      { Return (2) }

    // store something into BF0
    Store (1, BF0)

    // validate Store did not alter Local0 object type
    Store (ObjectType (Local0), Local1) // Local1 = Local0 object type
    If (LNotEqual (Local1, 3)) // Buffer object type value is 3
      { Return (3) }

    // verify that the Store into BF0 was successful
    If (LNotEqual (BF0, 1))
      { Return (4) }

    // create Byte Field named BF1 based on Local0 element 1
    CreateByteField (Local0, 1, BF1)

    // validate CreateByteField did not alter Local0
    Store (ObjectType (Local0), Local1) // Local1 = Local0 object type
    If (LNotEqual (Local1, 3)) // Buffer object type value is 3
      { Return (10) }

    // store something into BF1
    Store (5, BF1)

    // validate Store did not alter Local0 object type
    Store (ObjectType (Local0), Local1)
  }
}

```

```

// Local1 = Local0 object type
    If (LNotEqual (Local1, 3)) // Buffer object type value is 3
        { Return (11) }

// verify that the Store into BF1 was successful
    If (LNotEqual (BF1, 5))
        { Return (12) }

// verify that the Store into BF1 did not alter BF0
    If (LNotEqual (BF0, 1))
        { Return (13) }

// store something into BF0
    Store (0xFFFF, BF0)

// verify that the Store into BF0 was successful
    If (LNotEqual (BF0, 0xFF))
        { Return (20) }

// verify that the Store into BF0 did not alter BF1
    If (LNotEqual (BF1, 5))
        { Return (21) }

    Return (0)
} // TEST
} // CRBF

//
// test IndexOp4.asl
//
// IndexOp4 test
// This is just a subset of the many RegionOp/Index Field test cases.
// Tests access of index fields smaller than 8 bits.
//
Device (IDX4)
{ // Test device name

// MADM: Misaligned Dynamic RAM SystemMemory OperationRegion
// Tests OperationRegion memory access using misaligned BYTE,
// WORD, and DWORD field element accesses. Validation is performed
// using both misaligned field entries and aligned field entries.
//
// MADM returns 0 if all test cases pass or non-zero identifying
// the failing test case for debug purposes. This non-zero numbers
// are not guaranteed to be in perfect sequence (i.e., test case
// index), but are guaranteed to be unique so the failing test

```

```

//      case can be uniquely identified.
//
Method (MADM, 1, Serialized) // Misaligned Dynamic RAM SystemMemory OperationRegion
// Arg0 -- SystemMemory OperationRegion base address
{ // MADM: Misaligned Dynamic RAM SystemMemory OperationRegion
  OperationRegion (RAM, SystemMemory, Arg0, 0x100)
  Field (RAM, DwordAcc, NoLock, Preserve)
  { // aligned field definition (for verification)
    DWD0, 32, // aligned DWORD field
    DWD1, 32 // aligned DWORD field
  }
  Field (RAM, ByteAcc, NoLock, Preserve)
  { // bit access field definition
    BIT0, 1, // single bit field entry
    BIT1, 1, // single bit field entry
    BIT2, 1, // single bit field entry
    BIT3, 1, // single bit field entry
    BIT4, 1, // single bit field entry
    BIT5, 1, // single bit field entry
    BIT6, 1, // single bit field entry
    BIT7, 1, // single bit field entry
    BIT8, 1, // single bit field entry
    BIT9, 1, // single bit field entry

    BITA, 1, // single bit field entry
    BITB, 1, // single bit field entry
    BITC, 1, // single bit field entry
    BITD, 1, // single bit field entry
    BITE, 1, // single bit field entry
    BITF, 1, // single bit field entry
    BI10, 1, // single bit field entry
    BI11, 1, // single bit field entry
    BI12, 1, // single bit field entry
    BI13, 1, // single bit field entry
    BI14, 1, // single bit field entry
    BI15, 1, // single bit field entry
    BI16, 1, // single bit field entry
    BI17, 1, // single bit field entry
    BI18, 1, // single bit field entry
    BI19, 1, // single bit field entry
    BI1A, 1, // single bit field entry
    BI1B, 1, // single bit field entry
    BI1C, 1, // single bit field entry
    BI1D, 1, // single bit field entry
    BI1E, 1, // single bit field entry
    BI1F, 1 // single bit field entry
  } // bit access field definition
}

```

```

Field (RAM, ByteAcc, NoLock, Preserve)
{ // two-bit access field definition
    B2_0, 2, // single bit field entry
    B2_1, 2, // single bit field entry
    B2_2, 2, // single bit field entry
    B2_3, 2, // single bit field entry
    B2_4, 2, // single bit field entry
    B2_5, 2, // single bit field entry
    B2_6, 2, // single bit field entry
    B2_7, 2, // single bit field entry
    B2_8, 2, // single bit field entry
    B2_9,
2, // single bit field entry
    B2_A, 2, // single bit field entry
    B2_B, 2, // single bit field entry
    B2_C, 2, // single bit field entry
    B2_D, 2, // single bit field entry
    B2_E, 2, // single bit field entry
    B2_F, 2 // single bit field entry
} // bit access field definition

// initialize memory contents using aligned field entries
Store (0x5AA55AA5, DWD0)
Store (0x5AA55AA5, DWD1)

// set memory contents to known values using misaligned field entries
Store (0, BIT0)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT0, 0))
    { Return (1) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55AA4))
    { Return
(2) }

// set memory contents to known values using misaligned field entries
Store (1, BIT1)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT1, 1))
    { Return (3) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55AA6))
    { Return (4) }

// set memory contents to known values using misaligned field entries
Store (0, BIT2)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT2, 0))

```

```

    { Return (5) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55AA2))
    { Return (6) }

// set memory contents to known values using misaligned field entries
Store (1, BIT3)
// verify memory
contents using misaligned field entries
If (LNotEqual (BIT3, 1))
    { Return (7) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55AAA))
    { Return (8) }

// set memory contents to known values using misaligned field entries
Store (1, BIT4)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT4, 1))
    { Return (9) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55ABA))
    { Return (10) }

// set memory contents to known values using misaligned field entries
Store (0, BIT5)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT5, 0))
    { Return (11) }
// verify memory
contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55A9A))
    { Return (12) }

// set memory contents to known values using misaligned field entries
Store (1, BIT6)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT6, 1))
    { Return (13) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55ADA))
    { Return (14) }

// set memory contents to known values using misaligned field entries
Store (0, BIT7)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT7, 0))
    { Return (15) }

```

```

// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55A5A))
    { Return (16) }

// set memory
contents to known values using misaligned field entries
Store (1, BIT8)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT8, 1))
    { Return (17) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55B5A))
    { Return (18) }

// set memory contents to known values using misaligned field entries
Store (0, BIT9)
// verify memory contents using misaligned field entries
If (LNotEqual (BIT9, 0))
    { Return (19) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA5595A))
    { Return (20) }

// set memory contents to known values using misaligned field entries
Store (1, BITA)
// verify memory contents using misaligned field
entries
If (LNotEqual (BITA, 1))
    { Return (21) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA55D5A))
    { Return (22) }

// set memory contents to known values using misaligned field entries
Store (0, BITB)
// verify memory contents using misaligned field entries
If (LNotEqual (BITB, 0))
    { Return (23) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA5555A))
    { Return (24) }

// set memory contents to known values using misaligned field entries
Store (0, BITC)
// verify memory contents using misaligned field entries
If (LNotEqual (BITC, 0))
    { Return (25) }
// verify memory contents using aligned field

```

entries

```
If (LNotEqual (DWD0, 0x5AA5455A))
    { Return (26) }
```

// set memory contents to known values using misaligned field entries

Store (1, BITD)

// verify memory contents using misaligned field entries

```
If (LNotEqual (BITD, 1))
```

```
    { Return (27) }
```

// verify memory contents using aligned field entries

```
If (LNotEqual (DWD0, 0x5AA5655A))
```

```
    { Return (28) }
```

// set memory contents to known values using misaligned field entries

Store (0, BITE)

// verify memory contents using misaligned field entries

```
If (LNotEqual (BITE, 0))
```

```
    { Return (29) }
```

// verify memory contents using aligned field entries

```
If (LNotEqual (DWD0, 0x5AA5255A))
```

```
    { Return (30) }
```

// set memory contents to known values using  
misaligned field entries

Store (1, BITF)

// verify memory contents using misaligned field entries

```
If (LNotEqual (BITF, 1))
```

```
    { Return (31) }
```

// verify memory contents using aligned field entries

```
If (LNotEqual (DWD0, 0x5AA5A55A))
```

```
    { Return (32) }
```

// set memory contents to known values using misaligned field entries

Store (0, BI10)

// verify memory contents using misaligned field entries

```
If (LNotEqual (BI10, 0))
```

```
    { Return (33) }
```

// verify memory contents using aligned field entries

```
If (LNotEqual (DWD0, 0x5AA4A55A))
```

```
    { Return (34) }
```

// set memory contents to known values using misaligned field entries

Store (1, BI11)

// verify memory contents using misaligned field entries

```
If (LNotEqual
```

(BI11, 1))

```
    { Return (35) }
```

// verify memory contents using aligned field entries



```

If (LNotEqual (DWD0, 0x5AA6A55A))
    { Return (36) }

// set memory contents to known values using misaligned field entries
Store (0, BI12)
// verify memory contents using misaligned field entries
If (LNotEqual (BI12, 0))
    { Return (37) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5AA2A55A))
    { Return (38) }

// set memory contents to known values using misaligned field entries
Store (1, BI13)
// verify memory contents using misaligned field entries
If (LNotEqual (BI13, 1))
    { Return (39) }
// verify memory contents using aligned field entries
If (LNotEqual
(DWD0, 0x5AAAA55A))
    { Return (40) }

// set memory contents to known values using misaligned field entries
Store (1, BI14)
// verify memory contents using misaligned field entries
If (LNotEqual (BI14, 1))
    { Return (41) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5ABAA55A))
    { Return (42) }

// set memory contents to known values using misaligned field entries
Store (0, BI15)
// verify memory contents using misaligned field entries
If (LNotEqual (BI15, 0))
    { Return (43) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5A9AA55A))
    { Return (44) }

// set memory contents to known values using misaligned field entries

Store (1, BI16)
// verify memory contents using misaligned field entries
If (LNotEqual (BI16, 1))
    { Return (45) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x5ADAA55A))

```

```

    { Return (46) }

// set memory contents to known values using misaligned field entries
Store (0, BI17)
    // verify memory contents using misaligned field entries
    If (LNotEqual (BI17, 0))
        { Return (47) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x5A5AA55A))
        { Return (48) }

// set memory contents to known values using misaligned field entries
Store (1, BI18)
    // verify memory contents using misaligned field entries
    If (LNotEqual (BI18, 1))

{ Return (49) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x5B5AA55A))
        { Return (50) }

// set memory contents to known values using misaligned field entries
Store (0, BI19)
    // verify memory contents using misaligned field entries
    If (LNotEqual (BI19, 0))
        { Return (51) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x595AA55A))
        { Return (52) }

// set memory contents to known values using misaligned field entries
Store (1, BI1A)
    // verify memory contents using misaligned field entries
    If (LNotEqual (BI1A, 1))
        { Return (53) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x5D5AA55A))

    { Return (54) }

// set memory contents to known values using misaligned field entries
Store (0, BI1B)
    // verify memory contents using misaligned field entries
    If (LNotEqual (BI1B, 0))
        { Return (55) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x555AA55A))
        { Return (56) }

```

```

// set memory contents to known values using misaligned field entries
Store (0, BI1C)
// verify memory contents using misaligned field entries
If (LNotEqual (BI1C, 0))
    { Return (57) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x455AA55A))
    { Return (58) }

// set memory contents to known values using misaligned field entries
Store (1, BI1D)

// verify memory contents using misaligned field entries
If (LNotEqual (BI1D, 1))
    { Return (59) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x655AA55A))
    { Return (60) }

// set memory contents to known values using misaligned field entries
Store (0, BI1E)
// verify memory contents using misaligned field entries
If (LNotEqual (BI1E, 0))
    { Return (61) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0x255AA55A))
    { Return (62) }

// set memory contents to known values using misaligned field entries
Store (1, BI1F)
// verify memory contents using misaligned field entries
If (LNotEqual (BI1F, 1))
    { Return (63) }

// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0xA55AA55A))
    { Return (64) }

// set memory contents to known values using misaligned field entries
Store (3, B2_0)
// verify memory contents using misaligned field entries
If (LNotEqual (B2_0, 3))
    { Return (65) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0xA55AA55B))
    { Return (66) }

```

```

// set memory contents to known values using misaligned field entries
Store (1, B2_1)
// verify memory contents using misaligned field entries
If (LNotEqual (B2_1, 1))
    { Return (67) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0xA55AA557))
    { Return (68)
}

// set memory contents to known values using misaligned field entries
Store (0, B2_2)
// verify memory contents using misaligned field entries
If (LNotEqual (B2_2, 0))
    { Return (69) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0xA55AA547))
    { Return (70) }

// set memory contents to known values using misaligned field entries
Store (3, B2_3)
// verify memory contents using misaligned field entries
If (LNotEqual (B2_3, 3))
    { Return (71) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0xA55AA5C7))
    { Return (72) }

// set memory contents to known values using misaligned field entries
Store (3, B2_4)
// verify memory contents
using misaligned field entries
If (LNotEqual (B2_4, 3))
    { Return (73) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0xA55AA7C7))
    { Return (74) }

// set memory contents to known values using misaligned field entries
Store (0, B2_5)
// verify memory contents using misaligned field entries
If (LNotEqual (B2_5, 0))
    { Return (75) }
// verify memory contents using aligned field entries
If (LNotEqual (DWD0, 0xA55AA3C7))
    { Return (76) }

```

```

// set memory contents to known values using misaligned field entries
Store (1, B2_6)
  // verify memory contents using misaligned field entries
  If (LNotEqual (B2_6, 1))
    { Return (77) }
  // verify memory contents
using aligned field entries
  If (LNotEqual (DWD0, 0xA55A93C7))
    { Return (78) }

// set memory contents to known values using misaligned field entries
Store (1, B2_7)
  // verify memory contents using misaligned field entries
  If (LNotEqual (B2_7, 1))
    { Return (79) }
  // verify memory contents using aligned field entries
  If (LNotEqual (DWD0, 0xA55A53C7))
    { Return (80) }

// set memory contents to known values using misaligned field entries
Store (0, B2_8)
  // verify memory contents using misaligned field entries
  If (LNotEqual (B2_8, 0))
    { Return (81) }
  // verify memory contents using aligned field entries
  If (LNotEqual (DWD0, 0xA55853C7))
    { Return (82) }

// set memory contents
to known values using misaligned field entries
Store (1, B2_9)
  // verify memory contents using misaligned field entries
  If (LNotEqual (B2_9, 1))
    { Return (83) }
  // verify memory contents using aligned field entries
  If (LNotEqual (DWD0, 0xA55453C7))
    { Return (84) }

// set memory contents to known values using misaligned field entries
Store (2, B2_A)
  // verify memory contents using misaligned field entries
  If (LNotEqual (B2_A, 2))
    { Return (85) }
  // verify memory contents using aligned field entries
  If (LNotEqual (DWD0, 0xA56453C7))
    { Return (86) }

// set memory contents to known values using misaligned field entries

```

```

Store (2, B2_B)
    // verify memory contents using misaligned field entries
    If (LNotEqual (B2_B, 2))
        { Return (87) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0xA5A453C7))
        { Return (88) }

// set memory contents to known values using misaligned field entries
Store (3, B2_C)
    // verify memory contents using misaligned field entries
    If (LNotEqual (B2_C, 3))
        { Return (89) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0xA7A453C7))
        { Return (90) }

// set memory contents to known values using misaligned field entries
Store (3, B2_D)
    // verify memory contents using misaligned field entries
    If (LNotEqual (B2_D, 3))
        { Return (91) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0xAFA453C7))
        { Return (92) }

// set memory contents to known values using misaligned field entries
Store (1, B2_E)
    // verify memory contents using misaligned field entries
    If (LNotEqual (B2_E, 1))
        { Return (93) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x9FA453C7))
        { Return (94) }

// set memory contents to known values using misaligned field entries
Store (0, B2_F)
    // verify memory contents using misaligned field entries
    If (LNotEqual (B2_F, 0))
        { Return (95) }
    // verify memory contents using aligned field entries
    If (LNotEqual (DWD0, 0x1FA453C7))
        { Return (96) }

Return (0) // pass
} // MADM: Misaligned

```

## Dynamic RAM SystemMemory OperationRegion

```
Method (TEST)
{
    Store ("+++++++ IndexOp4 Test", Debug)

    // MADM (Misaligned Dynamic RAM SystemMemory OperationRegion) arguments:
    // Arg0 -- SystemMemory OperationRegion base address
    Store (MADM (0x800000), Local0)
    If (LNotEqual (Local0, 0)) // MADM returns zero if successful
        { Return (Local0) } // failure: return MADM error code

    Return (Local0)
} // TEST
} // IDX4

//
// test Event.asl
//
// EventOp, ResetOp, SignalOp, and WaitOp test cases.
//
Device (EVNT)
{
    Event (EVNT) // event synchronization object

    Method (TEVN, 1)
    // Arg0: time to Wait for event in milliseconds
    { // TEVN control method to test ResetOp, SignalOp, and WaitOp
        // reset EVNT to initialization (zero) state
        Reset (EVNT)

        // prime EVNT
with two outstanding signals
        Signal (EVNT)
        Signal (EVNT)

        // acquire existing signal
        Store (Wait (EVNT, Arg0), Local0)

        // validate Local0 is a Number
        Store (ObjectType (Local0), Local1)
        If (LNotEqual (Local1, 1)) // Number is type 1
            { Return (0x21) } // Local1 indicates Local0 is not a Number

        If (LNotEqual (Local0, 0)) // Number is type 1
            { Return (0x22) } // timeout occurred without acquiring signal
```

```

Store ("Acquire 1st existing signal PASS", Debug)

// acquire existing signal
Store (Wait (EVNT, Arg0), Local0)

// validate Local0 is a Number
Store (ObjectType (Local0), Local1)
If (LNotEqual (Local1, 1)) // Number is type 1
    { Return (0x31) } // Local1 indicates Local0 is not a Number

If (LNotEqual (Local0, 0))
// Number is type 1
    { Return (0x32) } // timeout occurred without acquiring signal

Store ("Acquire 2nd existing signal PASS", Debug)

// ensure WaitOp timeout test cases do not hang
if (LEqual (Arg0, 0xFFFF))
    { Store (0xFFFE, Arg0) }

// acquire non-existing signal
Store (Wait (EVNT, Arg0), Local0)

// validate Local0 is a Number
Store (ObjectType (Local0), Local1)
If (LNotEqual (Local1, 1)) // Number is type 1
    { Return (0x41) } // Local1 indicates Local0 is not a Number

If (LEqual (Local0, 0)) // Number is type 1
    { Return (0x42) } // non-existent signal was acquired

Store ("Acquire signal timeout PASS", Debug)

// prime EVNT with two outstanding signals
Signal (EVNT)
Signal (EVNT)

// reset EVNT to initialization
(zero) state
Reset (EVNT)

// acquire non-existing signal
Store (Wait (EVNT, Arg0), Local0)

// validate Local0 is a Number

```



```

Store (ObjectType (Local0), Local1)
If (LNotEqual (Local1, 1)) // Number is type 1
    { Return (0x51) } // Local1 indicates Local0 is not a Number

If (LEqual (Local0, 0)) // Number is type 1
    { Return (0x52) } // non-existent signal was acquired

Store ("Reset signal PASS", Debug)

// acquire non-existing signal using Lvalue timeout
Store (Wait (EVNT, Zero), Local0)

// validate Local0 is a Number
Store (ObjectType (Local0), Local1)
If (LNotEqual (Local1, 1)) // Number is type 1
    { Return (0x61) } // Local1 indicates Local0 is not a Number

If (LEqual (Local0, 0)) // Number is type 1
    { Return (0x62) } // non-existent signal was acquired

Store ("Zero Lvalue PASS", Debug)

// acquire non-existing signal using Lvalue timeout
Store (Wait (EVNT, One), Local0)

// validate Local0 is a Number
Store (ObjectType (Local0), Local1)
If (LNotEqual (Local1, 1)) // Number is type 1
    { Return (0x71) } // Local1 indicates Local0 is not a Number

If (LEqual (Local0, 0)) // Number is type 1
    { Return (0x72) } // non-existent signal was acquired

Store ("One Lvalue PASS", Debug)

// Lvalue Event test cases
// ILLEGAL SOURCE OPERAND Store (EVNT, Local2)

// validate Local2 is an Event
Store (ObjectType (EVNT), Local1)
If (LNotEqual (Local1, 7)) // Event is type 7
    { Return (0x81) } // Local1 indicates Local0 is not a Number

// reset EVNT to initialization (zero) state
Reset (EVNT)

```

```

// prime EVNT with two outstanding signals
Signal (EVNT)

// acquire existing signal
Store (Wait (EVNT, Arg0), Local0)

// validate Local0 is a Number
Store (ObjectType (Local0), Local1)
If (LNotEqual (Local1, 1)) // Number is type 1
  { Return (0x82) } // Local1 indicates Local0 is not a Number

If (LNotEqual (Local0, 0)) // Number is type 1
  { Return (0x83) } // timeout occurred without acquiring signal

Store ("Acquire Lvalue existing signal PASS", Debug)

// acquire non-existing signal
Store (Wait (EVNT, Arg0), Local0)

// validate Local0 is a Number
Store (ObjectType (Local0), Local1)
If (LNotEqual (Local1, 1)) // Number is type 1
  { Return (0x84) }
// Local1 indicates Local0 is not a Number

If (LEqual (Local0, 0)) // Number is type 1
  { Return (0x85) } // non-existent signal was acquired

Store ("Acquire Lvalue signal timeout PASS", Debug)

Return (0) // success
} // TEVN control method to test ResetOp, SignalOp, and WaitOp

Method (TEST)
{
  Store ("+++++++ Event Test", Debug)

  Store (TEVN (100), Local0)

  Return (Local0)
} // TEST
} // EVNT

//
// test SizeOfLv.asl

```

```

//
// Test for SizeOf (Lvalue)
//
// This next section will contain the packages that the SizeOfOp will be
// exercised on. The first one, PKG0, is a regular package of 3 elements.
// The 2nd one, PKG1, is a nested package with 3 packages inside it, each
// with 3 elements. It is expected that SizeOf operator will return the
// same value for these two packages since they both have 3 elements. The
// final package,
// PKG2, has 4 elements and the SizeOf operator is expected
// to return different results for this package.

Name (PKG0,
    Package (3)
        {0x0123, 0x4567, 0x89AB}
) // PKG0

Name (PKG1,
    Package (3)
    {
        Package (3) {0x0123, 0x4567, 0x89AB},
        Package (3) {0xCDEF, 0xFEDC, 0xBA98},
        Package (3) {0x7654, 0x3210, 0x1234}
    }
) // PKG1

Name (PKG2,
    Package (4)
        {0x0123, 0x4567, 0x89AB, 0x8888}
) // PKG2

Name (PKG3,
    Package (5)
        {0x0123, 0x4567, 0x89AB, 0x8888, 0x7777}
) // PKG3

// End Packages *****

// The following section will declare the data strings that will be used to
// exercise the SizeOf operator. STR0 and STR1 are expected to be equal,
// STR2 is expected to have a different SizeOf value than STR0 and STR1.

Name (STR0, "ACPI permits very flexible methods of expressing a system")

Name (STR1, "MIKE permits very flexible methods of expressing a system")

Name (STR2, "Needless to say, Mike and ACPI are frequently at odds")

```

```

// This string is being made in case we want to do a SizeOf comparison
// between strings and packages or buffers
Name (STR3, "12345")

// End Strings *****

// The following section will declare the buffers that will be used to exercise
// the SizeOf operator.

Name (BUF0, Buffer (10) {})
Name (BUF1, Buffer (10) {})
Name (BUF2, Buffer (8) {})
Name (BUF3, Buffer (5) {})

// End Buffers *****
Device (SZLV)
{

Method (CMPR, 2)
{
// CMPR is passed two arguments. If unequal, return 1 to indicate
// that, otherwise return 0 to indicate SizeOf each is equal.

Store (0x01, Local0)

if (LEqual (SizeOf(Arg0), SizeOf(Arg1)))
{
Store (0x00, Local0)
}

return (Local0)
} // CMPR

Method (TEST)
{

Store ("+++++++ SizeOfLv Test", Debug)

// TBD: SizeOf ("string")
// SizeOf (Buffer)
// SizeOf (Package)
// SizeOf (String)
// SizeOf (STR0) -- where Name (STR0,...) -- lot's of cases
// buffer, string, package,
// SizeOf (METH) -- where METH control method returns
// buffer, string, package,

```

```

// TBD: SLOC [SizeOf (Local0)] -- dup SARG

// Compare the elements that we expect to be the same. Exit out with an error
// code on the first failure.
if (LNotEqual (0x00, CMPR (STR0, STR1)))
{
    Return (0x01)
}

if (LNotEqual (0x00, CMPR (STR3, BUF3)))

{
    Return (0x02)
}

if (LNotEqual (0x00, CMPR (STR3, PKG3)))
{
    Return (0x03)
}

// In the following section, this test will cover the SizeOf
// operator for Local values.
// In this case, both Local0 and Local1 should have the same Size
Store (STR0, Local0)
Store (STR1, Local1)

if (LNotEqual (SizeOf (Local0), SizeOf (Local1)))
{
    Return (0x04)
}

// Now create a case where Local0 and Local1 are different
Store (STR2, Local1)

if (LEqual (SizeOf (Local0), SizeOf (Local1)))
{
    Return (0x05)
}

// Finally, check for the return of SizeOf for a known Buffer. Just
// in case we magically pass above cases due to all Buffers being Zero
// bytes in size, or Infinity, etc.
if (LNotEqual
(0x05, SizeOf (BUF3)))
{
    Return (0x06)
}

```

```

    Return (0)
  } // TEST
} // SZLV

//
// test BytField.asl
//
// BytField test
// This is just a subset of the many RegionOp/Index Field test cases.
// Tests access of TBD.
//
Scope (\_SB) // System Bus
{ // _SB system bus
  Device (BYTF)
  { // Test device name
    Method (TEST)
    {
      Store ("+++++++ BytField Test", Debug)

      Return (\_TZ.C19B.RSLT)
    } // TEST
  } // BYTF

  Device (C005)
  { // Device C005
    Device (C013)
    { // Device C013
      } // Device C013
    } // Device C005

    Method (C115)
    { // C115 control method
      Acquire (\_GL, 0xFFFF)
      Store (\_SB.C005.C013.C058.C07E, Local0)
      Release (\_GL)
      And (Local0, 16, Local0)
      Store
      (ShiftRight (Local0, 4, ), Local1)
      If (LEqual (Local1, 0))
      { Return (1) }
      Else
      { Return (0) }
    } // C115 control method
  } // _SB system bus

  OperationRegion (C018, SystemIO, 0x5028, 4)
  Field (C018, AnyAcc, NoLock, Preserve)

```

```

{ // Field overlaying C018
  C019, 32
} // Field overlaying C018

OperationRegion (C01A, SystemIO, 0x5030, 4)
Field (C01A, ByteAcc, NoLock, Preserve)
{ // Field overlaying C01A
  C01B, 8,
  C01C, 8,
  C01D, 8,
  C01E, 8
} // Field overlaying C01A

Mutex (\C01F, 0)
Name (\C020, 0)
Name (\C021, 0)

Method (\C022, 0)
{ // \C022 control method
  Acquire (\C01F, 0xFFFF)
  If (LEqual (\C021, 0))
  {
    Store (C019, Local0)
    And (Local0, 0xFFFEFFFE, Local0)
    Store (Local0, C019)
    Increment (\C021)
  }
  Release (\C01F)
} // \C022 control method

Scope (\_SB.C005.C013)
{ // Scope \_SB.C005.C013
  Device (C058)
  { // Device C058
    Name (_HID, "*PNP0A06")

    OperationRegion (C059, SystemIO, 0xE0, 2)
    Field (C059, ByteAcc, NoLock, Preserve)
    { // Field overlaying C059
      C05A, 8,
      C05B, 8
    } // Field overlaying C059

    OperationRegion (C05C, SystemIO, 0xE2, 2)
    Field (C05C, ByteAcc, NoLock, Preserve)
    { // Field overlaying C05C
      C05D, 8,
      C05E, 8
    }
  }
}

```

```

} // Field overlaying C05C
IndexField (C05D, C05E, ByteAcc, NoLock, Preserve)
{ // IndexField overlaying C05D/C05E
    , 0x410, // skip
    C05F, 8,
    C060, 8,
    C061, 8,
    C062, 8,
    C063, 8,
    C064, 8,

C065, 8,
    C066, 8,
    C067, 8,
    C068, 8,
    C069, 8,
    C06A, 8,
    C06B, 8,
    C06C, 8,
    C06D, 8,
    C06E, 8,
    , 0x70, // skip
    C06F, 8,
    C070, 8,
    C071, 8,
    C072, 8,
    C073, 8,
    C074, 8,
    C075, 8,
    C076, 8,
    C077, 8,
    C078, 8,
    C079, 8,
    C07A, 8,
    C07B, 8,
    C07C, 8,
    C07D, 8,
    C07E, 8
} // IndexField overlaying C05D/C05E

OperationRegion (C07F, SystemIO, 0xE4, 2)
Field (C07F, ByteAcc, NoLock, Preserve)
{ // Field overlaying C07F
    C080, 8,
    C081, 8

} // Field overlaying C07F

```



```
OperationRegion (C082, SystemIO, 0xE0, 1)
Field (C082, ByteAcc, NoLock, Preserve)
{ // Field overlaying C082
  C083, 8
} // Field overlaying C082
```

```
OperationRegion (C084, SystemIO, 0xFF, 1)
Field (C084, ByteAcc, NoLock, Preserve)
{ // Field overlaying C084
  C085, 8
} // Field overlaying C084
```

```
OperationRegion (C086, SystemIO, 0xFD, 1)
Field (C086, ByteAcc, NoLock, Preserve)
{ // Field overlaying C086
  C087, 8
} // Field overlaying C086
```

```
Mutex (C088, 0)
Mutex (C089, 0)
Mutex (C08A, 0)
Mutex (C08B, 0)
Mutex (C08C, 0)
Mutex (C08D, 0)
```

```
Name (C08E, 0xFFFFFFFF)
Name (C08F, 0)
```

```
Method (C0AA, 4)
{ // C0AA control method
```

```
Store (Buffer (4) {}, Local7)
  CreateByteField (Local7, 0, C0AB)
  CreateByteField (Local7, 1, C0AC)
  CreateByteField (Local7, 2, C0AD)
  CreateByteField (Local7, 3, C0AE)
  Acquire (^C08B, 0xFFFF)
  Acquire (\_GL, 0xFFFF)
  \C022 ()
  Store (1, \_SB.C005.C013.C058.C06B)
  While (LNot (LEqual (0, \_SB.C005.C013.C058.C06B)))
  { Stall (100) }
  Store (Arg3, \_SB.C005.C013.C058.C06E)
  Store (Arg2, \_SB.C005.C013.C058.C06D)
  Store (Arg1, \_SB.C005.C013.C058.C06C)
  Store (Arg0, \_SB.C005.C013.C058.C06B)
  While (LNot (LEqual (0, \_SB.C005.C013.C058.C06B)))
  { Stall (100) }
```

Store (\\_SB.C005.C013.C058.C06E, C0AB)

Store (\\_SB.C005.C013.C058.C06D, C0AC)

Store (\\_SB.C005.C013.C058.C06C, C0AD)

Store (\\_SB.C005.C013.C058.C06B, C0AE)

If (LNot (LEqual (Arg0, 23)))

{

Store (2, \\_SB.C005.C013.C058.C06B)

Stall (100)

}

Release (\\_GL)

Release (^C08B)

Return (Local7)

} // C0AA control method

} // Device C058

} // Scope \\_SB.C005.C013

Scope (\\_TZ)

{ // \\_TZ thermal zone scope

Name (C18B, Package (2))

{

Package (2)

{

Package (5) {0x05AC, 0x0CD2, 0x0D68, 0x0DE0, 0x0E4E},

Package (5) {0x0D04, 0x0D9A, 0x0DFE, 0x0E80, 0x0FA2}

},

Package (2)

{

Package (5) {0x05AC, 0x0CD2, 0x0D68, 0x0DE0, 0x0E4E},

Package (5) {0x0D04, 0x0D9A, 0x0DFE, 0x0E80, 0x0FA2}

}

}) // C18B

Name (C18C, Package (2))

{

Package (2)

{

Package (3) {0x64, 0x4B, 0x32},

Package (3) {0x64, 0x4B, 0x32}

}

}) // C81C

Name (C18D, 0)

Name (C18E, 0)

Name (C18F, 0)

Name (C190, 0)

Name (C191, 3)

```

Name (C192, 0)
Name (C193, 1)
Name (C194, 2)
Mutex (C195, 0)
Name (C196, 1)
Name (C197, 0x0B9C)
Name (C198, 0x0B9C)
Name (C199, 0xFFFFFFFF)
Name (C19A, 0)

Device (C19B)
{ // Device C19B
    Name (RSLT, 0) // default to zero

    Method (XINI)
    { // _INI control method (Uses Global Lock -- can't run under AcpiExec)
        Store (\_SB.C115, C19A)
        \_TZ.C19C._SCP (0)
        Subtract (0x0EB2, 0x0AAC, Local1) // Local1 = ACh - EB2h
        Divide (Local1, 10, Local0, Local2) // Local0 = Local1 / 10
            // Local2 = Local1 % 10

        \_SB.C005.C013.C058.C0AA (14, Local2, 0, 0)
        Store
            (DerefOf (Index (DerefOf (Index (\_TZ.C18C, C19A, )), 0, )), C18D)
        Store
            (DerefOf (Index (DerefOf (Index (\_TZ.C18C, C19A, )), 1, )), C18E)
        Store
            (DerefOf (Index (DerefOf (Index (\_TZ.C18C, C19A, )), 2, )), C18F)

        Store (1, RSLT) // set RSLT to 1 if _INI control method completes
    } // _INI control method

    // PowerResource (C19D) {...}
} // Device C19B

ThermalZone (C19C)
{
    Method (_SCP, 1)
    { // _SCP control method
        Store (Arg0, Local0)
        If (LEqual (Local0, 0))
        {
            Store (0, \_TZ.C192)
            Store (1, \_TZ.C193)
            Store (2, \_TZ.C194)
            Store (3, \_TZ.C191)
        }
    }
}

```

```

Else
{

    Store (0, \_TZ.C191)
    Store (1, \_TZ.C192)
    Store (2, \_TZ.C193)
    Store (3, \_TZ.C194)
}
} // _SCP control method
} // ThermalZone C19C
} // \_TZ thermal zone scope

//
// test Dwrdfld.asl
//
Name (BUFR, buffer(10) {0,0,0,0,0,0,0,0,0,0} )

Device (DWDF)
{
    Method (TEST)
    {
        Store ("+++++++ Dwrdfld Test", Debug)

        CreateByteField (BUFR, 0, BYTE)
        Store (0xAA, BYTE)

        CreateWordField (BUFR, 1, WORD)
        Store (0xBBCC, WORD)

        CreateDWordField (BUFR, 3, DWRD)
        Store (0xDDEEFF00, DWRD)

        CreateByteField (BUFR, 7, BYT2)
        Store (0x11, BYT2)

        CreateWordField (BUFR, 8, WRD2)
        Store (0x2233, WRD2)

        Return (0)

    } // End Method TEST
} // Device DWDF

//
// test DivAddx.asl
//
Name (BILO,

```

```

0xAA)
Name (B1HI, 0xBB)

Method (MKW_, 2)
{ // This control method will take two bytes and make them into a WORD

    Multiply (B1HI, 256, Local0) // Make high byte.....high
    Or (Local0, B1LO, Local0) // OR in the low byte
    Return (Local0) // Return the WORD

} // MKW_

Device (DVAX)
{
    Method (TEST)
    {

        Store ("+++++++ DivAddx Test", Debug)

        Store (25, B1LO)
        Store (0, B1HI)

        // We'll multiply 25 * 3 to get 75, add 99 to it then divide
        // by 100. We expect to get 74 for the remainder and 1 for
        // the quotient.
        Divide(
            Add (Multiply (3, MKW_ (B1LO, B1HI)), 0x63),
                // Dividend,
            100, // Divisor
            Local4, // Remainder
            Local2) // Quotient

        If (LAnd (LEqual (74, Local4), LEqual (1, Local2)))

        { // Indicate Pass
            Store (0x00, Local0)
        }

        Else
        { // Indicate Fail
            Store (0x01, Local0)
        }

        Return (Local0)
    } // End Method TEST
} // Device DVAX

//

```

```

// test IndexFld.asl (IndexOp6.asl)
//
// IndexFld test
// This is just a subset of the many RegionOp/Index Field test cases.
// Tests index field element AccessAs macro.
// Also tests name resolution of index field elements with same names
// but different namespace scopes.
//
Device (IDX6)
{ // Test device name

    OperationRegion (SIO, SystemIO, 0x100, 2)
    Field (SIO, ByteAcc, NoLock, Preserve)
    {
        INDX, 8,
        DATA, 8
    }
    IndexField (INDX, DATA, AnyAcc, NoLock, WriteAsOnes)
    {
        AccessAs (ByteAcc, 0),
        IFE0, 8,
        IFE1, 8,
        IFE2, 8,
        IFE3, 8,
        IFE4,
8,
        IFE5, 8,
        IFE6, 8,
        IFE7, 8,
        IFE8, 8,
        IFE9, 8,
    }

Device (TST_)
{ // TST_: provides a different namespace scope for IFE0 and IFE1
    OperationRegion (SIO2, SystemIO, 0x100, 2)
    Field (SIO2, ByteAcc, NoLock, Preserve)
    {
        IND2, 8,
        DAT2, 8
    }
    IndexField (IND2, DAT2, AnyAcc, NoLock, WriteAsOnes)
    {
        IFE0, 8, // duplicate IndexField name with different scope
        IFE1, 8
    }
} // TST_: provides a different namespace scope for IFE0 and IFE1

```

```

Method (TEST)
{
    Store ("+++++++ IndexOp6 Test", Debug)

    Store (IFE0, Local0)
    Store (IFE1, Local1)
    Store (IFE2, Local2)

    // validate name resolution of IndexFields with different scopes
    Store (\IDX6.IFE0, Local3)

    Store (\IDX6.IFE1, Local4)
    // verioading of namespace can resolve following names
    Store (\IDX6.TST_IFE0, Local5)
    Store (\IDX6.TST_IFE1, Local6)

    Return (0)
} // TEST
} // IDX6

//
// test IndexOp5.asl
//
// IndexOp5 test
// This is just a subset of the many RegionOp/Index Field test cases.
// Tests copying string into buffer then performing IndexOp on result.
//
Device (IDX5)
{ // Test device name

    Name (OSFL, 0) // 0 == Windows 98, 1 == Windows NT

    // MCTH is a control method to compare two strings. It returns
    // zero if the strings mismatch, or 1 if the strings match.
    // This exercises the test case of copying a string into a buffer
    // and performing an IndexOp on the resulting buffer.
    Method (MCTH, 2, Serialized) // Control Method to compare two strings
    { // MCTH: Control Method to compare two strings

// Arg0: first string to compare
// Arg1: second string to compare
// Return: zero if strings mismatch, 1 if strings match

        // check if first string's length is less than second string's length
        If (LLess (SizeOf (Arg0), SizeOf (Arg1)))
        { Return (0) }

        // increment length to include NULL termination character

```

```

Add (SizeOf (Arg0), 1, Local0) // Local0 = strlen(Arg0) + 1

// create two buffers of size Local0 [strlen(Arg0)+1]
Name (BUF0, Buffer (Local0) { })
Name (BUF1, Buffer (Local0) { })

// copy strings into buffers
Store (Arg0, BUF0)
Store (Arg1, BUF1)

// validate BUF0 and BUF1 are still buffers
Store (ObjectType (BUF0), Local1)
If (LNotEqual (Local1, 3)) // Buffer is type 3
    { Return (20) }
Store (ObjectType (BUF1), Local1)
If
(LNotEqual (Local1, 3)) // Buffer is type 3
    { Return (21) }

// Decrement because the Index base below is zero based
// while Local0 length is one based.
Decrement (Local0)

While (Local0)
{ // loop through all BUF0 buffer elements
    Decrement (Local0)

    // check if BUF0[n] == BUF1[n]
    If (LEqual (DerefOf (Index (BUF0, Local0, )),
        DerefOf (Index (BUF1, Local0, )))
        { } // this is how the code was really implemented
    Else
        { Return (Zero) }
} // loop through all BUF0 buffer elements

Return (One) // strings / buffers match
} // MCTH: Control Method to compare two strings

Method (TEST)
{
    Store ("+++++++ IndexOp5 Test", Debug)

    If (MCTH (\_OS, "Microsoft Windows NT"))
        { Store
(1, OSFL) }

    If (LNotEqual (OSFL, 1))

```



```

    { Return (11) }

Return (0)
} // TEST
} // IDX5

//
// test IndexOp.asl
//
Scope (\_SB) // System Bus
{ // _SB system bus

    Method (C097)
    { Return (1) }

    Device (PCI2)
    { // Root PCI Bus
        Name (_HID, EISAID("PNP0A03"))
        Name (_ADR, 0x00000000)
        Name (_CRS, Buffer(26) {"\_SB_.PCI2._CRS....."})
        Method (_STA) {Return (0x0F)}

    Device (ISA)
    { // ISA bridge
        Name (_ADR, 0x00030000) // ISA bus ID

    Device (EC0)
    { // Embedded Controller
        Name (_GPE, 0) // EC use GPE0
        Name (_ADR, 0x0030000) // PCI address

        Method (_STA,0) // EC Status
        { Return(0xF) } // EC is functioning

    Name
    (_CRS, ResourceTemplate()
    {
        IO (Decode16, 0x62, 0x62, 1, 1)
        IO (Decode16, 0x66, 0x66, 1, 1)
    }
    )

    // create EC's region and field
    OperationRegion (RAM, SystemMemory, 0x400000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    {
        // AC information
        ADP, 1, // AC Adapter 1:On-line, 0:Off-line

```

```

AFLT, 1, // AC Adapter Fault 1:Fault 0:Normal
BAT0, 1, // BAT0 1:present, 0:not present
, 1, // reserved
, 28, // filler to force DWORD alignment

// CMBatt information
BPU0, 32, // Power Unit
BDC0, 32, // Designed Capacity

BFC0, 32, // Last Full Charge Capacity
BTC0, 32, // Battery Technology
BDV0, 32, // Design Voltage
BST0, 32, // Battery State
BPR0, 32, // Battery Present Rate
// (Designed Capacity)x(%)/{(h)x100}
BRC0, 32, // Battery Remaining Capacity
// (Designed Capacity)(%)^100
BPV0, 32, // Battery Present Voltage
BTP0, 32, // Trip Point
BCW0, 32, // Design capacity of Warning
BCL0, 32, // Design capacity of Low
BCG0, 32, // capacity granularity 1
BG20, 32, // capacity granularity 2
BMO0, 32, // Battery model number field
BIF0, 32, // OEM Information(00h)

BSN0, 32, // Battery Serial Number
BTY0, 32, // Battery Type (e.g., "Li-Ion")
BTY1, 32 // Battery Type (e.g., "Li-Ion")
} // Field
} // EC0: Embedded Controller
} // ISA bridge
} // PCI2 Root PCI Bus

Device (IDX0)
{ // Test device name
Name (_HID, EISAID ("PNP0C0A")) // Control Method Battey ID
Name (_PCL, Package() {\_SB})
Method (_STA)
{
// _STA bits 0-3 indicate existence of battery slot
// _STA bit 4 indicates battery (not) present
If (\_SB.PCI2.ISA.EC0.BAT0)
{ Return (0x1F) } // Battery present
else
{ Return (0x0F) } // Battery not present
} // _STA
}

```

```

Method (_BIF,, Serialized)
{
    Name (BUFR, Package(13))
}

Store (\_SB.PCI2.ISA.EC0.BPU0, Index (BUFR,0)) // Power Unit
Store (\_SB.PCI2.ISA.EC0.BDC0, Index (BUFR,1)) // Designed Capacity
Store (\_SB.PCI2.ISA.EC0.BFC0, Index (BUFR,2)) // Last Full Charge Capa.
Store (\_SB.PCI2.ISA.EC0.BTC0, Index (BUFR,3)) // Battery Technology
Store (\_SB.PCI2.ISA.EC0.BDV0, Index (BUFR,4)) // Designed Voltage
Store (\_SB.PCI2.ISA.EC0.BCW0, Index (BUFR,5)) // Designed warning level
Store (\_SB.PCI2.ISA.EC0.BCLO, Index (BUFR,6)) // Designed Low level
Store (\_SB.PCI2.ISA.EC0.BCG0, Index (BUFR,7)) // Capacity granularity 1
Store (\_SB.PCI2.ISA.EC0.BG20, Index (BUFR,8)) // Capacity granularity 2

Store ("", Index (BUFR,9)) // Model Number

Store ("", Index (BUFR,10)) // Serial Number

Store
("LiOn", Index (BUFR,11)) // Battery Type

Store ("Chicony", Index (BUFR,12)) // OEM Information

Return (BUFR)
} // _BIF

Method (_BST,, Serialized)
{
    Name (BUFR, Package(4) {1, 0x100, 0x76543210, 0x180})
    Return (BUFR)
} // _BST

Method (_BTP,1)
{
    Store (arg0, \_SB.PCI2.ISA.EC0.BTP0) // Set Battery Trip point
}

Method (TEST,, Serialized)
{

    Store ("+++++++ IndexOp Test", Debug)

    // test storing into uninitialized package elements
    Name (PBUF, Package(4) {}) // leave uninitialized
    Store (0x01234567, Index (PBUF,0))
    Store (0x89ABCDEF, Index (PBUF,1))
    Store (0xFEDCBA98, Index (PBUF,2))
    Store (0x76543210, Index (PBUF,3))
}

```

```

//
verify values stored into uninitialized package elements
If (LNotEqual (DerefOf (Index (PBUF,0)), 0x01234567))
    { Return (0x10) }

If (LNotEqual (DerefOf (Index (PBUF,1)), 0x89ABCDEF))
    { Return (0x11) }

If (LNotEqual (DerefOf (Index (PBUF,2)), 0xFEDCBA98))
    { Return (0x12) }

If (LNotEqual (DerefOf (Index (PBUF,3)), 0x76543210))
    { Return (0x13) }

// store _BIF package return value into Local0
Store (_BIF, Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Package
If (LNotEqual (Local1, 4)) // Package type is 4
    { Return (0x21) } // failure

// test storing into buffer field elements
Name (BUFR, Buffer(16)
    { // initial values
        00, 00, 00, 00, 00, 00, 00, 00, 00,
        00, 00, 00, 00, 00, 00, 00, 00,
    }
) // BUFR
// test storing into buffer field elements
Store (0x01234567, Index (BUFR,0)) // should only store 0x67
Store (0x89ABCDEF, Index (BUFR,4)) // should only store 0xEF
Store (0xFEDCBA98, Index (BUFR,8)) // should only store 0x98
Store (0x76543210, Index (BUFR,12)) // should only store 0x10

// verify storing into buffer field elements
If (LNotEqual (DerefOf (Index (BUFR,0)), 0x67))
    { Return (0x30) }

If (LNotEqual (DerefOf (Index (BUFR,1)), 0))
    { Return (0x31) }

If (LNotEqual (DerefOf (Index (BUFR,4)), 0xEF))

```

```

        { Return (0x34) }

    If (LNotEqual (DerefOf
(Index (BUFR,8)), 0x98))
        { Return (0x38) }

    If (LNotEqual (DerefOf (Index (BUFR,12)), 0x10))
        { Return (0x3C) }

    Return (0) // pass
} // TEST
} // IDX0
} // _SB system bus

//
// test BitIndex.asl
//
// BitIndex test
// This is a test case for accessing fields defined as single bits in
// memory. This is done by creating two index fields that overlay the
// same DWORD in memory. One field accesses the DWORD as a DWORD, the
// other accesses individual bits of the same DWORD field in memory.
//
Scope (\_SB) // System Bus
{ // _SB system bus
    OperationRegion (RAM, SystemMemory, 0x800000, 0x100)
    Field (RAM, AnyAcc, NoLock, Preserve)
    { // Any access
        TREE, 3,
        WRD0, 16,
        WRD1, 16,
        WRD2, 16,
        WRD3, 16,
        WRD4, 16,
        DWRD, 32, // DWORD field
    }
    Field (RAM, AnyAcc, NoLock, Preserve)
    { // Any access
        THRE, 3,
        WD00, 16,
        WD01, 16,
        WD02, 16,
        WD03, 16,
        WD04, 16,
        BYT0, 8, // Start off with a BYTE
        BIT0, 1, // single-bit field
        BIT1, 1, // single-bit field
    }
}

```

```

BIT2, 1, // single-bit field
BIT3, 1, // single-bit field
BIT4, 1, // single-bit field
BIT5, 1, // single-bit field
BIT6, 1, // single-bit field
BIT7, 1, // single-bit field
BIT8, 1, // single-bit field
BIT9, 1, // single-bit field
BITA, 1, // single-bit field
BITB, 1, // single-bit field
BITC, 1, // single-bit field
BITD, 1, // single-bit field
BITE, 1, // single-bit field
BITF, 1, // single-bit field

BYTZ, 8, // End with a BYTE for a total of 32 bits
}

Device (BITI)
{ // Test device name

Method (MBIT) // Test single bit memory accesses
{

    If (LNotEqual (DWRD, 0x00))
    {
        Store (0xFF00, Local0)
    }
    Else
    {
        // Prime Local0 with 0...assume passing condition
        Store (0, Local0)

        // set memory contents to known values using DWORD field
        Store (0x5A5A5A5A, DWRD)

        // Given the value programmed into DWRD, only the odd bits
        // of the lower nibble should be set. BIT1, BIT3 should be set.
        // BIT0 and BIT2 should be clear

        If (BIT0)
        {
            Or (Local0, 0x01, Local0)
        }

        If (LNot (BIT1))

```

```

{
    Or (Local0, 0x02, Local0)
}

If (BIT2)
{
    Or (Local0, 0x04, Local0)
}

If (LNot (BIT3))
{
    Or (Local0, 0x08, Local0)
}

// Now check the upper nibble. Only the "even" bits should
// be set. BIT4, BIT6. BIT5 and BIT7 should be clear.
If (LNot (BIT4))
{
    Or (Local0, 0x10, Local0)
}

If (BIT5)
{
    Or (Local0, 0x20, Local0)
}

If (LNot (BIT6))
{
    Or (Local0, 0x40, Local0)
}

If (BIT7)
{
    Or (Local0, 0x80, Local0)
}
}

} // End Else DWRD zeroed out

Return (Local0)
} // MBIT: Test single bit memory accesses

Method (TEST)
{

    Store ("+++++++ BitIndex Test", Debug)

    // Zero out DWRD
    Store (0x00000000, DWRD)
}

```

```

    // MBIT returns zero if successful
    // This may be causing problems -- Return (MBIT)
    Store (MBIT, Local0)

    Return (Local0)
} // TEST
} // BITI
} // _SB system bus

//
// test IndexOp3.asl
//
// Additional IndexOp test cases to support ACPI_CMB (control method battery
// test) on Compaq laptops. Test cases include storing a package into
// an IndexOp target and validating that changing source and destination
// package contents are independent of each other.
//
Scope (\_SB) // System Bus
{ // _SB system bus

    Name (C174, 13)
    Name (C175, 8)

    Device (C158)
    { // C158: AC Adapter device
        Name (_HID, "ACPI0003") // AC Adapter device
        Name (_PCL, Package (1) {\_SB})

        Method (_PSR)
        {
            Acquire (\_GL, 0xFFFF)
            Release (\_GL)
            And (Local0, 1, Local0) // Local0 &= 1
            Return (Local0)
        } // _PSR
    } // C158: AC Adapter device

    Name (C176, Package (4) {"Primary", "MultiBay", "DockRight", "DockLeft"})

    Name (C177, Package (4) {0x99F5, 0x99F5, 0x995F, 0x995F})

    Name (C178, Package (4)
    {
        Package (4) {0, 0, 0x966B, 0x4190},
        Package (4) {0, 0, 0x966B, 0x4190},
        Package (4) {0, 0, 0x966B, 0x4190},
        Package (4) {0, 0, 0x966B, 0x4190}
    }

```



```

}) // C178

Name (C179, Package (4) {0, 0, 0x966B, 0x4190})

Name (C17A, Package (4)
{
    Package (3) {0, 0, 0},
    Package (3) {0,
0, 0},
    Package (3) {0, 0, 0},
    Package (3) {0, 0, 0}
}) // C17A

Method (C17B, 1, Serialized)
{ // C17B: _BIF implementation
    Name (C17C, Package (13)
    { // C17C: _BIF control method return package
        0, // Power Unit (0 ==> mWh and mW)
        0x99F5, // Design Capacity
        0x99F5, // Last Full Charge Capacity
        1, // Battery Technology (1 ==> rechargeable)
        0x3840, // Design Voltage
        0x1280, // Design Capacity of Warning
        0x0AC7, // Design Capacity of Low
        1, // Battery Capacity Granularity 1 (Low -- Warning)
        1, // Battery Capacity Granularity 2 (Warning -- Full)
        "2891", // Model Number (ASCIIZ)
        "(-Unknown-)", // Serial Number
(ASCIIZ)
        "LiIon", // Battery Type (ASCIIZ)
        0 // OEM Information (ASCIIZ)
    }) // C17C: _BIF control method return package

    And (Arg0, 7, Local0) // Local0 = Arg0 & 7

    ShiftRight (Local0, 1, Local4) // Local4 = Local0 >> 1

    Store (C179, Index (C178, Local4, )) // C178->Local4 = C179

    // verify source and destination packages can be altered independent
    // of each other (i.e., changing one's contents does NOT change other's
    // contents)
    Store (0x1234, Index (C179, 2, )) // C179[2] = 0x1234
    Store (DerefOf (Index (C179, 2, )), Local2) // Local2 = C179[2]
    if (LNotEqual (Local2, 0x1234))
        { Return (0x1234) }

    // Local2 = C178[0,2]
    Store (DerefOf (Index (DerefOf

```

```

(Index (C178, 0, ), 2, ), Local2)
  if (LNotEqual (Local2, 0x966B))
    { Return (0x1234) }

// Restore data to allow iterative execution
Store (0x966B, Index (C179, 2, )) // C179[2] = 0x966B

// C178[0,3] = 0x5678
Store (0x5678, Index (DerefOf (Index (C178, 0, )), 3, ))
// Local2 = C178[0,3]
Store (DerefOf (Index (DerefOf (Index (C178, 0, )), 3, )), Local2)
if (LNotEqual (Local2, 0x5678))
  { Return (0x5678) }

Store (DerefOf (Index (C179, 3, )), Local2) // Local2 = C179[3]
if (LNotEqual (Local2, 0x4190))
  { Return (0x5678) }

// Restore data to allow iterative execution
Store (0x4190, Index (DerefOf (Index (C178, 0, )), 3, )) // C179[2] = 0x4190

Return (C17C)
} // C17B: _BIF implementation

Device (C154)
{ // C154: Battery 0
  Name (_HID, "*PNP0C0A") // Control Method Battery ID
  Name (_UID, 0) // first instance

  Method (_BIF)
  { // _BIF
    Return (C17B (48))
  } // _BIF
} // C154: Battery 0

Device (IDX3)
{
  Method (LCLB,, Serialized)
  { // LCLB control method: test Index(Local#) where Local# is buffer
    // Local0 is index counter
    // Local1 is buffer
    // Local2 receives BUFR[Local0] via Deref(Index(Local1...))
    // Local3 is Local1 or Local2 object type
    // Local4 is return error code

    Name (BUFR, Buffer () {0, 1, 2, 3, 4, 5, 6, 7, 8, 9})

```

```

// save PKG into Local1
Store (BUFR, Local1)

// save Local2
object type value into Local3
Store (ObjectType (Local1), Local3)

// validate Local1 is a Buffer
If (LNotEqual (Local3, 3)) // Buffer type is 3
{ Return (0x9F) }

Store (0, Local0)
While (LLess (Local0, 5))
{ // While (Local0 < 5)
// Local2 = Local1[Local0]
Store (DerefOf (Index (Local1, Local0, )), Local2)

// save Local2 object type value into Local3
Store (ObjectType (Local2), Local3)

// validate Local2 is a Number
If (LNotEqual (Local3, 1)) // Number type is 1
{ Return (0x9E) }

// validate Local1[Local0] value == Local0
If (LNotEqual (Local0, Local2))
{ // Local0 != Local2 == PKG[Local0]
// Local4 = 0x90 +
loop index (Local0)
Add (0x90, Local0, Local4)

// return 0x90 + loop index
Return (Local4)
}

Increment (Local0)
} // While (Local0 < 5)

Store ("DerefOf(Index(LocalBuffer,)) PASS", Debug)

Return (0) // Pass
} // LCLB control method: test Index(Local#) where Local# is buffer

Method (LCLP,, Serialized)
{ // LCLP control method: test Index(Local#) where Local# is package
// Local0 is index counter
// Local1 is package

```

```

// Local2 receives PKG[Local0] via Deref(Index(Local1...))
// Local3 is Local1 or Local2 object type
// Local4 is return error code

Name (PKG, Package () {0, 1, 2, 3, 4, 5, 6, 7, 8, 9})

// save PKG into Local1
Store (PKG, Local1)

// save Local2 object type value into Local3
Store (ObjectType (Local1), Local3)

// validate Local1 is a Package
If (LNotEqual (Local3, 4)) // Package type is 4
    { Return (0x8F) }

Store (0, Local0)
While (LLess (Local0, 5))
{ // While (Local0 < 5)
    // Local2 = Local1[Local0]
    Store (DerefOf (Index (Local1, Local0, )), Local2)

    // save Local2 object type value into Local3
    Store (ObjectType (Local2), Local3)

    // validate Local2 is a Number
    If (LNotEqual (Local3, 1)) // Number type is 1
        { Return (0x8E) }

    // validate Local1[Local0] value == Local0
    If (LNotEqual (Local0, Local2))
    { // Local0 != Local2 == PKG[Local0]

// Local4 = 0x80 + loop index (Local0)
    Add (0x80, Local0, Local4)

    // return 0x80 + loop index
    Return (Local4)
    }

    Increment (Local0)
} // While (Local0 < 5)

Store ("DerefOf(Index(LocalPackage,)) PASS", Debug)

Return (0) // Pass
} // LCLP control method: test Index(Local#) where Local# is package

```

```

Method (TEST)
{

    Store ("+++++++ IndexOp3 Test", Debug)

    // store _BIF package return value into Local0
    Store (\_SB.C154._BIF, Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Package
    If (LNotEqual (Local1, 4)) // Package type is 4
    { // failure: did not return a Package (type
4)
        // if Local0 is a Number, it contains an error code
        If (LEqual (Local1, 1)) // Number type is 1
            { Return (Local0) } // return Local0 error code
        Else // Local0 is not a Number
            { Return (1) } // return default error code
        } // failure: did not return a Package (type 4)

        // save LCLB control method return value into Local2
        Store (LCLB, Local2)
        If (LNotEqual (Local2, 0))
            { Return (Local2) } // return failure code

        // save LCLP control method return value into Local2
        Store (LCLP, Local2)
        If (LNotEqual (Local2, 0))
            { Return (Local2) } // return failure code

        Return (0) // Pass
    } // TEST
} // IDX3: Test device name
} // _SB system bus

//
// MTL developed test to exercise Indexes into buffers
//
Device (IDX7)
{

    Name (PKG4, Package() {
        0x2,
        "A short string",
        Buffer() {0xA, 0xB, 0xC, 0xD},

```

```

    0x1234,
    Package() {IDX7, 0x3}
    })

//
// Generic Test method
//
// This test returns 0xE (14) - ObjectType = Buffer Field
Method(TST1,, Serialized)
{
    Name (DEST, Buffer ()           // 62 characters plus NULL
        {"Destination buffer that is longer than the short source buffer"})

    // verify object type returned by Index(Buffer,Element,)
    Store (Index (DEST, 2, ), Local1)
    Store (ObjectType (Local1), Local2)
    If (LEqual(Local2, 14))
    {
        Return(0)
    }
    Else
    {
        Return(0x1)
    }
}

Method(TST2,, Serialized)
{
    Name (BUF0, Buffer() {0x1, 0x2, 0x3, 0x4, 0x5})
    Store(0x55, Index(BUF0, 2))
    Store(DerefOf(Index(BUF0, 2)), Local0)
    If (LEqual(Local0, 0x55))
    {
        Return(0)
    }
    Else
    {
        Return(0x2)
    }
}

Method(TST3,, Serialized)
{
    Name (BUF1, Buffer() {0x1, 0x2, 0x3, 0x4, 0x5})

```

```
Store(Index(BUF1, 1), Local0)
Store(DerefOf(Local0), Local1)
If (LEqual(Local1, 0x2))
{
    Return(0)
}
Else
{
    Return(0x3)
}
}
```

```
Method(TST4)
{
    // Index (PKG4, 0) is a Number
    Store (Index (PKG4, 0), Local0)
    Store (ObjectType(Local0), Local1)
    If (LEqual(Local1, 0x1))
    {
        Return(0)
    }
    Else
    {
        Return(0x4)
    }
}
```

```
Method(TST5)
{
    // Index (PKG4, 1) is a String
    Store (Index (PKG4, 1), Local0)
    Store (ObjectType(Local0), Local1)
    If (LEqual(Local1, 0x2))
    {
        Return(0)
    }
    Else
    {
        Return(0x5)
    }
}
```

```
Method(TST6)
{
    // Index (PKG4, 2) is a Buffer
```

```
Store (Index (PKG4, 2), Local0)
Store (ObjectType(Local0), Local1)
If (LEqual(Local1, 0x3))
{
    Return(0)
}
Else
{
    Return(0x6)
}
}
```

```
Method(TST7)
{
    // Index (PKG4, 3) is a Number
    Store (Index (PKG4, 3), Local0)
    Store (ObjectType(Local0), Local1)
    If (LEqual(Local1, 0x1))
    {
        Return(0)
    }
    Else
    {
        Return(0x7)
    }
}
```

```
Method(TST8)
{
    // Index (PKG4, 4) is a Package
    Store (Index (PKG4, 4), Local0)
    Store (ObjectType(Local0), Local1)
    If (LEqual(Local1, 0x4))
    {
        Return(0)
    }
    Else
    {
        Return(0x8)
    }
}
```

```
Method(TST9)
{
    // Derefof (Index (PKG4, 0)) is a Number
```



```

Store (DerefOf (Index (PKG4, 0)), Local0)
If (LEqual(Local0, 0x2))
{
    Return(0)
}
Else
{
    Return(0x9)
}
}

```

```

Method(TSTA)
{
    // DerefOf (Index (PKG4, 1)) is a String
    Store (DerefOf (Index (PKG4, 1)), Local0)
    Store (SizeOf(Local0), Local1)
    If (LEqual(Local1, 0xE))
    {

        Return(0)
    }
    Else
    {
        Return(0xA)
    }
}

```

```

Method(TSTB)
{
    // DerefOf (Index (PKG4, 2)) is a Buffer
    Store (DerefOf (Index (PKG4, 2)), Local0)
    Store (SizeOf(Local0), Local1)
    If (LEqual(Local1, 0x4))
    {
        Return(0)
    }
    Else
    {
        Return(0xB)
    }
}

```

```

Method(TSTC)
{
    // DerefOf (Index (PKG4, 3)) is a Number

```

```

Store (DerefOf (Index (PKG4, 3)), Local0)
If (LEqual(Local0, 0x1234))
{
    Return(0)
}
Else
{
    Return(0xC)
}
}

```

```

Method(TSTD)
{
    // DerefOf (Index (PKG4, 4)) is a Package
    Store (DerefOf (Index (PKG4, 4)), Local0)
    Store (SizeOf(Local0), Local1)
    If (LEqual(Local1,
0x2))
    {
        Return(0)
    }
    Else
    {
        Return(0xD)
    }
}

```

```

Method(TSTE)
{
    // DerefOf (Index (PKG4, 2)) is a Buffer
    Store (DerefOf (Index (PKG4, 2)), Local0)
    // DerefOf (Index (Local0, 1)) is a Number
    Store (DerefOf (Index (Local0, 1)), Local1)
    If (LEqual(Local1, 0xB))
    {
        Return(0)
    }
    Else
    {
        Return(0xE)
    }
}

```

```

Method (TSTF,, Serialized)
{

```

```

Name (SRCB, Buffer (12) { }) // 12 characters
Store ("Short Buffer", SRCB)

Name (DEST, Buffer () // 62 characters plus NULL
{"Destination buffer that is longer than the short source buffer"})

// overwrite DEST contents, starting at buffer position 2
Store (SRCB, Index (DEST,
2))

//
// The DEST buffer element should be replaced with the last element of
// the SRCB element (i.e. 's'->'r')
Store (DerefOf (Index (DEST, 2)), Local0)

If (LNotEqual (Local0, 0x72)) // 'r'
{
// DEST element does not match the value from SRCB
Return(Or(Local0, 0x1000))
}

Return(0)
}

Method (TSTG,, Serialized)
{

Name (SRCB, Buffer (12) { }) // 12 characters
Store ("Short Buffer", SRCB)

Name (DEST, Buffer () // 62 characters plus NULL
{"Destination buffer that is longer than the short source buffer"})

// overwrite DEST contents, starting at buffer position 2
Store (SRCB, Index (DEST, 2))

//
// The next element of DEST should be unchanged
//
Store (DerefOf (Index (DEST,
3)), Local0)

If (LNotEqual (Local0, 0x74)) // 't'
{
// DEST has been changed
Return(Or(Local0, 0x2000))
}
}

```

```

//
// The next element of DEST should be unchanged
//
Store (DerefOf (Index (DEST, 4)), Local0)

If (LNotEqual (Local0, 0x69)) // 'i'
{
    // DEST has been changed
    Return(Or(Local0, 0x2100))
}

//
// The next element of DEST should be unchanged
//
Store (DerefOf (Index (DEST, 5)), Local0)

If (LNotEqual (Local0, 0x6E)) // 'n'
{
    // DEST has been changed
    Return(Or(Local0, 0x2200))
}

//
// The next element of DEST should be unchanged
//
Store (DerefOf (Index (DEST, 6)), Local0)

If (LNotEqual (Local0, 0x61))
// 'a'
{
    // DEST has been changed
    Return(Or(Local0, 0x2300))
}

//
// The next element of DEST should be unchanged
//
Store (DerefOf (Index (DEST, 7)), Local0)

If (LNotEqual (Local0, 0x74)) // 't'
{
    // DEST has been changed
    Return(Or(Local0, 0x2400))
}

//
// Verify DEST elements beyond end of SRCB buffer copy
// have not been changed

```

```

Store (DerefOf (Index (DEST, 14)), Local0)

If (LNotEqual (Local0, 0x66)) // 'f'
{
    // DEST has been changed
    Return(Or(Local0, 0x2400))
}

Return(0)
}

//
// This test shows that MS ACPI.SYS stores only the lower 8-bits of a 32-bit
// number into the index'ed buffer
//
Method (TSTH,, Serialized)
{
    // Create a Destination Buffer
    Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

    // Store a number > UINT8 into an index of the buffer
    Store (0x12345678, Index(DBUF, 2))

    // Check the results
    Store (DerefOf (Index (DBUF, 2)), Local0)
    If (LNotEqual (Local0, 0x78)) // 0x78
    {
        Return(Or(Local0, 0x3000))
    }

    Store (DerefOf (Index (DBUF, 3)), Local0)
    If (LNotEqual (Local0, 0x64)) // 'd'
    {
        Return(Or(Local0, 0x3100))
    }

    Store (DerefOf (Index (DBUF, 4)), Local0)
    If (LNotEqual (Local0, 0x65)) // 'e'
    {
        Return(Or(Local0, 0x3200))
    }

    Store (DerefOf (Index (DBUF, 5)), Local0)
    If (LNotEqual (Local0, 0x66)) // 'f'
    {
        Return(Or(Local0, 0x3300))
    }
}

```

```

Return(0)
}

Method (TSTI,, Serialized)
{
    // Create a Destination Buffer
    Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxy"})

    // Store a String into an index of the buffer
    Store ("ABCDEFGH", Index(DBUF, 2))

    // Check the results
    Store (DerefOf (Index (DBUF, 2)), Local0)
    If (LNotEqual (Local0, 0x48)) // 'H'
    {
        Return(Or(Local0, 0x4000))
    }

    Store (DerefOf (Index (DBUF, 3)), Local0)
    If (LNotEqual (Local0, 0x64)) // 'd'
    {
        Return(Or(Local0, 0x4100))
    }

    Store (DerefOf (Index (DBUF, 4)), Local0)
    If (LNotEqual (Local0, 0x65)) // 'e'
    {
        Return(Or(Local0, 0x4200))
    }

    Store (DerefOf (Index (DBUF, 5)), Local0)
    If (LNotEqual (Local0, 0x66)) // 'f'
    {
        Return(Or(Local0, 0x4300))
    }

    Return(0)
}

```

```

Method(TSTJ,, Serialized)
{
    // Create a Destination Buffer
    Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxy"})

    // Store a number > UINT8 into an index of the buffer
    Store (0x1234, Index(DBUF, 2))

    // Check the results

```

```

Store (DerefOf (Index (DBUF, 2)), Local0)
If (LNotEqual (Local0, 0x34)) // 0x34
{
    Return(Or(Local0, 0x3000))
}

Store (DerefOf (Index (DBUF, 3)), Local0)
If (LNotEqual (Local0, 0x64)) // 'd'
{
    Return(Or(Local0, 0x3100))
}

Store (DerefOf (Index (DBUF, 4)), Local0)
If (LNotEqual (Local0, 0x65)) // 'e'
{
    Return(Or(Local0, 0x3200))
}

Store (DerefOf (Index (DBUF, 5)), Local0)
If (LNotEqual (Local0, 0x66)) // 'f'

{
    Return(Or(Local0, 0x3300))
}

Return(0)
}

Method(TSTK,, Serialized)
{
    // Create a Destination Buffer
    Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

    // Store a number > UINT8 into an index of the buffer
    Store (0x123456, Index(DBUF, 2))

    // Check the results
    Store (DerefOf (Index (DBUF, 2)), Local0)
    If (LNotEqual (Local0, 0x56)) // 0x56
    {
        Return(Or(Local0, 0x3000))
    }

    Store (DerefOf (Index (DBUF, 3)), Local0)
    If (LNotEqual (Local0, 0x64)) // 'd'
    {
        Return(Or(Local0, 0x3100))
    }
}

```

```

Store (DerefOf (Index (DBUF, 4)), Local0)
If (LNotEqual (Local0, 0x65)) // 'e'
{
    Return(Or(Local0, 0x3200))
}

Store (DerefOf (Index (DBUF, 5)), Local0)
If (LNotEqual
(Local0, 0x66)) // 'f'
{
    Return(Or(Local0, 0x3300))
}

Return(0)
}

Method(TSTL,, Serialized)
{
    // Create a Destination Buffer
    Name (DBUF, Buffer () {"abcdefghijklmnopqrstuvwxyz"})

    // Store a number > UINT8 into an index of the buffer
    Store (0x12, Index(DBUF, 2))

    // Check the results
    Store (DerefOf (Index (DBUF, 2)), Local0)
    If (LNotEqual (Local0, 0x12)) // 0x12
    {
        Return(Or(Local0, 0x3000))
    }

    Store (DerefOf (Index (DBUF, 3)), Local0)
    If (LNotEqual (Local0, 0x64)) // 'd'
    {
        Return(Or(Local0, 0x3100))
    }

    Store (DerefOf (Index (DBUF, 4)), Local0)
    If (LNotEqual (Local0, 0x65)) // 'e'
    {
        Return(Or(Local0, 0x3200))
    }

    Store (DerefOf (Index (DBUF,
5)), Local0)
    If (LNotEqual (Local0, 0x66)) // 'f'
    {

```



```

    Return(Or(Local0, 0x3300))
}

Return(0)
}

Method(TEST)
{
    Store ("+++++++ IndexOp7 Test", Debug)

    Store(TST1(), Local0)
    if (LGreater (Local0, 0))
    {
        Return(Local0)
    }

    Store(TST2(), Local0)
    if (LGreater (Local0, 0))
    {
        Return(Local0)
    }

    Store(TST3(), Local0)
    if (LGreater (Local0, 0))
    {
        Return(Local0)
    }

    Store(TST4(), Local0)
    if (LGreater (Local0, 0))
    {
        Return(Local0)
    }

    Store(TST5(), Local0)
    if (LGreater (Local0, 0))
    {
        Return(Local0)
    }

    Store(TST6(), Local0)
    if (LGreater (Local0, 0))
    {
        Return(Local0)
    }

    Store(TST7(), Local0)
    if (LGreater (Local0, 0))

```

```
{
    Return(Local0)
}

Store(TST8(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TST9(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTA(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTB(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTC(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTD(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTE(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}
```

/\* No longer ACPI compliant \*/

/\*

```

Store(TSTF(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}
*/

Store(TSTG(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTH(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

/* No longer ACPI compliant */
/*
Store(TSTI(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}
*/

Store(TSTJ(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTK(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Store(TSTL(), Local0)
if (LGreater (Local0, 0))
{
    Return(Local0)
}

Return(Local0)

```

```

    }

} // Device(IDX7)

//
// test MatchOp.asl
//
// MatchOp test cases that utilize nested DerefOf(Index(...)) to validate
// MatchOp, DerefOfOp, and IndexOp of nested packages.
//
Device (MTCH)
{

    Method (TEST,, Serialized)
    {
        Store ("+++++++ MatchOp Test", Debug)

        Name (TIM0, Package ()
            {
                Package () {0x78, 0xB4, 0xF0, 0x0384},
                Package () {0x23, 0x21, 0x10, 0},
                Package () {0x0B, 9, 4, 0},
                Package () {0x70, 0x49, 0x36, 0x27, 0x19},
                Package () {0, 1, 2, 1, 2},
                Package () {0, 0, 0, 1, 1},
                Package () {4, 3, 2, 0},
                Package () {2, 1, 0, 0}
            }) // TIM0

        Name (TMD0, Buffer (20)
{0xFF, 0xFF, 0xFF, 0xFF })
        CreateDWordField (TMD0, 0, PIO0) // 0xFFFFFFFF
        CreateDWordField (TMD0, 4, DMA0)
        CreateDWordField (TMD0, 8, PIO1)
        CreateDWordField (TMD0, 12, DMA1)
        CreateDWordField (TMD0, 16, CHNF)

        // validate PIO0 value
        Store (PIO0, Local3)

        // save Local3 object type value into Local2
        Store (ObjectType (Local3), Local2)

        // validate Local3 is a Number
        If (LNotEqual (Local2, 1)) // Number type is 1
            { Return (2) } // failure

```

```

// validate Local3 Number value
If (LNotEqual (Local3, 0xFFFFFFFF)) // Number value 0xFFFFFFFF
  { Return (3) } // failure

Store ("DWordField PASS", Debug)

Store (0, Local5)
Store (Match (DerefOf (Index (TIM0, 1, )), MLE, Local5, MTR, 0, 0), Local6)

// save Local6 object type value into Local2
Store (ObjectType (Local6), Local2)

// validate Local6 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
  { Return (4) } // failure

Store ("Match(DerefOf(Index(TIM0,1)),... PASS", Debug)

// validate following produces a nested package to validate
// that MatchOp did not corrupt SearchPackage (TIM0)
Store (DerefOf (Index (TIM0, 1, )), Local4)

// save Local4 object type value into Local2
Store (ObjectType (Local4), Local2)

// validate Local4 is a Package
If (LNotEqual (Local2, 4)) // Package type is 4
  { Return (5) } // failure

Store ("DerefOf(Index(TIM0,1)),... PASS", Debug)

And (Match (DerefOf (Index (TIM0, 0, )), MGE, PIO0, MTR, 0, 0), 3, Local0)

// save Local0 object type value into Local2
Store (ObjectType (Local0), Local2)

// validate Local0 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
  { Return (6) } // failure

// validate Local0 Number value
If (LNotEqual (Local0, 3)) // Number value 3
  { Return (7) } // failure

```

```

Store ("And(Match(DerefOf(Index(TIM0,0)),... PASS", Debug)

// again, validate following produces a nested package
Store (DerefOf (Index (TIM0, 1, )), Local4)

// save Local4 object type value into Local2
Store (ObjectType (Local4), Local2)

// validate Local4 is a Package
If (LNotEqual (Local2, 4)) // Package type is 4
  { Return (8) } // failure

Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)

// again, validate following produces a nested package
Store (DerefOf (Index (TIM0, 1, )), Local4)

// save Local4 object type value
into Local2
Store (ObjectType (Local4), Local2)

// validate Local4 is a Package
If (LNotEqual (Local2, 4)) // Package type is 4
  { Return (9) } // failure

Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)

// test nested DerefOf(Index) operators
Store (DerefOf (Index (DerefOf (Index (TIM0, 1, )), Local0, )), Local1)

// save Local1 object type value into Local2
Store (ObjectType (Local1), Local2)

// validate Local1 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
  { Return (10) } // failure

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local1, 0))
  { Return (11) } // failure

Store ("DerefOf(Index(DerefOf(Index(TIM0,1)),... PASS", Debug)

// again, validate following produces a nested package

```

```

Store (DerefOf
(Index (TIM0, 1, )), Local4)

// save Local4 object type value into Local2
Store (ObjectType (Local4), Local2)

// validate Local4 is a Package
If (LNotEqual (Local2, 4)) // Package type is 4
  { Return (12) } // failure

Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)

// retest nested DerefOf(Index) operators
Store (DerefOf (Index (DerefOf (Index (TIM0, 1, )), Local0, )), Local1)

// save Local1 object type value into Local2
Store (ObjectType (Local1), Local2)

// validate Local1 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
  { Return (13) } // failure

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local1, 0))
  { Return (14) } // failure

Store ("DerefOf(Index(DerefOf(Index(TIM0,1)),... PASS again", Debug)

// again, validate following produces a nested package
Store (DerefOf (Index (TIM0, 1, )), Local4)

// save Local4 object type value into Local2
Store (ObjectType (Local4), Local2)

// validate Local4 is a Package
If (LNotEqual (Local2, 4)) // Package type is 4
  { Return (15) } // failure

Store ("DerefOf(Index(TIM0,1)),... PASS again", Debug)

Return (0) // pass
} // TEST
} // MTCH

//

```

```

// test WhileBrk.asl
//
// This code tests the Break term and While term
//
// Syntax of Break term
//   BreakTerm := Break
// The break operation causes the current package execution to complete.
//
// Syntax of While Term
//   WhileTerm := While(
//     Predicate //TermArg=>Integer
//   ) {TermList}
// Predicate is evaluated as an integer.
// If the integer is non-zero, the list of terms in TermList is executed.
// The operation repeats
// until the Predicate evaluates to zero.
//
// MTL NOTE: This test has been modified to reflect ACPI 2.0 break
// NOTE: This test, when run under the MS ACPI.SYS grinds the system to
// a halt.
//
Device (WHLB)
{
    Name (CNT0, 0)
    Name (CNT1, 0)

    Method (TEST)
    {
        // Check Break statement nested in If nested in While nested in
        // While only exits inner-most While loop
        Store (0, CNT0)

        While (LLess (CNT0, 4))
        {
            Store (0, CNT1)
            While (LLess (CNT1, 10))
            {
                if (LEqual (CNT1, 1))
                {
                    Break // exit encompassing loop
                }

                Increment (CNT1)
            }

            If (LNotEqual (CNT1, 1))
            {
                // failure
            }
        }
    }
}

```



```

    Return (7)
}

Increment (CNT0)
}

// Verify Break only exited inner-most While loop

If (LNotEqual (CNT0, 4))
{
    // failure
    Return (8)
}

Store ("While/While/If/Break PASS", Debug)

Store ("+++++++ WhileBrk Test", Debug)

// Check Break statement nested in While
Store (0, CNT0)

While (LLess (CNT0, 10))
{
    Break // exit encompassing package
    Increment (CNT0)
}

If (LNotEqual (CNT0, 0)) // instruction after Break executed
{
    Return (4)
}

Store (0, CNT0)

// Test While Term
While (LLess (CNT0, 10))
{
    Increment (CNT0)
}

// Check if the while loop was executed until the condition is satisfied.
If (LNotEqual (CNT0, 10))
{
    Return (1)
}
}

```

```

// While loop in a reverse order
While (LGreater (CNT0, 0))
{
    Decrement (CNT0)
}

// Check if the while loop was executed until the condition is satisfied.
If (LNotEqual (CNT0, 0))
{
    Return (2)
}

Store ("While/Break PASS", Debug)

// Check Break statement nested in If nested in While
Store (0, CNT0)

While (LLess (CNT0, 10))
{
    if (LEqual (CNT0, 5))
    {
        Break    // exit encompassing Package (If)

        // if we execute the next instruction,
        // Break did not exit the loop
        Store (20, CNT0) // exit While loop with value larger
                        // than above
    }

    Increment (CNT0) // check if Break exited both If and While
} // While

If (LGreater (CNT0, 19))
{ // instruction after Break inside IfOp executed
    Return (5)
}

//
// Break will exit out of the while loop, therefore
// the CNT0 counter should still Increment until 5
//
If (LNotEqual (CNT0, 5))
{ // instruction after Break inside WhileOp executed
    Return (6)
}

```

Store ("While/If/Break PASS", Debug)

```
// All the conditions passed
Return (0)
} // TEST
} // WHLB

//
// test IndexOp2.asl
//
// Additional IndexOp test cases to support ACPICMBA (control method battery
// test) on Toshiba Portege 7020CT. Test cases include appropriate bit
// shifting of Field elements and reading Field elements greater than 64 bits.
//
// MTL NOTE: This test has been modified slightly from the original test
// to take into account ACPI specification
//
// limitations.
//
Scope (\_SB) // System Bus
{ // _SB system bus

Device (MEM)
{ // MEM
Name (_HID, 0x010CD041)
Name (_STA, 0x0F)

OperationRegion (SMEM, SystemMemory, 0x800000, 0x100)
Field (SMEM, AnyAcc, NoLock, Preserve)
{ // Field: SMEM overlay using 32-bit field elements
SMD0, 32, // 32-bits
SMD1, 32, // 32-bits
SMD2, 32, // 32-bits
SMD3, 32 // 32-bits
} // Field: SMEM overlay using 32-bit field elements
Field (SMEM, AnyAcc, NoLock, Preserve)
{ // Field: SMEM overlay using greater than 32-bit field elements
SME0, 69, // larger than an integer (32 or 64)
SME1, 97 // larger than an integer
} // Field: SMEM overlay using greater than 32-bit field elements

OperationRegion (SRAM, SystemMemory,
0x100B0000, 0xF000)
Field (SRAM, AnyAcc, NoLock, Preserve)
{ // Field: SRAM overlay
, 0x34000, // skip
IEAX, 0x20,
```

IEBX, 0x20,  
IECX, 0x20,  
IEDX, 0x20,  
IESI, 0x20,  
IEDI, 0x20,  
IEBP, 0x20,  
 , 0x20,  
OEAX, 0x20,  
OEBX, 0x20,  
OECX, 0x20,  
OEDX, 0x20,  
OESI, 0x20,  
OEDI, 0x20,  
OEBP, 0x20,  
 , 0x618, // skip  
ACST, 1,  
BES1, 1,  
BES2, 1,  
 , 5, // skip  
BMN1, 0x68,  
BSN1, 0x58,  
BTP1, 0x48,  
BPU1, 0x20,  
BDC1, 0x20,  
BLF1, 0x20,  
BTC1, 0x20,  
  
BDV1, 0x20,  
BST1, 0x20,  
BPR1, 0x20,  
BRC1, 0x20,  
BPV1, 0x20,  
 , 0x20,  
BCW1, 0x20,  
BCL1, 0x20,  
BG11, 0x20,  
BG21, 0x20,  
BOI1, 0x20,  
 , 0x530, // skip  
BMN2, 0x68,  
BSN2, 0x58,  
BTP2, 0x48,  
BPU2, 0x20,  
BDC2, 0x20,  
BLF2, 0x20,  
BTC2, 0x20,  
BDV2, 0x20,  
BST2, 0x20,

BPR2, 0x20,  
BRC2, 0x20,  
BPV2, 0x20,  
    , 0x20,  
BCW2, 0x20,  
BCL2, 0x20,  
BG12, 0x20,  
BG22, 0x20,  
BOI2, 0x20,  
    , 0x518, // skip  
AC01, 0x10,  
AC11, 0x10,  
    PSV1, 0x10,  
CRT1, 0x10,  
TMP1, 0x10,  
AST1, 0x10,  
AC21, 0x10,  
AC31, 0x10,  
AC02, 0x10,  
AC12, 0x10,  
PSV2, 0x10,  
CRT2, 0x10,  
TMP2, 0x10,  
AST2, 0x10,  
AC22, 0x10,  
AC32, 0x10,  
AC03, 0x10,  
AC13, 0x10,  
PSV3, 0x10,  
CRT3, 0x10,  
TMP3, 0x10,  
AST3, 0x10,  
AC23, 0x10,  
AC33, 0x10,  
    , 0x80, // skip  
TMPF, 0x10,  
    , 0x570, // skip  
FANH, 1,  
FANL, 7,  
TF11, 1,  
TF21, 1,  
TF31, 1,  
    , 1,  
TF10, 1,  
TF20, 1,  
  
TF30, 1,  
    , 1,

TP11, 1,  
TP21, 1,  
TP31, 1,  
    , 0x6D, // 109  
GP50, 1,  
GP51, 1,  
GP52, 1,  
GP53, 1,  
    , 4,  
GP60, 1,  
GP61, 1,  
GP62, 1,  
GP63, 1,  
GP64, 1,  
GP65, 1,  
GP66, 1,  
    , 1,  
GP70, 1,  
GP71, 1,  
GP72, 1,  
GP73, 1,  
GP74, 1,  
GP75, 1,  
GP76, 1,  
    , 1,  
WED0, 1,  
WED1, 1,  
WED2, 1,  
WED3, 1,  
WED4, 1,  
    , 3,  
SBL0, 1,  
SBL1, 1,  
SBL2, 1,  
SBL3,  
1,  
    , 4,  
LIDS, 1,  
VALF, 1,  
    , 2,  
DCKI, 1,  
DCKF, 1,  
BT1F, 1,  
BT2F, 1,  
    , 0x7D0, // skip  
HKCD, 8,  
    , 8,  
DLID, 0x20,

```

DSRN, 0x20,
    , 0x20,
BDID, 0x20,
DSPW, 1,
VGAF, 1,
VWE0, 1,
VWE1, 1,
PPSC, 1,
SPSC, 1,
EWLD, 1,
EWPS, 1,
    , 0x1768, // skip
PRES, 0x8000
} // Field: SRAM overlay
} // MEM

```

Device (BAT1)

```

{ // BAT1
    Name (_HID, EISAID ("PNP0C0A")) // Control Method Battery ID
    Name (_UID, 1)
    Name (_PCL, Package (1) {\_SB})

```

Method

```

(_STA)
{ // _STA
    If (\_SB.MEM.BES1)
        { Return (0x1F) } // battery present
    Else
        { Return (0x0F) } // battery not present
} // _STA

```

Method (\_BIF,, Serialized)

```

{ // _BIF
    Name (BUFR, Package (13) {})

    Store (\_SB.MEM.BPU1, Index (BUFR, 0))
    Store (\_SB.MEM.BDC1, Index (BUFR, 1))
    Store (\_SB.MEM.BLF1, Index (BUFR, 2))
    Store (\_SB.MEM.BTC1, Index (BUFR, 3))
    Store (\_SB.MEM.BDV1, Index (BUFR, 4))
    Store (\_SB.MEM.BCW1, Index (BUFR, 5))
    Store (\_SB.MEM.BCL1, Index (BUFR, 6))
    Store (\_SB.MEM.BG11, Index (BUFR, 7))
    Store (\_SB.MEM.BG21, Index (BUFR, 8))
    Store (\_SB.MEM.BMN1, Index (BUFR, 9))
    Store (\_SB.MEM.BSN1, Index (BUFR, 10))
    Store (\_SB.MEM.BTP1,

```

Index (BUFR, 11))

Store (\\_SB.MEM.BOI1, Index (BUFR, 12))

Return (BUFR)

} // \_BIF

} // BAT1

Device (IDX2)

{

Method (B2IB,, Serialized)

{ // B2IB: store from Buffer into Index'ed Buffer

Name (SRCB, Buffer () {"Short Buffer"}) // 12 characters plus NULL

Name (DEST, Buffer () // 62 characters plus NULL  
{"Destination buffer that is longer than the short source buffer"})

// verify object type returned by Index(Buffer,Element,)

Store (Index (DEST, 2, ), Local1)

Store (ObjectType (Local1), Local2)

If (LNotEqual (Local2, 14)) // Buffer Field is type 14

{

// Local2 indicates Local1 is not a Buffer Field

Return (0x61)

}

// verify object type

and value returned by Derefof(Index(Buffer,Element,))

// should return Number containing element value

Store (Derefof (Local1), Local3)

Store (ObjectType (Local3), Local4)

If (LNotEqual (Local4, 1)) // Number is type 1

{

// Local2 indicates Local1 is not a Number

Return (0x62)

}

Else

{

If (LNotEqual (Local3, 0x73)) // expect 's' element from DEST

{

Return (0x63)

}

}



```

}

Store ("DerefOf(Index(Buffer,,)) PASS", Debug)

//
// The following sections have been rewritten because storing into
// an Indexed buffer only changes one byte - the FIRST byte of the
// buffer is written to the source index. This is the ONLY byte

// written -- as per ACPI 2.0
//
// Overwrite DEST contents, at buffer position 2 [only]

Store (SRCB, Index (DEST, 2, ))

//
// Check that the next byte is not changed
//
Store (DerefOf (Index (DEST, 3, )), Local0)
If (LNotEqual (Local0, 0x74)) // 't'
{
    // DEST element is not matching original value
    If (LEqual (Local0, 0x68))
    {
        // DEST element was altered to 'h'
        Return (0x68)
    }
    Else
    {
        // DEST element is an unknown value
        Return (0x69)
    }
}

//
// Check that the elements beyond the SRCB buffer copy
// have not been altered.

//
Store (DerefOf (Index (DEST, 14)), Local0)

//
// This should be an 'f'.
//
If (LNotEqual (Local0, 0x66))
{
    // DEST element was zero'd by buffer copy

```

```

If (LEqual (Local0, 0))
{
    // DEST element is zero
    Return (0x6A)
}
Else
{
    // DEST element is unknown value
    Return (0x6B)
}
}

Store ("Store(SRCB,Index(Buffer,,)) PASS", Debug)

//
// verify altering SRCB does NOT alter DEST
//
Store (0x6A, Index (SRCB, 1)) // SRCB = "Sjort Buffer"

Store (DerefOf (Index (SRCB, 1)), Local0)

If (LNotEqual (Local0, 0x6A)) // 'j'
{
    // SRCB element is unaltered
    Return (0x71)
}

Store (DerefOf (Index (DEST, 3)), Local0) // DEST = "Destination buffer that..."

If (LNotEqual (Local0, 0x74)) // 't'
{
    // DEST element is altered
    If (LEqual (Local0, 0x6A)) // 'j'
    {
        // SRCB change altered DEST element
        Return (0x72)
    }
    Else
    {
        // DEST element is unknown value
        Return (0x73)
    }
}

// verify altering DEST does NOT alter SRCB

Store (0x6B, Index (DEST, 4, )) // DEST = "DeSkination buffer..."

```

```
Store (DerefOf (Index (DEST, 4, )), Local0)
```

```
If (LNotEqual (Local0, 0x6B)) // 'k'
```

```
{
```

```
    // DEST element is unaltered
```

```
    Return (0x74)
```

```
}
```

```
Store (DerefOf (Index (SRCB, 2, )), Local0)
```

```
If (LNotEqual (Local0, 0x6F)) // 'o'
```

```
{ // SRC element is altered
```

```
    If (LEqual (Local0, 0x6B)) // 'k'
```

```
    {
```

```
        // DEST change altered SRCB element
```

```
        Return (0x75)
```

```
    }
```

```
    Else
```

```
    {
```

```
        // SRCB element is unknown value
```

```
        Return (0x76)
```

```
    }
```

```
}
```

```
Store ("SRCB and DEST independent PASS", Debug)
```

```
// verify string can be written to Index target/destination
```

```
// Only FIRST byte is written
```

```
Store ("New Buff", Index (DEST, 2, )) // DEST = "DeNkination buffer..."
```

```
Store (DerefOf (Index (DEST, 2, )), Local0)
```

```
If (LNotEqual (Local0, 0x4E)) // 'N'
```

```
{
```

```
    // DEST element is unaltered
```

```
    Return (0x81)
```

```
}
```

```
Store (DerefOf (Index (DEST, 6, )), Local0)
```

```
If (LNotEqual (Local0, 0x61)) // 'a'
```

```
{
```

```
    // DEST element is unaltered
```

```
    Return (0x82)
```

```

}

Store (DerefOf (Index (DEST, 10, )), Local0)

If (LNotEqual (Local0, 0x6E)) // 'n'
{
    // DEST element is unaltered
    Return (0x83)
}

Store ("Store(String,Index) PASS", Debug)

Return (0) // pass
} // B2IB: store from Buffer into Index'ed Buffer

Method (FB2P,, Serialized)
{ // FB2P: store from Field Buffer into Index'ed Package
    Name (DEST, Package (2) { })

// initialize memory using 32-bit field elements
    Store (0x01234567, \_SB.MEM.SMD0)
    Store (0x89ABCDEF, \_SB.MEM.SMD1)
    Store (0xFEDCBA98, \_SB.MEM.SMD2)
    Store (0x76543210, \_SB.MEM.SMD3)

// move greater than 64-bit buffers into DEST package
    Store (\_SB.MEM.SME0, Index (DEST, 0))
    Store (\_SB.MEM.SME1, Index (DEST, 1))

// validate DEST contents
    Store (DerefOf (Index (DEST, 0, )), Local0)
    Store (DerefOf (Index (DEST, 1, )), Local1)

// verify Local0 and Local1 are Buffers
    Store (ObjectType (Local0), Local2)
    if (LNotEqual (Local2, 3)) // Buffer type is 3
    {
        Return (0x11)
    }

    Store (ObjectType (Local1), Local3)
    if (LNotEqual (Local3, 3)) // Buffer type is 3
    {

Return (0x12)
}

```

```

// validate DEST buffer contents
Store (DerefOf (Index (DerefOf (Index (DEST, 0)), 0)), Local4)
If (LNotEqual (Local4, 0x67))
{
    Return (0x13)
}

Store (DerefOf (Index (DerefOf (Index (DEST, 0)), 1)), Local4)
If (LNotEqual (Local4, 0x45))
{
    Return (0x14)
}

Store (DerefOf (Index (DerefOf (Index (DEST, 0)), 4)), Local4)
If (LNotEqual (Local4, 0xEF))
{
    Return (0x15)
}

Store (DerefOf (Index (DerefOf (Index (DEST, 0, ), 5, )), Local4)
If (LNotEqual (Local4, 0xCD))
{
    Return (0x16)
}

Store ("Store(Mem,PkgElement) PASS", Debug)

// validate changing source \_SB.MEM.SMD* does not
impact DEST
Store (0x12345678, \_SB.MEM.SMD0)

Store (DerefOf (Index (DerefOf (Index (DEST, 0, ), 0, )), Local5)
If (LNotEqual (Local5, 0x67))
{
    Return (0x21)
}

Store (DerefOf (Index (DerefOf (Index (DEST, 0, ), 1, )), Local5)
If (LNotEqual (Local5, 0x45))
{
    Return (0x22)
}

// validate changing DEST does not impact source \_SB.MEM.SMD*
Store (0x30, Index (DerefOf (Index (DEST, 0)), 0))

```

```

Store (DerefOf(Index (DerefOf (Index (DEST, 0)), 0)), Local5)
If (LNotEqual (Local5, 0x30))
{
    Return (0x23)
}

//
// This section was modified from the original iPCO code because
// it attempted to compare two buffers. This is not allowed until

// ACPI v2.0, so the test has been modified to just check the
// changed \_SB.MEM.SMD0
//
Store (\_SB.MEM.SMD0, Local5)

If(LNotEqual(Local5, 0x12345678))
{
    Return (0x24)
}

Store ("Mem and Pkg independent PASS", Debug)

Return (0)
} // FB2P: store from Field Buffer into Index'ed Package

Method (TEST)
{
    Store ("+++++++ IndexOp2 Test", Debug)

    // store _BIF package return value into Local0

    Store (\_SB.BAT1._BIF, Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Package
    If (LNotEqual (Local1, 4)) // Package type is 4
    {
        // failure
        Return (2)
    }
}

// validate source and destination buffers are independent of each
// of each other (i.e., changing one's contents does not change
// other's contents) using B2IB (store from Buffer into Index'ed

```

```

// Buffer) and FB2P (store from Field Buffer into Index'ed Package)

// call B2IB (store from Buffer into Index'ed Buffer)
Store (B2IB, Local2) // Local2 is B2IB return value

// save Local2 object type value into Local3
Store (ObjectType (Local2), Local3)

// validate Local2 is a Number
If (LNotEqual (Local3, 1)) // Number type is 1
{
    // failure
    Return (4)
}

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local2, 0))
{
    // return B2IB error code

Return (Local2)
}

// call FB2P (store from Field Buffer into Index'ed Package)
Store (FB2P, Local2) // Local2 is FB2P return value

// save Local2 object type value into Local3
Store (ObjectType (Local2), Local3)

// validate Local2 is a Number
If (LNotEqual (Local3, 1)) // Number type is 1
{
    // failure
    Return (5)
}

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local2, 0))
{
    // return FB2P error code
    Return (Local2)
}

Return (0)
} // TEST
} // IDX2: Test device name
} // _SB system bus

```

```

//
// test SizeOf.asl
//
// Test for SizeOf
// test cases include following SizeOf arguments:
//   buffer, buffer field;
//
//   control method argument, control method local variable;
//   control method return values;
//   direct string, string;
//   package;
//   buffer, package, and string package elements
//
// MTL NOTE: This test has been modified to remove any SizeOf(Index(Buff,...
// calls because it is not legal to perform a SizeOf operation on a Buffer Field.
// This test has also been extended to test additional Package element sizes.
//
Device (SIZO)
{
  // SAR0 control method validates SizeOf(Arg)
  // SAR0 should only be called by SARG
  Method (SAR0, 2)
  // Arg0 object to determine size of
  // Arg1 expected Arg length
  { // SAR0: SizeOf(Arg) test control method
    // Local0 Arg0 length
    // Local1 Local0 object type

    // Store first string size (Arg0) into Local7
    Store (SizeOf (Arg0), Local0)

    // save Local0 object type value
into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Number
    If (LNotEqual (Local1, 1)) // Number type is 1
      { Return (0x21) }

    // If strings are not of equal size, return error code
    If (LNotEqual (Local0, Arg1))
      { Return (0x22) }

    Return (0)
  } // SAR0: SizeOf(Arg) test control method

  Method (SARG,, Serialized)

```



```

{ // SARG: SizeOf(Arg) test control method
  Name (BUFR, Buffer (12) {}) // uninitialized Buffer
  Name (BUF1, Buffer() {0x01, 0x02, 0x03, 0x04, 0x05})
  Name (PKG0, Package (4) {}) // uninitialized Package
  Name (STR0, "String")
  Name (PKG1, Package (4)
  {
    BUFR,
    "String2",
    STR0,
    PKG0
  }) // PKG1

  Name (PKG2, Package (4)
  {
    Buffer
(15) {},
    "String 1",
    Package (2) {}
  }) // PKG2

  // Namespace entry buffer reference
  Store (SAR0 (BUFR, 12), Local0)

  // save Local0 object type value into Local1
  Store (ObjectType (Local0), Local1)

  // validate Local0 is a Number
  If (LNotEqual (Local1, 1)) // Number type is 1
  {
    Return (0x23)
  }

  If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
  {
    Return (Local0)
  }

  Store ("SizeOf(Arg=BUFR) PASS", Debug)

  // Namespace entry package reference
  Store (SAR0 (PKG0, 4), Local0)

  // save Local0 object type value into Local1
  Store (ObjectType (Local0), Local1)

  // validate Local0 is a Number

```

```

    If (LNotEqual (Local1, 1)) // Number type is 1
    {
        Return
(0x24)
    }

    If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
    {
        Return (Local0)
    }

    Store ("SizeOf(Arg=PKG0) PASS", Debug)

    // Namespace entry string reference
    Store (SAR0 (STR0, 6), Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Number
    If (LNotEqual (Local1, 1)) // Number type is 1
    {
        Return (0x25)
    }

    If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
    {
        Return (Local0)
    }

    Store ("SizeOf(Arg=STR0) PASS", Debug)

    // direct string reference
    Store (SAR0 ("String", 6), Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate
    Local0 is a Number
    If (LNotEqual (Local1, 1)) // Number type is 1
    {
        Return (0x26)
    }

    If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code

```

```

    {
        Return (Local0)
    }

Store ("SizeOf(Arg=String) PASS", Debug)

Store (0x55, Index (BUF1, 2))

/*****
//
// This section is commented because it is illegal to
// perform a SizeOf operation on a Buffer Field
//
// Namespace BufferField reference
Store (SAR0 (Index (BUFR, 2, ), 10), Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
    { Return (0x27) }

If (LNotEqual (Local0,
0)) // Local0 is SAR0 return error code
    { Return (Local0) }

Store ("SizeOf(Arg=BufferField) PASS", Debug)
*****/

// Namespace BufferPackageElement reference
//
Store (SAR0 (Index(PKG1, 0), 12), Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
    {
        Return (0x28)
    }

If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
    {
        Return (Local0)
    }

```

```

Store ("SizeOf(Arg=PackageBuffer NTE Reference Element) PASS", Debug)

// Namespace StringPackageElement reference
Store (SAR0 (Index (PKG1, 1, ), 7), Local0)

// save Local0 object type value
into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
    Return (0x29)
}

If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
{
    Return (Local0)
}

Store ("SizeOf(Arg=Package String Element) PASS", Debug)

// Namespace StringPackageElement reference
Store (SAR0 (Index (PKG1, 2, ), 6), Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
    Return (0x2A)
}

If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
{
    Return (Local0)
}

Store ("SizeOf(Arg=Package
String NTE Reference Element) PASS", Debug)

// Namespace PackagePackageElement reference
Store (SAR0 (Index (PKG1, 3, ), 4), Local0)

```

```

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
    Return (0x2B)
}

If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
{
    Return (Local0)
}

Store ("SizeOf(Arg=Package Package NTE Reference Element) PASS", Debug)

// Package Buffer Element
Store (SAR0 (Index (PKG2, 0), 15), Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
    Return (0x2B)
}

If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
{
    Return (Local0)
}

Store ("SizeOf(Arg=Package Buffer Element) PASS", Debug)

// Package String Element
Store (SAR0 (Index (PKG2, 1), 8), Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
    Return (0x2B)
}

```

```

If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
{
    Return (Local0)
}

Store ("SizeOf(Arg=Package String Element) PASS", Debug)

// Package Package Element
Store (SAR0 (Index (PKG2, 2), 2), Local0)

// save Local0 object type value into Local1

Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
    Return (0x2B)
}

If (LNotEqual (Local0, 0)) // Local0 is SAR0 return error code
{
    Return (Local0)
}

Store ("SizeOf(Arg=Package Package Element) PASS", Debug)

Store ("SizeOf(Arg) PASS", Debug)

Return (0)
} // SARG: SizeOf(Arg) test control method

Method (SBUF,, Serialized)
{ // SBUF: SizeOf(Buffer) test control method
    Name (BUFR, Buffer (12) {})

    // store size of BUFR buffer into Local0
    Store (SizeOf (BUFR), Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Number
    If (LNotEqual (Local1, 1)) // Number type is 1

    {
        Return (0x31)
    }
}

```

```

If (LNotEqual (Local0, 12)) // BUFR size is 12
{
    Return (0x32)
}

Store ("SizeOf(BUFR) PASS", Debug)

Return (0)
} // SBUF: SizeOf(Buffer) test control method

/*****
//
// This section is commented because it is illegal to
// perform a SizeOf operation on a Buffer Field
//
Method (SIND)
{ // SIND: SizeOf(Index(,)) test control method
    Name (BUFR, Buffer (12) {})

    // store size of Index(BUFR,2,) buffer into Local0
    Store (SizeOf (Index (BUFR, 2, )), Local0)

    // save Local0 object type value into Local1
    Store (ObjectType (Local0), Local1)

    // validate Local0 is a Number
    If (LNotEqual (Local1, 1)) // Number type is 1
    {

Return (0x41)
    }

    If (LNotEqual (Local0, 10)) // 12 - 2 = 10
    {
        Return (0x42)
    }

    Store ("SizeOf(Index(BUFR,)) PASS", Debug)

    // TBD: strings and packages

    Return (0)
} // SIND: SizeOf(Index(,)) test control method
*****/

Method (SLOC,, Serialized)

```

```

{ // SLOC: SizeOf(Local) test control method
  Name (BUFR, Buffer (12) {}) // uninitialized Buffer
  Name (STR0, "String")
  Name (PKG0, Package (4) {}) // uninitialized Package

  // store BUFR Buffer into Local2
  Store (BUFR, Local2)

  // store size of BUFR buffer into Local0
  Store (SizeOf (Local2), Local0)

  // save Local0 object type value into Local1
  Store (ObjectType (Local0), Local1)

  // validate Local0 is a Number

If (LNotEqual (Local1, 1)) // Number type is 1
{
  Return (0x51)
}

If (LNotEqual (Local0, 12)) // BUFR size is 12
{
  Return (0x52)
}

Store ("SizeOf(Local2=Buffer) PASS", Debug)

  // store STR0 string into Local2
  Store (STR0, Local2)

  // store size of STR0 buffer into Local0
  Store (SizeOf (Local2), Local0)

  // save Local0 object type value into Local1
  Store (ObjectType (Local0), Local1)

  // validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
  Return (0x53)
}

If (LNotEqual (Local0, 6)) // STR0 size is 6
{
  Return (0x54)
}

```



```

}

Store ("SizeOf(Local2=String) PASS", Debug)

// store PKG0 Package into Local2
Store (PKG0,
Local2)

// store size of PKG0 buffer into Local0
Store (SizeOf (Local2), Local0)

// save Local0 object type value into Local1
Store (ObjectType (Local0), Local1)

// validate Local0 is a Number
If (LNotEqual (Local1, 1)) // Number type is 1
{
    Return (0x55)
}

If (LNotEqual (Local0, 4)) // PKG0 size is 4
{
    Return (0x56)
}

Store ("SizeOf(Local2=Package) PASS", Debug)

Return (0)
} // SLOC: SizeOf(Local) test control method

Method (TEST)
{
    Store ("+++++++ SizeOf Test", Debug)

    // Store current operating system string into Local0
    Store (_OS, Local0)

    Store (SizeOf (_OS), Local3)

    // save Local3 object type value into Local4
    Store (ObjectType (Local3), Local4)

    // validate
Local3 is a Number
    If (LNotEqual (Local4, 1)) // Number type is 1
    {

```

```

    // failure
    Return (0x61)
}

// Store current operating system string into Local0
// This verifies above SizeOf(_OS) did not corrupt ACPI namespace
Store (_OS, Local0)

// Store SARG [Validate SizeOf(Arg)] return value into Local1
Store (SARG, Local1)

// save Local1 object type value into Local2
Store (ObjectType (Local1), Local2)

// validate Local1 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
{
    // failure
    Return (0x62)
}

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local1, 0))
{
    // return SARG error code
    Return (Local1)
}

// Store SBUF [Validate
SizeOf(Buffer)] return value into Local1
Store (SBUF, Local1)

// save Local1 object type value into Local2
Store (ObjectType (Local1), Local2)

// validate Local1 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
{
    // failure
    Return (0x63)
}

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local1, 0))
{
    // return SBUF error code
    Return (Local1)
}

```

```

}

/*****
//
// This section is commented because it is illegal to
// perform a SizeOf operation on a Buffer Field
//
// Store SIND [verify SizeOf(Index(,))] return value into Local1
Store (SIND, Local1)

// save Local1 object type value into Local2
Store (ObjectType
(Local1), Local2)

// validate Local1 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
{
    // failure
    Return (0x64)
}

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local1, 0))
{
    // return SARG error code
    Return (Local1)
}
*****/

// Store SLOC [verify SizeOf(Local)] return value into Local1
Store (SLOC, Local1)

// save Local1 object type value into Local2
Store (ObjectType (Local1), Local2)

// validate Local1 is a Number
If (LNotEqual (Local2, 1)) // Number type is 1
{
    // failure
    Return (0x65)
}

// zero indicates pass, non-zero is an error code
If (LNotEqual (Local1, 0))

{
    // return SLOC error code
    Return (Local1)
}

```

```

    }

    // TBD: SizeOf (METH) -- where METH control method returns
    //      buffer, BufferField, string, package, package element

    Return (0)
  } // TEST
} // SIZO

//
// test SmiShare.asl
//
Scope (\_SB) // System Bus
{ // _SB system bus
  // Declare an OpRegion in Memory starting at offset 0x400000 that is 10 bytes long
  OperationRegion(RAM1, SystemMemory, 0x400000, 0xA)

  Field (RAM1, AnyAcc, NoLock, Preserve)
  {
    BI1T, 1, // Create some bits in memory to access
    BI2T, 2,
    BI3T, 3,
    LST2, 2
  } // End Field RAM1

  Field (RAM1, WordAcc, NoLock, WriteAsZeros)
  {
    WRD, 16
  } // End 2nd Field RAM1

  Field (RAM1, ByteAcc, NoLock, WriteAsOnes)
  {
    BYTE, 8
  } // End
3rd Field RAM1

  Field (RAM1, ByteAcc, NoLock, Preserve)
  {
    SMIC, 8,
    SMID, 8
  }

  Device (MBIT)
  {
    Method (_INI)
    {

```

```

        Store (0, BI1T)
        Store (3, BI2T)
        Store (7, BI3T)
        Store (0, LST2)
    } // End _INI Method
} // End Device MBIT

Device (MWRD)
{
    Method (_INI)
    {
        Store (0, WRD)
    } // End _INI Method
} // End Device MWRD

Device (MBYT)
{
    Method (_INI)
    {
        Store (0, BYTE)
        Store (0xC, SMIC)
        Store (0xD, SMID)
    } // End _INI Method
} // End Device MBYT

/*
// Declare an OpRegion in Memory starting at offset 0x400000 that is 10 bytes long
OperationRegion(\RAM1, SystemMemory, 0x400000, 0xA)

Field (\RAM1, AnyAcc,
NoLock, Preserve)
{
    BI1T, 1,    // Create some bits in memory to access
    BI2T, 2,
    BI3T, 3,
    LST2, 2
} // End Field RAM1

Field (\RAM1, WordAcc, NoLock, WriteAsZeros)
{
    WRD, 16
} // End 2nd Field RAM1

Field (\RAM1, ByteAcc, NoLock, WriteAsOnes)
{
    BYTE, 8
} // End 3rd Field RAM1

```

```

Field (\RAM1, ByteAcc, NoLock, Preserve)
{
    SMIC, 8,
    SMID, 8
}
*/
Method (SMIX)
{
    Return (BYTE)
} // End SMIX

Method (EVNT)
{
    Store (SMIX, Local0)

    Notify (\_SB_, 0x29)
    If (And (Local0, 0x01))
    { Notify (\_SB_.SMIS, 0x21)}

    If (And (Local0, 0x02))
    { Notify (\_SB_.SMIS, 0x22)}

    If (And (Local0, 0x04))
    { Notify (\_SB_.SMIS, 0x24)}

    If (And (Local0, 0x08))
    { Notify (\_SB_.SMIS, 0x28)}

} // End Method EVNT

Method (NTFY)
{
    Notify (\_SB_, 1)
    Notify (\_TZ_.TZ1, 2)
    Notify (\_PR_.CPU0, 3)

    Notify (\_SB_, 0x81)
    Notify (\_TZ_.TZ1, 0x82)
    Notify (\_PR_.CPU0, 0x83)
}

Device (SMIS)
{
    Method (BINK)
    {
        Store (0, Local0) // Zero out Local0

        If (LNotEqual (SMID, 0xD))

```

```

    { Or (0x80, Local0, Local0)}

If (LNotEqual (SMIC, 0xC))
{ Or (0x40, Local0, Local0)}

If (LNotEqual (BYTE, 0))
{ Or (0x20, Local0, Local0)}

If (LNotEqual (WRD, 0))
{ Or (0x10, Local0, Local0)}

If (LNotEqual (LST2, 0))
{ Or (0x8, Local0, Local0)}

If (LNotEqual (BI3T, 0x7))
{ Or (0x4, Local0, Local0)}

If (LNotEqual (BI2T, 0x3))
{ Or (0x2, Local0, Local0)}

If (LNotEqual (BI1T, 0))
{ Or (0x1, Local0, Local0)}

Return (Local0)
} // End Method BINK

Method (TEST)
{
    Store ("+++++++ SmiShare Test", Debug)

    // Expect EVNT to generate Notify value we just previously
    // stored in BYTE

    Store (0x20, BYTE)
    EVNT ()
    Store (0x21, BYTE)
    EVNT ()
    Store (0x22, BYTE)
    EVNT ()
    Store (0x23, BYTE)
    EVNT ()

    NTFY ()
    Return (0) // pass
} // End Method TEST
} // Device SMIS

Device(CNDT)

```

```

{
  Method(TEST)
  {
    If (ECOK)
    {
      return("Broken")
    }

    Else
    {
      return("Works")
    }
  }

  Method(ECOK)
  {
    Return(0x0)
  }
}

} // _SB system bus

```

/\* Test a very big buffer \*/

```

Name(WQAB, Buffer(6756)
{
  0x46,0x4F,0x4D,0x42,0x01,0x00,0x00,0x00,
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  0x44,0x53,0x00,0x01,0x1A,0x7D,0xDA,0x54,
  0x98,0xBD,0x92,0x00,0x01,0x06,0x18,0x42,
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  0x80,0x90,0x18,0x18,0x14,0x81,0x85,0x00,
  0x49,0x02,0x88,0xC4,0x41,0xE1,0x20,0xD4,
  0x9F,0x40,0x7E,0x05,0x20,0x74,0x28,0x40,
  0xA6,0x00,0x83,0x02,0x9C,0x22,0x88,0xA0,
  0x57,0x01,0x36,0x05,0x98,0x14,0x60,0x51,
  0x80,0x76,0x01,0x96,0x05,0xE8,0x16,0x20,
  0x1D,0x96,0x88,0x04,0x47,0x89,0x01,0x47,
  0xE9,0xC4,0x16,0x6E,0xD8,0xE0,0x85,0xA2,
  0x68,0x06,0x51,0x12,0x94,0x8B,0x20,0x5D,
  0x10,0x52,0x2E,0xC0,0x37,0x82,0x06,0x10,
  0xA5,0x77,0x01,0xB6,0x05,0x98,0x86,0x27,
  0xD2,0x20,0xE4,0x60,0x08,0x54,0xCE,0x80,
  0x20,0x69,0x44,0x21,0x1E,0xA7,0x44,0x08,
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  0x88,0xAD,0xCE,0x46,0x93,0xA9,0x74,0x7E,
  0x48,0x82,0x70,0xC6,0x2A,0x7E,0x3A,0x9A,

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0xC0,0x9A,0x00,0x73,0xB3,0x90,0xB1,0xB9,  
0xE8,0xFF,0x0F,0x71,0xB0,0x31,0xDA,0x9A,  
0xAE,0x90,0xC2,0xC4,0x88,0x12,0x2C,0x5E,  
0xC5,0xC3,0x10,0xCA,0x93,0x42,0xA8,0x48,  
0x95,0xA1,0x68,0xB4,0x51,0x2A,0x14,0xE0,  
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0x0A,0xCD,0x5E,0x12,0x08,0xC1,0xF1,0xF8,  
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0xD4,0x81,0x0B,0xB0,0x32,0x89,0x08,0xCF,  
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0xB8,0x33,0x0D,0x78,0x7C,0xCE,0x40,0x20,  
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0xA7,0xFD,0x41,0x90,0x58,0x4F,0x02,0x8D,  
0xC5,0x91,0x46,0x83,0x3A,0x07,0x78,0xB8,  
0x3E,0xC4,0x78,0xF8,0x0F,0x21,0x06,0x39,  
0xC8,0x73,0x7B,0x54,0x38,0x4E,0x5F,0x25,  
0x4C,0xF0,0x02,0xE0,0x83,0x0A,0x1C,0xD7,  
0x80,0x9A,0xF1,0x33,0x06,0x58,0x8E,0xE3,  
0x3E,0xA9,0xC0,0x1D,0x8F,0xEF,0x07,0x6C,  
0xC2,0x09,0x2C,0x7F,0x10,0xA8,0xE3,0x0C,  
0x9F,0xE7,0x0B,0x8B,0x21,0x1F,0x13,0x4C,  
0x60,0xB1,0x27,0x1B,0x3A,0x1E,0xF0,0xDF,  
0x63,0x1E,0x2F,0x7C,0x32,0xF1,0x7C,0x4D,  
0x30,0x22,0x84,0x9C,0x8C,0x07,0x7D,0x87,  
0xC0,0x5C,0x6F,0xD8,0xB9,0x85,0x8B,0x3A,  
0x68,0xA0,0x4E,0x0B,0x3E,0x28,0xB0,0x9B,  
0x11,0xE6,0xB8,0xCE,0xCF,0x2A,0x60,0xF8,  
0xFF,0x9F,0x55,0x60,0x8F,0x10,0xFE,0xED,  
0xC1,0xF3,0xF2,0x95,0xE1,0xD5,0x21,0x81,  
0x43,0x8E,0x10,0x3D,0x2E,0x8F,0x10,0x73,  
0x3E,0xC2,0x0C,0x11,0x5C,0x67,0x01,0x70,  
0x0C,0x11,0xF8,0x1C,0x70,0xC0,0x71,0x69,  
0xE2,0x03,0xF5,0x01,0x07,0x70,0x70,0x4D,  
0xC3,0x1D,0x70,0xC0,0x71,0x16,0x60,0xFF,  
0xFF,0xC3,0x0D,0x2C,0x49,0x26,0x0E,0x23,  
0x18,0x11,0x30,0x28,0x02,0x02,0xA4,0xB3,  
0x80,0x0F,0x29,0x00,0x1F,0xAE,0x0C,0x0F,  
0x29,0xD8,0x93,0x86,0x07,0x8E,0x1B,0x85,  
0x07,0x8D,0x0B,0x30,0x68,0x7A,0xE2,0x80,  
0x7F,0x4C,0xF0,0x19,0x05,0x1C,0xE3,0x06,  
0xDF,0x2A,0x0C,0xFC,0xFF,0x3F,0x30,0xCC,  
0xE1,0xC2,0x63,0x39,0x8A,0xA0,0x07,0x1E,  
0xD4,0xF7,0x8C,0x33,0xF7,0x24,0x8F,0xD1,  
0x51,0x0F,0x27,0xF4,0xE4,0x85,0x3B,0x57,  
0xF9,0x0A,0x71,0x14,0x18,0xB8,0x77,0x29,  
0x8F,0xCF,0x17,0x2B,0xC3,0x63,0x46,0xFB,  
0x1E,0x72,0xD6,0x11,0x02,0xE2,0x2F,0x75,

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0x69,0x31,0xC4,0xE3,0x0B,0xFB,0x56,0x61,  
0x82,0xEA,0x41,0x75,0x12,0xF4,0xD0,0xC0,  
0x01,0xE8,0xA1,0xC1,0x3F,0xB9,0x90,0xFB,  
0x2B,0x1D,0x82,0xB5,0xE2,0x69,0xDE,0x47,  
0x1E,0xF3,0xDC,0xA2,0xBC,0x0D,0x3C,0x07,  
0xF0,0xD3,0x82,0x87,0xE3,0x63,0x81,0xC7,  
0xE9,0x4B,0x58,0x82,0xF7,0x1A,0x9F,0x6C,  
0x1E,0x5C,0x58,0xB2,0x21,0xA0,0x06,0xEB,  
0x21,0x60,0xA6,0x9A,0xC0,0x49,0x46,0x80,  
0xCA,0x00,0xA1,0x1B,0xCB,0xE9,0x3E,0x8B,  
0x84,0x38,0xCD,0x47,0x99,0xC7,0x02,0x8F,  
0xF5,0xC1,0xC0,0xFF,0x7F,0xCD,0x23,0xD4,  
0x7D,0xCD,0x33,0x7B,0x3A,0xC0,0xAC,0x22,  
0xDC,0x7B,0xCE,0x1B,0x86,0xD1,0x9E,0x2D,  
0x7C,0xCD,0x78,0xD6,0x34,0x42,0x38,0x76,  
0x83,0xF3,0x48,0x8C,0xF0,0x82,0xC0,0x4E,  
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0xC2,0xCB,0x40,0x83,0x19,0xDB,0x97,0x01,  
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0x00,0x65,0x16,0xBE,0x9E,0xF8,0xA0,0xC4,  
0x2E,0x06,0x2C,0xE5,0xC5,0x00,0x54,0x37,  
0x0C,0x5F,0x0C,0xE0,0x5F,0x89,0x5E,0x0C,  
0xC0,0x70,0x71,0xF2,0x3D,0xC0,0x1E,0xEE,  
0xA3,0x74,0x9C,0xBE,0xFD,0xBD,0x19,0xF8,  
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0xE3,0x51,0x86,0x31,0xC1,0xDC,0xB7,0x03,  
0xE8,0x39,0x87,0x81,0x4A,0x78,0x3B,0x80,  
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0x4F,0x07,0x3E,0x29,0x1A,0xA2,0xAF,0xB1,  
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0xE2,0x9C,0x89,0xA7,0x6A,0x38,0x03,0xBD,  
0xE6,0x86,0x63,0xFF,0x7F,0x38,0xFC,0xA9,  
0xE0,0x35,0x80,0x1D,0x24,0x3D,0x2D,0x23,  
0xC2,0x38,0xA4,0x3C,0x32,0xF8,0xB6,0x18,  
0xC7,0x90,0x0F,0x91,0xBE,0x13,0x18,0xF2,  
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0x9E,0xB2,0x7C,0x67,0xF0,0x65,0x01,0x7C,  
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0x50,0x81,0xFA,0xAE,0x00,0xFF,0x42,0xF0,  
0xAE,0x00,0x86,0x79,0xF9,0x56,0xC0,0x35,  
0x1D,0x4A,0xD0,0x67,0x12,0x5F,0x17,0x70,  
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0xD9,0x07,0x54,0x76,0x5A,0x60,0x67,0x21,

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0x81,0x2F,0x59,0xFC,0x70,0x00,0x03,0xDC,  
0xB3,0x38,0xC4,0x08,0xB1,0xD9,0x81,0xEB,  
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0xF0,0x91,0x9E,0x59,0xF8,0x49,0x19,0x30,  
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0xB8,0xBC,0x57,0x95,0x81,0xFC,0x43,0x90,  
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0xE6,0x46,0xE8,0x7B,0x82,0xA1,0xDE,0x93,  
0x0E,0xE3,0x91,0xD0,0x04,0x3E,0x2D,0xC3,  
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0x3D,0x7E,0x7A,0x00,0x9C,0x00,0x3D,0x3D,  
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0xFE,0xA3,0x82,0x5F,0x59,0x28,0x1C,0x3F,  
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0xF6,0x14,0xE4,0x21,0xF0,0x13,0x81,0x2F,  
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0x5A,0x30,0xEE,0x7B,0xCF,0x22,0xE0,0xC7,  
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0x0B,0xC0,0x51,0xB4,0xB3,0x18,0x2A,0xCC,  
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0xE4,0x23,0xD2,0xFF,0xFF,0xB9,0x0D,0x1B,  
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0xC1,0xBA,0x7E,0x63,0x06,0x06,0xB6,0x6F,  
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0x0D,0xFC,0x47,0x78,0xFC,0xD8,0xE0,0x8C,  
0xE5,0xD1,0xC4,0x97,0x99,0x23,0x3B,0x8D,  
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0xB9,0xE8,0x31,0xD8,0xA7,0x1D,0x9F,0x4A,  
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0x07,0xCF,0xF1,0x8D,0xC1,0xA7,0x07,0xE6,  
0x7E,0xF8,0x9A,0xF1,0x33,0xC3,0xE3,0x43,  
0x88,0x27,0xE2,0xDA,0xA6,0x20,0x5B,0x18,  
0x42,0x09,0xF4,0xFF,0x8F,0x10,0xE5,0x6D,  
0x20,0xCA,0x29,0x44,0x88,0x12,0xA4,0xB1,  
0xC9,0x0B,0x35,0xCA,0xD9,0x45,0x6E,0x6D,

0xF6,0x82,0x0B,0x14,0x2A,0x66,0x9C,0x28,  
0xEF,0x10,0xB1,0xDA,0x1F,0x04,0x91,0xF4,  
0x32,0xD0,0x71,0xC9,0x91,0x0E,0x7D,0xE8,  
0x61,0xFB,0x04,0x8C,0x3F,0x48,0xE2,0xAE,  
0x2A,0x3E,0x28,0xF8,0x00,0x80,0x77,0x09,  
0xA8,0x5B,0x9D,0xC7,0xED,0xF3,0x06,0xF8,  
0xAF,0x17,0x58,0x82,0xF2,0x07,0x81,0x1A,  
0x99,0xA1,0x3D,0xCC,0xB7,0x19,0x43,0xBE,  
0x07,0x1C,0x16,0x3B,0x27,0xF9,0xF0,0x08,  
0x1C,0x8E,0x01,0x4F,0x1B,0xBE,0x51,0x7B,  
0xBE,0x3E,0x62,0x01,0x8E,0xFE,0xFF,0x47,  
0x2C,0x30,0x9D,0xDF,0x7D,0x82,0x01,0xC7,  
0xCD,0x82,0x9F,0x61,0x00,0x67,0x40,0xCF,  
0x30,0x60,0x1F,0x2A,0x6E,0x08,0x5C,0xEE,  
0x8A,0x28,0x90,0x05,0xC2,0xA0,0x0E,0xFD,  
0xE4,0x08,0x42,0xCF,0x9C,0x70,0x86,0x72,  
0xB2,0xBD,0x5F,0x1D,0xC8,0x2D,0xC2,0x43,  
0x3D,0x8B,0xC7,0x04,0x76,0xDA,0x02,0x36,  
0xFF,0xFF,0xE3,0x29,0xB0,0x98,0xF7,0xD3,  
0x69,0x84,0x63,0x03,0xFB,0x71,0x0B,0x38,  
0x1D,0xCC,0xE0,0xDC,0x7F,0xD8,0x2D,0x1A,  
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0xE1,0x89,0x1F,0x43,0xC0,0xFA,0xFF,0x3F,  
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0x4E,0x66,0x80,0xC0,0xFB,0xD8,0x3B,0xC3,  
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0xCA,0x39,0x0A,0x7F,0x32,0x03,0x78,0x74,  
0xC0,0xC2,0x9D,0xCC,0xC0,0xF2,0xFF,0x3F,  
0xC4,0x00,0xCE,0xC7,0x0A,0x63,0x0C,0x3C,  
0xDA,0xC1,0x0C,0x15,0xE6,0x6C,0x86,0x0E,  
0x72,0x08,0xA1,0xC1,0x0E,0x21,0x50,0xE6,  
0x72,0xA0,0xA7,0xF0,0x9A,0xE0,0x73,0x14,  
0xD8,0x0F,0x67,0xC0,0xE1,0xD4,0x80,0x0F,  
0x74,0xE2,0x42,0x8F,0xC2,0x23,0x0E,0x58,  
0xFD,0xC0,0xC8,0xFF,0xFF,0x64,0x06,0x18,  
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0x1B,0xC4,0x21,0xBE,0x8D,0xF8,0xE8,0xFE,  
0x6A,0xE2,0x4B,0x00,0xE6,0x42,0xE2,0xD3,  
0x09,0xB3,0x70,0x38,0x03,0x5A,0x43,0x60,  
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0x7A,0xDC,0xE9,0x04,0xDE,0x38,0x7C,0x3A,

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0xAF,0x38,0x3E,0x9D,0x80,0xF3,0xFF,0x7F,  
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0x98,0x27,0x36,0x26,0x6F,0xC5,0x1A,0x8B,  
0x4F,0x6C,0x30,0xFF,0xFF,0x27,0x36,0x80,  
0xD1,0x87,0x20,0xB0,0xFD,0xFF,0x0F,0x41,  
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0x09,0xEE,0xC4,0x07,0xB6,0x63,0x10,0x60,  
0x6D,0xE8,0x3E,0x06,0x81,0xF9,0xFF,0x3F,  
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0xC9,0x01,0x9D,0xD3,0x3D,0x70,0x92,0x75,  
0xEA,0x40,0x8F,0xC7,0xA0,0xAF,0x1C,0xBE,  
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0xAB,0xF1,0xD9,0xC8,0x07,0x10,0x78,0xE3,  
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0xA8,0x03,0x86,0x38,0x6F,0x24,0xD1,0x1E,  
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0x3D,0xC3,0xBC,0xC3,0xF8,0x92,0xE0,0xEB,  
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0x3B,0x92,0x1C,0x75,0xA8,0x6B,0x7A,0x44,  
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0xFA,0x9A,0xE1,0xD1,0x3D,0x02,0x60,0xAE,  
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0xB2,0xF4,0xA1,0xC1,0x03,0xB5,0xAA,0x33,  
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0x81,0xB9,0x5D,0xFA,0x26,0x01,0x37,0xCF,  
0x2C,0x50,0x49,0x20,0xF4,0xFF,0xBF,0x49,  
0xC0,0x85,0xE9,0xF2,0x32,0x43,0xE7,0x7F,  
0xE0,0xBE,0xD5,0x79,0x84,0x3E,0x44,0x30,  
0x94,0xF7,0x3C,0x9F,0xC2,0xF8,0x19,0xC2,  
0x07,0x4C,0x76,0xA6,0xE0,0x67,0x4D,0xDC,  
0x1D,0xC0,0x28,0x6F,0x9E,0x9E,0x00,0x3B,  
0x7F,0x1A,0xF9,0xDD,0xE0,0x5D,0xC0,0xD3,  
0xF7,0xBD,0x88,0x9F,0x28,0xC0,0x17,0xEC,  
0x4E,0x07,0x05,0xFA,0x84,0x3C,0x22,0xA3,  
0xFA,0x88,0xC0,0x2F,0x49,0x60,0x3C,0x92,  
0xF8,0x40,0x01,0x84,0xEE,0x05,0xA8,0xD3,  
0x07,0x47,0x3D,0xE3,0x17,0x54,0x63,0xBE,  
0x5B,0x3D,0xC2,0x79,0x72,0x98,0xCB,0x01,  
0x8B,0x73,0x4D,0x02,0xD5,0x71,0x97,0x8F,  
0x0E,0xEE,0xB5,0x15,0xFB,0xFF,0x27,0x38,  
0xB8,0x77,0x96,0x77,0x3E,0x43,0x79,0x90,  
0xE0,0xBB,0xB6,0x82,0xE3,0xAA,0x06,0xE3,  
0xD8,0xC2,0x2F,0x79,0x80,0x9D,0x61,0x71,  
0xC1,0x7F,0x0F,0x03,0x51,0x89,0x30,0x28,  
0x02,0xCB,0xBB,0xB7,0x52,0xF8,0x43,0x06,  
0xE3,0x4D,0x81,0x4F,0x1A,0x3B,0x6A,0xE0,  
0xFB,0xFF,0x1F,0x35,0xD8,0x86,0x8A,0xBB,  
0x29,0x82,0x75,0xAA,0x98,0x21,0xF0,0x60,  
0x0F,0x00,0x9F,0xAF,0x7C,0x06,0x50,0x14,

0x18,0xD4,0xA1,0x1D,0xCE,0x6D,0x18,0x70,  
0x30,0x62,0xDC,0xA5,0x10,0xEE,0x94,0xDF,  
0x51,0x62,0x3F,0x97,0xB3,0xE9,0xE2,0xAE,  
0xE6,0x3E,0x9D,0xB0,0x0B,0x32,0x8C,0xB3,  
0xC0,0x23,0xC0,0xAB,0x39,0xBF,0x20,0x3F,  
0x17,0xBF,0x10,0x3C,0x26,0x85,0x78,0x53,  
0x7A,0x25,0x36,0xC6,0x93,0x71,0x73,0xB7,  
0x62,0x72,0xDE,0x79,0x41,0x36,0xC6,0xD1,  
0x44,0x8C,0x72,0x6E,0x0F,0x03,0x91,0x5F,  
0x90,0x7D,0x3F,0x79,0x21,0x88,0x18,0xCD,  
0x10,0x41,0x9F,0x97,0x8D,0x15,0x28,0xDE,  
0x0B,0x32,0x13,0xF8,0x56,0xD0,0xC1,0xC5,  
0x17,0x64,0xEC,0xFF,0xFF,0x82,0x0C,0x30,  
0xE2,0x64,0x04,0xF8,0x3C,0x71,0xE0,0xCE,  
0x35,0x30,0xFE,0xFF,0x97,0x6A,0xD8,0x27,  
0x1B,0xC0,0xD9,0xD0,0x7D,0xB2,0x01,0xF7,  
0x68,0xE1,0x1D,0x4D,0x10,0x27,0x1B,0x0A,  
0xE4,0xE0,0xEB,0xA2,0x70,0x3C,0xF4,0x49,  
0x84,0x1E,0x9D,0x7C,0x94,0xC4,0x9D,0x19,  
0x3C,0x91,0x77,0x16,0x8F,0xE2,0x65,0xD0,  
0xF7,0x82,0x13,0x79,0x7D,0xB0,0x9C,0x63,  
0x24,0xA8,0x46,0xE2,0xE3,0x03,0xFC,0xEB,  
0x8B,0x8F,0x91,0xF0,0xF9,0xFC,0xC3,0xF2,  
0x60,0x0C,0xF9,0xFF,0x7F,0x8A,0xC4,0x80,  
0x3C,0xBB,0x3C,0x86,0xF0,0x0B,0x24,0xDC,  
0xD3,0xCC,0x01,0x60,0x64,0x5D,0x1E,0xD1,  
0x67,0x47,0x8E,0x11,0xD7,0x17,0x45,0x5F,  
0x81,0x7D,0x10,0x38,0x9F,0xE7,0x44,0xB0,  
0x8E,0x9A,0x1F,0x6D,0xF8,0xF8,0x39,0xF8,  
0x5B,0xC1,0x03,0xA5,0x8F,0x45,0x21,0x1E,  
0x91,0xF8,0x39,0x11,0x5C,0x26,0xCE,0x89,  
0x40,0xE2,0xD0,0x0B,0xE3,0xB4,0x80,0x1B,  
0x88,0xCF,0x94,0xD8,0x29,0x9F,0x08,0x3B,  
0x97,0x60,0x46,0x07,0xAE,0xCB,0xBD,0x47,  
0x07,0xFE,0x93,0x00,0x1E,0xEB,0xFF,0xFF,  
0x78,0x07,0xBE,0x93,0xBA,0xEF,0x26,0xBE,  
0xC8,0xF8,0x50,0xF4,0x7C,0x07,0xF8,0x0F,  
0x77,0xB8,0x43,0xC5,0x39,0xDF,0x01,0xD2,  
0xFE,0xFF,0xE7,0x3B,0x60,0x79,0xB6,0x7E,  
0xBE,0x03,0xBB,0xC8,0xF3,0x1D,0x40,0xAC,  
0xFF,0xFF,0xF9,0x0E,0xB0,0x73,0x46,0xC3,  
0x9D,0xEF,0xC0,0x76,0xB4,0x01,0xCC,0x4D,  
0xE3,0xD1,0x06,0xDC,0xC3,0x85,0x3D,0x0C,  
0xAE,0xD0,0xA6,0x4F,0x8D,0x46,0xAD,0x1A,  
0x94,0xA9,0x51,0xE6,0xFF,0xDF,0xA0,0x56,  
0x9F,0x4A,0x8D,0x19,0xCB,0x0E,0xA5,0x80,  
0x8F,0x0A,0x8D,0xCD,0xF2,0x28,0x04,0x62,  
0x31,0xAF,0x06,0x81,0x38,0x2C,0x08,0x8D,

0xF4,0xCA,0x11,0x88,0x25,0x3F,0xFB,0x05,  
0x62,0xB9,0x6F,0x06,0x81,0x38,0xE0,0x1B,  
0x4C,0xE0,0xE4,0x61,0x25,0x70,0xF2,0x6E,  
0x10,0x88,0x23,0x83,0x50,0xA1,0x3A,0x40,  
0x58,0x4C,0x10,0x1A,0xCA,0x07,0x08,0x93,  
0xFE,0x48,0x10,0x20,0x31,0x02,0xC2,0xC2,  
0xBD,0xBF,0x04,0x62,0x69,0xEF,0x09,0x81,  
0x58,0x88,0x15,0x10,0x16,0x17,0x84,0x86,  
0xD3,0x02,0xC2,0x24,0x99,0x01,0x61,0x81,  
0x40,0xA8,0x7C,0x35,0x20,0x4C,0xA4,0x1B,  
0x40,0xBA,0x7A,0x81,0x38,0x88,0x1E,0x10,  
0x26,0xC3,0x0F,0x08,0x0B,0x0D,0x42,0xA3,  
0x3D,0x30,0x04,0x48,0x0C,0x81,0xB0,0xF8,  
0x8E,0x40,0x98,0xF8,0x57,0x91,0x40,0x9C,  
0xDF,0x12,0xC4,0x4D,0x69,0x88,0x35,0x01,  
0x31,0x0D,0x9E,0x80,0x98,0x22,0x10,0x01,  
0x39,0xF6,0xD3,0x43,0x40,0xD6,0x60,0x0A,  
0x88,0x45,0x07,0x11,0x90,0x85,0xA8,0x02,  
0x62,0x79,0x5D,0x01,0xB1,0xF0,0x20,0x02,  
0x72,0xE6,0x97,0x9F,0x80,0xAC,0xE0,0xA5,  
0xF3,0x10,0xC0,0xDE,0x10,0x81,0x48,0x72,  
0x10,0x01,0x39,0xB0,0x2F,0x20,0x16,0x1F,  
0x44,0x40,0xCE,0xFA,0x28,0x14,0x90,0x83,  
0x83,0x68,0x10,0xE4,0x6B,0x26,0x20,0xA7,  
0x07,0x11,0x10,0xF9,0x04,0x05,0x21,0x6A,  
0xBD,0x81,0x30,0x3D,0x8F,0x42,0x0D,0x85,  
0x80,0x50,0xE5,0xEA,0xCE,0x31,0x2C,0x07,  
0x08,0xCD,0x05,0x22,0x30,0xAB,0x70,0x07,  
0xC4,0x54,0x81,0x08,0xC8,0x09,0x80,0xC8,  
0xFF,0x9F,0x60,0x2A,0x10,0x9A,0x12,0x8C,  
0xEA,0x92,0x07,0xC4,0x12,0x80,0xD0,0x54,  
0x20,0x34,0x25,0x88,0x00,0xAD,0xCA,0x1E,  
0x10,0x53,0x0A,0x42,0x95,0x83,0xD0,0x74,  
0x20,0x54,0xB6,0xBE,0xC3,0x02,0x05,0x11,  
0x90,0xA3,0x83,0x50,0xE1,0xFE,0x40,0x98,  
0xDE,0x97,0x86,0x00,0x9D,0x0E,0x44,0x40,  
0x4E,0x0C,0x42,0x15,0x7C,0x32,0x82,0x10,  
0xB1,0x20,0x54,0xC1,0x27,0x23,0x28,0xD1,  
0xF2,0xB2,0x13,0x90,0xF5,0x81,0x50,0xBD,  
0x20,0x02,0x73,0x36,0x20,0x9A,0x17,0x84,  
0xE6,0x07,0xA3,0x5A,0x8D,0x02,0x31,0xFD,  
0x20,0x34,0x0F,0x88,0xC0,0xAC,0xE0,0xF9,  
0x71,0xC0,0x0C,0x84,0xAA,0x04,0x11,0x98,  
0x73,0x01,0xD1,0xAC,0x20,0x34,0x3B,0x18,  
0xD5,0xFE,0x0F,0xD1,0x00,0x08,0x08,0xCD,  
0x07,0xA2,0xC3,0x00,0x79,0x96,0x09,0xC8,  
0x1A,0x41,0xA8,0x66,0x10,0x81,0x39,0x27,  
0x10,0xCD,0x0E,0x42,0x95,0xFD,0x4D,0x82,



0x91,0x8C,0x0F,0xD0,0x40,0x24,0x37,0x08,  
0xD5,0xF1,0x0C,0x0A,0x46,0x74,0x83,0x08,  
0xC8,0x59,0x40,0x68,0x36,0x30,0x9A,0x4C,  
0xED,0x91,0x80,0xBA,0x05,0x61,0xE9,0x41,  
0x68,0x3A,0xBB,0x83,0xA7,0x20,0x54,0x81,  
0x5E,0x30,0xA6,0x19,0x44,0x87,0x05,0x02,  
0x42,0x73,0x81,0x51,0x1D,0xAF,0x96,0x40,  
0x44,0x1B,0x08,0xD5,0x0A,0xA2,0x81,0x93,  
0x1F,0x53,0x10,0x92,0x14,0x84,0xFC,0xFF,  
0x07,0xAA,0xC7,0x9C,0x40,0xAC,0xFA,0x5B,  
0x25,0x50,0x27,0x01,0xA1,0xC9,0x40,0x74,  
0x7C,0x20,0x0F,0xB8,0x83,0x64,0x20,0x54,  
0x29,0x88,0xC0,0xAC,0xF4,0x63,0xA4,0x23,  
0x05,0x51,0x7D,0xBC,0xA0,0x20,0x34,0xD1,  
0x3B,0x2C,0x08,0x7B,0xB8,0x69,0xA8,0xE4,  
0x59,0xA5,0xA1,0x12,0x10,0x9A,0x0D,0x44,  
0xC7,0x04,0xF2,0xAA,0x79,0x4C,0x60,0x20,  
0x54,0x2F,0x08,0xCD,0x01,0x42,0x13,0x83,  
0x08,0xD4,0xA9,0xBF,0x37,0x1A,0x2A,0xF9,  
0x5B,0x09,0xC4,0xCA,0x5E,0x69,0x02,0xB1,  
0xDE,0xA7,0x4E,0x20,0xE6,0x1D,0x98,0xA9,  
0x05,0xA1,0xEA,0x41,0x04,0xE6,0xB4,0x40,  
0x54,0x81,0x78,0x10,0xA6,0x08,0x44,0x60,  
0x4E,0x02,0x44,0xD3,0x81,0xD0,0xEC,0x60,  
0x54,0xE7,0xA3,0x4D,0x40,0xD6,0x0E,0x42,  
0xB3,0x80,0x08,0xCC,0x59,0x1E,0x69,0x02,  
0xB1,0x92,0x2F,0x9D,0x0E,0x24,0x04,0x84,  
0x26,0xD3,0x7F,0x68,0xA1,0x05,0x80,0x99,  
0x84,0x04,0x20,0x4C,0x16,0x88,0x0E,0x27,  
0xD6,0x08,0x22,0x40,0xC7,0x01,0xA3,0xD1,  
0x40,0x68,0x5C,0x40,0x9A,0x1D,0x90,0x2A,  
0x6D,0x00,0xC6,0x54,0x83,0xD0,0x24,0x20,  
0x02,0x74,0x2C,0x10,0x01,0x5A,0x74,0x04,  
0x30,0x16,0x01,0x84,0x46,0x05,0xA1,0xC9,  
0x2A,0x80,0xB2,0x9C,0x20,0x1A,0x20,0xC9,  
0x30,0x60,0x0A,0x42,0x33,0x81,0xD0,0x8C,  
0x20,0x54,0x7C,0x07,0x10,0x16,0x04,0x84,  
0x86,0x03,0xD1,0x00,0xFE,0xFF,0x8F,0x0C,  
0x02,0xD1,0x00,0x9C,0x23,0xC4,0x61,0x85,  
0x82,0xD0,0xF4,0x20,0x34,0x6C,0x09,0x50,  
0x16,0x1D,0x44,0xC7,0x23,0x92,0x02,0x8C,  
0x05,0x02,0xA1,0x31,0x41,0x68,0x6C,0x10,  
0x1A,0x29,0x06,0x28,0x13,0x54,0xE3,0x50,  
0x44,0x7B,0x80,0x31,0x99,0x20,0x54,0x36,  
0x88,0xC0,0x1C,0x14,0x88,0x86,0x07,0xA1,  
0x62,0x82,0x00,0x52,0x10,0x01,0x12,0x20,  
0x1A,0x1E,0x84,0x8A,0x29,0x32,0x74,0x0A,

```
0x42,0x55,0x24,0x39,0x9A,0x50,0x10,0x1D,
0x4D,0x08,0x08,0xCD,0x07,0x46,0x75,0x35,
0x39,0x6E,0x50,0x10,0xAA,0x1D,0x84,0x06,
0x05,0xA1,0x39,0xA2,0x80,0xB2,0xEC,0x20,
0x02,0xB2,0x9E,0x2A,0x87,0x0A,0x0A,0x22,
0x30,0xA7,0x02,0xA2,0x49,0x41,0xA8,0x8E,
0x2C,0x47,0x0A,0x9A,0x06,0x84,0x25,0x06,
0xA1,0xC9,0xDA,0x80,0xB0,0x0C,0x75,0x0E,
0x24,0x14,0x84,0xE6,0x04,0xA1,0x4A,0xF2,
0x0C,0x8F,0x82,0xE8,0x38,0x42,0x80,0x68,
0x7A,0x10,0xAA,0xA6,0xCF,0x00,0x28,0x88,
0x06,0x40,0x40,0x68,0x4E,0x30,0xAA,0xA8,
0xD1,0xD1,0x84,0x82,0x50,0xDD,0x2F,0x4E,
0x81,0xF8,0xFF,0x0F,
}) // END MBUF
```

```
} //end DefinitionBlock
```

Found in path(s):

```
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/tests/misc/grammar.asl
```

No license file was found, but licenses were detected in source scan.

NoEcho('

```
/******  
*  
* Module Name: aslstyle.y - Production rules for symbolic operators  
*  
*****/  
  
/*  
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```

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 \* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE  
 \* POSSIBILITY OF SUCH DAMAGES.

\*/

)

/\*  
 \*  
 \* Production rules for the symbolic (c-style) operators  
 \*  
 \*/

/\*

\*/

\*\*\*\*\*

/\*

\* ASL Extensions: C-style math/logical operators and expressions.

\* The implementation transforms these operators into the standard

\* AML opcodes and syntax.

\*

\* Supported operators and precedence rules (high-to-low)

\*

\* NOTE: The operator precedence and associativity rules are

\* implemented by the tokens in asltokens.y

\*

\* (left-to-right):

\* 1) ( ) expr++ expr--

\*

\* (right-to-left):

\* 2) ! ~

\*

\* (left-to-right):

\* 3) \* / %

\* 4) + -

```

* 5)  >> <<
* 6)  < > <= >=
* 7)  == !=
* 8)  &
* 9)  ^
* 10) |
* 11) &&
* 12) ||
*
* (right-to-left):
* 13) = += -= *= /= %= <<= >>= &= ^= |=
*/

/*****
*
* Basic operations for math and logical expressions.
*
*****/

```

## Expression

```

/* Unary operators */

: PARSEOP_EXP_LOGICAL_NOT      {$<n>$ = TrCreateLeafOp (PARSEOP_LNOT);}
  TermArg                      {$$ = TrLinkOpChildren ($<n>2,1,$3);}
| PARSEOP_EXP_NOT              {$<n>$ = TrCreateLeafOp (PARSEOP_NOT);}
  TermArg                      {$$ = TrLinkOpChildren ($<n>2,2,$3,TrCreateNullTargetOp ());}

| SuperName PARSEOP_EXP_INCREMENT {$<n>$ = TrCreateLeafOp (PARSEOP_INCREMENT);}
  {$$ = TrLinkOpChildren ($<n>3,1,$1);}
| SuperName PARSEOP_EXP_DECREMENT {$<n>$ = TrCreateLeafOp (PARSEOP_DECREMENT);}
  {$$ = TrLinkOpChildren ($<n>3,1,$1);}

/* Binary operators: math and logical */

| TermArg PARSEOP_EXP_ADD      {$<n>$ = TrCreateLeafOp (PARSEOP_ADD);}
  TermArg                      {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_DIVIDE   {$<n>$ = TrCreateLeafOp (PARSEOP_DIVIDE);}
  TermArg                      {$$ = TrLinkOpChildren ($<n>3,4,$1,$4,TrCreateNullTargetOp (),
  TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_MODULO    {$<n>$ = TrCreateLeafOp (PARSEOP_MOD);}
  TermArg                      {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_MULTIPLY {$<n>$ = TrCreateLeafOp (PARSEOP_MULTIPLY);}
  TermArg                      {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_SHIFT_LEFT {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTLLEFT);}

```

```

    TermArg          {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_SHIFT_RIGHT  {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTRIGHT);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_SUBTRACT    {$<n>$ = TrCreateLeafOp (PARSEOP_SUBTRACT);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}

| TermArg PARSEOP_EXP_AND        {$<n>$ = TrCreateLeafOp (PARSEOP_AND);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_OR        {$<n>$ = TrCreateLeafOp (PARSEOP_OR);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,3,$1,$4,TrCreateNullTargetOp ());}
| TermArg PARSEOP_EXP_XOR       {$<n>$ = TrCreateLeafOp (PARSEOP_XOR);}
    TermArg          {$$ = TrLinkOpChildren
($<n>3,3,$1,$4,TrCreateNullTargetOp ());}

| TermArg PARSEOP_EXP_GREATER    {$<n>$ = TrCreateLeafOp (PARSEOP_LGREATER);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_GREATER_EQUAL {$<n>$ = TrCreateLeafOp
(PARSEOP_LGREATEREQUAL);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_LESS      {$<n>$ = TrCreateLeafOp (PARSEOP_LLESS);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_LESS_EQUAL {$<n>$ = TrCreateLeafOp (PARSEOP_LLESSEQUAL);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}

| TermArg PARSEOP_EXP_EQUAL     {$<n>$ = TrCreateLeafOp (PARSEOP_LEQUAL);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_NOT_EQUAL  {$<n>$ = TrCreateLeafOp (PARSEOP_LNOTEQUAL);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}

| TermArg PARSEOP_EXP_LOGICAL_AND {$<n>$ = TrCreateLeafOp (PARSEOP_LAND);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}
| TermArg PARSEOP_EXP_LOGICAL_OR  {$<n>$ = TrCreateLeafOp (PARSEOP_LOR);}
    TermArg          {$$ = TrLinkOpChildren ($<n>3,2,$1,$4);}

/* Parentheses */

| PARSEOP_OPEN_PAREN
    Expression
    PARSEOP_CLOSE_PAREN    {$$ = $2;}

/* Index term -- "= BUF1[5]" on right-hand side of an equals (source) */

| IndexExpTerm
;

/*
* Index term -- "BUF1[5] = " or " = BUF1[5]" on either the left side

```

```

* of an equals (target) or the right side (source)
* Currently used in these terms:
*   Expression
*   ObjectTypeSource
*   DerefOfSource
*   Type6Opcode
*/

```

#### IndexExpTerm

```

: SuperName
  PARSEOP_EXP_INDEX_LEFT
  TermArg
  PARSEOP_EXP_INDEX_RIGHT
{ $$ = TrCreateLeafOp (PARSEOP_INDEX);
      TrLinkOpChildren ($$,3,$1,$3,TrCreateNullTargetOp ());}
;

```

```

/*****
*
* All assignment-type operations -- math and logical. Includes simple
* assignment and compound assignments.
*
*****/

```

#### EqualsTerm

```

/* Allow parens anywhere */

: PARSEOP_OPEN_PAREN
  EqualsTerm
  PARSEOP_CLOSE_PAREN      { $$ = $2;}

/* Simple Store() operation */

| SuperName
  PARSEOP_EXP_EQUALS
  TermArg      { $$ = TrCreateAssignmentOp ($1, $3);}

/* Chained equals: (a=RefOf)=b, a=b=c=d etc. */

| PARSEOP_OPEN_PAREN
  EqualsTerm
  PARSEOP_CLOSE_PAREN
  PARSEOP_EXP_EQUALS
  TermArg      { $$ = TrCreateAssignmentOp ($2, $5);}

```

```

/* Compound assignments -- Add (operand, operand,

```

target) \*/

```
| TermArg PARSEOP_EXP_ADD_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_ADD);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_DIV_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_DIVIDE);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,4,$1,$4,TrCreateNullTargetOp (),
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_MOD_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_MOD);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_MUL_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_MULTIPLY);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_SHL_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_SHIFTLLEFT);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_SHR_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_SHIFTRIGHT);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_SUB_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_SUBTRACT);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_AND_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_AND);}

  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_OR_EQ     {<n>$ = TrCreateLeafOp (PARSEOP_OR);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

| TermArg PARSEOP_EXP_XOR_EQ    {<n>$ = TrCreateLeafOp (PARSEOP_XOR);}
  TermArg                      {$$ = TrLinkOpChildren (<n>3,3,$1,$4,
                                TrSetOpFlags (TrCreateTargetOp ($1, NULL), OP_IS_TARGET));}

;
```

Found in path(s):

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslclstyle.y

No license file was found, but licenses were detected in source scan.

```
% {
/*****
*
* Module Name: aslparser.y - Master Bison/Yacc input file for iASL
*
*****/

/*
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*
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* POSSIBILITY OF SUCH DAMAGES.
*/

#include "aslcompiler.h"
#include "acpi.h"
```



```

#include "accommon.h"

#define _COMPONENT      ACPI_COMPILER
        ACPI_MODULE_NAME  ("aslparse")

/*
 * Global Notes:
 *
 * October 2005: The following list terms have been optimized (from the
 * original ASL grammar in the ACPI specification) to force the immediate
 * reduction of each list item so that the parse stack use doesn't increase on
 * each list element and possibly overflow on very large lists (>4000 items).
 * This dramatically reduces use of the parse stack overall.
 *
 * ArgList, TermList, ByteList, DWordList, PackageList,
 * ResourceMacroList, and FieldUnitList
 */

void *
AslLocalAllocate (
    unsigned int      Size);

/* Bison/yacc configuration */

#define static
#undef malloc
#define malloc        AslLocalAllocate
#undef
alloca
#define alloca        AslLocalAllocate
#define yyname        AslCompilername

#define YYINITDEPTH    600        /* State stack depth */
#define YYDEBUG        1        /* Enable debug output */
#define YYERROR_VERBOSE 1        /* Verbose error messages */
#define YYFLAG        -32768

/* Define YYMALLOC/YYFREE to prevent redefinition errors */

#define YYMALLOC        AslLocalAllocate
#define YYFREE          ACPI_FREE
% }

/*
 * Declare the type of values in the grammar
 */
% union {

```

```

    UINT64      i;
    char        *s;
    ACPI_PARSE_OBJECT *n;
}

/*
 * These shift/reduce conflicts are expected. There should be zero
 * reduce/reduce conflicts.
 */
%expect 118

/*! [Begin] no source code translation */

/*
 * The M4 macro processor is used to bring in the parser items,
 * in order to keep this master file smaller, and to break up
 * the various parser items.
 */
m4_define(NoEcho)

/* Token
types */

m4_include(asltokens.y)

/* Production types/names */

m4_include(asltypes.y)
%%

/* Production rules */

m4_include(aslrules.y)
m4_include(aslprimaries.y)
m4_include(aslstyle.y)
m4_include(aslkeywords.y)
m4_include(aslresources.y)
m4_include(aslhelpers.y)
%%

/*! [End] no source code translation !*/

/* Local support functions in C */

m4_include(aslsupport.y)

Found in path(s):
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-

```

20180508/source/compiler/aslparser.y

No license file was found, but licenses were detected in source scan.

NoEcho('

/\*  
\*\*\*\*\*  
\*/

\*

\* Module Name: aslresources.y - Bison/Yacc production rules for resources

\*

- Keep this file synched with the

\*

CvParseOpBlockType function in cvcompiler.c

\*

\*\*\*\*\*  
\*/

/\*

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\*

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\*/

)

/\*\*\*\*\*\*

\*

\* ASL Resource Template Terms

\*

\*\*\*\*\*/

/\*

\* Note: Create two default nodes to allow conversion to a Buffer AML opcode

\* Also, insert the EndTag at the end of the template.

\*/

ResourceTemplateTerm

: PARSEOP\_RESOURCETEMPLATE {COMMENT\_CAPTURE\_OFF;}

OptionalParentheses

{

ResourceMacroList '}' {\$\$ = TrCreateOp (PARSEOP\_RESOURCETEMPLATE,4,  
TrCreateLeafOp (PARSEOP\_DEFAULT\_ARG),

TrCreateLeafOp (PARSEOP\_DEFAULT\_ARG),

\$5,

TrCreateLeafOp (PARSEOP\_ENDTAG));

COMMENT\_CAPTURE\_ON;}

;

OptionalParentheses

: {\$\$ = NULL;}

| PARSEOP\_OPEN\_PAREN

PARSEOP\_CLOSE\_PAREN {\$\$ = NULL;}

;

ResourceMacroList

: {\$\$ = NULL;}

| ResourceMacroList

ResourceMacroTerm {\$\$ = TrLinkPeerOp (\$1,\$2);}

;

ResourceMacroTerm

: DMATerm {}

| DWordIOTerm {}

| DWordMemoryTerm {}

| DWordSpaceTerm {}

| EndDependentFnTerm {}

| ExtendedIOTerm {}

```

| ExtendedMemoryTerm      {}
| ExtendedSpaceTerm      {}
| FixedDmaTerm           {}
| FixedIOTerm            {}
| GpioIntTerm            {}

| GpioIoTerm             {}
| I2cSerialBusTerm       {}
| I2cSerialBusTermV2     {}
| InterruptTerm          {}
| IOTerm                  {}
| IRQNoFlagsTerm         {}
| IRQTerm                 {}
| Memory24Term           {}
| Memory32FixedTerm      {}
| Memory32Term           {}
| PinConfigTerm          {}
| PinFunctionTerm        {}
| PinGroupTerm           {}
| PinGroupConfigTerm     {}
| PinGroupFunctionTerm   {}
| QWordIOTerm            {}
| QWordMemoryTerm        {}
| QWordSpaceTerm         {}
| RegisterTerm           {}
| SpiSerialBusTerm       {}
| SpiSerialBusTermV2     {}
| StartDependentFnNoPriTerm {}
| StartDependentFnTerm   {}
| UartSerialBusTerm      {}
| UartSerialBusTermV2    {}
| VendorLongTerm         {}
    {}
| VendorShortTerm        {}
| WordBusNumberTerm      {}
| WordIOTerm             {}
| WordSpaceTerm          {}
;

```

#### DMATerm

```

: PARSEOP_DMA
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_DMA);}
  DMATypeKeyword
  OptionalBusMasterKeyword
  ' XferTypeKeyword
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN '{'
  ByteList '}'          {$$ = TrLinkOpChildren (<n>3,5,$4,$5,$7,$8,$11);}

```

```

| PARSEOP_DMA
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### DWordIOTerm

```

: PARSEOP_DWORDIO
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_DWORDIO);}
  OptionalResourceType_First
  OptionalMinType
  OptionalMaxType
  OptionalDecodeType
  OptionalRangeType
  ';' DWordConstExpr
  ';' DWordConstExpr
  ';' DWordConstExpr
  ';' DWordConstExpr
  ';'

```

#### DWordConstExpr

```

  OptionalByteConstExpr
  OptionalStringData
  OptionalNameString
  OptionalType
  OptionalTranslationType_Last
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,15,
                                $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22,$23);}

```

```

| PARSEOP_DWORDIO
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### DWordMemoryTerm

```

: PARSEOP_DWORDMEMORY
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_DWORDMEMORY);}
  OptionalResourceType_First
  OptionalDecodeType
  OptionalMinType
  OptionalMaxType
  OptionalMemType
  ';' OptionalReadWriteKeyword
  ';' DWordConstExpr
  ';' DWordConstExpr
  ';' DWordConstExpr
  ';' DWordConstExpr
  ';' DWordConstExpr
  OptionalByteConstExpr
  OptionalStringData
  OptionalNameString

```

OptionalAddressRange

OptionalType\_Last

```
PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,16,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$20,$21,$22,$23,$24,$25);}
| PARSEOP_DWORDMEMORY
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

DWordSpaceTerm

```
: PARSEOP_DWORDSPACE
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_DWORDSPACE);}
  ByteConstExpr        {UtCheckIntegerRange ($4, 0xC0, 0xFF);}
  OptionalResourceType
  OptionalDecodeType
  OptionalMinType
  OptionalMaxType
  '|' ByteConstExpr
  '|' DWordConstExpr
  '|' DWordConstExpr
  '|' DWordConstExpr
  '|' DWordConstExpr
  '|' DWordConstExpr
  OptionalByteConstExpr
  OptionalStringData
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN  {$$ = TrLinkOpChildren (<n>3,14,
                        $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23,$24);}
| PARSEOP_DWORDSPACE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

EndDependentFnTerm

```
: PARSEOP_ENDDEPENDENTFN
  PARSEOP_OPEN_PAREN
  PARSEOP_CLOSE_PAREN  {$$ = TrCreateLeafOp (PARSEOP_ENDDEPENDENTFN);}
| PARSEOP_ENDDEPENDENTFN
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

ExtendedIOTerm

```
: PARSEOP_EXTENDEDEDIO
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_EXTENDEDEDIO);}
  OptionalResourceType_First
  OptionalMinType
```

```

OptionalMaxType
OptionalDecodeType
OptionalRangeType
',' QWordConstExpr
',' QWordConstExpr
',' QWordConstExpr
',' QWordConstExpr
',' QWordConstExpr
OptionalQWordConstExpr
OptionalNameString
OptionalType
OptionalTranslationType_Last
PARSEOP_CLOSE_PAREN
{ $$ = TrLinkOpChildren ($<n>3,14,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22);}
| PARSEOP_EXTENDEDIO
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

```

ExtendedMemoryTerm

```

: PARSEOP_EXTENDEDMEMORY
  PARSEOP_OPEN_PAREN    { $<n>$ = TrCreateLeafOp (PARSEOP_EXTENDEDMEMORY);}
  OptionalResourceType_First
  OptionalDecodeType
  OptionalMinType
  OptionalMaxType
  OptionalMemType
  ',' OptionalReadWriteKeyword
  ',' QWordConstExpr
  ',' QWordConstExpr
  ',' QWordConstExpr
  ',' QWordConstExpr
  ',' QWordConstExpr
  OptionalQWordConstExpr
  OptionalNameString
  OptionalAddressRange
  OptionalType_Last
  PARSEOP_CLOSE_PAREN    { $$ = TrLinkOpChildren ($<n>3,15,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$20,$21,$22,$23,$24);}
| PARSEOP_EXTENDEDMEMORY
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

```

ExtendedSpaceTerm

```

: PARSEOP_EXTENDEDSPACE PARSEOP_OPEN_PAREN    { $<n>$ = TrCreateLeafOp
(PARSEOP_EXTENDEDSPACE);}

```



```

ByteConstExpr      { UtCheckIntegerRange ($4, 0xC0, 0xFF);}
OptionalResourceType
OptionalDecodeType
OptionalMinType
OptionalMaxType
',' ByteConstExpr
',' QWordConstExpr
',' QWordConstExpr
',' QWordConstExpr
',' QWordConstExpr
',' QWordConstExpr
OptionalQWordConstExpr
OptionalNameString_Last
PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,13,
                          $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23);}
| PARSEOP_EXTENDEDSPACE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN      {$$ = AslDoError(); yyclearin;}
;

FixedDmaTerm
: PARSEOP_FIXEDDMA
  PARSEOP_OPEN_PAREN
    {$<n>$ = TrCreateLeafOp (PARSEOP_FIXEDDMA);}
  WordConstExpr      /* 04: DMA RequestLines */
  ',' WordConstExpr  /* 06: DMA Channels */
  OptionalXferSize   /* 07: DMA TransferSize */
  OptionalNameString /* 08: DescriptorName */
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,4,$4,$6,$7,$8);}
| PARSEOP_FIXEDDMA
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN      {$$ = AslDoError(); yyclearin;}
;

FixedIOTerm
: PARSEOP_FIXEDIO
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_FIXEDIO);}
  WordConstExpr
  ',' ByteConstExpr
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,3,$4,$6,$7);}
| PARSEOP_FIXEDIO
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN      {$$ = AslDoError(); yyclearin;}
;

GpioIntTerm

```

```

: PARSEOP_GPIO_INT
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_GPIO_INT);}
  InterruptTypeKeyword    /* 04: InterruptType */
  ', InterruptLevel      /* 06: InterruptLevel */
  OptionalShareType      /* 07: SharedType */
  ', PinConfigByte      /* 09: PinConfig */
  OptionalWordConstExpr  /* 10: DebounceTimeout */
  ', StringData          /* 12: ResourceSource */
  OptionalByteConstExpr  /* 13: ResourceSourceIndex */
  OptionalResourceType   /* 14: ResourceType */
  OptionalNameString     /* 15: DescriptorName */
  OptionalBuffer_Last    /* 16: VendorData */
  PARSEOP_CLOSE_PAREN '{'
    DWordConstExpr '}'   {$$ = TrLinkOpChildren ($<n>3,11,
      $4,$6,$7,$9,$10,$12,$13,$14,$15,$16,$19);}
| PARSEOP_GPIO_INT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

```

#### GpioIoTerm

```

: PARSEOP_GPIO_IO
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_GPIO_IO);}
  OptionalShareType_First /* 04: SharedType */
  ', PinConfigByte      /* 06: PinConfig */
  OptionalWordConstExpr  /* 07: DebounceTimeout */
  OptionalWordConstExpr  /* 08: DriveStrength */
  OptionalIoRestriction  /* 09: IoRestriction */
  ', StringData          /* 11: ResourceSource */
  OptionalByteConstExpr  /* 12: ResourceSourceIndex */
  OptionalResourceType   /* 13: ResourceType */
  OptionalNameString     /* 14: DescriptorName */
  OptionalBuffer_Last    /* 15: VendorData */
  PARSEOP_CLOSE_PAREN '{'
    DWordList '}'       {$$ = TrLinkOpChildren ($<n>3,11,
      $4,$6,$7,$8,$9,$11,$12,$13,$14,$15,$18);}
| PARSEOP_GPIO_IO
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN
    {$$ = AslDoError(); yyclearin;}
;

```

#### I2cSerialBusTerm

```

: PARSEOP_I2C_SERIALBUS
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_I2C_SERIALBUS);}
  WordConstExpr          /* 04: SlaveAddress */
  OptionalSlaveMode      /* 05: SlaveMode */
  ', DWordConstExpr      /* 07: ConnectionSpeed */

```

```

OptionalAddressingMode /* 08: AddressingMode */
',' StringData /* 10: ResourceSource */
OptionalByteConstExpr /* 11: ResourceSourceIndex */
OptionalResourceType /* 12: ResourceType */
OptionalNameString /* 13: DescriptorName */
OptionalBuffer_Last /* 14: VendorData */
PARSEOP_CLOSE_PAREN {$$ = TrLinkOpChildren (<n>3,10,
$4,$5,$7,$8,$10,$11,$12,$13,
TrCreateLeafOp (PARSEOP_DEFAULT_ARG),$14);}
| PARSEOP_I2C_SERIALBUS
PARSEOP_OPEN_PAREN
error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

```

#### I2cSerialBusTermV2

```

: PARSEOP_I2C_SERIALBUS_V2
PARSEOP_OPEN_PAREN {$<n>$ = TrCreateLeafOp (PARSEOP_I2C_SERIALBUS_V2);}
WordConstExpr /* 04: SlaveAddress */
OptionalSlaveMode /* 05: SlaveMode */
',' DWordConstExpr /* 07: ConnectionSpeed */
OptionalAddressingMode /* 08: AddressingMode */
',' StringData /* 10: ResourceSource */
OptionalByteConstExpr /* 11: ResourceSourceIndex */
OptionalResourceType /* 12: ResourceType */
OptionalNameString /* 13: DescriptorName */
OptionalShareType /* 14: Share */
OptionalBuffer_Last /* 15: VendorData */
PARSEOP_CLOSE_PAREN {$$ = TrLinkOpChildren (<n>3,10,
$4,$5,$7,$8,$10,$11,$12,$13,$14,$15);}
| PARSEOP_I2C_SERIALBUS_V2
PARSEOP_OPEN_PAREN
error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

```

#### InterruptTerm

```

: PARSEOP_INTERRUPT
PARSEOP_OPEN_PAREN {$<n>$ = TrCreateLeafOp (PARSEOP_INTERRUPT);}
OptionalResourceType_First
',' InterruptTypeKeyword
',' InterruptLevel
OptionalShareType
OptionalByteConstExpr
OptionalStringData
OptionalNameString_Last
PARSEOP_CLOSE_PAREN '{'
DWordList '}' {$$ = TrLinkOpChildren (<n>3,8,
$4,$6,$8,$9,$10,$11,$12,$15);}
| PARSEOP_INTERRUPT

```

```
PARSEOP_OPEN_PAREN
error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### IOTerm

```
: PARSEOP_IO
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_IO);}
  IODecodeKeyword
  ',' WordConstExpr
  ',' WordConstExpr
  ',' ByteConstExpr
  ',' ByteConstExpr
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN
  {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$8,$10,$12,$13);}
| PARSEOP_IO
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### IRQNoFlagsTerm

```
: PARSEOP_IRQNOFLAGS
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_IRQNOFLAGS);}
  OptionalNameString_First
  PARSEOP_CLOSE_PAREN '{'
  ByteList '}'          {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
| PARSEOP_IRQNOFLAGS
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### IRQTerm

```
: PARSEOP_IRQ
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_IRQ);}
  InterruptTypeKeyword
  ',' InterruptLevel
  OptionalShareType
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN '{'
  ByteList '}'          {$$ = TrLinkOpChildren ($<n>3,5,$4,$6,$7,$8,$11);}
| PARSEOP_IRQ
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$
= AslDoError(); yyclearin;}
;
```

#### Memory24Term

```
: PARSEOP_MEMORY24
```

```

PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_MEMORY24);}
OptionalReadWriteKeyword
'| WordConstExpr
'| WordConstExpr
'| WordConstExpr
'| WordConstExpr
OptionalNameString_Last
PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$8,$10,$12,$13);}
| PARSEOP_MEMORY24
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### Memory32FixedTerm

```

: PARSEOP_MEMORY32FIXED
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_MEMORY32FIXED);}
  OptionalReadWriteKeyword
  '| DWordConstExpr
  '| DWordConstExpr
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN   {$$ = TrLinkOpChildren ($<n>3,4,$4,$6,$8,$9);}
| PARSEOP_MEMORY32FIXED
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### Memory32Term

```

: PARSEOP_MEMORY32
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_MEMORY32);}
  OptionalReadWriteKeyword
  '| DWordConstExpr
  '| DWordConstExpr
  '| DWordConstExpr
  '| DWordConstExpr
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN   {$$ = TrLinkOpChildren ($<n>3,6,$4,$6,$8,$10,$12,$13);}
| PARSEOP_MEMORY32
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### PinConfigTerm

```

: PARSEOP_PINCONFIG
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_PINCONFIG);}
  OptionalShareType_First /* 04: SharedType */
  '| ByteConstExpr      /* 06: PinConfigType */
  '| DWordConstExpr     /* 08: PinConfigValue */
  '| StringData         /* 10: ResourceSource */

```

```

OptionalByteConstExpr /* 11: ResourceSourceIndex */
OptionalResourceType /* 12: ResourceType */

OptionalNameString /* 13: DescriptorName */
OptionalBuffer_Last /* 14: VendorData */
PARSEOP_CLOSE_PAREN '{'
    DWordList '}' { $$ = TrLinkOpChildren ($<n>3,9,
        $4,$6,$8,$10,$11,$12,$13,$14,$17);}
| PARSEOP_PINCONFIG
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

PinFunctionTerm
: PARSEOP_PINFUNCTION
    PARSEOP_OPEN_PAREN { $<n>$ = TrCreateLeafOp (PARSEOP_PINFUNCTION);}
    OptionalShareType_First /* 04: SharedType */
    ' PinConfigByte /* 06: PinConfig */
    ' WordConstExpr /* 08: FunctionNumber */
    ' StringData /* 10: ResourceSource */
    OptionalByteConstExpr /* 11: ResourceSourceIndex */
    OptionalResourceType /* 12: ResourceType */
    OptionalNameString /* 13: DescriptorName */
    OptionalBuffer_Last /*
14: VendorData */
    PARSEOP_CLOSE_PAREN '{'
        DWordList '}' { $$ = TrLinkOpChildren ($<n>3,9,
            $4,$6,$8,$10,$11,$12,$13,$14,$17);}
    | PARSEOP_PINFUNCTION
        PARSEOP_OPEN_PAREN
        error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

PinGroupTerm
: PARSEOP_PINGROUP
    PARSEOP_OPEN_PAREN { $<n>$ = TrCreateLeafOp (PARSEOP_PINGROUP);}
    StringData /* 04: ResourceLabel */
    OptionalProducerResourceType /* 05: ResourceType */
    OptionalNameString /* 06: DescriptorName */
    OptionalBuffer_Last /* 07: VendorData */
    PARSEOP_CLOSE_PAREN '{'
        DWordList '}' { $$ = TrLinkOpChildren ($<n>3,5,$4,$5,$6,$7,$10);}
    | PARSEOP_PINGROUP
        PARSEOP_OPEN_PAREN
        error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

PinGroupConfigTerm

```

```

: PARSEOP_PINGROUPCONFIG
  PARSEOP_OPEN_PAREN
  {<n>$ = TrCreateLeafOp (PARSEOP_PINGROUPCONFIG);}
  OptionalShareType_First /* 04: SharedType */
  ';' ByteConstExpr /* 06: PinConfigType */
  ';' DWordConstExpr /* 08: PinConfigValue */
  ';' StringData /* 10: ResourceSource */
  OptionalByteConstExpr /* 11: ResourceSourceIndex */
  ';' StringData /* 13: ResourceSourceLabel */
  OptionalResourceType /* 14: ResourceType */
  OptionalNameString /* 15: DescriptorName */
  OptionalBuffer_Last /* 16: VendorData */
  PARSEOP_CLOSE_PAREN {$$ = TrLinkOpChildren (<n>3,9,
    $4,$6,$8,$10,$11,$13,$14,$15,$16);}
| PARSEOP_PINGROUPCONFIG
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

```

#### PinGroupFunctionTerm

```

: PARSEOP_PINGROUPFUNCTION
  PARSEOP_OPEN_PAREN {<n>$ = TrCreateLeafOp (PARSEOP_PINGROUPFUNCTION);}
  OptionalShareType_First /* 04: SharedType */
  ';' WordConstExpr /* 06: FunctionNumber */
  ';' StringData /* 08: ResourceSource */
  OptionalByteConstExpr /* 09: ResourceSourceIndex */
  ';' StringData /* 11: ResourceSourceLabel */
  OptionalResourceType /* 12: ResourceType */
  OptionalNameString /* 13: DescriptorName */
  OptionalBuffer_Last /* 14: VendorData */
  PARSEOP_CLOSE_PAREN {$$ = TrLinkOpChildren (<n>3,8,
    $4,$6,$8,$9,$11,$12,$13,$14);}
| PARSEOP_PINGROUPFUNCTION
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

```

#### QWordIOTerm

```

: PARSEOP_QWORDIO
  PARSEOP_OPEN_PAREN {<n>$ = TrCreateLeafOp (PARSEOP_QWORDIO);}
  OptionalResourceType_First
  OptionalMinType
  OptionalMaxType
  OptionalDecodeType
  OptionalRangeType
  ';' QWordConstExpr
  ';' QWordConstExpr
  ';' QWordConstExpr

```

```

'| QWordConstExpr
'| QWordConstExpr
OptionalByteConstExpr
OptionalStringData
OptionalNameString
OptionalType
OptionalTranslationType_Last
PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,15,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22,$23);}
| PARSEOP_QWORDIO
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### QWordMemoryTerm

```

: PARSEOP_QWORDMEMORY
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_QWORDMEMORY);}
  OptionalResourceType_First
  OptionalDecodeType
  OptionalMinType
  OptionalMaxType
  OptionalMemType
  '| OptionalReadWriteKeyword
  '| QWordConstExpr
  '| QWordConstExpr
  '| QWordConstExpr
  '| QWordConstExpr
  '| QWordConstExpr
  OptionalByteConstExpr
  OptionalStringData
  OptionalNameString
  OptionalAddressRange
  OptionalType_Last
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,16,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$20,$21,$22,$23,$24,$25);}
| PARSEOP_QWORDMEMORY
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### QWordSpaceTerm

```

: PARSEOP_QWORDSPACE
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_QWORDSPACE);}
  ByteConstExpr          {UtCheckIntegerRange ($4, 0xC0, 0xFF);}
  OptionalResourceType
  OptionalDecodeType
  OptionalMinType
  OptionalMaxType

```



```
' ByteConstExpr
' QWordConstExpr
' QWordConstExpr
' QWordConstExpr
' QWordConstExpr
' QWordConstExpr
OptionalByteConstExpr
OptionalStringData
```

OptionalNameString\_Last

```
PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,14,
                        $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23,$24);}
| PARSEOP_QWORDSPACE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

RegisterTerm

```
: PARSEOP_REGISTER
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_REGISTER);}
  AddressSpaceKeyword
  ' ByteConstExpr
  ' ByteConstExpr
  ' QWordConstExpr
  OptionalAccessSize
  OptionalNameString_Last
  PARSEOP_CLOSE_PAREN  {$$ = TrLinkOpChildren (<n>3,6,$4,$6,$8,$10,$11,$12);}
| PARSEOP_REGISTER
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

SpiSerialBusTerm

```
: PARSEOP_SPI_SERIALBUS
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_SPI_SERIALBUS);}
  WordConstExpr        /* 04: DeviceSelection
*/
  OptionalDevicePolarity /* 05: DevicePolarity */
  OptionalWireMode      /* 06: WireMode */
  ' ByteConstExpr       /* 08: DataBitLength */
  OptionalSlaveMode     /* 09: SlaveMode */
  ' DWordConstExpr      /* 11: ConnectionSpeed */
  ' ClockPolarityKeyword /* 13: ClockPolarity */
  ' ClockPhaseKeyword   /* 15: ClockPhase */
  ' StringData          /* 17: ResourceSource */
  OptionalByteConstExpr /* 18: ResourceSourceIndex */
  OptionalResourceType  /* 19: ResourceType */
  OptionalNameString    /* 20: DescriptorName */
```

```

OptionalBuffer_Last      /* 21: VendorData */
PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren (<n>3,14,
                                $4,$5,$6,$8,$9,$11,$13,$15,$17,$18,$19,$20,
                                TrCreateLeafOp (PARSEOP_DEFAULT_ARG),$21);}
| PARSEOP_SPI_SERIALBUS
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### SpiSerialBusTermV2

```

: PARSEOP_SPI_SERIALBUS_V2
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SPI_SERIALBUS_V2);}
  WordConstExpr          /* 04: DeviceSelection */
  OptionalDevicePolarity /* 05: DevicePolarity */
  OptionalWireMode       /* 06: WireMode */
  ',' ByteConstExpr      /* 08: DataBitLength */
  OptionalSlaveMode      /* 09: SlaveMode */
  ',' DWordConstExpr     /* 11: ConnectionSpeed */
  ',' ClockPolarityKeyword /* 13: ClockPolarity */
  ',' ClockPhaseKeyword  /* 15: ClockPhase */
  ',' StringData         /* 17: ResourceSource */
  OptionalByteConstExpr  /* 18: ResourceSourceIndex */
  OptionalResourceType   /* 19: ResourceType */
  OptionalNameString     /* 20: DescriptorName */
  OptionalShareType      /* 21: Share
*/
  OptionalBuffer_Last    /* 22: VendorData */
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,14,
                                $4,$5,$6,$8,$9,$11,$13,$15,$17,$18,$19,$20,$21,$22);}
| PARSEOP_SPI_SERIALBUS_V2
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### StartDependentFnNoPriTerm

```

: PARSEOP_STARTDEPENDENTFN_NOPRI
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_STARTDEPENDENTFN_NOPRI);}
  PARSEOP_CLOSE_PAREN    {'{
  ResourceMacroList      {'}' {$$ = TrLinkOpChildren (<n>3,1,$6);}
| PARSEOP_STARTDEPENDENTFN_NOPRI
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### StartDependentFnTerm

```

: PARSEOP_STARTDEPENDENTFN
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_STARTDEPENDENTFN);}
  ByteConstExpr

```

```

    ',' ByteConstExpr
    PARSEOP_CLOSE_PAREN '{'
    ResourceMacroList
}'    {$$ = TrLinkOpChildren ($<n>3,3,$4,$6,$9);}
| PARSEOP_STARTDEPENDENTFN
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN    {$$ = AslDoError(); yyclearin;}
;

```

#### UartSerialBusTerm

```

: PARSEOP_UART_SERIALBUS
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_UART_SERIALBUS);}
    DWordConstExpr        /* 04: ConnectionSpeed */
    OptionalBitsPerByte    /* 05: BitsPerByte */
    OptionalStopBits        /* 06: StopBits */
    ',' ByteConstExpr        /* 08: LinesInUse */
    OptionalEndian        /* 09: Endianess */
    OptionalParityType        /* 10: Parity */
    OptionalFlowControl        /* 11: FlowControl */
    ',' WordConstExpr        /* 13: Rx BufferSize */
    ',' WordConstExpr        /* 15: Tx BufferSize */
    ',' StringData        /* 17: ResourceSource */
    OptionalByteConstExpr    /* 18: ResourceSourceIndex */
    OptionalResourceType
    /* 19: ResourceType */
    OptionalNameString        /* 20: DescriptorName */
    OptionalBuffer_Last        /* 21: VendorData */
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,15,
        $4,$5,$6,$8,$9,$10,$11,$13,$15,$17,$18,$19,$20,
        TrCreateLeafOp (PARSEOP_DEFAULT_ARG),$21);}
| PARSEOP_UART_SERIALBUS
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN    {$$ = AslDoError(); yyclearin;}
;

```

#### UartSerialBusTermV2

```

: PARSEOP_UART_SERIALBUS_V2
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_UART_SERIALBUS_V2);}
    DWordConstExpr        /* 04: ConnectionSpeed */
    OptionalBitsPerByte        /* 05: BitsPerByte */
    OptionalStopBits        /* 06: StopBits */
    ',' ByteConstExpr        /* 08: LinesInUse */
    OptionalEndian        /* 09: Endianess */
    OptionalParityType        /* 10: Parity
*/
    OptionalFlowControl        /* 11: FlowControl */
    ',' WordConstExpr        /* 13: Rx BufferSize */
    ',' WordConstExpr        /* 15: Tx BufferSize */

```

```

'| StringData          /* 17: ResourceSource */
OptionalByteConstExpr /* 18: ResourceSourceIndex */
OptionalResourceType  /* 19: ResourceType */
OptionalNameString    /* 20: DescriptorName */
OptionalShareType     /* 21: Share */
OptionalBuffer_Last   /* 22: VendorData */
PARSEOP_CLOSE_PAREN   { $$ = TrLinkOpChildren ($<n>3,15,
                    $4,$5,$6,$8,$9,$10,$11,$13,$15,$17,$18,$19,$20,$21,$22);}
| PARSEOP_UART_SERIALBUS_V2
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

VendorLongTerm
: PARSEOP_VENDORLONG
  PARSEOP_OPEN_PAREN    { $<n>$ = TrCreateLeafOp (PARSEOP_VENDORLONG);}
  OptionalNameString_First
  PARSEOP_CLOSE_PAREN '{'
  ByteList '}'          { $$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
| PARSEOP_VENDORLONG
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

VendorShortTerm
: PARSEOP_VENDORSHORT
  PARSEOP_OPEN_PAREN    { $<n>$ = TrCreateLeafOp (PARSEOP_VENDORSHORT);}
  OptionalNameString_First
  PARSEOP_CLOSE_PAREN '{'
  ByteList '}'          { $$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
| PARSEOP_VENDORSHORT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN { $$ = AslDoError(); yyclearin;}
;

WordBusNumberTerm
: PARSEOP_WORDBUSNUMBER
  PARSEOP_OPEN_PAREN    { $<n>$ = TrCreateLeafOp (PARSEOP_WORDBUSNUMBER);}
  OptionalResourceType_First
  OptionalMinType
  OptionalMaxType
  OptionalDecodeType
  '|' WordConstExpr
  '|' WordConstExpr
  '|' WordConstExpr
  '|' WordConstExpr
  '|' WordConstExpr

```

```

OptionalByteConstExpr
OptionalStringData
OptionalNameString_Last
PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,12,
                        $4,$5,$6,$7,$9,$11,$13,$15,$17,$18,$19,$20);}
| PARSEOP_WORDBUSNUMBER
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### WordIOTerm

```

: PARSEOP_WORDIO
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_WORDIO);}
  OptionalResourceType_First
  OptionalMinType
  OptionalMaxType
  OptionalDecodeType
  OptionalRangeType
  ';' WordConstExpr
  ';' WordConstExpr
  ';' WordConstExpr
  ';' WordConstExpr
  ';' WordConstExpr
  OptionalByteConstExpr
  OptionalStringData
  OptionalNameString
  OptionalType
  OptionalTranslationType_Last
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,15,
                        $4,$5,$6,$7,$8,$10,$12,$14,$16,$18,$19,$20,$21,$22,$23);}
| PARSEOP_WORDIO
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### WordSpaceTerm

```

: PARSEOP_WORDSAPCE
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_WORDSAPCE);}
  ByteConstExpr          {UtCheckIntegerRange ($4, 0xC0, 0xFF);}
  OptionalResourceType
  OptionalDecodeType
  OptionalMinType
  OptionalMaxType
  ';' ByteConstExpr
  ';' WordConstExpr
  ';' WordConstExpr
  ';' WordConstExpr

```

```

    ' WordConstExpr
    ' WordConstExpr
    OptionalByteConstExpr
    OptionalStringData
    OptionalNameString_Last
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,14,
                            $4,$6,$7,$8,$9,$11,$13,$15,$17,$19,$21,$22,$23,$24);}
| PARSEOP_WORDSAPCE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError();
yyclearin;}
;

```

Found in path(s):

```

* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslresources.y

```

No license file was found, but licenses were detected in source scan.

NoEcho('

```

/*****

```

```

*

```

```

* Module Name: asltokens.y - Bison/Yacc token types

```

```

*

```

```

*****/

```

```

/*

```

```

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```

```

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* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
* POSSIBILITY OF SUCH DAMAGES.
*/

```

)

```

/*****
*
* Token types: These are returned by the lexer
*
* NOTE: This list MUST match the AslKeywordMapping table found
*       in aslmap.c EXACTLY! Double check any changes!
*
*****/

```

```

/*
* Most tokens are defined to return <i>, which is a UINT64.
*
* These tokens return <s>, a pointer to the associated lexed string:
*
* PARSEOP_NAMESEG
* PARSEOP_NAMESTRING
* PARSEOP_STRING_LITERAL
* PARSEOP_STRUCTURE_NAMESTRING
*/

```

```

%token <i> PARSEOP_ACCESSAS
%token <i> PARSEOP_ACCESSATTRIB_BLOCK
%token <i> PARSEOP_ACCESSATTRIB_BLOCK_CALL
%token <i> PARSEOP_ACCESSATTRIB_BYTE
%token <i> PARSEOP_ACCESSATTRIB_MULTIBYTE
%token <i> PARSEOP_ACCESSATTRIB_QUICK
%token
<i> PARSEOP_ACCESSATTRIB_RAW_BYTES
%token <i> PARSEOP_ACCESSATTRIB_RAW_PROCESS
%token <i> PARSEOP_ACCESSATTRIB_SND_RCV
%token <i> PARSEOP_ACCESSATTRIB_WORD
%token <i> PARSEOP_ACCESSATTRIB_WORD_CALL
%token <i> PARSEOP_ACCESSTYPE_ANY

```

%token <i> PARSEOP\_ACCESSTYPE\_BUF  
%token <i> PARSEOP\_ACCESSTYPE\_BYTE  
%token <i> PARSEOP\_ACCESSTYPE\_DWORD  
%token <i> PARSEOP\_ACCESSTYPE\_QWORD  
%token <i> PARSEOP\_ACCESSTYPE\_WORD  
%token <i> PARSEOP\_ACQUIRE  
%token <i> PARSEOP\_ADD  
%token <i> PARSEOP\_ADDRESSINGMODE\_7BIT  
%token <i> PARSEOP\_ADDRESSINGMODE\_10BIT  
%token <i> PARSEOP\_ADDRESSTYPE ACPI  
%token <i> PARSEOP\_ADDRESSTYPE\_MEMORY  
%token <i> PARSEOP\_ADDRESSTYPE\_NVS  
%token <i> PARSEOP\_ADDRESSTYPE\_RESERVED  
%token <i> PARSEOP\_ALIAS  
%token <i> PARSEOP\_AND  
%token <i> PARSEOP\_ARG0  
%token <i> PARSEOP\_ARG1  
%token <i> PARSEOP\_ARG2  
%token <i> PARSEOP\_ARG3  
%token <i> PARSEOP\_ARG4  
%token <i> PARSEOP\_ARG5  
%token <i> PARSEOP\_ARG6  
%token <i> PARSEOP\_BANKFIELD  
%token <i> PARSEOP\_BITSPERBYTE\_EIGHT  
%token <i> PARSEOP\_BITSPERBYTE\_FIVE  
%token  
<i> PARSEOP\_BITSPERBYTE\_NINE  
%token <i> PARSEOP\_BITSPERBYTE\_SEVEN  
%token <i> PARSEOP\_BITSPERBYTE\_SIX  
%token <i> PARSEOP\_BREAK  
%token <i> PARSEOP\_BREAKPOINT  
%token <i> PARSEOP\_BUFFER  
%token <i> PARSEOP\_BUSMASTERTYPE\_MASTER  
%token <i> PARSEOP\_BUSMASTERTYPE\_NOTMASTER  
%token <i> PARSEOP\_BYTECONST  
%token <i> PARSEOP\_CASE  
%token <i> PARSEOP\_CLOCKPHASE\_FIRST  
%token <i> PARSEOP\_CLOCKPHASE\_SECOND  
%token <i> PARSEOP\_CLOCKPOLARITY\_HIGH  
%token <i> PARSEOP\_CLOCKPOLARITY\_LOW  
%token <i> PARSEOP\_CONCATENATE  
%token <i> PARSEOP\_CONCATENATERESTEMPLATE  
%token <i> PARSEOP\_CONDREFOF  
%token <i> PARSEOP\_CONNECTION  
%token <i> PARSEOP\_CONTINUE  
%token <i> PARSEOP\_COPYOBJECT  
%token <i> PARSEOP\_CREATEBITFIELD  
%token <i> PARSEOP\_CREATEBYTEFIELD



%token <i> PARSEOP\_CREATEDWORDFIELD  
 %token <i> PARSEOP\_CREATEFIELD  
 %token <i> PARSEOP\_CREATEQWORDFIELD  
 %token <i> PARSEOP\_CREATEWORDFIELD  
 %token <i> PARSEOP\_DATABUFFER  
 %token <i> PARSEOP\_DATATABLEREGION  
 %token <i> PARSEOP\_DEBUG  
 %token <i> PARSEOP\_DECODETYPE\_POS  
 %token  
 <i> PARSEOP\_DECODETYPE\_SUB  
 %token <i> PARSEOP\_DECREMENT  
 %token <i> PARSEOP\_DEFAULT  
 %token <i> PARSEOP\_DEFAULT\_ARG  
 %token <i> PARSEOP\_DEFINITION\_BLOCK  
 %token <i> PARSEOP\_DEREF\_OF  
 %token <i> PARSEOP\_DEVICE  
 %token <i> PARSEOP\_DEVICEPOLARITY\_HIGH  
 %token <i> PARSEOP\_DEVICEPOLARITY\_LOW  
 %token <i> PARSEOP\_DIVIDE  
 %token <i> PARSEOP\_DMA  
 %token <i> PARSEOP\_DMATYPE\_A  
 %token <i> PARSEOP\_DMATYPE\_COMPATIBILITY  
 %token <i> PARSEOP\_DMATYPE\_B  
 %token <i> PARSEOP\_DMATYPE\_F  
 %token <i> PARSEOP\_DWORDCONST  
 %token <i> PARSEOP\_DWORDIO  
 %token <i> PARSEOP\_DWORDMEMORY  
 %token <i> PARSEOP\_DWORDSPACE  
 %token <i> PARSEOP\_EISAID  
 %token <i> PARSEOP\_ELSE  
 %token <i> PARSEOP\_ELSEIF  
 %token <i> PARSEOP\_ENDDEPENDENTFN  
 %token <i> PARSEOP\_ENDIAN\_BIG  
 %token <i> PARSEOP\_ENDIAN\_LITTLE  
 %token <i> PARSEOP\_ENDTAG  
 %token <i> PARSEOP\_ERRORNODE  
 %token <i> PARSEOP\_EVENT  
 %token <i> PARSEOP\_EXTENDEDIO  
 %token <i> PARSEOP\_EXTENDEDMEMORY  
 %token <i> PARSEOP\_EXTENDEDSPACE  
 %token <i> PARSEOP\_EXTERNAL  
 %token <i> PARSEOP\_FATAL  
 %token <i> PARSEOP\_FIELD  
 %token  
 <i> PARSEOP\_FINDSETLEFTBIT  
 %token <i> PARSEOP\_FINDSETRIGHTBIT  
 %token <i> PARSEOP\_FIXEDDMA  
 %token <i> PARSEOP\_FIXEDIO

%token <i> PARSEOP\_FLOWCONTROL\_HW  
%token <i> PARSEOP\_FLOWCONTROL\_NONE  
%token <i> PARSEOP\_FLOWCONTROL\_SW  
%token <i> PARSEOP\_FROMBCD  
%token <i> PARSEOP\_FUNCTION  
%token <i> PARSEOP\_GPIO\_INT  
%token <i> PARSEOP\_GPIO\_IO  
%token <i> PARSEOP\_I2C\_SERIALBUS  
%token <i> PARSEOP\_I2C\_SERIALBUS\_V2  
%token <i> PARSEOP\_IF  
%token <i> PARSEOP\_INCLUDE  
%token <i> PARSEOP\_INCLUDE\_END  
%token <i> PARSEOP\_INCREMENT  
%token <i> PARSEOP\_INDEX  
%token <i> PARSEOP\_INDEXFIELD  
%token <i> PARSEOP\_INTEGER  
%token <i> PARSEOP\_INTERRUPT  
%token <i> PARSEOP\_INTLEVEL\_ACTIVEBOTH  
%token <i> PARSEOP\_INTLEVEL\_ACTIVEHIGH  
%token <i> PARSEOP\_INTLEVEL\_ACTIVELOW  
%token <i> PARSEOP\_INTTYPE\_EDGE  
%token <i> PARSEOP\_INTTYPE\_LEVEL  
%token <i> PARSEOP\_IO  
%token <i> PARSEOP\_IODECODETYPE\_10  
%token <i> PARSEOP\_IODECODETYPE\_16  
%token <i> PARSEOP\_IORESTRICT\_IN  
%token <i> PARSEOP\_IORESTRICT\_NONE  
%token <i> PARSEOP\_IORESTRICT\_OUT  
%token  
<i> PARSEOP\_IORESTRICT\_PRESERVE  
%token <i> PARSEOP\_IRQ  
%token <i> PARSEOP\_IRQNOFLAGS  
%token <i> PARSEOP\_LAND  
%token <i> PARSEOP\_LEQUAL  
%token <i> PARSEOP\_LGREATER  
%token <i> PARSEOP\_LGREATEREQUAL  
%token <i> PARSEOP\_LLESS  
%token <i> PARSEOP\_LLESSEQUAL  
%token <i> PARSEOP\_LNOT  
%token <i> PARSEOP\_LNOTEQUAL  
%token <i> PARSEOP\_LOAD  
%token <i> PARSEOP\_LOADTABLE  
%token <i> PARSEOP\_LOCAL0  
%token <i> PARSEOP\_LOCAL1  
%token <i> PARSEOP\_LOCAL2  
%token <i> PARSEOP\_LOCAL3  
%token <i> PARSEOP\_LOCAL4  
%token <i> PARSEOP\_LOCAL5

%token <i> PARSEOP\_LOCAL6  
%token <i> PARSEOP\_LOCAL7  
%token <i> PARSEOP\_LOCKRULE\_LOCK  
%token <i> PARSEOP\_LOCKRULE\_NOLOCK  
%token <i> PARSEOP\_LOR  
%token <i> PARSEOP\_MATCH  
%token <i> PARSEOP\_MATCHTYPE\_MEQ  
%token <i> PARSEOP\_MATCHTYPE\_MGE  
%token <i> PARSEOP\_MATCHTYPE\_MGT  
%token <i> PARSEOP\_MATCHTYPE\_MLE  
%token <i> PARSEOP\_MATCHTYPE\_MLT  
%token <i> PARSEOP\_MATCHTYPE\_MTR  
%token <i> PARSEOP\_MAXTYPE\_FIXED  
%token <i> PARSEOP\_MAXTYPE\_NOTFIXED  
%token <i> PARSEOP\_MEMORY24  
%token  
    <i> PARSEOP\_MEMORY32  
%token <i> PARSEOP\_MEMORY32FIXED  
%token <i> PARSEOP\_MEMTYPE\_CACHEABLE  
%token <i> PARSEOP\_MEMTYPE\_NONCACHEABLE  
%token <i> PARSEOP\_MEMTYPE\_PREFETCHABLE  
%token <i> PARSEOP\_MEMTYPE\_WRITECOMBINING  
%token <i> PARSEOP\_METHOD  
%token <i> PARSEOP\_METHODCALL  
%token <i> PARSEOP\_MID  
%token <i> PARSEOP\_MINTYPE\_FIXED  
%token <i> PARSEOP\_MINTYPE\_NOTFIXED  
%token <i> PARSEOP\_MOD  
%token <i> PARSEOP\_MULTIPLY  
%token <i> PARSEOP\_MUTEX  
%token <i> PARSEOP\_NAME  
%token <s> PARSEOP\_NAMESEG  
%token <s> PARSEOP\_NAMESTRING  
%token <i> PARSEOP\_NAND  
%token <i> PARSEOP\_NOOP  
%token <i> PARSEOP\_NOR  
%token <i> PARSEOP\_NOT  
%token <i> PARSEOP\_NOTIFY  
%token <i> PARSEOP\_OBJECTTYPE  
%token <i> PARSEOP\_OBJECTTYPE\_BFF  
%token <i> PARSEOP\_OBJECTTYPE\_BUF  
%token <i> PARSEOP\_OBJECTTYPE\_DDB  
%token <i> PARSEOP\_OBJECTTYPE\_DEV  
%token <i> PARSEOP\_OBJECTTYPE\_EVT  
%token <i> PARSEOP\_OBJECTTYPE\_FLD  
%token <i> PARSEOP\_OBJECTTYPE\_INT  
%token <i> PARSEOP\_OBJECTTYPE\_MTH  
%token <i> PARSEOP\_OBJECTTYPE\_MTX

%token <i> PARSEOP\_OBJECTTYPE\_OPR  
 %token  
 <i> PARSEOP\_OBJECTTYPE\_PKG  
 %token <i> PARSEOP\_OBJECTTYPE\_POW  
 %token <i> PARSEOP\_OBJECTTYPE\_PRO  
 %token <i> PARSEOP\_OBJECTTYPE\_STR  
 %token <i> PARSEOP\_OBJECTTYPE\_THZ  
 %token <i> PARSEOP\_OBJECTTYPE\_UNK  
 %token <i> PARSEOP\_OFFSET  
 %token <i> PARSEOP\_ONE  
 %token <i> PARSEOP\_ONES  
 %token <i> PARSEOP\_OPERATIONREGION  
 %token <i> PARSEOP\_OR  
 %token <i> PARSEOP\_PACKAGE  
 %token <i> PARSEOP\_PACKAGE\_LENGTH  
 %token <i> PARSEOP\_PARITYTYPE\_EVEN  
 %token <i> PARSEOP\_PARITYTYPE\_MARK  
 %token <i> PARSEOP\_PARITYTYPE\_NONE  
 %token <i> PARSEOP\_PARITYTYPE\_ODD  
 %token <i> PARSEOP\_PARITYTYPE\_SPACE  
 %token <i> PARSEOP\_PINCONFIG  
 %token <i> PARSEOP\_PINFUNCTION  
 %token <i> PARSEOP\_PINGROUP  
 %token <i> PARSEOP\_PINGROUPCONFIG  
 %token <i> PARSEOP\_PINGROUPFUNCTION  
 %token <i> PARSEOP\_PIN\_NOPULL  
 %token <i> PARSEOP\_PIN\_PULLDEFAULT  
 %token <i> PARSEOP\_PIN\_PULLDOWN  
 %token <i> PARSEOP\_PIN\_PULLUP  
 %token <i> PARSEOP\_POWERRESOURCE  
 %token <i> PARSEOP\_PROCESSOR  
 %token <i> PARSEOP\_QWORDCONST  
 %token <i> PARSEOP\_QWORDIO  
 %token <i> PARSEOP\_QWORDMEMORY  
 %token  
 <i> PARSEOP\_QWORDSPACE  
 %token <i> PARSEOP\_RANGETYPE\_ENTIRE  
 %token <i> PARSEOP\_RANGETYPE\_ISAONLY  
 %token <i> PARSEOP\_RANGETYPE\_NONISAONLY  
 %token <i> PARSEOP\_RAW\_DATA  
 %token <i> PARSEOP\_READWRITETYPE\_BOTH  
 %token <i> PARSEOP\_READWRITETYPE\_READONLY  
 %token <i> PARSEOP\_REFOF  
 %token <i> PARSEOP\_REGIONSPACE\_CMOS  
 %token <i> PARSEOP\_REGIONSPACE\_EC  
 %token <i> PARSEOP\_REGIONSPACE\_FIXEDHW  
 %token <i> PARSEOP\_REGIONSPACE\_GPIO  
 %token <i> PARSEOP\_REGIONSPACE\_GSBUS

%token <i> PARSEOP\_REGIONSPACE\_IO  
 %token <i> PARSEOP\_REGIONSPACE\_IPMI  
 %token <i> PARSEOP\_REGIONSPACE\_MEM  
 %token <i> PARSEOP\_REGIONSPACE\_PCC  
 %token <i> PARSEOP\_REGIONSPACE\_PCI  
 %token <i> PARSEOP\_REGIONSPACE\_PCIBAR  
 %token <i> PARSEOP\_REGIONSPACE\_SMBUS  
 %token <i> PARSEOP\_REGISTER  
 %token <i> PARSEOP\_RELEASE  
 %token <i> PARSEOP\_RESERVED\_BYTES  
 %token <i> PARSEOP\_RESET  
 %token <i> PARSEOP\_RESOURCETEMPLATE  
 %token <i> PARSEOP\_RESOURCETYPE\_CONSUMER  
 %token <i> PARSEOP\_RESOURCETYPE\_PRODUCER  
 %token <i> PARSEOP\_RETURN  
 %token <i> PARSEOP\_REVISION  
 %token  
 <i> PARSEOP\_SCOPE  
 %token <i> PARSEOP\_SERIALIZERULE\_NOTSERIAL  
 %token <i> PARSEOP\_SERIALIZERULE\_SERIAL  
 %token <i> PARSEOP\_SHARETYPE\_EXCLUSIVE  
 %token <i> PARSEOP\_SHARETYPE\_EXCLUSIVEWAKE  
 %token <i> PARSEOP\_SHARETYPE\_SHARED  
 %token <i> PARSEOP\_SHARETYPE\_SHAREDWAKE  
 %token <i> PARSEOP\_SHIFTLLEFT  
 %token <i> PARSEOP\_SHIFTRIGHT  
 %token <i> PARSEOP\_SIGNAL  
 %token <i> PARSEOP\_SIZEOF  
 %token <i> PARSEOP\_SLAVEMODE\_CONTROLLERINIT  
 %token <i> PARSEOP\_SLAVEMODE\_DEVICEINIT  
 %token <i> PARSEOP\_SLEEP  
 %token <i> PARSEOP\_SPI\_SERIALBUS  
 %token <i> PARSEOP\_SPI\_SERIALBUS\_V2  
 %token <i> PARSEOP\_STALL  
 %token <i> PARSEOP\_STARTDEPENDENTFN  
 %token <i> PARSEOP\_STARTDEPENDENTFN\_NOPRI  
 %token <i> PARSEOP\_STOPBITS\_ONE  
 %token <i> PARSEOP\_STOPBITS\_ONEPLUSHALF  
 %token <i> PARSEOP\_STOPBITS\_TWO  
 %token <i> PARSEOP\_STOPBITS\_ZERO  
 %token <i> PARSEOP\_STORE  
 %token <s> PARSEOP\_STRING\_LITERAL  
 %token <i> PARSEOP\_SUBTRACT  
 %token <i> PARSEOP\_SWITCH  
 %token <i> PARSEOP\_THERMALZONE  
 %token <i> PARSEOP\_TIMER  
 %token <i> PARSEOP\_TOBCD  
 %token

<i> PARSEOP\_TOBUFFER  
%token <i> PARSEOP\_TODECIMALSTRING  
%token <i> PARSEOP\_TOHEXSTRING  
%token <i> PARSEOP\_TOINTEGER  
%token <i> PARSEOP\_TOSTRING  
%token <i> PARSEOP\_TOUUID  
%token <i> PARSEOP\_TRANSLATIONTYPE\_DENSE  
%token <i> PARSEOP\_TRANSLATIONTYPE\_SPARSE  
%token <i> PARSEOP\_TYPE\_STATIC  
%token <i> PARSEOP\_TYPE\_TRANSLATION  
%token <i> PARSEOP\_UART\_SERIALBUS  
%token <i> PARSEOP\_UART\_SERIALBUS\_V2  
%token <i> PARSEOP\_UNICODE  
%token <i> PARSEOP\_UNLOAD  
%token <i> PARSEOP\_UPDATERULE\_ONES  
%token <i> PARSEOP\_UPDATERULE\_PRESERVE  
%token <i> PARSEOP\_UPDATERULE\_ZEROS  
%token <i> PARSEOP\_VAR\_PACKAGE  
%token <i> PARSEOP\_VENDORLONG  
%token <i> PARSEOP\_VENDORSHORT  
%token <i> PARSEOP\_WAIT  
%token <i> PARSEOP\_WHILE  
%token <i> PARSEOP\_WIREMODE\_FOUR  
%token <i> PARSEOP\_WIREMODE\_THREE  
%token <i> PARSEOP\_WORDBUSNUMBER  
%token <i> PARSEOP\_WORDCONST  
%token <i> PARSEOP\_WORDIO  
%token <i> PARSEOP\_WORDSPLACE  
%token <i> PARSEOP\_XFERSIZE\_8  
%token <i> PARSEOP\_XFERSIZE\_16  
%token <i> PARSEOP\_XFERSIZE\_32  
%token <i> PARSEOP\_XFERSIZE\_64  
%token  
<i> PARSEOP\_XFERSIZE\_128  
%token <i> PARSEOP\_XFERSIZE\_256  
%token <i> PARSEOP\_XFERTYPE\_8  
%token <i> PARSEOP\_XFERTYPE\_8\_16  
%token <i> PARSEOP\_XFERTYPE\_16  
%token <i> PARSEOP\_XOR  
%token <i> PARSEOP\_ZERO

/\* ToPld macro \*/

%token <i> PARSEOP\_TOPLD  
%token <i> PARSEOP\_PLD\_REVISION  
%token <i> PARSEOP\_PLD\_IGNORECOLOR  
%token <i> PARSEOP\_PLD\_RED  
%token <i> PARSEOP\_PLD\_GREEN

%token <i> PARSEOP\_PLD\_BLUE  
%token <i> PARSEOP\_PLD\_WIDTH  
%token <i> PARSEOP\_PLD\_HEIGHT  
%token <i> PARSEOP\_PLD\_USERVISIBLE  
%token <i> PARSEOP\_PLD\_DOCK  
%token <i> PARSEOP\_PLD\_LID  
%token <i> PARSEOP\_PLD\_PANEL  
%token <i> PARSEOP\_PLD\_VERTICALPOSITION  
%token <i> PARSEOP\_PLD\_HORIZONTALPOSITION  
%token <i> PARSEOP\_PLD\_SHAPE  
%token <i> PARSEOP\_PLD\_GROUPORIENTATION  
%token <i> PARSEOP\_PLD\_GROUPTOKEN  
%token <i> PARSEOP\_PLD\_GROUPPOSITION  
%token <i> PARSEOP\_PLD\_BAY  
%token <i> PARSEOP\_PLD\_EJECTABLE  
%token <i> PARSEOP\_PLD\_EJECTREQUIRED  
%token <i> PARSEOP\_PLD\_CABINETNUMBER  
%token <i> PARSEOP\_PLD\_CARDCAGENUMBER  
%token <i> PARSEOP\_PLD\_REFERENCE  
%token  
    <i> PARSEOP\_PLD\_ROTATION  
%token <i> PARSEOP\_PLD\_ORDER  
%token <i> PARSEOP\_PLD\_RESERVED  
%token <i> PARSEOP\_PLD\_VERTICALOFFSET  
%token <i> PARSEOP\_PLD\_HORIZONTALOFFSET

/\*

\* C-style expression parser. These must appear after all of the  
\* standard ASL operators and keywords.

\*

\* Note: The order of these tokens implements the precedence rules  
\* (low precedence to high). See asrules.y for an exhaustive list.

\*/

%right <i> PARSEOP\_EXP\_EQUALS  
    PARSEOP\_EXP\_ADD\_EQ  
    PARSEOP\_EXP\_SUB\_EQ  
    PARSEOP\_EXP\_MUL\_EQ  
    PARSEOP\_EXP\_DIV\_EQ  
    PARSEOP\_EXP\_MOD\_EQ  
    PARSEOP\_EXP\_SHL\_EQ  
    PARSEOP\_EXP\_SHR\_EQ  
    PARSEOP\_EXP\_AND\_EQ  
    PARSEOP\_EXP\_XOR\_EQ  
    PARSEOP\_EXP\_OR\_EQ

%left <i> PARSEOP\_EXP\_LOGICAL\_OR  
%left <i> PARSEOP\_EXP\_LOGICAL\_AND  
%left <i> PARSEOP\_EXP\_OR

```

%left <i> PARSEOP_EXP_XOR
%left <i> PARSEOP_EXP_AND
%left <i> PARSEOP_EXP_EQUAL
    PARSEOP_EXP_NOT_EQUAL
%left <i> PARSEOP_EXP_GREATER
    PARSEOP_EXP_LESS
    PARSEOP_EXP_GREATER_EQUAL
    PARSEOP_EXP_LESS_EQUAL
%left <i> PARSEOP_EXP_SHIFT_RIGHT
    PARSEOP_EXP_SHIFT_LEFT
%left <i> PARSEOP_EXP_ADD
    PARSEOP_EXP_SUBTRACT
%left <i> PARSEOP_EXP_MULTIPLY
    PARSEOP_EXP_DIVIDE
    PARSEOP_EXP_MODULO

%right <i> PARSEOP_EXP_NOT
    PARSEOP_EXP_LOGICAL_NOT

%left <i> PARSEOP_EXP_INCREMENT
    PARSEOP_EXP_DECREMENT

%left <i> PARSEOP_OPEN_PAREN
    PARSEOP_CLOSE_PAREN

/* Brackets for Index() support */

%left <i> PARSEOP_EXP_INDEX_LEFT
%right <i> PARSEOP_EXP_INDEX_RIGHT

/* Macros */

%token <i> PARSEOP_PRINTF
%token <i> PARSEOP_FPRINTF
%token <i> PARSEOP_FOR

/* Structures */

%token <i> PARSEOP_STRUCTURE
%token <s> PARSEOP_STRUCTURE_NAMESTRING
%token <i> PARSEOP_STRUCTURE_TAG
%token <i> PARSEOP_STRUCTURE_ELEMENT
%token <i> PARSEOP_STRUCTURE_INSTANCE
%token <i> PARSEOP_STRUCTURE_REFERENCE
%token <i> PARSEOP_STRUCTURE_POINTER

/* Top level

```



```

*/

%token <i> PARSEOP_ASL_CODE

/*****
*
* Tokens below are not in the aslmap.c file
*
*****/

/* Tokens below this are not in the aslmap.c file */

/* Specific parentheses tokens are not used at this time */
    /* PARSEOP_EXP_PAREN_OPEN */
    /* PARSEOP_EXP_PAREN_CLOSE */

/* ASL+ variable creation */

%token <i> PARSEOP_INTEGER_TYPE
%token <i> PARSEOP_STRING_TYPE
%token <i> PARSEOP_BUFFER_TYPE
%token <i> PARSEOP_PACKAGE_TYPE
%token <i> PARSEOP_REFERENCE_TYPE

/*
* Special functions. These should probably stay at the end of this
* table.
*/
%token <i> PARSEOP__DATE__
%token <i> PARSEOP__FILE__
%token <i> PARSEOP__LINE__
%token <i> PARSEOP__PATH__
%token <i> PARSEOP__METHOD__

Found in path(s):
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asltokens.y
No license file was found, but licenses were detected in source scan.

NoEcho('
/*****
*
* Module Name: aslhelpers.y - helper and option terms
*
*****/

```

```
/*
 * Copyright (C) 2000 - 2018, Intel Corp.
 * All rights reserved.
 *
 * Redistribution and use in source and binary forms, with or without
 * modification, are permitted provided that the following conditions
 * are met:
 * 1. Redistributions of source code must retain the above copyright
 * notice, this list of conditions, and the following disclaimer,
 * without modification.
 * 2. Redistributions in binary form must reproduce at minimum a disclaimer
 * substantially similar to the "NO WARRANTY" disclaimer below
 * ("Disclaimer") and any redistribution must be conditioned upon
 * including a substantially similar Disclaimer requirement for further
 * binary redistribution.
 * 3. Neither the names of the above-listed copyright holders nor the names
 * of any contributors may be used to endorse or promote products derived
 * from this software without specific prior written permission.
 *
 * Alternatively, this software may be distributed under the terms of the
 * GNU General Public License ("GPL") version 2 as published by the Free
 * Software Foundation.
 *
 * NO WARRANTY
 * THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS
 * "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
 * LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
 * A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT
 * HOLDERS OR CONTRIBUTORS BE LIABLE FOR SPECIAL, EXEMPLARY, OR CONSEQUENTIAL
 * DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS
 * OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)
 * HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
 * STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
 * IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
 * POSSIBILITY OF SUCH DAMAGES.
 */
```

')

```
/*
 *
 * ASL Helper Terms
 *
 *****/
```

OptionalBusMasterKeyword

```

:','          { $$ = TrCreateLeafOp (
                PARSEOP_BUSMASTERTYPE_MASTER);}
|',' PARSEOP_BUSMASTERTYPE_MASTER    { $$ = TrCreateLeafOp (
                PARSEOP_BUSMASTERTYPE_MASTER);}
|',' PARSEOP_BUSMASTERTYPE_NOTMASTER { $$ = TrCreateLeafOp (
                PARSEOP_BUSMASTERTYPE_NOTMASTER);}
;

```

#### OptionalAccessAttribTerm

```

:            { $$ = NULL;}
|','        { $$ = NULL;}
|',' ByteConstExpr
            { $$ = $2;}
|',' AccessAttribKeyword    { $$ = $2;}
;

```

#### OptionalAccessSize

```

:            { $$ = TrCreateValuedLeafOp (
                PARSEOP_BYTECONST, 0);}
|','        { $$ = TrCreateValuedLeafOp (
                PARSEOP_BYTECONST, 0);}
|',' ByteConstExpr    { $$ = $2;}
;

```

#### OptionalAddressingMode

```

:','        { $$ = NULL;}
|',' AddressingModeKeyword    { $$ = $2;}
;

```

#### OptionalAddressRange

```

:            { $$ = NULL;}
|','        { $$ = NULL;}
|',' AddressKeyword    { $$ = $2;}
;

```

#### OptionalBitsPerByte

```

:','        { $$ = NULL;}
|',' BitsPerByteKeyword    { $$ = $2;}
;

```

#### OptionalBuffer\_Last

```

:            { $$ = NULL;}
|','        { $$ = NULL;}
|',' RawDataBufferTerm    { $$ = $2;}
;

```

#### OptionalByteConstExpr

```

:                {$$ = NULL;}
|','            {$$ = NULL;}
|',' ByteConstExpr    {$$ = $2;}
;

```

#### OptionalDecodeType

```

:','            {$$ = NULL;}
|',' DecodeKeyword    {$$ = $2;}
;

```

#### OptionalDevicePolarity

```

:','            {$$ = NULL;}
|',' DevicePolarityKeyword    {$$ = $2;}
;

```

#### OptionalDWordConstExpr

```

:                {$$ = NULL;}
|','            {$$ = NULL;}
|',' DWordConstExpr    {$$ = $2;}
;

```

#### OptionalEndian

```

:','            {$$ = NULL;}
|',' EndianKeyword    {$$ = $2;}
;

```

#### OptionalFlowControl

```

:','            {$$ = NULL;}
|',' FlowControlKeyword    {$$ = $2;}
;

```

#### OptionalIoRestriction

```

:','            {$$ = NULL;}
|',' IoRestrictionKeyword    {$$ = $2;}
;

```

#### OptionalListString

```

:
    {$$ = TrCreateValuedLeafOp (
        PARSEOP_STRING_LITERAL,
        ACPI_TO_INTEGER (""));} /* Placeholder is a NULL string */
|','            {$$ = TrCreateValuedLeafOp (
        PARSEOP_STRING_LITERAL,
        ACPI_TO_INTEGER (""));} /* Placeholder is a NULL string */
|',' TermArg    {$$ = $2;}
;

```

#### OptionalMaxType

```
: ''          {$$ = NULL;}
| ',' MaxKeyword    {$$ = $2;}
;
```

#### OptionalMemType

```
: ''          {$$ = NULL;}
| ',' MemTypeKeyword    {$$ = $2;}
;
```

#### OptionalMinType

```
: ''          {$$ = NULL;}
| ',' MinKeyword      {$$ = $2;}
;
```

#### OptionalNameString

```
:          {$$ = NULL;}
| ''          {$$ = NULL;}
| ',' NameString
    {$$ = $2;}
;
```

#### OptionalNameString\_Last

```
:          {$$ = NULL;}
| ''          {$$ = NULL;}
| ',' NameString    {$$ = $2;}
;
```

#### OptionalNameString\_First

```
:          {$$ = TrCreateLeafOp (
                PARSEOP_ZERO);}
| NameString    {$$ = $1;}
;
```

#### OptionalObjectTypeKeyword

```
:          {$$ = TrCreateLeafOp (
                PARSEOP_OBJECTTYPE_UNK);}
| ',' ObjectTypeKeyword    {$$ = $2;}
;
```

#### OptionalParityType

```
: ''          {$$ = NULL;}
| ',' ParityTypeKeyword    {$$ = $2;}
;
```

#### OptionalQWordConstExpr

```
:          {$$ = NULL;}
| ''          {$$ = NULL;}
| ',' QWordConstExpr    {$$ = $2;}
;
```

```

;

OptionalRangeType
:','          {$$ = NULL;}
|',' RangeTypeKeyword    {$$
= $2;}
;

OptionalReadWriteKeyword
:
    {$$ = TrCreateLeafOp (
        PARSEOP_READWRITETYPE_BOTH);}
| PARSEOP_READWRITETYPE_BOTH    {$$ = TrCreateLeafOp (
        PARSEOP_READWRITETYPE_BOTH);}
| PARSEOP_READWRITETYPE_READONLY    {$$ = TrCreateLeafOp (
        PARSEOP_READWRITETYPE_READONLY);}
;

OptionalResourceType_First
:
    {$$ = TrCreateLeafOp (
        PARSEOP_RESOURCECTYPE_CONSUMER);}
| ResourceTypeKeyword    {$$ = $1;}
;

OptionalResourceType
:
    {$$ = TrCreateLeafOp (
        PARSEOP_RESOURCECTYPE_CONSUMER);}
|','          {$$ = TrCreateLeafOp (
        PARSEOP_RESOURCECTYPE_CONSUMER);}
|',' ResourceTypeKeyword    {$$
= $2;}
;

/* Same as above except default is producer */
OptionalProducerResourceType
:
    {$$ = TrCreateLeafOp (
        PARSEOP_RESOURCECTYPE_PRODUCER);}
|','          {$$ = TrCreateLeafOp (
        PARSEOP_RESOURCECTYPE_PRODUCER);}
|',' ResourceTypeKeyword    {$$ = $2;}
;

OptionalSlaveMode
:','          {$$ = NULL;}
|',' SlaveModeKeyword    {$$ = $2;}
;

OptionalShareType
:
    {$$ = NULL;}

```

```
| '          {$$ = NULL;}
| ' ShareTypeKeyword    {$$ = $2;}
;
```

#### OptionalShareType\_First

```
:          {$$ = NULL;}
| ShareTypeKeyword    {$$ = $1;}
;
```

#### OptionalStopBits

```
: '          {$$ = NULL;}
| ' StopBitsKeyword    {$$ = $2;}
;
```

#### OptionalStringData

```
:
  {$$ = NULL;}
| '          {$$ = NULL;}
| ' StringData    {$$ = $2;}
;
```

#### OptionalTranslationType\_Last

```
:          {$$ = NULL;}
| '          {$$ = NULL;}
| ' TranslationKeyword    {$$ = $2;}
;
```

#### OptionalType

```
:          {$$ = NULL;}
| '          {$$ = NULL;}
| ' TypeKeyword    {$$ = $2;}
;
```

#### OptionalType\_Last

```
:          {$$ = NULL;}
| '          {$$ = NULL;}
| ' TypeKeyword    {$$ = $2;}
;
```

#### OptionalWireMode

```
: '          {$$ = NULL;}
| ' WireModeKeyword    {$$ = $2;}
;
```

#### OptionalWordConstExpr

```
: '          {$$ = NULL;}
| ' WordConstExpr    {$$ = $2;}
;
```

OptionalXferSize

```
:                {$$ = TrCreateValuedLeafOp (  
  
    PARSEOP_XFERSIZE_32, 2);} |,'                {$$ = TrCreateValuedLeafOp (  
                                PARSEOP_XFERSIZE_32, 2);} |,' XferSizeKeyword    {$$ = $2;}  
;
```

Found in path(s):

\* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslhelpers.y

No license file was found, but licenses were detected in source scan.

```
% {  
/*****  
*  
* Module Name: aslcompiler.l - Flex/lex input file  
*  
*****/  
  
/*  
* Copyright (C) 2000 - 2018, Intel Corp.  
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*  
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```



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* STRICT
LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
* POSSIBILITY OF SUCH DAMAGES.
*/
```

```
#include "aslcompiler.h"
#include "aslcompiler.y.h"
#include "acconvert.h"
```

```
#include <stdlib.h>
#include <string.h>
YYSTYPE AslCompilerlval;
```

```
/*
* Generation: Use the following command line:
*
* flex.exe -PAslCompiler -i -o$(InputPath).c $(InputPath)
*
* -i: Scanner must be case-insensitive
*/
```

```
#define _COMPONENT      ACPI_COMPILER
        ACPI_MODULE_NAME  ("aslscanner")
```

```
/* Local prototypes */
```

```
static void
AslDoLineDirective (void);
```

```
static BOOLEAN
AslDoComment (void);
```

```
static BOOLEAN
AslDoCommentType2 (void);
```

```
static char
AslDoStringLiteral (void);
```

```
static void
```

```

count (int type);

/*! [Begin] no source code translation */

% }
/* Definitions */

LeadNameChar      [A-Za-z_]
DigitChar          [0-9]
OctalChar          [0-7]
HexDigitChar       [A-Fa-f0-9]
RootChar
    [\]
Nothing           []

NameChar           [A-Za-z_0-9]
NameSeg1           {LeadNameChar}{NameChar}
NameSeg2           {LeadNameChar}{NameChar}{NameChar}
NameSeg3           {LeadNameChar}{NameChar}{NameChar}{NameChar}
NameSeg            {LeadNameChar}{NameSeg1}{NameSeg2}{NameSeg3}

NameString         {RootChar}|{RootChar}{NamePath}|[\^]+{NamePath}|{NonEmptyNamePath}
NamePath           {NonEmptyNamePath}?
NonEmptyNamePath   {NameSeg}{NamePathTail}*
NamePathTail       [.]{NameSeg}

%%
/* Rules */

[]                 { count (0); }
[\n]               { count (0); } /* Handle files with both LF and CR/LF */
[\r]               { count (0); } /* termination on both Unix and Windows */
[\\t]              { count (0); }

"/*"              { if (!AslDoComment ()) {yyterminate ();} }
"//"              { if (!AslDoCommentType2
()) {yyterminate ();} }

"\""              { if (AslDoStringLiteral ()) {return (PARSEOP_STRING_LITERAL);}
else {yyterminate ();} }
";"               { count (0); return(';'); }

/* ASL Extension: Standard C operators */

"~"               { count (3); return (PARSEOP_EXP_NOT); }
"!"               { count (3); return (PARSEOP_EXP_LOGICAL_NOT); }

```

```

"*"      { count (3); return (PARSEOP_EXP_MULTIPLY); }
"/"      { count (3); return (PARSEOP_EXP_DIVIDE); }
%"      { count (3); return (PARSEOP_EXP_MODULO); }
"+"      { count (3); return (PARSEOP_EXP_ADD); }
"-"      { count (3); return (PARSEOP_EXP_SUBTRACT); }
">>"    { count (3); return (PARSEOP_EXP_SHIFT_RIGHT); }
"<<"    { count (3); return (PARSEOP_EXP_SHIFT_LEFT); }
"<"     { count (3); return (PARSEOP_EXP_LESS);
}
">"     { count (3); return (PARSEOP_EXP_GREATER); }
"&"     { count (3); return (PARSEOP_EXP_AND); }
"<="    { count (3); return (PARSEOP_EXP_LESS_EQUAL); }
">="    { count (3); return (PARSEOP_EXP_GREATER_EQUAL); }
"=="    { count (3); return (PARSEOP_EXP_EQUAL); }
"!="    { count (3); return (PARSEOP_EXP_NOT_EQUAL); }
"|"     { count (3); return (PARSEOP_EXP_OR); }
"&&"    { count (3); return (PARSEOP_EXP_LOGICAL_AND); }
"||"    { count (3); return (PARSEOP_EXP_LOGICAL_OR); }
"++"    { count (3); return (PARSEOP_EXP_INCREMENT); }
"--"    { count (3); return (PARSEOP_EXP_DECREMENT); }
"^"     { count (3); return (PARSEOP_EXP_XOR); }

```

/\* ASL Extension: Standard C assignment operators \*/

```

"="      { count (3); return
(PARSEOP_EXP_EQUALS); }
"+="     { count (3); return (PARSEOP_EXP_ADD_EQ); }
"-="     { count (3); return (PARSEOP_EXP_SUB_EQ); }
"*="     { count (3); return (PARSEOP_EXP_MUL_EQ); }
"/="     { count (3); return (PARSEOP_EXP_DIV_EQ); }
"%="     { count (3); return (PARSEOP_EXP_MOD_EQ); }
"<<="    { count (3); return (PARSEOP_EXP_SHL_EQ); }
">>="    { count (3); return (PARSEOP_EXP_SHR_EQ); }
"&="     { count (3); return (PARSEOP_EXP_AND_EQ); }
"^="     { count (3); return (PARSEOP_EXP_XOR_EQ); }
"|="     { count (3); return (PARSEOP_EXP_OR_EQ); }

"["      { count (3); return (PARSEOP_EXP_INDEX_LEFT); }
"]"      { count (0); return (PARSEOP_EXP_INDEX_RIGHT); }
"("      { count (0); return (PARSEOP_OPEN_PAREN); }
")"      {
count (0); return (PARSEOP_CLOSE_PAREN); }

"{"      { count (0); return ('{'); }
"}"      { count (0); return ('}'); }
","      { count (0); return (','); }

```

```

/*
 * Begin standard ASL grammar
 */
[0-9][a-zA-Z0-9]*      { AslCompilerIval.i = UtDoConstant ((char *) AslCompilerText);
                        count (1); return (PARSEOP_INTEGER); }

"Include"              { count (1); return (PARSEOP_INCLUDE); }
"External"             { count (1); return (PARSEOP_EXTERNAL); }

/*
 * The #line directive is emitted by the preprocessor and handled
 * here in the main iASL lexer - simply set the line number and
 * optionally the current filename.
 */
"#line"                { AslDoLineDirective ();}

/*****
 *
 * Main ASL operators
 *
 *****/

"AccessAs"
    { count (1); return (PARSEOP_ACCESSAS); }
"Acquire"              { count (3); return (PARSEOP_ACQUIRE); }
"Add"                  { count (3); return (PARSEOP_ADD); }
"Alias"                { count (2); return (PARSEOP_ALIAS); }
"And"                  { count (3); return (PARSEOP_AND); }
"BankField"           { count (2); return (PARSEOP_BANKFIELD); }
"Break"                { count (3); return (PARSEOP_BREAK); }
"BreakPoint"          { count (3); return (PARSEOP_BREAKPOINT); }
"Buffer"               { count (1); return (PARSEOP_BUFFER); }
"Case"                 { count (3); return (PARSEOP_CASE); }
"Concatenate"         { count (3); return (PARSEOP_CONCATENATE); }
"ConcatenateResTemplate" { count (3); return (PARSEOP_CONCATENATERESTEMPLATE); }
"CondRefOf"           { count (3); return (PARSEOP_CONDREFOF); }
"Connection"          { count (2); return (PARSEOP_CONNECTION); }
"Continue"
    { count (3); return (PARSEOP_CONTINUE); }
"CopyObject"          { count (3); return (PARSEOP_COPYOBJECT); }
"CreateBitField"      { count (2); return (PARSEOP_CREATEBITFIELD); }
"CreateByteField"     { count (2); return (PARSEOP_CREATEBYTEFIELD); }
"CreateDWordField"    { count (2); return (PARSEOP_CREATEDWORDFIELD); }
"CreateField"         { count (2); return (PARSEOP_CREATEFIELD); }
"CreateQWordField"    { count (2); return (PARSEOP_CREATEQWORDFIELD); }
"CreateWordField"     { count (2); return (PARSEOP_CREATEWORDFIELD); }
"DataTableRegion"     { count (2); return (PARSEOP_DATATABLEREGION); }

```

```

"Debug"           { count (1); return (PARSEOP_DEBUG); }
"Decrement"      { count (3); return (PARSEOP_DECREMENT); }
"Default"        { count (3); return (PARSEOP_DEFAULT); }
"DefinitionBlock" { count (1); return (PARSEOP_DEFINITION_BLOCK); }
"DeRefOf"        { count (3); return (PARSEOP_DEREF_OF); }
}
"Device"         { count (2); return (PARSEOP_DEVICE); }
"Divide"         { count (3); return (PARSEOP_DIVIDE); }
"Eisaid"         { count (1); return (PARSEOP_EISAID); }
"Else"           { count (3); return (PARSEOP_ELSE); }
"ElseIf"         { count (3); return (PARSEOP_ELSEIF); }
"Event"          { count (2); return (PARSEOP_EVENT); }
"Fatal"          { count (3); return (PARSEOP_FATAL); }
"Field"          { count (2); return (PARSEOP_FIELD); }
"FindSetLeftBit" { count (3); return (PARSEOP_FINDSETLEFTBIT); }
"FindSetRightBit" { count (3); return (PARSEOP_FINDSETRIGHTBIT); }
"FromBcd"        { count (3); return (PARSEOP_FROMBCD); }
"Function"        { count (2); return (PARSEOP_FUNCTION); }
"If"              { count (3); return (PARSEOP_IF); }
"Increment"       { count (3); return (PARSEOP_INCREMENT); }
"Index"          { count (3); return (PARSEOP_INDEX); }
"IndexField"     { count (2); return (PARSEOP_INDEXFIELD); }
"LAnd"           { count (3); return (PARSEOP_LAND); }
"LEqual"         { count (3); return (PARSEOP_LEQUAL); }
"LGreater"       { count (3); return (PARSEOP_LGREATER); }
"LGreaterEqual" { count (3); return (PARSEOP_LGREATEREQUAL); }
"LLess"          { count (3); return (PARSEOP_LLESS); }
"LLessEqual"     { count (3); return (PARSEOP_LLESSEQUAL); }
"LNot"           { count (3); return (PARSEOP_LNOT); }
"LNotEqual"      { count (3); return (PARSEOP_LNOTEQUAL); }
"Load"           { count (3); return (PARSEOP_LOAD); }
"LoadTable"      { count (3); return (PARSEOP_LOADTABLE); }
"LOr"            { count (3); return (PARSEOP_LOR); }
"Match"          { count (3); return (PARSEOP_MATCH); }
"Method"         { count (2); return (PARSEOP_METHOD); }
}
"Mid"            { count (3); return (PARSEOP_MID); }
"Mod"            { count (3); return (PARSEOP_MOD); }
"Multiply"       { count (3); return (PARSEOP_MULTIPLY); }
"Mutex"          { count (2); return (PARSEOP_MUTEX); }
"Name"           { count (2); return (PARSEOP_NAME); }
"NAnd"           { count (3); return (PARSEOP_NAND); }
"Noop"           { if (!AcpiGbl_IgnoreNoopOperator) { count (3); return (PARSEOP_NOOP); } }
"NOr"            { count (3); return (PARSEOP_NOR); }
"Not"            { count (3); return (PARSEOP_NOT); }
"Notify"         { count (3); return (PARSEOP_NOTIFY); }
"ObjectType"     { count (3); return (PARSEOP_OBJECTTYPE); }

```

```

"Offset"          { count (1); return (PARSEOP_OFFSET); }
"One"            { count (1); return (PARSEOP_ONE); }
"Ones"          { count (1); return (PARSEOP_ONES); }
"OperationRegion"
  { count (2); return (PARSEOP_OPERATIONREGION); }
"Or"            { count (3); return (PARSEOP_OR); }
"Package"      { count (1); return (PARSEOP_PACKAGE); }
"PowerResource" { count (2); return (PARSEOP_POWERRESOURCE); }
"Processor"    { count (2); return (PARSEOP_PROCESSOR); }
"RefOf"        { count (3); return (PARSEOP_REFOF); }
"Release"      { count (3); return (PARSEOP_RELEASE); }
"Reset"        { count (3); return (PARSEOP_RESET); }
"Return"       { count (3); return (PARSEOP_RETURN); }
"Revision"     { count (1); return (PARSEOP_REVISION); }
"Scope"        { count (2); return (PARSEOP_SCOPE); }
"ShiftLeft"    { count (3); return (PARSEOP_SHIFLEFT); }
"ShiftRight"   { count (3); return (PARSEOP_SHIFTRIGHT); }
"Signal"       { count (3); return (PARSEOP_SIGNAL); }
"SizeOf"       { count (3); return (PARSEOP_SIZEOF); }
}
"Sleep"        { count (3); return (PARSEOP_SLEEP); }
"Stall"        { count (3); return (PARSEOP_STALL); }
"Store"        { count (3); return (PARSEOP_STORE); }
"Subtract"     { count (3); return (PARSEOP_SUBTRACT); }
"Switch"       { count (3); return (PARSEOP_SWITCH); }
"ThermalZone"  { count (2); return (PARSEOP_THERMALZONE); }
"Timer"        { count (3); return (PARSEOP_TIMER); }
"ToBcd"        { count (3); return (PARSEOP_TOBCD); }
"ToBuffer"     { count (3); return (PARSEOP_TOBUFFER); }
"ToDecimalString" { count (3); return (PARSEOP_TODECIMALSTRING); }
"ToHexString"  { count (3); return (PARSEOP_TOHEXSTRING); }
"ToInteger"    { count (3); return (PARSEOP_TOINTEGER); }
"ToString"     { count (3); return (PARSEOP_TOSTRING); }
"ToUuid"       { count (1); return (PARSEOP_TOUUID); }
"Unicode"      { count (1); return (PARSEOP_UNICODE); }
"Unload"       { count (3); return (PARSEOP_UNLOAD); }
"Wait"         { count (3); return (PARSEOP_WAIT); }
"While"        { count (3); return (PARSEOP_WHILE); }
"XOr"          { count (3); return (PARSEOP_XOR); }
"Zero"         { count (1); return (PARSEOP_ZERO); }

/* Control method arguments and locals */

"Arg0"         { count (1); return (PARSEOP_ARG0); }
"Arg1"         { count (1); return (PARSEOP_ARG1); }
"Arg2"         { count (1); return (PARSEOP_ARG2); }
"Arg3"         { count (1); return (PARSEOP_ARG3); }

```

```

"Arg4"          { count (1); return (PARSEOP_ARG4); }
"Arg5"          { count (1); return (PARSEOP_ARG5); }
"Arg6"          { count (1); return (PARSEOP_ARG6); }
"Local0"        { count (1); return (PARSEOP_LOCAL0); }
"Local1"        {
count (1); return (PARSEOP_LOCAL1); }
"Local2"        { count (1); return (PARSEOP_LOCAL2); }
"Local3"        { count (1); return (PARSEOP_LOCAL3); }
"Local4"        { count (1); return (PARSEOP_LOCAL4); }
"Local5"        { count (1); return (PARSEOP_LOCAL5); }
"Local6"        { count (1); return (PARSEOP_LOCAL6); }
"Local7"        { count (1); return (PARSEOP_LOCAL7); }

/*****
*
* Resource Descriptor macros
*
*****/

"ResourceTemplate" { count (1); return (PARSEOP_RESOURCETEMPLATE); }
"RawDataBuffer"   { count (1); return (PARSEOP_DATABUFFER); }

"DMA"             { count (1); return (PARSEOP_DMA); }
"DWordIO"         { count (1); return (PARSEOP_DWORDIO); }
"DWordMemory"     { count (1); return (PARSEOP_DWORDMEMORY);
}
"DWordSpace"      { count (1); return (PARSEOP_DWORDSPACE); }
"EndDependentFn" { count (1); return (PARSEOP_ENDDEPENDENTFN); }
"ExtendedIO"      { count (1); return (PARSEOP_EXTENDEDEDIO); }
"ExtendedMemory" { count (1); return (PARSEOP_EXTENDEDEDMEMORY); }
"ExtendedSpace"   { count (1); return (PARSEOP_EXTENDEDEDSPACE); }
"FixedDma"        { count (1); return (PARSEOP_FIXEDDMA); }
"FixedIO"         { count (1); return (PARSEOP_FIXEDIO); }
"GpioInt"         { count (1); return (PARSEOP_GPIO_INT); }
"GpioIo"          { count (1); return (PARSEOP_GPIO_IO); }
"I2cSerialBus"    { count (1); return (PARSEOP_I2C_SERIALBUS); }
"I2cSerialBusV2"  { count (1); return (PARSEOP_I2C_SERIALBUS_V2); }
"Interrupt"       { count (1); return (PARSEOP_INTERRUPT); }
"IO"              { count (1); return (PARSEOP_IO); }
"IRQ"             { count (1); return (PARSEOP_IRQ);
}
"IRQNoFlags"     { count (1); return (PARSEOP_IRQNOFLAGS); }
"Memory24"        { count (1); return (PARSEOP_MEMORY24); }
"Memory32"        { count (1); return (PARSEOP_MEMORY32); }
"Memory32Fixed"   { count (1); return (PARSEOP_MEMORY32FIXED); }
"PinConfig"       { count (1); return (PARSEOP_PINCONFIG); }
"PinFunction"     { count (1); return (PARSEOP_PINFUNCTION); }

```

```

"PinGroup"          { count (1); return (PARSEOP_PINGROUP); }
"PinGroupConfig"   { count (1); return (PARSEOP_PINGROUPCONFIG); }
"PinGroupFunction" { count (1); return (PARSEOP_PINGROUPFUNCTION); }
"QWordIO"          { count (1); return (PARSEOP_QWORDIO); }
"QWordMemory"      { count (1); return (PARSEOP_QWORDMEMORY); }
"QWordSpace"       { count (1); return (PARSEOP_QWORDSPACE); }
"Register"         { count (1); return (PARSEOP_REGISTER); }
"SpiSerialBus"     { count (1); return (PARSEOP_SPI_SERIALBUS);
}
"SpiSerialBusV2"   { count (1); return (PARSEOP_SPI_SERIALBUS_V2); }
"StartDependentFn" { count (1); return (PARSEOP_STARTDEPENDENTFN); }
"StartDependentFnNoPri" { count (1); return (PARSEOP_STARTDEPENDENTFN_NOPRI); }
"UartSerialBus"    { count (1); return (PARSEOP_UART_SERIALBUS); }
"UartSerialBusV2"  { count (1); return (PARSEOP_UART_SERIALBUS_V2); }
"VendorLong"       { count (1); return (PARSEOP_VENDORLONG); }
"VendorShort"      { count (1); return (PARSEOP_VENDORSHORT); }
"WordBusNumber"    { count (1); return (PARSEOP_WORDBUSNUMBER); }
"WordIO"           { count (1); return (PARSEOP_WORDIO); }
"WordSpace"        { count (1); return (PARSEOP_WORDSPACE); }

```

```

/*****

```

```

*
```

```

* Keywords used as arguments to ASL operators and macros

```

```

*
```

```

*****/

```

```

/* AccessAttribKeyword: Serial Bus Attributes (ACPI 5.0) */

```

```

"AttribQuick"      { count (0); return (PARSEOP_ACCESSATTRIB_QUICK); }
"AttribSendReceive" { count (0); return (PARSEOP_ACCESSATTRIB_SND_RCV); }
"AttribByte"       { count (0); return (PARSEOP_ACCESSATTRIB_BYTE); }
"AttribWord"       { count (0); return (PARSEOP_ACCESSATTRIB_WORD); }
"AttribBlock"      { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK); }
"AttribProcessCall" { count (0); return (PARSEOP_ACCESSATTRIB_WORD_CALL); }
"AttribBlockProcessCall" { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK_CALL); }

```

```

/* AccessAttribKeyword: Legacy synonyms for above (pre-ACPI 5.0) */

```

```

"SMBQuick"         { count (0); return (PARSEOP_ACCESSATTRIB_QUICK); }
"SMBSendReceive"   { count (0); return (PARSEOP_ACCESSATTRIB_SND_RCV); }
"SMBByte"          { count (0); return (PARSEOP_ACCESSATTRIB_BYTE); }
"SMBWord"          { count (0); return
(PARSEOP_ACCESSATTRIB_WORD); }
"SMBBlock"         { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK); }
"SMBProcessCall"   { count (0); return (PARSEOP_ACCESSATTRIB_WORD_CALL); }
"SMBBlockProcessCall" { count (0); return (PARSEOP_ACCESSATTRIB_BLOCK_CALL); }

```



```

/* AccessTypeKeyword: Field Access Types */

"AnyAcc"          { count (0); return (PARSEOP_ACCESSTYPE_ANY); }
"ByteAcc"         { count (0); return (PARSEOP_ACCESSTYPE_BYTE); }
"WordAcc"         { count (0); return (PARSEOP_ACCESSTYPE_WORD); }
"DWordAcc"        { count (0); return (PARSEOP_ACCESSTYPE_DWORD); }
"QWordAcc"        { count (0); return (PARSEOP_ACCESSTYPE_QWORD); }
"BufferAcc"       { count (0); return (PARSEOP_ACCESSTYPE_BUF); }

/* AddressingModeKeyword: Mode - Resource Descriptors (ACPI 5.0) */

"AddressingMode7Bit"  { count (0); return (PARSEOP_ADDRESSINGMODE_7BIT); }
"AddressingMode10Bit" { count (0); return (PARSEOP_ADDRESSINGMODE_10BIT); }
}

/* AddressKeyword: ACPI memory range types */

"AddressRangeMemory"  { count (0); return (PARSEOP_ADDRESSTYPE_MEMORY); }
"AddressRangeReserved" { count (0); return (PARSEOP_ADDRESSTYPE_RESERVED); }
"AddressRangeNVS"     { count (0); return (PARSEOP_ADDRESSTYPE_NVS); }
"AddressRangeACPI"    { count (0); return (PARSEOP_ADDRESSTYPE_ACPI); }

/* BusMasterKeyword: DMA Bus Mastering */

"BusMaster"          { count (0); return (PARSEOP_BUSMASTERTYPE_MASTER); }
"NotBusMaster"        { count (0); return (PARSEOP_BUSMASTERTYPE_NOTMASTER); }

/* ByteLengthKeyword: Bits per Byte - Resource Descriptors (ACPI 5.0) */

"DataBitsFive"       { count (0); return (PARSEOP_BITSPERBYTE_FIVE); }
"DataBitsSix"         { count (0); return (PARSEOP_BITSPERBYTE_SIX); }
"DataBitsSeven"       { count (0); return (PARSEOP_BITSPERBYTE_SEVEN); }
"DataBitsEight"       { count (0); return (PARSEOP_BITSPERBYTE_EIGHT); }
}
"DataBitsNine"        { count (0); return (PARSEOP_BITSPERBYTE_NINE); }

/* ClockPhaseKeyword: Resource Descriptors (ACPI 5.0) */

"ClockPhaseFirst"    { count (0); return (PARSEOP_CLOCKPHASE_FIRST); }
"ClockPhaseSecond"   { count (0); return (PARSEOP_CLOCKPHASE_SECOND); }

/* ClockPolarityKeyword: Resource Descriptors (ACPI 5.0) */

"ClockPolarityLow"    { count (0); return (PARSEOP_CLOCKPOLARITY_LOW); }
"ClockPolarityHigh"   { count (0); return (PARSEOP_CLOCKPOLARITY_HIGH); }

/* DecodeKeyword: Type of Memory Decoding - Resource Descriptors */

```

```

"PosDecode"          { count (0); return (PARSEOP_DECODETYPE_POS); }
"SubDecode"          { count (0); return (PARSEOP_DECODETYPE_SUB); }

/* DmaTypeKeyword: DMA Types - DMA Resource Descriptor */

"Compatibility"      { count (0); return (PARSEOP_DMATYPE_COMPATIBILITY); }
"TypeA"              { count (0); return (PARSEOP_DMATYPE_A); }
"TypeB"
  { count (0); return (PARSEOP_DMATYPE_B); }
"TypeF"              { count (0); return (PARSEOP_DMATYPE_F); }

/* EndianKeyword: Endian type - Resource Descriptor (ACPI 5.0) */

"LittleEndian"      { count (0); return (PARSEOP_ENDIAN_LITTLE); }
"BigEndian"         { count (0); return (PARSEOP_ENDIAN_BIG); }

/* ExtendedAttribKeyword: Bus attributes, AccessAs operator (ACPI 5.0) */

"AttribBytes"       { count (0); return (PARSEOP_ACCESSATTRIB_MULTIBYTE); }
"AttribRawBytes"    { count (0); return (PARSEOP_ACCESSATTRIB_RAW_BYTES); }
"AttribRawProcessBytes" { count (0); return (PARSEOP_ACCESSATTRIB_RAW_PROCESS); }

/* FlowControlKeyword: Resource Descriptors (ACPI 5.0) */

"FlowControlHardware" { count (0); return (PARSEOP_FLOWCONTROL_HW); }
"FlowControlNone"    { count (0); return (PARSEOP_FLOWCONTROL_NONE); }
"FlowControlXon"     { count (0); return (PARSEOP_FLOWCONTROL_SW); }

/* InterruptLevelKeyword: Interrupt
Active Types */

"ActiveBoth"        { count (0); return (PARSEOP_INTLEVEL_ACTIVEBOTH); }
"ActiveHigh"        { count (0); return (PARSEOP_INTLEVEL_ACTIVEHIGH); }
"ActiveLow"         { count (0); return (PARSEOP_INTLEVEL_ACTIVELOW); }

/* InterruptTypeKeyword: Interrupt Types */

"Edge"              { count (0); return (PARSEOP_INTTYPE_EDGE); }
"Level"             { count (0); return (PARSEOP_INTTYPE_LEVEL); }

/* IoDecodeKeyword: Type of Memory Decoding - Resource Descriptors */

"Decode10"          { count (0); return (PARSEOP_IODECODETYPE_10); }
"Decode16"          { count (0); return (PARSEOP_IODECODETYPE_16); }

/* IoRestrictionKeyword: I/O Restriction - GPIO Resource Descriptors (ACPI 5.0) */

"IoRestrictionNone" { count (0); return (PARSEOP_IORESTRICT_NONE); }

```

```
"IoRestrictionInputOnly" { count (0); return (PARSEOP_IORESTRICT_IN); }
"IoRestrictionOutputOnly" { count (0); return (PARSEOP_IORESTRICT_OUT);
}
"IoRestrictionNoneAndPreserve" { count (0); return (PARSEOP_IORESTRICT_PRESERVE); }
```

*/\* LockRuleKeyword: Global Lock use for Field Operator \*/*

```
"Lock" { count (0); return (PARSEOP_LOCKRULE_LOCK); }
"NoLock" { count (0); return (PARSEOP_LOCKRULE_NOLOCK); }
```

*/\* MatchOpKeyword: Types for Match Operator \*/*

```
"MTR" { count (0); return (PARSEOP_MATCHTYPE_MTR); }
"MEQ" { count (0); return (PARSEOP_MATCHTYPE_MEQ); }
"MLE" { count (0); return (PARSEOP_MATCHTYPE_MLE); }
"MLT" { count (0); return (PARSEOP_MATCHTYPE_MLT); }
"MGE" { count (0); return (PARSEOP_MATCHTYPE_MGE); }
"MGT" { count (0); return (PARSEOP_MATCHTYPE_MGT); }
```

*/\* MaxKeyword: Max Range Type - Resource Descriptors \*/*

```
"MaxFixed" { count (0); return (PARSEOP_MAXTYPE_FIXED); }
"MaxNotFixed" { count (0); return
(PARSEOP_MAXTYPE_NOTFIXED); }
```

*/\* MemTypeKeyword: Memory Types - Resource Descriptors \*/*

```
"Cacheable" { count (0); return (PARSEOP_MEMTYPE_CACHEABLE); }
"WriteCombining" { count (0); return (PARSEOP_MEMTYPE_WRITECOMBINING); }
"Prefetchable" { count (0); return (PARSEOP_MEMTYPE_PREFETCHABLE); }
"NonCacheable" { count (0); return (PARSEOP_MEMTYPE_NONCACHEABLE); }
```

*/\* MinKeyword: Min Range Type - Resource Descriptors \*/*

```
"MinFixed" { count (0); return (PARSEOP_MINTYPE_FIXED); }
"MinNotFixed" { count (0); return (PARSEOP_MINTYPE_NOTFIXED); }
```

*/\* ObjectTypeKeyword: ACPI Object Types \*/*

```
"UnknownObj" { count (0); return (PARSEOP_OBJECTTYPE_UNK); }
"IntObj" { count (0); return (PARSEOP_OBJECTTYPE_INT); }
"StrObj" { count (0); return (PARSEOP_OBJECTTYPE_STR); }
"BuffObj" { count (0); return (PARSEOP_OBJECTTYPE_BUF); }
"PkgObj"
{ count (0); return (PARSEOP_OBJECTTYPE_PKG); }
"FieldUnitObj" { count (0); return (PARSEOP_OBJECTTYPE_FLD); }
"DeviceObj" { count (0); return (PARSEOP_OBJECTTYPE_DEV); }
"EventObj" { count (0); return (PARSEOP_OBJECTTYPE_EVT); }
```

```

"MethodObj"      { count (0); return (PARSEOP_OBJECTTYPE_MTH); }
"MutexObj"      { count (0); return (PARSEOP_OBJECTTYPE_MTX); }
"OpRegionObj"   { count (0); return (PARSEOP_OBJECTTYPE_OPR); }
"PowerResObj"   { count (0); return (PARSEOP_OBJECTTYPE_POW); }
"ProcessorObj"  { count (0); return (PARSEOP_OBJECTTYPE_PRO); }
"ThermalZoneObj" { count (0); return (PARSEOP_OBJECTTYPE_THZ); }
"BuffFieldObj"  { count (0); return (PARSEOP_OBJECTTYPE_BFF); }
"DDBHandleObj"  { count (0); return (PARSEOP_OBJECTTYPE_DDB); }

```

*/\* ParityKeyword: Resource Descriptors (ACPI 5.0) \*/*

```

"ParityTypeSpace" { count (0);
return (PARSEOP_PARITYTYPE_SPACE); }
"ParityTypeMark"  { count (0); return (PARSEOP_PARITYTYPE_MARK); }
"ParityTypeOdd"   { count (0); return (PARSEOP_PARITYTYPE_ODD); }
"ParityTypeEven"  { count (0); return (PARSEOP_PARITYTYPE_EVEN); }
"ParityTypeNone"  { count (0); return (PARSEOP_PARITYTYPE_NONE); }

```

*/\* PinConfigKeyword: Pin Configuration - GPIO Resource Descriptors (ACPI 5.0) \*/*

```

"PullDefault"    { count (0); return (PARSEOP_PIN_PULLDEFAULT); }
"PullUp"         { count (0); return (PARSEOP_PIN_PULLUP); }
"PullDown"       { count (0); return (PARSEOP_PIN_PULLDOWN); }
"PullNone"       { count (0); return (PARSEOP_PIN_NOPULL); }

```

*/\* PolarityKeyword: Resource Descriptors (ACPI 5.0) \*/*

```

"PolarityLow"    { count (0); return (PARSEOP_DEVICEPOLARITY_LOW); }
"PolarityHigh"   { count (0); return (PARSEOP_DEVICEPOLARITY_HIGH); }

```

*/\* RangeTypeKeyword: I/O Range Types - Resource Descriptors \*/*

```

"ISAOnlyRanges" { count (0); return (PARSEOP_RANGETYPE_ISAONLY); }
"NonISAOnlyRanges" { count (0); return (PARSEOP_RANGETYPE_NONISAONLY); }
"EntireRange"   { count (0); return (PARSEOP_RANGETYPE_ENTIRE); }

```

*/\* ReadWriteKeyword: Memory Access Types - Resource Descriptors \*/*

```

"ReadWrite"      { count (0); return (PARSEOP_READWRITETYPE_BOTH); }
"ReadOnly"       { count (0); return (PARSEOP_READWRITETYPE_READONLY); }

```

*/\* RegionSpaceKeyword: Operation Region Address Space Types \*/*

```

"SystemIO"       { count (0); return (PARSEOP_REGIONSPACE_IO); }
"SystemMemory"   { count (0); return (PARSEOP_REGIONSPACE_MEM); }
"PCI_Config"     { count (0); return (PARSEOP_REGIONSPACE_PCI); }
"EmbeddedControl" { count (0); return (PARSEOP_REGIONSPACE_EC); }

```

```

"SMBus"          { count (0); return (PARSEOP_REGIONSPACE_SMBUS); }
"SystemCMOS"    { count (0); return (PARSEOP_REGIONSPACE_CMOS); }
}
"PciBarTarget"  { count (0); return (PARSEOP_REGIONSPACE_PCIBAR); }
"IPMI"          { count (0); return (PARSEOP_REGIONSPACE_IPMI); }
"GeneralPurposeIo" { count (0); return (PARSEOP_REGIONSPACE_GPIO); } /* ACPI 5.0 */
"GenericSerialBus" { count (0); return (PARSEOP_REGIONSPACE_GSBUS); } /* ACPI 5.0 */
"PCC"          { count (0); return (PARSEOP_REGIONSPACE_PCC); } /* ACPI 5.0 */
"FFixedHW"     { count (0); return (PARSEOP_REGIONSPACE_FFIXEDHW); }

/* ResourceTypeKeyword: Resource Usage - Resource Descriptors */

"ResourceConsumer" { count (0); return (PARSEOP_RESOURCECTYPE_CONSUMER); }
"ResourceProducer" { count (0); return (PARSEOP_RESOURCECTYPE_PRODUCER); }

/* SerializeRuleKeyword: Control Method Serialization */

"Serialized"      { count (0); return (PARSEOP_SERIALIZERULE_SERIAL); }
"NotSerialized"   { count (0); return (PARSEOP_SERIALIZERULE_NOTSERIAL); }
}

/* ShareTypeKeyword: Interrupt Sharing - Resource Descriptors */

"Shared"         { count (0); return (PARSEOP_SHARETYPE_SHARED); }
"Exclusive"      { count (0); return (PARSEOP_SHARETYPE_EXCLUSIVE); }
"SharedAndWake"  { count (0); return (PARSEOP_SHARETYPE_SHAREDWAKE); } /* ACPI 5.0 */
"ExclusiveAndWake" { count (0); return (PARSEOP_SHARETYPE_EXCLUSIVEWAKE); } /* ACPI 5.0 */
*/

/* SlaveModeKeyword: Resource Descriptors (ACPI 5.0) */

"ControllerInitiated" { count (0); return (PARSEOP_SLAVEMODE_CONTROLLERINIT); }
"DeviceInitiated"    { count (0); return (PARSEOP_SLAVEMODE_DEVICEINIT); }

/* StopBitsKeyword: Resource Descriptors (ACPI 5.0) */

"StopBitsOne"      { count (0); return (PARSEOP_STOPBITS_ONE); }
"StopBitsOnePlusHalf" { count (0); return (PARSEOP_STOPBITS_ONEPLUSHALF); }
"StopBitsTwo"      { count (0); return (PARSEOP_STOPBITS_TWO); }
"StopBitsZero"     { count (0); return (PARSEOP_STOPBITS_ZERO); }

/* TransferWidthKeyword: DMA Widths - Fixed DMA Resource Descriptor (ACPI 5.0) */

"Width8bit"        { count (0); return (PARSEOP_XFERSIZE_8); }
"Width16bit"       { count (0); return (PARSEOP_XFERSIZE_16); }
"Width32bit"       { count (0); return (PARSEOP_XFERSIZE_32); }
"Width64bit"       { count (0); return (PARSEOP_XFERSIZE_64); }

```

```

"Width128bit"      { count (0); return (PARSEOP_XFERSIZE_128); }
"Width256bit"     { count (0); return (PARSEOP_XFERSIZE_256); }

/* TranslationKeyword: Translation Density Types - Resource Descriptors */

"SparseTranslation" { count (0); return (PARSEOP_TRANSLATIONTYPE_SPARSE); }
"DenseTranslation"  { count (0); return (PARSEOP_TRANSLATIONTYPE_DENSE); }

/* TypeKeyword: Translation Types - Resource Descriptors */

"TypeTranslation"   { count (0); return (PARSEOP_TYPE_TRANSLATION); }
"TypeStatic"       { count (0); return (PARSEOP_TYPE_STATIC); }

/* UpdateRuleKeyword: Field Update Rules */

"Preserve"         { count (0); return (PARSEOP_UPDATERULE_PRESERVE); }
"WriteAsOnes"     { count (0); return (PARSEOP_UPDATERULE_ONES); }
"WriteAsZeros"    { count (0); return (PARSEOP_UPDATERULE_ZEROS); }

/* WireModeKeyword: SPI Wire Mode - Resource Descriptors (ACPI 5.0) */

"FourWireMode"    { count (0); return (PARSEOP_WIREMODE_FOUR); }
"ThreeWireMode"   { count (0); return (PARSEOP_WIREMODE_THREE); }

/* XferTypeKeyword: DMA Transfer Types */

"Transfer8"       { count (0); return (PARSEOP_XFERTYPE_8); }
"Transfer8_16"    { count (0); return (PARSEOP_XFERTYPE_8_16); }
"Transfer16"     { count (0); return (PARSEOP_XFERTYPE_16); }

/* ToPld macro */

"TOPLD"          { count (0); return (PARSEOP_TOPLD); }

"PLD_Revision"   { count (0); return (PARSEOP_PLD_REVISION);
}
"PLD_IgnoreColor" { count (0); return (PARSEOP_PLD_IGNORECOLOR); }
"PLD_Red"        { count (0); return (PARSEOP_PLD_RED); }
"PLD_Green"      { count (0); return (PARSEOP_PLD_GREEN); }
"PLD_Blue"       { count (0); return (PARSEOP_PLD_BLUE); }
"PLD_Width"      { count (0); return (PARSEOP_PLD_WIDTH); }
"PLD_Height"     { count (0); return (PARSEOP_PLD_HEIGHT); }
"PLD_UserVisible" { count (0); return (PARSEOP_PLD_USERVISIBLE); }
"PLD_Dock"       { count (0); return (PARSEOP_PLD_DOCK); }
"PLD_Lid"        { count (0); return (PARSEOP_PLD_LID); }
"PLD_Panel"      { count (0); return (PARSEOP_PLD_PANEL); }
"PLD_VerticalPosition" { count (0); return (PARSEOP_PLD_VERTICALPOSITION); }

```

```

"PLD_HorizontalPosition" { count (0); return (PARSEOP_PLD_HORIZONTALPOSITION); }
"PLD_Shape"              { count (0); return (PARSEOP_PLD_SHAPE); }
"PLD_GroupOrientation"   { count (0); return
(PARSEOP_PLD_GROUPORIENTATION); }
"PLD_GroupToken"        { count (0); return (PARSEOP_PLD_GROUPTOKEN); }
"PLD_GroupPosition"     { count (0); return (PARSEOP_PLD_GROUPPOSITION); }
"PLD_Bay"               { count (0); return (PARSEOP_PLD_BAY); }
"PLD_Ejectable"         { count (0); return (PARSEOP_PLD_EJECTABLE); }
"PLD_EjectRequired"     { count (0); return (PARSEOP_PLD_EJECTREQUIRED); }
"PLD_CabinetNumber"     { count (0); return (PARSEOP_PLD_CABINETNUMBER); }
"PLD_CardCageNumber"    { count (0); return (PARSEOP_PLD_CARDCAGENUMBER); }
"PLD_Reference"         { count (0); return (PARSEOP_PLD_REFERENCE); }
"PLD_Rotation"          { count (0); return (PARSEOP_PLD_ROTATION); }
"PLD_Order"             { count (0); return (PARSEOP_PLD_ORDER); }
"PLD_Reserved"          { count (0); return (PARSEOP_PLD_RESERVED); }
"PLD_VerticalOffset"    { count (0); return (PARSEOP_PLD_VERTICALOFFSET); }
"PLD_HorizontalOffset"  { count (0); return (PARSEOP_PLD_HORIZONTALOFFSET);
}

```

```

/* printf debug macros */

```

```

"printf"                 { count (0); return (PARSEOP_PRINTF); }
"fprintf"                { count (0); return (PARSEOP_FPRINTF); }

```

```

/* Other macros */

```

```

"For"                    { count (0); return (PARSEOP_FOR); }

```

```

/* Predefined compiler names */

```

```

"__DATE__"              { count (0); return (PARSEOP__DATE__); }
"__FILE__"              { count (0); return (PARSEOP__FILE__); }
"__LINE__"              { count (0); return (PARSEOP__LINE__); }
"__PATH__"              { count (0); return (PARSEOP__PATH__); }
"__METHOD__"            { count (0); return (PARSEOP__METHOD__); }

```

```

{NameSeg}               { char *s;
                          count (0);
                          s=UtLocalCacheCalloc (ACPI_NAME_SIZE + 1);
                          if (strcmp (AslCompilerText, "\\")
                          {
                              strcpy (s, "___");

                              AcpiUtStrupr (AslCompilerText);
                          }
                          memcpy (s, AslCompilerText, strlen (AslCompilerText));
                          AslCompilerIval.s = s;

```

```

        DbgPrint (ASL_PARSE_OUTPUT, "NameSeg: %s\n", s);
        return (PARSEOP_NAMESEG); }

{NameString}      { char *s;
                   count (0);
                   s=UtLocalCacheCalloc (strlen (AslCompilerText)+1);
                   AcpiUtStrupr (AslCompilerText);
                   strcpy (s, AslCompilerText);
                   AslCompilerIval.s = s;
                   DbgPrint (ASL_PARSE_OUTPUT, "NameString: %s\n", s);
                   return (PARSEOP_NAMESTRING); }

.
    { count (1);
      if (isprint ((int) *AslCompilerText))

    {
        sprintf (MsgBuffer,
                "Invalid character (%c), expecting ASL keyword or name",
                *AslCompilerText);
    }
    else
    {
        sprintf (MsgBuffer,
                "Invalid character (0x%2.2X), expecting ASL keyword or name",
                *AslCompilerText);
    }
    AslCompilerError (MsgBuffer);}

<<EOF>>      { if (AslPopInputFileStack ())
               {yyterminate();}
               else
               {return (PARSEOP_INCLUDE_END);} };

%%

/*! [End] no source code translation !*/

/*
 * Bring in the scanner support routines
 */
#include "aslsupport.l"

Found in path(s):
*
/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/aslcompiler.l
No license file was found, but licenses were detected in source scan.

```



NoEcho('

/\*\*\*\*\*\*  
\*

\* Module Name: aslsupport.y - Bison/Yacc C support functions

\*

\*\*\*\*\*/  
/\*

/\*

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\*

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\*/

')

/\*\*\*\*\*\*  
\*

\*

```

* Local support functions
*
*****

/*! [Begin] no source code translation */
int
AslCompilerwrap(void)
{
    return (1);
}
/*! [End] no source code translation !*/

void *
AslLocalAllocate (
    unsigned int    Size)
{
    void            *Mem;

    DbgPrint (ASL_PARSE_OUTPUT,
        "\nAslLocalAllocate: Expanding Stack to %u\n\n", Size);

    Mem = ACPI_ALLOCATE_ZEROED (Size);
    if (!Mem)
    {
        AslCommonError (ASL_ERROR, ASL_MSG_MEMORY_ALLOCATION,
            Gbl_CurrentLineNumber, Gbl_LogicalLineNumber,
            Gbl_InputByteCount, Gbl_CurrentColumn,
            Gbl_Files[ASL_FILE_INPUT].Filename, NULL);
        exit
    (1);
    }

    return (Mem);
}

ACPI_PARSE_OBJECT *
AslDoError (
    void)
{
    return (TrCreateLeafOp (PARSEOP_ERRORNODE));
}

/*****
*

```

```

* FUNCTION:  UtGetOpName
*
* PARAMETERS: ParseOpcode      - Parser keyword ID
*
* RETURN:   Pointer to the opcode name
*
* DESCRIPTION: Get the ascii name of the parse opcode
*
*****/

```

```

char *
UtGetOpName (
    UINT32      ParseOpcode)
{
#ifdef ASL_YYTNAME_START
    /*
     * First entries (ASL_YYTNAME_START) in yytname are special reserved names.
     * Ignore first 8 characters of the name
     */
    return ((char *) yytname
        [(ParseOpcode - ASL_FIRST_PARSE_OPCODE) + ASL_YYTNAME_START] + 8);
#else
    return ("[Unknown parser generator]");
#endif
}

```

Found in path(s):  
 \* /opt/cola/permits/2091221321\_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslsupport.y  
 No license file was found, but licenses were detected in source scan.

```

NoEcho('
/*****
*
* Module Name: aslprimaries.y - Rules for primary ASL operators
*           - Keep this file synched with the
*           CvParseOpBlockType function in cvcompiler.c
*
*****/

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- \* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT,
- \* STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING
- \* IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
- \* POSSIBILITY OF SUCH DAMAGES.
- \*/

)

```

/*****
*
* ASL Primary Terms
*
*****/

```

```

AccessAsTerm
: PARSEOP_ACCESSAS
  PARSEOP_OPEN_PAREN
  AccessTypeKeyword
  OptionalAccessAttribTerm
  PARSEOP_CLOSE_PAREN    {$$ = TrCreateOp (PARSEOP_ACCESSAS,2,$3,$4);}
| PARSEOP_ACCESSAS
  PARSEOP_OPEN_PAREN

```

```

    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

AcquireTerm
: PARSEOP_ACQUIRE
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp(PARSEOP_ACQUIRE);}
  SuperName
  '
WordConstExpr
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,2,$4,$6);}
| PARSEOP_ACQUIRE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

AddTerm
: PARSEOP_ADD
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_ADD);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_ADD
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

AliasTerm
: PARSEOP_ALIAS
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_ALIAS);}
  NameString
  NameStringItem
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,2,$4,
                                TrSetOpFlags ($5, OP_IS_NAME_DECLARATION));}
| PARSEOP_ALIAS
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

AndTerm
: PARSEOP_AND
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_AND);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_AND
  PARSEOP_OPEN_PAREN

```

```

    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ArgTerm
: PARSEOP_ARG0          {$$ = TrCreateLeafOp (PARSEOP_ARG0);}
| PARSEOP_ARG1          {$$ = TrCreateLeafOp (PARSEOP_ARG1);}
| PARSEOP_ARG2          {$$ = TrCreateLeafOp (PARSEOP_ARG2);}
| PARSEOP_ARG3          {$$ = TrCreateLeafOp (PARSEOP_ARG3);}
| PARSEOP_ARG4          {$$ = TrCreateLeafOp (PARSEOP_ARG4);}
| PARSEOP_ARG5          {$$ = TrCreateLeafOp (PARSEOP_ARG5);}
| PARSEOP_ARG6          {$$ = TrCreateLeafOp (PARSEOP_ARG6);}
;

BankFieldTerm
: PARSEOP_BANKFIELD
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_BANKFIELD);}
  NameString
  NameStringItem
  TermArgItem
  ',' AccessTypeKeyword
  ',' LockRuleKeyword
  ',' UpdateRuleKeyword
  PARSEOP_CLOSE_PAREN '{'
    FieldUnitList '}'    {$$ = TrLinkOpChildren ($<n>>3,7,
                                $4,$5,$6,$8,$10,$12,$15);}
| PARSEOP_BANKFIELD
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN
  '{' error '}'          {$$ = AslDoError(); yyclearin;}
;

BreakTerm
: PARSEOP_BREAK          {$$ = TrCreateOp (PARSEOP_BREAK, 0);}
;

BreakPointTerm
: PARSEOP_BREAKPOINT    {$$ = TrCreateOp (PARSEOP_BREAKPOINT, 0);}
;

BufferTerm
: PARSEOP_BUFFER        {$<n>$ = TrCreateLeafOp (PARSEOP_BUFFER);
COMMENT_CAPTURE_OFF; }
  OptionalDataCount
  '{' BufferTermData '}'  {$$ = TrLinkOpChildren ($<n>>2,2,$3,$5); COMMENT_CAPTURE_ON;}
;

BufferTermData
: ByteList              {}

```

| StringData

{}

;

CaseTerm

: PARSEOP\_CASE

PARSEOP\_OPEN\_PAREN     {<n>\$ = TrCreateLeafOp (PARSEOP\_CASE);}

DataObject

PARSEOP\_CLOSE\_PAREN '{'

  TermList '}'     { \$\$ = TrLinkOpChildren (<n>3,2,\$4,\$7);}

| PARSEOP\_CASE

PARSEOP\_OPEN\_PAREN

error PARSEOP\_CLOSE\_PAREN   { \$\$ = AslDoError(); yyclearin;}

;

ConcatTerm

: PARSEOP\_CONCATENATE

PARSEOP\_OPEN\_PAREN     {<n>\$ = TrCreateLeafOp (PARSEOP\_CONCATENATE);}

TermArg

TermArgItem

Target

PARSEOP\_CLOSE\_PAREN     { \$\$ = TrLinkOpChildren (<n>3,3,\$4,\$5,\$6);}

| PARSEOP\_CONCATENATE

PARSEOP\_OPEN\_PAREN

error PARSEOP\_CLOSE\_PAREN   { \$\$ = AslDoError(); yyclearin;}

;

ConcatResTerm

: PARSEOP\_CONCATENATERESTEMPLATE

PARSEOP\_OPEN\_PAREN     {<n>\$ = TrCreateLeafOp (  
                          PARSEOP\_CONCATENATERESTEMPLATE);}

TermArg

TermArgItem

Target

PARSEOP\_CLOSE\_PAREN

  { \$\$ = TrLinkOpChildren (<n>3,3,\$4,\$5,\$6);}

| PARSEOP\_CONCATENATERESTEMPLATE

PARSEOP\_OPEN\_PAREN

error PARSEOP\_CLOSE\_PAREN   { \$\$ = AslDoError(); yyclearin;}

;

CondRefOfTerm

: PARSEOP\_CONDREFOF

PARSEOP\_OPEN\_PAREN     {<n>\$ = TrCreateLeafOp (PARSEOP\_CONDREFOF);}

CondRefOfSource

Target

PARSEOP\_CLOSE\_PAREN     { \$\$ = TrLinkOpChildren (<n>3,2,\$4,\$5);}

| PARSEOP\_CONDREFOF

```
PARSEOP_OPEN_PAREN
error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### ConnectionTerm

```
: PARSEOP_CONNECTION
  PARSEOP_OPEN_PAREN
  NameString
  PARSEOP_CLOSE_PAREN    {$$ = TrCreateOp (PARSEOP_CONNECTION,1,$3);}
| PARSEOP_CONNECTION
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_CONNECTION);}
  ResourceMacroTerm
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3, 1,
                                TrLinkOpChildren (
                                    TrCreateLeafOp (PARSEOP_RESOURCETEMPLATE), 3,
                                    TrCreateLeafOp (PARSEOP_DEFAULT_ARG),
                                    TrCreateLeafOp (PARSEOP_DEFAULT_ARG),
                                    $4));}
| PARSEOP_CONNECTION
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### ContinueTerm

```
: PARSEOP_CONTINUE    {$$ = TrCreateOp (PARSEOP_CONTINUE, 0);}
;
```

#### CopyObjectTerm

```
: PARSEOP_COPYOBJECT
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_COPYOBJECT);}
  TermArg
  ',' SimpleName
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,$4,
                                TrSetOpFlags ($6, OP_IS_TARGET));}
| PARSEOP_COPYOBJECT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### CreateBitFieldTerm

```
: PARSEOP_CREATEBITFIELD
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEBITFIELD);}
  TermArg
  TermArgItem
  NameStringItem
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,
                                TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
;
```



```

| PARSEOP_CREATEBITFIELD
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### CreateByteFieldTerm

```

: PARSEOP_CREATEBYTEFIELD
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEBYTEFIELD);}
  TermArg
  TermArgItem
  NameStringItem
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,
                                TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
| PARSEOP_CREATEBYTEFIELD
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### CreateDWordFieldTerm

```

: PARSEOP_CREATEDWORDFIELD
  PARSEOP_OPEN_PAREN
    {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEDWORDFIELD);}
  TermArg
  TermArgItem
  NameStringItem
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,
                                TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
| PARSEOP_CREATEDWORDFIELD
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### CreateFieldTerm

```

: PARSEOP_CREATEFIELD
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_CREATEFIELD);}
  TermArg
  TermArgItem
  TermArgItem
  NameStringItem
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,4,$4,$5,$6,
                                TrSetOpFlags ($7, OP_IS_NAME_DECLARATION));}
| PARSEOP_CREATEFIELD
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### CreateQWordFieldTerm

```

: PARSEOP_CREATEQWORDFIELD

```

```

PARSEOP_OPEN_PAREN
    {<n>$ = TrCreateLeafOp (PARSEOP_CREATEQWORDFIELD);}
TermArg
TermArgItem
NameStringItem
PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,3,$4,$5,
                    TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
| PARSEOP_CREATEQWORDFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN    {$$ = AslDoError(); yyclearin;}
;

```

CreateWordFieldTerm

```

: PARSEOP_CREATEWORDFIELD
    PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_CREATEWORDFIELD);}
    TermArg
    TermArgItem
    NameStringItem
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,3,$4,$5,
                    TrSetOpFlags ($6, OP_IS_NAME_DECLARATION));}
| PARSEOP_CREATEWORDFIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN    {$$ = AslDoError(); yyclearin;}
;

```

DataRegionTerm

```

: PARSEOP_DATATABLEREGION
    PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp
(PARSEOP_DATATABLEREGION);}
    NameString
    TermArgItem
    TermArgItem
    TermArgItem
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,4,
                    TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$5,$6,$7);}
| PARSEOP_DATATABLEREGION
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN    {$$ = AslDoError(); yyclearin;}
;

```

DebugTerm

```

: PARSEOP_DEBUG          {$$ = TrCreateLeafOp (PARSEOP_DEBUG);}
;

```

DecTerm

```

: PARSEOP_DECREMENT
    PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_DECREMENT);}
    SuperName

```

```

    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_DECREMENT
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### DefaultTerm

```

: PARSEOP_DEFAULT '{'      {$<n>$ = TrCreateLeafOp (PARSEOP_DEFAULT);}
  TermList '}'           {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_DEFAULT '{'
  error '}'             {$$ = AslDoError(); yyclearin;}
;

```

#### DerefOfTerm

```

: PARSEOP_DEREOF
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_DEREOF);}
  DerefOfSource
  PARSEOP_CLOSE_PAREN   {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_DEREOF
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### DeviceTerm

```

: PARSEOP_DEVICE
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_DEVICE);}
  NameString
  PARSEOP_CLOSE_PAREN '{'
    TermList '}'      {$$ = TrLinkOpChildren ($<n>3,2,
      TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$7);}
| PARSEOP_DEVICE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### DivideTerm

```

: PARSEOP_DIVIDE
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_DIVIDE);}

```

#### TermArg

```

  TermArgItem
  Target
  Target
  PARSEOP_CLOSE_PAREN   {$$ = TrLinkOpChildren ($<n>3,4,$4,$5,$6,$7);}
| PARSEOP_DIVIDE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

EISAITerm

```
: PARSEOP_EISAID
  PARSEOP_OPEN_PAREN
  StringData
  PARSEOP_CLOSE_PAREN    {$$ = TrSetOpIntegerValue (PARSEOP_EISAID, $3);}
| PARSEOP_EISAID
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

ElseIfTerm

```
: IfTerm ElseTerm    {$$ = TrLinkPeerOp ($1,$2);}
;
```

ElseTerm

```
:                {$$ = NULL;}
| PARSEOP_ELSE '{'
  TermList        {$<n>$ = TrCreateLeafOp (PARSEOP_ELSE);}
  '}'            {$$ = TrLinkOpChildren ($<n>4,1,$3);}

| PARSEOP_ELSE '{'
  error '}'      {$$ = AslDoError(); yyclearin;}

| PARSEOP_ELSE
  error          {$$
= AslDoError(); yyclearin;}

| PARSEOP_ELSEIF
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_ELSE);}
  TermArg                {$<n>$ = TrCreateLeafOp (PARSEOP_IF);}
  PARSEOP_CLOSE_PAREN '{'
    TermList '}'        {TrLinkOpChildren ($<n>5,2,$4,$8);}
    ElseTerm            {TrLinkPeerOp ($<n>5,$11);}
    {$$ = TrLinkOpChildren ($<n>3,1,$<n>5);}

| PARSEOP_ELSEIF
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}

| PARSEOP_ELSEIF
  error          {$$ = AslDoError(); yyclearin;}
;
```

EventTerm

```
: PARSEOP_EVENT
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_EVENT);}
  NameString
```

```

    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,1,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION));}
| PARSEOP_EVENT
    PARSEOP_OPEN_PAREN
    error
PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ExternalTerm
: PARSEOP_EXTERNAL
    PARSEOP_OPEN_PAREN
    NameString
    OptionalObjectTypeKeyword
    OptionalParameterTypePackage
    OptionalParameterTypesPackage
    PARSEOP_CLOSE_PAREN    {$$ = TrCreateOp (PARSEOP_EXTERNAL,4,$3,$4,$5,$6);}
| PARSEOP_EXTERNAL
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

FatalTerm
: PARSEOP_FATAL
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_FATAL);}
    ByteConstExpr
    ' ' DWordConstExpr
    TermArgItem
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,3,$4,$6,$7);}
| PARSEOP_FATAL
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

FieldTerm
: PARSEOP_FIELD
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_FIELD);}
    NameString
    ' ' AccessTypeKeyword
    ' ' LockRuleKeyword
    ' ' UpdateRuleKeyword
    PARSEOP_CLOSE_PAREN '{'
        FieldUnitList '}'    {$$ = TrLinkOpChildren (<n>3,5,$4,$6,$8,$10,$13);}
| PARSEOP_FIELD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN
    '{' error '}'    {$$ = AslDoError(); yyclearin;}
;

```

FindSetLeftBitTerm

```
: PARSEOP_FINDSETLEFTBIT
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_FINDSETLEFTBIT);}
  TermArg
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_FINDSETLEFTBIT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;
```

FindSetRightBitTerm

```
: PARSEOP_FINDSETRIGHTBIT
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_FINDSETRIGHTBIT);}
  TermArg
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_FINDSETRIGHTBIT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;
```

/\* Convert a For() loop to a While() loop \*/

ForTerm

```
: PARSEOP_FOR
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_WHILE);}
  OptionalTermArg ';'      {}
  OptionalPredicate ';'
  OptionalTermArg          {<n>$ = TrLinkPeerOp ($4,<n>3);
                             TrSetOpParent ($9,<n>3);}          /* New parent is WHILE */
  PARSEOP_CLOSE_PAREN
  '{' TermList '}'         {<n>$ = TrLinkOpChildren (<n>3,2,$7,$13);}
                             {<n>$ = TrLinkPeerOp ($13,$9);
                             $$ = <n>10;}
;
```

OptionalPredicate

```
:          {$$ = TrCreateValuedLeafOp (PARSEOP_INTEGER, 1);}
| TermArg  {$$ = $1;}
;
```

FprintfTerm

```
: PARSEOP_FPRINTF
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_FPRINTF);}
  TermArg ','
  StringData
  PrintfArgList
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren (<n>3,3,$4,$6,$7);}
```

```

| PARSEOP_FPRINTF
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### FromBCDTerm

```

: PARSEOP_FROMBCD
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_FROMBCD);}
  TermArg
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_FROMBCD
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### FunctionTerm

```

: PARSEOP_FUNCTION
  PARSEOP_OPEN_PAREN      {COMMENT_CAPTURE_OFF; $<n>$ = TrCreateLeafOp
(PARSEOP_METHOD); }
  NameString
  OptionalParameterTypePackage
  OptionalParameterTypesPackage
  PARSEOP_CLOSE_PAREN '{'  {COMMENT_CAPTURE_ON; }
    TermList '}'          {$$ = TrLinkOpChildren ($<n>3,7,
      TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
      TrCreateValuedLeafOp (PARSEOP_BYTECONST, 0),
      TrCreateLeafOp (PARSEOP_SERIALIZERULE_NOTSERIAL),
      TrCreateValuedLeafOp (PARSEOP_BYTECONST, 0),$5,$6,$10);}
| PARSEOP_FUNCTION
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### IfTerm

```

: PARSEOP_IF
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_IF);}
  TermArg
  PARSEOP_CLOSE_PAREN '{'
    TermList '}'          {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
| PARSEOP_IF
  PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### IncludeTerm

```

: PARSEOP_INCLUDE
  PARSEOP_OPEN_PAREN
  String
  PARSEOP_CLOSE_PAREN    {$$ = TrSetOpIntegerValue (PARSEOP_INCLUDE, $3);
                          FIOpenIncludeFile
($3);}
;

IncludeEndTerm
: PARSEOP_INCLUDE_END    {$<n>$ = TrCreateLeafOp (PARSEOP_INCLUDE_END);
                          TrSetOpCurrentFilename ($$);}
;

IncTerm
: PARSEOP_INCREMENT
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_INCREMENT);}
  SuperName
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_INCREMENT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

IndexFieldTerm
: PARSEOP_INDEXFIELD
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_INDEXFIELD);}
  NameString
  NameStringItem
  ',' AccessTypeKeyword
  ',' LockRuleKeyword
  ',' UpdateRuleKeyword
  PARSEOP_CLOSE_PAREN '{'
    FieldUnitList '}'    {$$ = TrLinkOpChildren ($<n>3,6,$4,$5,$7,$9,$11,$14);}
| PARSEOP_INDEXFIELD
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN
  '{ error '}'          {$$ = AslDoError(); yyclearin;}
;

IndexTerm
: PARSEOP_INDEX
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_INDEX);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_INDEX
  PARSEOP_OPEN_PAREN

```



```

    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

LAndTerm
: PARSEOP_LAND
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_LAND);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_LAND
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

LEqualTerm
: PARSEOP_LEQUAL
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_LEQUAL);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_LEQUAL
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

LGreaterEqualTerm
: PARSEOP_LGREATEREQUAL
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_LLESS);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN    {$$ = TrCreateOp (PARSEOP_LNOT, 1,
                                     TrLinkOpChildren ($<n>3,2,$4,$5));}
| PARSEOP_LGREATEREQUAL
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

LGreaterTerm
: PARSEOP_LGREATER
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_LGREATER);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_LGREATER
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### LLessEqualTerm

```
: PARSEOP_LLESSEQUAL
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp
(PARSEOP_LGREATER);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN   {$ = TrCreateOp (PARSEOP_LNOT, 1,
                                TrLinkOpChildren (<n>3,2,$4,$5));}
| PARSEOP_LLESSEQUAL
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$ = AslDoError(); yyclearin;}
;
```

#### LLessTerm

```
: PARSEOP_LLESS
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_LLESS);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN   {$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_LLESS
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$ = AslDoError(); yyclearin;}
;
```

#### LNotEqualTerm

```
: PARSEOP_LNOTEQUAL
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_LEQUAL);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN   {$ = TrCreateOp (PARSEOP_LNOT, 1,
                                TrLinkOpChildren (<n>3,2,$4,$5));}
| PARSEOP_LNOTEQUAL
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$ = AslDoError(); yyclearin;}
;
```

#### LNotTerm

```
: PARSEOP_LNOT
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_LNOT);}
  TermArg
  PARSEOP_CLOSE_PAREN   {$ = TrLinkOpChildren (<n>3,1,$4);}
| PARSEOP_LNOT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$ = AslDoError(); yyclearin;}
;
```

#### LoadTableTerm

```
: PARSEOP_LOADTABLE
```

```

PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_LOADTABLE);}
TermArg
TermArgItem
TermArgItem
OptionalListString
OptionalListString
OptionalReference
PARSEOP_CLOSE_PAREN   {$ = TrLinkOpChildren (<n>3,6,$4,$5,$6,$7,$8,$9);}
| PARSEOP_LOADTABLE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$ = AslDoError(); yyclearin;}
;

```

#### LoadTerm

```

: PARSEOP_LOAD
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_LOAD);}
  NameString
  RequiredTarget
  PARSEOP_CLOSE_PAREN   {$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_LOAD
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$ = AslDoError(); yyclearin;}
;

```

#### LocalTerm

```

: PARSEOP_LOCAL0      {$ = TrCreateLeafOp (PARSEOP_LOCAL0);}
| PARSEOP_LOCAL1      {$ = TrCreateLeafOp (PARSEOP_LOCAL1);}
| PARSEOP_LOCAL2      {$ = TrCreateLeafOp (PARSEOP_LOCAL2);}
| PARSEOP_LOCAL3      {$ = TrCreateLeafOp (PARSEOP_LOCAL3);}
| PARSEOP_LOCAL4      {$ = TrCreateLeafOp (PARSEOP_LOCAL4);}
| PARSEOP_LOCAL5      {$ = TrCreateLeafOp (PARSEOP_LOCAL5);}
| PARSEOP_LOCAL6      {$ = TrCreateLeafOp (PARSEOP_LOCAL6);}
| PARSEOP_LOCAL7      {$ = TrCreateLeafOp (PARSEOP_LOCAL7);}
;

```

#### LORTerm

```

: PARSEOP_LOR
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_LOR);}
  TermArg
  TermArgItem
  PARSEOP_CLOSE_PAREN   {$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_LOR
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$ = AslDoError(); yyclearin;}
;

```

#### MatchTerm

```

: PARSEOP_MATCH

```

```

PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_MATCH);}
TermArg
',' MatchOpKeyword
TermArgItem
',' MatchOpKeyword
TermArgItem
TermArgItem
PARSEOP_CLOSE_PAREN  {$ = TrLinkOpChildren (<n>3,6,$4,$6,$7,$9,$10,$11);}
| PARSEOP_MATCH
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$ = AslDoError(); yyclearin;}
;

```

MethodTerm

```

: PARSEOP_METHOD
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_METHOD);}
COMMENT_CAPTURE_OFF;}
NameString
OptionalByteConstExpr  {UtCheckIntegerRange ($5, 0, 7);}
OptionalSerializeRuleKeyword
OptionalByteConstExpr
OptionalParameterTypePackage
OptionalParameterTypesPackage
PARSEOP_CLOSE_PAREN '{' {COMMENT_CAPTURE_ON;}
  TermList '}'          {$ = TrLinkOpChildren (<n>3,7,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                                $5,$7,$8,$9,$10,$14);}
| PARSEOP_METHOD
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$ = AslDoError(); yyclearin;}
;

```

MidTerm

```

: PARSEOP_MID
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_MID);}
  TermArg
  TermArgItem
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN  {$ = TrLinkOpChildren (<n>3,4,$4,$5,$6,$7);}
| PARSEOP_MID
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$ = AslDoError(); yyclearin;}
;

```

ModTerm

```

: PARSEOP_MOD
  PARSEOP_OPEN_PAREN    {<n>$ = TrCreateLeafOp (PARSEOP_MOD);}

```

```

TermArg
TermArgItem
Target
PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren
($<n>3,3,$4,$5,$6);}
| PARSEOP_MOD
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### MultiplyTerm

```

: PARSEOP_MULTIPLY
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_MULTIPLY);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_MULTIPLY
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### MutexTerm

```

: PARSEOP_MUTEX
  PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_MUTEX);}
  NameString
  ',' ByteConstExpr
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,
TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$6);}
| PARSEOP_MUTEX
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### NameTerm

```

: PARSEOP_NAME
  PARSEOP_OPEN_PAREN
  {$<n>$ = TrCreateLeafOp (PARSEOP_NAME);}
  NameString
  ',' DataObject
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,
TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$6);}
| PARSEOP_NAME
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### NAndTerm

```

: PARSEOP_NAND
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_NAND);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_NAND
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

NoOpTerm
: PARSEOP_NOOP            {$$ = TrCreateOp (PARSEOP_NOOP, 0);}
;

NORTerm
: PARSEOP_NOR
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_NOR);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_NOR
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

NotifyTerm
: PARSEOP_NOTIFY
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_NOTIFY);}
  SuperName
  TermArgItem
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_NOTIFY
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

NotTerm
: PARSEOP_NOT
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_NOT);}
  TermArg
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_NOT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}

```

```

;

ObjectTypeTerm
: PARSEOP_OBJECTTYPE
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE);}
  ObjectTypeSource
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_OBJECTTYPE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

OffsetTerm
: PARSEOP_OFFSET
  PARSEOP_OPEN_PAREN
  AmlPackageLengthTerm
  PARSEOP_CLOSE_PAREN     {$$ = TrCreateOp (PARSEOP_OFFSET,1,$3);}
| PARSEOP_OFFSET
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

OpRegionTerm
: PARSEOP_OPERATIONREGION
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_OPERATIONREGION);}
  NameString
  ',' OpRegionSpaceIdTerm
  TermArgItem
  TermArgItem
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,4,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                                $6,$7,$8);}
| PARSEOP_OPERATIONREGION
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN
  {$$ = AslDoError(); yyclearin;}
;

OpRegionSpaceIdTerm
: RegionSpaceKeyword      {}
| ByteConst               {$$ = UtCheckIntegerRange ($1, 0x80, 0xFF);}
;

OrTerm
: PARSEOP_OR
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_OR);}
  TermArg
  TermArgItem

```

```

Target
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_OR
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

PackageTerm
: PARSEOP_PACKAGE          {$<n>$ = TrCreateLeafOp (PARSEOP_VAR_PACKAGE);}
  OptionalDataCount
  '{ PackageList }'        {$$ = TrLinkOpChildren ($<n>2,2,$3,$5);}

PowerResTerm
: PARSEOP_POWERRESOURCE
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_POWERRESOURCE);}
  NameString
  ',' ByteConstExpr
  ',' WordConstExpr
  PARSEOP_CLOSE_PAREN '{
  TermList }'
  {$$ = TrLinkOpChildren ($<n>3,4,
                          TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                          $6,$8,$11);}
| PARSEOP_POWERRESOURCE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

PrintfTerm
: PARSEOP_PRINTF
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_PRINTF);}
  StringData
  PrintfArgList
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_PRINTF
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN {$$ = AslDoError(); yyclearin;}
;

PrintfArgList
:                               {$$ = NULL;}
| TermArg                       {$$ = $1;}
| PrintfArgList ','
  TermArg                       {$$ = TrLinkPeerOp ($1, $3);}
;

ProcessorTerm
: PARSEOP_PROCESSOR

```



```

PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_PROCESSOR);}
NameString
',' ByteConstExpr
OptionalDWordConstExpr
OptionalByteConstExpr
PARSEOP_CLOSE_PAREN '{'
    TermList '}'      {$$ = TrLinkOpChildren (<n>3,5,
                                TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),
                                $6,$7,$8,$11);}
| PARSEOP_PROCESSOR
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

RawDataBufferTerm
: PARSEOP_DATABUFFER
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_DATABUFFER);}
  OptionalWordConst
  PARSEOP_CLOSE_PAREN '{'
    ByteList '}'      {$$ = TrLinkOpChildren (<n>3,2,$4,$7);}
| PARSEOP_DATABUFFER
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

/*
* In RefOf, the node isn't really a target, but we can't keep track of it after
* we've taken a pointer to it. (hard to tell if a local becomes initialized
  this way.)
*/
RefOfTerm
: PARSEOP_REFOF
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_REFOF);}
  RefOfSource
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren (<n>3,1,
                                TrSetOpFlags ($4, OP_IS_TARGET));}
| PARSEOP_REFOF
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ReleaseTerm
: PARSEOP_RELEASE
  PARSEOP_OPEN_PAREN      {<n>$ = TrCreateLeafOp (PARSEOP_RELEASE);}
  SuperName
  PARSEOP_CLOSE_PAREN      {$$ = TrLinkOpChildren (<n>3,1,$4);}
| PARSEOP_RELEASE
  PARSEOP_OPEN_PAREN

```

```

    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ResetTerm
: PARSEOP_RESET
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_RESET);}
  SuperName
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_RESET
  PARSEOP_OPEN_PAREN

    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ReturnTerm
: PARSEOP_RETURN
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_RETURN);}
  OptionalReturnArg
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_RETURN          {$$ = TrLinkOpChildren (
                          TrCreateLeafOp (PARSEOP_RETURN),1,
                          TrSetOpFlags (TrCreateLeafOp (PARSEOP_ZERO),
                          OP_IS_NULL_RETURN));}
| PARSEOP_RETURN
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ScopeTerm
: PARSEOP_SCOPE
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SCOPE);}
  NameString
  PARSEOP_CLOSE_PAREN '{'
    TermList '}'          {$$ = TrLinkOpChildren ($<n>3,2,
                          TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$7);}
| PARSEOP_SCOPE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ShiftLeftTerm
: PARSEOP_SHIFTLLEFT
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTLLEFT);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_SHIFTLLEFT

```

```
PARSEOP_OPEN_PAREN
error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### ShiftRightTerm

```
: PARSEOP_SHIFTRIGHT
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SHIFTRIGHT);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_SHIFTRIGHT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### SignalTerm

```
: PARSEOP_SIGNAL
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SIGNAL);}

  SuperName
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_SIGNAL
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### SizeOfTerm

```
: PARSEOP_SIZEOF
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SIZEOF);}
  SuperName
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_SIZEOF
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### SleepTerm

```
: PARSEOP_SLEEP
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SLEEP);}
  TermArg
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_SLEEP
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;
```

#### StallTerm

```

: PARSEOP_STALL
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_STALL);}
  TermArg
  PARSEOP_CLOSE_PAREN
    {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_STALL
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### StoreTerm

```

: PARSEOP_STORE
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_STORE);}
  TermArg
  ',' SuperName
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,2,$4,
                                TrSetOpFlags ($6, OP_IS_TARGET));}
| PARSEOP_STORE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### SubtractTerm

```

: PARSEOP_SUBTRACT
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SUBTRACT);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_SUBTRACT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### SwitchTerm

```

: PARSEOP_SWITCH
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_SWITCH);}
  TermArg
  PARSEOP_CLOSE_PAREN '{'
    CaseDefaultTermList '}' {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
| PARSEOP_SWITCH
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### ThermalZoneTerm

```

: PARSEOP_THERMALZONE
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_THERMALZONE);}

```

```

NameString
PARSEOP_CLOSE_PAREN '{'
    TermList '}'      {$$ = TrLinkOpChildren ($<n>3,2,
                        TrSetOpFlags ($4, OP_IS_NAME_DECLARATION),$7);}
| PARSEOP_THERMALZONE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

TimerTerm
: PARSEOP_TIMER
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_TIMER);}
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,0);}
| PARSEOP_TIMER
  {$$ = TrLinkOpChildren (
                        TrCreateLeafOp (PARSEOP_TIMER),0);}
| PARSEOP_TIMER
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ToBCDTerm
: PARSEOP_TOBCD
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_TOBCD);}
  TermArg
  Target
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_TOBCD
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ToBufferTerm
: PARSEOP_TOBUFFER
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_TOBUFFER);}
  TermArg
  Target
  PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_TOBUFFER
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ToDecimalStringTerm
: PARSEOP_TODECIMALSTRING
  PARSEOP_OPEN_PAREN
  {$<n>$ = TrCreateLeafOp (PARSEOP_TODECIMALSTRING);}
  TermArg

```

```

    Target
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_TODECIMALSTRING
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ToHexStringTerm
: PARSEOP_TOHEXSTRING
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_TOHEXSTRING);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_TOHEXSTRING
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ToIntegerTerm
: PARSEOP_TOINTEGER
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_TOINTEGER);}
    TermArg
    Target
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,2,$4,$5);}
| PARSEOP_TOINTEGER
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

ToPLDTerm
: PARSEOP_TOPLD
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_TOPLD);}
    PldKeywordList
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren (<n>3,1,$4);}
| PARSEOP_TOPLD
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

PldKeywordList
:          {$$ = NULL;}
| PldKeyword
    PARSEOP_EXP_EQUALS Integer  {$$ = TrLinkOpChildren ($1,1,$3);}
| PldKeyword
    PARSEOP_EXP_EQUALS String  {$$ = TrLinkOpChildren ($1,1,$3);}
| PldKeywordList ','          /* Allows a trailing comma at list end */
| PldKeywordList ' '
    PldKeyword

```

```

    PARSEOP_EXP_EQUALS Integer  {$$ = TrLinkPeerOp ($1,TrLinkOpChildren ($3,1,$5));}
| PldKeywordList ','
    PldKeyword
    PARSEOP_EXP_EQUALS String  {$$ = TrLinkPeerOp ($1,TrLinkOpChildren ($3,1,$5));}
;

```

#### ToStringTerm

```

: PARSEOP_TOSTRING
    PARSEOP_OPEN_PAREN
    {$<n>$ = TrCreateLeafOp (PARSEOP_TOSTRING);}
    TermArg
    OptionalCount
    Target
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_TOSTRING
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### ToUUIDTerm

```

: PARSEOP_TOUUID
    PARSEOP_OPEN_PAREN
    StringData
    PARSEOP_CLOSE_PAREN    {$$ = TrSetOpIntegerValue (PARSEOP_TOUUID, $3);}
| PARSEOP_TOUUID
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### UnicodeTerm

```

: PARSEOP_UNICODE
    PARSEOP_OPEN_PAREN    {$<n>$ = TrCreateLeafOp (PARSEOP_UNICODE);}
    StringData
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,2,0,$4);}
| PARSEOP_UNICODE
    PARSEOP_OPEN_PAREN
    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

#### UnloadTerm

```

: PARSEOP_UNLOAD
    PARSEOP_OPEN_PAREN    {$<n>$
= TrCreateLeafOp (PARSEOP_UNLOAD);}
    SuperName
    PARSEOP_CLOSE_PAREN    {$$ = TrLinkOpChildren ($<n>3,1,$4);}
| PARSEOP_UNLOAD
    PARSEOP_OPEN_PAREN

```

```

    error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

WaitTerm
: PARSEOP_WAIT
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_WAIT);}
  SuperName
  TermArgItem
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,2,$4,$5);}
| PARSEOP_WAIT
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

XOrTerm
: PARSEOP_XOR
  PARSEOP_OPEN_PAREN      {$<n>$ = TrCreateLeafOp (PARSEOP_XOR);}
  TermArg
  TermArgItem
  Target
  PARSEOP_CLOSE_PAREN     {$$ = TrLinkOpChildren ($<n>3,3,$4,$5,$6);}
| PARSEOP_XOR
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

WhileTerm
: PARSEOP_WHILE
  PARSEOP_OPEN_PAREN
    {$<n>$ = TrCreateLeafOp (PARSEOP_WHILE);}
  TermArg
  PARSEOP_CLOSE_PAREN
    {' TermList '}        {$$ = TrLinkOpChildren ($<n>3,2,$4,$7);}
| PARSEOP_WHILE
  PARSEOP_OPEN_PAREN
  error PARSEOP_CLOSE_PAREN  {$$ = AslDoError(); yyclearin;}
;

```

Found in path(s):

```
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/aslprimaries.y
```

No license file was found, but licenses were detected in source scan.

NoEcho('

```
/*****
```

```
*
```

```
* Module Name: asltypes.y - Bison/Yacc production types/names
```

```
*
```



\*\*\*\*\*/

/\*

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\*/

)

\*\*\*\*\*/

\*

\* Production names

\*

\*\*\*\*\*/

%type <n> ArgList

%type <n> AslCode  
%type <n> BufferData  
%type <n> BufferTermData  
%type <n> CompilerDirective  
%type <n> DataObject  
%type <n> DefinitionBlockTerm  
%type <n> DefinitionBlockList  
%type <n> IntegerData  
%type <n> NamedObject  
%type <n> NameSpaceModifier  
%type <n> Object  
%type <n> PackageData  
%type <n> ParameterTypePackage  
%type <n> ParameterTypePackageList  
%type <n> ParameterTypesPackage  
%type <n> ParameterTypesPackageList  
%type <n> RequiredTarget  
%type <n> SimpleName  
%type <n> StringData  
%type <n> Target  
%type <n> Term  
%type <n> TermArg  
%type <n> TermList  
%type <n> MethodInvocationTerm

/\* Type4Opcode is  
obsolete \*/

%type <n> Type1Opcode  
%type <n> Type2BufferOpcode  
%type <n> Type2BufferOrStringOpcode  
%type <n> Type2IntegerOpcode  
%type <n> Type2Opcode  
%type <n> Type2StringOpcode  
%type <n> Type3Opcode  
%type <n> Type5Opcode  
%type <n> Type6Opcode

%type <n> AccessAsTerm  
%type <n> ExternalTerm  
%type <n> FieldUnit  
%type <n> FieldUnitEntry  
%type <n> FieldUnitList  
%type <n> IncludeTerm  
%type <n> OffsetTerm  
%type <n> OptionalAccessAttribTerm

/\* Named Objects \*/

%type <n> BankFieldTerm  
%type <n> CreateBitFieldTerm  
%type <n> CreateByteFieldTerm  
%type <n> CreateDWordFieldTerm  
%type <n> CreateFieldTerm  
%type <n> CreateQWordFieldTerm  
%type <n> CreateWordFieldTerm  
%type <n> DataRegionTerm  
%type <n> DeviceTerm  
%type <n> EventTerm  
%type <n> FieldTerm  
%type <n> FunctionTerm  
%type <n> IndexFieldTerm  
%type <n> MethodTerm  
%type <n> MutexTerm  
%type <n> OpRegionTerm  
%type <n> OpRegionSpaceIdTerm  
%type <n> PowerResTerm  
%type <n> ProcessorTerm  
%type <n> ThermalZoneTerm

/\* Namespace modifiers \*/

%type <n>  
AliasTerm  
%type <n> NameTerm  
%type <n> ScopeTerm

/\* Type 1 opcodes \*/

%type <n> BreakPointTerm  
%type <n> BreakTerm  
%type <n> CaseDefaultTermList  
%type <n> CaseTerm  
%type <n> ContinueTerm  
%type <n> DefaultTerm  
%type <n> ElseTerm  
%type <n> FatalTerm  
%type <n> ElseIfTerm  
%type <n> IfTerm  
%type <n> LoadTerm  
%type <n> NoOpTerm  
%type <n> NotifyTerm  
%type <n> ReleaseTerm  
%type <n> ResetTerm  
%type <n> ReturnTerm  
%type <n> SignalTerm

```
%type <n> SleepTerm
%type <n> StallTerm
%type <n> SwitchTerm
%type <n> UnloadTerm
%type <n> WhileTerm
/* %type <n> CaseTermList */
```

```
/* Type 2 opcodes */
```

```
%type <n> AcquireTerm
%type <n> AddTerm
%type <n> AndTerm
%type <n> ConcatResTerm
%type <n> ConcatTerm
%type <n> CondRefOfTerm
%type <n> CopyObjectTerm
%type <n> DecTerm
%type <n> DerefOfTerm
%type <n> DivideTerm
%type <n> FindSetLeftBitTerm
%type <n> FindSetRightBitTerm
%type <n> FromBCDTerm
%type <n> IncTerm
%type <n> IndexTerm
%type <n> LAndTerm
%type <n> LEqualTerm
%type <n> LGreaterEqualTerm
%type <n> LGreaterTerm
%type
<n> LLessEqualTerm
%type <n> LLessTerm
%type <n> LNotEqualTerm
%type <n> LNotTerm
%type <n> LoadTableTerm
%type <n> LOrTerm
%type <n> MatchTerm
%type <n> MidTerm
%type <n> ModTerm
%type <n> MultiplyTerm
%type <n> NAndTerm
%type <n> NOrTerm
%type <n> NotTerm
%type <n> ObjectTypeTerm
%type <n> OrTerm
%type <n> RawDataBufferTerm
%type <n> RefOfTerm
%type <n> ShiftLeftTerm
%type <n> ShiftRightTerm
```

%type <n> SizeOfTerm  
%type <n> StoreTerm  
%type <n> SubtractTerm  
%type <n> TimerTerm  
%type <n> ToBCDTerm  
%type <n> ToBufferTerm  
%type <n> ToDecimalStringTerm  
%type <n> ToHexStringTerm  
%type <n> ToIntegerTerm  
%type <n> ToStringTerm  
%type <n> WaitTerm  
%type <n> XOrTerm

/\* Keywords \*/

%type <n> AccessAttribKeyword  
%type <n> AccessTypeKeyword  
%type <n> AddressingModeKeyword  
%type <n> AddressKeyword  
%type <n> AddressSpaceKeyword  
%type <n> BitsPerByteKeyword  
%type <n> ClockPhaseKeyword  
%type <n> ClockPolarityKeyword  
%type <n> DecodeKeyword  
%type <n> DevicePolarityKeyword  
%type <n> DMATypeKeyword  
%type  
<n> EndianKeyword  
%type <n> FlowControlKeyword  
%type <n> InterruptLevel  
%type <n> InterruptTypeKeyword  
%type <n> IODecodeKeyword  
%type <n> IoRestrictionKeyword  
%type <n> LockRuleKeyword  
%type <n> MatchOpKeyword  
%type <n> MaxKeyword  
%type <n> MemTypeKeyword  
%type <n> MinKeyword  
%type <n> ObjectTypeKeyword  
%type <n> OptionalBusMasterKeyword  
%type <n> OptionalReadWriteKeyword  
%type <n> ParityTypeKeyword  
%type <n> PinConfigByte  
%type <n> PinConfigKeyword  
%type <n> RangeTypeKeyword  
%type <n> RegionSpaceKeyword  
%type <n> ResourceTypeKeyword  
%type <n> SerializeRuleKeyword

```
%type <n> ShareTypeKeyword
%type <n> SlaveModeKeyword
%type <n> StopBitsKeyword
%type <n> TranslationKeyword
%type <n> TypeKeyword
%type <n> UpdateRuleKeyword
%type <n> WireModeKeyword
%type <n> XferSizeKeyword
%type <n> XferTypeKeyword
```

```
/* Types */
```

```
%type <n> SuperName
%type <n> ObjectTypeSource
%type <n> DerefOfSource
%type <n> RefOfSource
%type <n> CondRefOfSource
%type <n> ArgTerm
%type <n> LocalTerm
%type
<n> DebugTerm
```

```
%type <n> Integer
%type <n> ByteConst
%type <n> WordConst
%type <n> DWordConst
%type <n> QWordConst
%type <n> String
```

```
%type <n> ConstTerm
%type <n> ConstExprTerm
%type <n> ByteConstExpr
%type <n> WordConstExpr
%type <n> DWordConstExpr
%type <n> QWordConstExpr
```

```
%type <n> DWordList
%type <n> BufferTerm
%type <n> ByteList
```

```
%type <n> PackageElement
%type <n> PackageList
%type <n> PackageTerm
```

```
/* Macros */
```

```
%type <n> EISAIDTerm
%type <n> ResourceMacroList
```

```
%type <n> ResourceMacroTerm
%type <n> ResourceTemplateTerm
%type <n> PldKeyword
%type <n> PldKeywordList
%type <n> ToPLDTerm
%type <n> ToUUIDTerm
%type <n> UnicodeTerm
%type <n> PrintfArgList
%type <n> PrintfTerm
%type <n> FprintfTerm
%type <n> ForTerm
```

```
/* Resource Descriptors */
```

```
%type <n> ConnectionTerm
%type <n> DMATerm
%type <n> DWordIOTerm
%type <n> DWordMemoryTerm
%type <n> DWordSpaceTerm
%type <n> EndDependentFnTerm
%type <n> ExtendedIOTerm
%type <n> ExtendedMemoryTerm
%type <n> ExtendedSpaceTerm
%type <n> FixedDmaTerm
%type
<n> FixedIOTerm
%type <n> GpioIntTerm
%type <n> GpioIoTerm
%type <n> I2cSerialBusTerm
%type <n> I2cSerialBusTermV2
%type <n> InterruptTerm
%type <n> IOTerm
%type <n> IRQNoFlagsTerm
%type <n> IRQTerm
%type <n> Memory24Term
%type <n> Memory32FixedTerm
%type <n> Memory32Term
%type <n> NameSeg
%type <n> NameString
%type <n> PinConfigTerm
%type <n> PinFunctionTerm
%type <n> PinGroupTerm
%type <n> PinGroupConfigTerm
%type <n> PinGroupFunctionTerm
%type <n> QWordIOTerm
%type <n> QWordMemoryTerm
%type <n> QWordSpaceTerm
%type <n> RegisterTerm
```

```
%type <n> SpiSerialBusTerm
%type <n> SpiSerialBusTermV2
%type <n> StartDependentFnNoPriTerm
%type <n> StartDependentFnTerm
%type <n> UartSerialBusTerm
%type <n> UartSerialBusTermV2
%type <n> VendorLongTerm
%type <n> VendorShortTerm
%type <n> WordBusNumberTerm
%type <n> WordIOTerm
%type <n> WordSpaceTerm
```

```
/* Local types that help construct the AML, not in ACPI spec */
```

```
%type <n> AmlPackageLengthTerm
%type <n> IncludeEndTerm
%type <n> NameStringItem
%type
<n> TermArgItem
```

```
%type <n> OptionalAccessSize
%type <n> OptionalAddressingMode
%type <n> OptionalAddressRange
%type <n> OptionalBitsPerByte
%type <n> OptionalBuffer_Last
%type <n> OptionalByteConstExpr
%type <n> OptionalCount
%type <n> OptionalDataCount
%type <n> OptionalDecodeType
%type <n> OptionalDevicePolarity
%type <n> OptionalDWordConstExpr
%type <n> OptionalEndian
%type <n> OptionalFlowControl
%type <n> OptionalIoRestriction
%type <n> OptionalListString
%type <n> OptionalMaxType
%type <n> OptionalMemType
%type <n> OptionalMinType
%type <n> OptionalNameString
%type <n> OptionalNameString_First
%type <n> OptionalNameString_Last
%type <n> OptionalObjectTypeKeyword
%type <n> OptionalParameterTypePackage
%type <n> OptionalParameterTypesPackage
%type <n> OptionalParentheses
%type <n> OptionalParityType
%type <n> OptionalPredicate
%type <n> OptionalQWordConstExpr
```



```
%type <n> OptionalRangeType
%type <n> OptionalReference
%type <n> OptionalResourceType
%type <n> OptionalResourceType_First
%type
<n> OptionalProducerResourceType
%type <n> OptionalReturnArg
%type <n> OptionalSerializeRuleKeyword
%type <n> OptionalShareType
%type <n> OptionalShareType_First
%type <n> OptionalSlaveMode
%type <n> OptionalStopBits
%type <n> OptionalStringData
%type <n> OptionalTermArg
%type <n> OptionalTranslationType_Last
%type <n> OptionalType
%type <n> OptionalType_Last
%type <n> OptionalWireMode
%type <n> OptionalWordConst
%type <n> OptionalWordConstExpr
%type <n> OptionalXferSize
```

```
/*
```

```
* ASL+ (C-style) parser
```

```
*/
```

```
/* Expressions and symbolic operators */
```

```
%type <n> Expression
%type <n> EqualsTerm
%type <n> IndexExpTerm
```

```
/* ASL+ Named object declaration support */
```

```
/*
```

```
%type <n> NameTermAsIPlus
```

```
%type <n> BufferBegin
%type <n> BufferEnd
%type <n> PackageBegin
%type <n> PackageEnd
%type <n> OptionalLength
```

```
*/
```

```
/* ASL+ Structure declarations */
```

```
/*
```

```
%type <n> StructureTerm
%type <n> StructureTermBegin
%type <n> StructureType
%type <n> StructureTag
```

```

%type <n> StructureElementList
%type <n>
  StructureElement
%type <n> StructureElementType
%type <n> OptionalStructureElementType
%type <n> StructureId
*/
/* Structure instantiation */
/*
%type <n> StructureInstanceTerm
%type <n> StructureTagReference
%type <n> StructureInstanceEnd
*/
/* Pseudo-instantiation for method Args/Locals */
/*
%type <n> MethodStructureTerm
%type <n> LocalStructureName
*/
/* Direct structure references via the Index operator */
/*
%type <n> StructureReference
%type <n> StructureIndexTerm
%type <n> StructurePointerTerm
%type <n> StructurePointerReference
%type <n> OptionalDefinePointer
*/

```

Found in path(s):

```

* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
20180508/source/compiler/asltypes.y

```

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```

% {
/*****
*
* Module Name: prparser.y - Bison input file for preprocessor parser
*
*****/

/*
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- \*/

```
#include "aslcompiler.h"
```

```
#define _COMPONENT      ASL_PREPROCESSOR
        ACPI_MODULE_NAME ("prparser")
```

```
void *      AslLocalAllocate (unsigned int Size);
```

```
/* Bison/yacc configuration */
```

```
#undef alloca
```

```
#define alloca      AslLocalAllocate
```

```
int      PrParserlex (void);
```

```
int      PrParserparse (void);
```

```
void      PrParsererror (char const *msg);
```

```
extern char      *PrParsertext;
```

```
UINT64      PrParserResult; /* Expression return value */
```

```

/* Bison/yacc configuration */

#define yyname      PrParsername
#define YYDEBUG      1      /* Enable debug output */
#define YYERROR_VERBOSE 1      /* Verbose error messages */
#define YYFLAG      -32768

/* Define
YYMALLOC/YYFREE to prevent redefinition errors */

#define YYMALLOC      malloc
#define YYFREE        free
% }

% union
{
    UINT64      value;
    UINT32      op;
    char        *str;
}

/*! [Begin] no source code translation */

%type <value> Expression

%token <op>      EXPOP_EOF
%token <op>      EXPOP_NEW_LINE
%token <op>      EXPOP_NUMBER
%token <op>      EXPOP_HEX_NUMBER
%token <op>      EXPOP_RESERVED1
%token <op>      EXPOP_RESERVED2
%token <op>      EXPOP_PAREN_OPEN
%token <op>      EXPOP_PAREN_CLOSE

%left <op>      EXPOP_LOGICAL_OR
%left <op>      EXPOP_LOGICAL_AND
%left <op>      EXPOP_OR
%left <op>      EXPOP_XOR
%left <op>      EXPOP_AND
%left <op>      EXPOP_EQUAL EXPOP_NOT_EQUAL
%left <op>      EXPOP_GREATER EXPOP_LESS EXPOP_GREATER_EQUAL EXPOP_LESS_EQUAL
%left <op>      EXPOP_SHIFT_RIGHT EXPOP_SHIFT_LEFT
%left <op>      EXPOP_ADD EXPOP_SUBTRACT
%left <op>      EXPOP_MULTIPLY EXPOP_DIVIDE EXPOP_MODULO
%right <op>     EXPOP_ONES_COMPLIMENT
EXPOP_LOGICAL_NOT

/* Tokens above must be kept in synch with dtparser.y */

```

```
%token <op> EXPOP_DEFINE
%token <op> EXPOP_IDENTIFIER
```

```
%%
```

```
/*
```

```
* Operator precedence rules (from K&R)
```

```
*
```

```
* 1)  ( )
```

```
* 2)  ! ~ (unary operators that are supported here)
```

```
* 3)  * / %
```

```
* 4)  + -
```

```
* 5)  >> <<
```

```
* 6)  < > <= >=
```

```
* 7)  == !=
```

```
* 8)  &
```

```
* 9)  ^
```

```
* 10) |
```

```
* 11) &&
```

```
* 12) ||
```

```
*/
```

```
/*! [End] no source code translation !*/
```

```
Value
```

```
: Expression EXPOP_NEW_LINE      { PrParserResult=$1; return 0; } /* End of line (newline) */
| Expression EXPOP_EOF           { PrParserResult=$1; return 0; } /* End of string (0) */
;
```

```
Expression
```

```
/* Unary operators */
```

```
: EXPOP_LOGICAL_NOT      Expression { $$ = DtDoOperator ($2, EXPOP_LOGICAL_NOT, $2); }
| EXPOP_ONES_COMPLIMENT Expression { $$ = DtDoOperator ($2,
EXPOP_ONES_COMPLIMENT, $2); }
```

```
/*
```

```
Binary operators */
```

```
| Expression EXPOP_MULTIPLY Expression { $$ = DtDoOperator ($1, EXPOP_MULTIPLY, $3); }
| Expression EXPOP_DIVIDE   Expression { $$ = DtDoOperator ($1, EXPOP_DIVIDE, $3); }
| Expression EXPOP_MODULO   Expression { $$ = DtDoOperator ($1, EXPOP_MODULO, $3); }
| Expression EXPOP_ADD      Expression { $$ = DtDoOperator ($1, EXPOP_ADD, $3); }
| Expression EXPOP_SUBTRACT Expression { $$ = DtDoOperator ($1, EXPOP_SUBTRACT, $3); }
| Expression EXPOP_SHIFT_RIGHT Expression { $$ = DtDoOperator ($1, EXPOP_SHIFT_RIGHT, $3); }
| Expression EXPOP_SHIFT_LEFT Expression { $$ = DtDoOperator ($1, EXPOP_SHIFT_LEFT, $3); }
```

```

| Expression EXPOP_GREATER      Expression { $$ = DtDoOperator ($1, EXPOP_GREATER,    $3);}
| Expression EXPOP_LESS        Expression { $$ = DtDoOperator ($1, EXPOP_LESS,      $3);}
| Expression EXPOP_GREATER_EQUAL
Expression { $$ = DtDoOperator ($1, EXPOP_GREATER_EQUAL,  $3);}
| Expression EXPOP_LESS_EQUAL   Expression { $$ = DtDoOperator ($1, EXPOP_LESS_EQUAL,
$3);}
| Expression EXPOP_EQUAL        Expression { $$ = DtDoOperator ($1, EXPOP_EQUAL,          $3);}
| Expression EXPOP_NOT_EQUAL    Expression { $$ = DtDoOperator ($1, EXPOP_NOT_EQUAL,
$3);}
| Expression EXPOP_AND          Expression { $$ = DtDoOperator ($1, EXPOP_AND,            $3);}
| Expression EXPOP_XOR          Expression { $$ = DtDoOperator ($1, EXPOP_XOR,            $3);}
| Expression EXPOP_OR           Expression { $$ = DtDoOperator ($1, EXPOP_OR,             $3);}
| Expression EXPOP_LOGICAL_AND  Expression { $$ = DtDoOperator ($1, EXPOP_LOGICAL_AND,
$3);}
| Expression EXPOP_LOGICAL_OR   Expression { $$ = DtDoOperator ($1, EXPOP_LOGICAL_OR,
$3);}

/* Parentheses: '(' Expression ')' */

| EXPOP_PAREN_OPEN
Expression
EXPOP_PAREN_CLOSE          { $$ = $2;}

/* #if defined (ID) or #if defined ID */

| EXPOP_DEFINE EXPOP_PAREN_OPEN EXPOP_IDENTIFIER
EXPOP_PAREN_CLOSE          { $$ = PrIsDefined (PrParserlval.str);}

| EXPOP_DEFINE EXPOP_IDENTIFIER          { $$ = PrIsDefined (PrParserlval.str);}

| EXPOP_IDENTIFIER          { $$ = PrResolveDefine (PrParserlval.str);}

/* Default base for a non-prefixed integer is 10 */

| EXPOP_NUMBER              { AcpiUtStrtoul64 (PrParsertext, &$$);}

/* Standard hex number (0x1234) */

| EXPOP_HEX_NUMBER          { AcpiUtStrtoul64 (PrParsertext, &$$);}
;
%%

/*
* Local support functions, including parser entry point
*/
#define PR_FIRST_PARSE_OPCODE EXPOP_EOF
#define PR_YYTNAME_START      3

```

```

/*****
*
* FUNCTION:
  PrParsererror
*
* PARAMETERS: Message      - Parser-generated error message
*
* RETURN:   None
*
* DESCRIPTION: Handler for parser errors
*
*****/

```

```

void
PrParsererror (
  char const      *Message)
{
  sprintf (StringBuffer, "Preprocessor Parser : %s (near line %u)",
    Message, Gbl_CurrentLineNumber);
  DError (ASL_ERROR, ASL_MSG_SYNTAX,
    NULL, (char *) StringBuffer);
}

```

```

/*****
*
* FUNCTION:  PrGetOpName
*
* PARAMETERS: ParseOpcode    - Parser token (EXPOP_*)
*
* RETURN:   Pointer to the opcode name
*
* DESCRIPTION: Get the ascii name of the parse opcode for debug output
*
*****/

```

```

char *
PrGetOpName (
  UINT32      ParseOpcode)
{
#ifdef ASL_YYTNAME_START
  /*
   * First entries (PR_YYTNAME_START)
   in yytname are special reserved names.
   * Ignore first 6 characters of name (EXPOP_)
   */

```

```

return ((char *) yytname
        [(ParseOpcode - PR_FIRST_PARSE_OPCODE) + PR_YYTNAME_START] + 6);
#else
return ("[Unknown parser generator]");
#endif
}

/*****
*
* FUNCTION: PrEvaluateExpression
*
* PARAMETERS: ExprString      - Expression to be evaluated. Must be
*                               terminated by either a newline or a NUL
*                               string terminator
*
* RETURN:    64-bit value for the expression
*
* DESCRIPTION: Main entry point for the DT expression parser
*
*****/

UINT64
PrEvaluateExpression (
    char      *ExprString)
{
    DbgPrint (ASL_DEBUG_OUTPUT,
              "**** Input expression: %s\n", ExprString);

    /* Point lexer to the input string
    */

    if (PrInitLexer (ExprString))
    {
        DtError (ASL_ERROR, ASL_MSG_COMPILER_INTERNAL,
                NULL, "Could not initialize lexer");
        return (0);
    }

    /* Parse/Evaluate the input string (value returned in PrParserResult) */

    PrParserparse ();
    PrTerminateLexer ();

    DbgPrint (ASL_DEBUG_OUTPUT,
              "**** Parser returned value: %u (%.8X%.8X)\n",
              (UINT32) PrParserResult, ACPI_FORMAT_UINT64 (PrParserResult));

```



```
return (PrParserResult);
}
```

Found in path(s):

```
*/opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-20180508/source/compiler/prparser.y
```

No license file was found, but licenses were detected in source scan.

NoEcho('

```
/******
```

```
*
```

```
* Module Name: aslkeywords.y - Rules for resource descriptor keywords
```

```
*
```

```
*****/
```

```
/*
```

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\*/

)

/\*\*\*\*\*\*

\*

\* ASL Parameter Keyword Terms

\*

\*\*\*\*\*/

AccessAttribKeyword

```

  : PARSEOP_ACCESSATTRIB_BLOCK      {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_BLOCK);}
  | PARSEOP_ACCESSATTRIB_BLOCK_CALL  {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_BLOCK_CALL);}
  | PARSEOP_ACCESSATTRIB_BYTE        {$$ = TrCreateLeafOp (PARSEOP_ACCESSATTRIB_BYTE);}
  | PARSEOP_ACCESSATTRIB_QUICK       {$$ = TrCreateLeafOp (PARSEOP_ACCESSATTRIB_QUICK
);}
  | PARSEOP_ACCESSATTRIB_SND_RCV     {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_SND_RCV);}
  | PARSEOP_ACCESSATTRIB_WORD        {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_WORD);}
  | PARSEOP_ACCESSATTRIB_WORD_CALL   {$$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_WORD_CALL);}
  | PARSEOP_ACCESSATTRIB_MULTIBYTE
  PARSEOP_OPEN_PAREN                {$<n>$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_MULTIBYTE);}
  ByteConst
  PARSEOP_CLOSE_PAREN                {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_ACCESSATTRIB_RAW_BYTES
  PARSEOP_OPEN_PAREN                {$<n>$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_RAW_BYTES);}
  ByteConst
  PARSEOP_CLOSE_PAREN                {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  | PARSEOP_ACCESSATTRIB_RAW_PROCESS
  PARSEOP_OPEN_PAREN                {$<n>$ = TrCreateLeafOp
(PARSEOP_ACCESSATTRIB_RAW_PROCESS);}
  ByteConst
  PARSEOP_CLOSE_PAREN                {$$ = TrLinkOpChildren ($<n>3,1,$4);}
  ;

```

AccessTypeKeyword

```

  : PARSEOP_ACCESSTYPE_ANY          {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_ANY);}

```

```

| PARSEOP_ACCESSTYPE_BYTE          {$$ = TrCreateLeafOp
(PARSEOP_ACCESSTYPE_BYTE);}
| PARSEOP_ACCESSTYPE_WORD          {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_WORD);}
| PARSEOP_ACCESSTYPE_DWORD         {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_DWORD);}
| PARSEOP_ACCESSTYPE_QWORD        {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_QWORD);}
| PARSEOP_ACCESSTYPE_BUF           {$$ = TrCreateLeafOp (PARSEOP_ACCESSTYPE_BUF);}
;

```

#### AddressingModeKeyword

```

: PARSEOP_ADDRESSINGMODE_7BIT      {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSINGMODE_7BIT);}
| PARSEOP_ADDRESSINGMODE_10BIT     {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSINGMODE_10BIT);}
;

```

#### AddressKeyword

```

: PARSEOP_ADDRESSTYPE_MEMORY       {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSTYPE_MEMORY);}
| PARSEOP_ADDRESSTYPE_RESERVED     {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSTYPE_RESERVED);}
| PARSEOP_ADDRESSTYPE_NVS          {$$ = TrCreateLeafOp (PARSEOP_ADDRESSTYPE_NVS);}
| PARSEOP_ADDRESSTYPE ACPI         {$$ = TrCreateLeafOp
(PARSEOP_ADDRESSTYPE ACPI);}
;

```

#### AddressSpaceKeyword

```

: ByteConst                        {$$ = UtCheckIntegerRange ($1, 0x0A, 0xFF);}
| RegionSpaceKeyword               {}
;

```

#### BitsPerByteKeyword

```

: PARSEOP_BITSPERBYTE_FIVE        {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_FIVE);}
| PARSEOP_BITSPERBYTE_SIX         {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_SIX);}
| PARSEOP_BITSPERBYTE_SEVEN       {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_SEVEN);}
| PARSEOP_BITSPERBYTE_EIGHT       {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_EIGHT);}
| PARSEOP_BITSPERBYTE_NINE        {$$ = TrCreateLeafOp (PARSEOP_BITSPERBYTE_NINE);}
;

```

#### ClockPhaseKeyword

```

: PARSEOP_CLOCKPHASE_FIRST        {$$ = TrCreateLeafOp (PARSEOP_CLOCKPHASE_FIRST);}
| PARSEOP_CLOCKPHASE_SECOND       {$$ = TrCreateLeafOp
(PARSEOP_CLOCKPHASE_SECOND);}
;

```

#### ClockPolarityKeyword

```

: PARSEOP_CLOCKPOLARITY_LOW       {$$ = TrCreateLeafOp
(PARSEOP_CLOCKPOLARITY_LOW);}
| PARSEOP_CLOCKPOLARITY_HIGH      {$$ = TrCreateLeafOp

```

(PARSEOP\_CLOCKPOLARITY\_HIGH);}
;

DecodeKeyword

: PARSEOP\_DECODETYPE\_POS {\$\$ = TrCreateLeafOp (PARSEOP\_DECODETYPE\_POS);}
| PARSEOP\_DECODETYPE\_SUB {\$\$ = TrCreateLeafOp (PARSEOP\_DECODETYPE\_SUB);}
;

DevicePolarityKeyword

: PARSEOP\_DEVICEPOLARITY\_LOW {\$\$ = TrCreateLeafOp
(PARSEOP\_DEVICEPOLARITY\_LOW);}
| PARSEOP\_DEVICEPOLARITY\_HIGH {\$\$ = TrCreateLeafOp
(PARSEOP\_DEVICEPOLARITY\_HIGH);}
;

DMATypeKeyword

: PARSEOP\_DMATYPE\_A {\$\$ = TrCreateLeafOp (PARSEOP\_DMATYPE\_A);}
| PARSEOP\_DMATYPE\_COMPATIBILITY {\$\$ = TrCreateLeafOp
(PARSEOP\_DMATYPE\_COMPATIBILITY);}
| PARSEOP\_DMATYPE\_B {\$\$ = TrCreateLeafOp (PARSEOP\_DMATYPE\_B);}
| PARSEOP\_DMATYPE\_F {\$\$ = TrCreateLeafOp (PARSEOP\_DMATYPE\_F);}
;

EndianKeyword

: PARSEOP\_ENDIAN\_LITTLE
{\$\$ = TrCreateLeafOp (PARSEOP\_ENDIAN\_LITTLE);}
| PARSEOP\_ENDIAN\_BIG {\$\$ = TrCreateLeafOp (PARSEOP\_ENDIAN\_BIG);}
;

FlowControlKeyword

: PARSEOP\_FLOWCONTROL\_HW {\$\$ = TrCreateLeafOp (PARSEOP\_FLOWCONTROL\_HW);}
| PARSEOP\_FLOWCONTROL\_NONE {\$\$ = TrCreateLeafOp
(PARSEOP\_FLOWCONTROL\_NONE);}
| PARSEOP\_FLOWCONTROL\_SW {\$\$ = TrCreateLeafOp (PARSEOP\_FLOWCONTROL\_SW);}
;

InterruptLevel

: PARSEOP\_INTLEVEL\_ACTIVEBOTH {\$\$ = TrCreateLeafOp
(PARSEOP\_INTLEVEL\_ACTIVEBOTH);}
| PARSEOP\_INTLEVEL\_ACTIVEHIGH {\$\$ = TrCreateLeafOp
(PARSEOP\_INTLEVEL\_ACTIVEHIGH);}
| PARSEOP\_INTLEVEL\_ACTIVELOW {\$\$ = TrCreateLeafOp
(PARSEOP\_INTLEVEL\_ACTIVELOW);}
;

InterruptTypeKeyword

: PARSEOP\_INTTYPE\_EDGE {\$\$ = TrCreateLeafOp (PARSEOP\_INTTYPE\_EDGE);}
| PARSEOP\_INTTYPE\_LEVEL {\$\$ = TrCreateLeafOp (PARSEOP\_INTTYPE\_LEVEL);}
;

```

;

IODecodeKeyword
: PARSEOP_IODECODETYPE_16
    { $$ = TrCreateLeafOp (PARSEOP_IODECODETYPE_16); }
| PARSEOP_IODECODETYPE_10    { $$ = TrCreateLeafOp (PARSEOP_IODECODETYPE_10); }
;

IoRestrictionKeyword
: PARSEOP_IORESTRICT_IN      { $$ = TrCreateLeafOp (PARSEOP_IORESTRICT_IN); }
| PARSEOP_IORESTRICT_OUT    { $$ = TrCreateLeafOp (PARSEOP_IORESTRICT_OUT); }
| PARSEOP_IORESTRICT_NONE   { $$ = TrCreateLeafOp (PARSEOP_IORESTRICT_NONE); }
| PARSEOP_IORESTRICT_PRESERVE { $$ = TrCreateLeafOp
(PARSEOP_IORESTRICT_PRESERVE); }
;

LockRuleKeyword
: PARSEOP_LOCKRULE_LOCK      { $$ = TrCreateLeafOp (PARSEOP_LOCKRULE_LOCK); }
| PARSEOP_LOCKRULE_NOLOCK    { $$ = TrCreateLeafOp (PARSEOP_LOCKRULE_NOLOCK); }
;

MatchOpKeyword
: PARSEOP_MATCHTYPE_MTR      { $$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MTR); }
| PARSEOP_MATCHTYPE_MEQ      { $$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MEQ); }
| PARSEOP_MATCHTYPE_MLE
    { $$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MLE); }
| PARSEOP_MATCHTYPE_MLT      { $$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MLT); }
| PARSEOP_MATCHTYPE_MGE      { $$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MGE); }
| PARSEOP_MATCHTYPE_MGT      { $$ = TrCreateLeafOp (PARSEOP_MATCHTYPE_MGT); }
;

MaxKeyword
: PARSEOP_MAXTYPE_FIXED      { $$ = TrCreateLeafOp (PARSEOP_MAXTYPE_FIXED); }
| PARSEOP_MAXTYPE_NOTFIXED   { $$ = TrCreateLeafOp (PARSEOP_MAXTYPE_NOTFIXED); }
;

MemTypeKeyword
: PARSEOP_MEMTYPE_CACHEABLE  { $$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_CACHEABLE); }
| PARSEOP_MEMTYPE_WRITECOMBINING { $$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_WRITECOMBINING); }
| PARSEOP_MEMTYPE_PREFETCHABLE { $$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_PREFETCHABLE); }
| PARSEOP_MEMTYPE_NONCACHEABLE { $$ = TrCreateLeafOp
(PARSEOP_MEMTYPE_NONCACHEABLE); }
;

MinKeyword

```

```

: PARSEOP_MINTYPE_FIXED
    {$$ = TrCreateLeafOp (PARSEOP_MINTYPE_FIXED);}
| PARSEOP_MINTYPE_NOTFIXED    {$$ = TrCreateLeafOp (PARSEOP_MINTYPE_NOTFIXED);}
;

```

#### ObjectTypeKeyword

```

: PARSEOP_OBJECTTYPE_UNK      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_UNK);}
| PARSEOP_OBJECTTYPE_INT      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_INT);}
| PARSEOP_OBJECTTYPE_STR      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_STR);}
| PARSEOP_OBJECTTYPE_BUF      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_BUF);}
| PARSEOP_OBJECTTYPE_PKG      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_PKG);}
| PARSEOP_OBJECTTYPE_FLD      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_FLD);}
| PARSEOP_OBJECTTYPE_DEV      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_DEV);}
| PARSEOP_OBJECTTYPE_EVT      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_EVT);}
| PARSEOP_OBJECTTYPE_MTH      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_MTH);}
| PARSEOP_OBJECTTYPE_MTX      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_MTX);}
| PARSEOP_OBJECTTYPE_OPR      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_OPR);}
| PARSEOP_OBJECTTYPE_POW      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_POW);}
| PARSEOP_OBJECTTYPE_PRO      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_PRO);}
| PARSEOP_OBJECTTYPE_THZ      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_THZ);}
| PARSEOP_OBJECTTYPE_BFF      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_BFF);}
| PARSEOP_OBJECTTYPE_DDB      {$$ = TrCreateLeafOp (PARSEOP_OBJECTTYPE_DDB);}
;

```

#### ParityTypeKeyword

```

: PARSEOP_PARITYTYPE_SPACE    {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_SPACE);}
| PARSEOP_PARITYTYPE_MARK     {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_MARK);}
| PARSEOP_PARITYTYPE_ODD      {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_ODD);}
| PARSEOP_PARITYTYPE_EVEN
    {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_EVEN);}
| PARSEOP_PARITYTYPE_NONE     {$$ = TrCreateLeafOp (PARSEOP_PARITYTYPE_NONE);}
;

```

#### PinConfigByte

```

: PinConfigKeyword            {$$ = $1;}
| ByteConstExpr               {$$ = UtCheckIntegerRange ($1, 0x80, 0xFF);}
;

```

#### PinConfigKeyword

```

: PARSEOP_PIN_NOPULL          {$$ = TrCreateLeafOp (PARSEOP_PIN_NOPULL);}
| PARSEOP_PIN_PULLDOWN        {$$ = TrCreateLeafOp (PARSEOP_PIN_PULLDOWN);}
| PARSEOP_PIN_PULLUP          {$$ = TrCreateLeafOp (PARSEOP_PIN_PULLUP);}
| PARSEOP_PIN_PULLDEFAULT     {$$ = TrCreateLeafOp (PARSEOP_PIN_PULLDEFAULT);}
;

```

#### PldKeyword

```

: PARSEOP_PLD_REVISION        {$$ = TrCreateLeafOp (PARSEOP_PLD_REVISION);}
| PARSEOP_PLD_IGNORECOLOR     {$$ = TrCreateLeafOp (PARSEOP_PLD_IGNORECOLOR);}
;

```

```

| PARSEOP_PLD_RED          {$$ = TrCreateLeafOp (PARSEOP_PLD_RED);}
| PARSEOP_PLD_GREEN
    {$$ = TrCreateLeafOp (PARSEOP_PLD_GREEN);}
| PARSEOP_PLD_BLUE        {$$ = TrCreateLeafOp (PARSEOP_PLD_BLUE);}
| PARSEOP_PLD_WIDTH       {$$ = TrCreateLeafOp (PARSEOP_PLD_WIDTH);}
| PARSEOP_PLD_HEIGHT      {$$ = TrCreateLeafOp (PARSEOP_PLD_HEIGHT);}
| PARSEOP_PLD_USERVISIBLE {$$ = TrCreateLeafOp (PARSEOP_PLD_USERVISIBLE);}
| PARSEOP_PLD_DOCK        {$$ = TrCreateLeafOp (PARSEOP_PLD_DOCK);}
| PARSEOP_PLD_LID         {$$ = TrCreateLeafOp (PARSEOP_PLD_LID);}
| PARSEOP_PLD_PANEL       {$$ = TrCreateLeafOp (PARSEOP_PLD_PANEL);}
| PARSEOP_PLD_VERTICALPOSITION {$$ = TrCreateLeafOp
(PARSEOP_PLD_VERTICALPOSITION);}
| PARSEOP_PLD_HORIZONTALPOSITION {$$ = TrCreateLeafOp
(PARSEOP_PLD_HORIZONTALPOSITION);}
| PARSEOP_PLD_SHAPE       {$$ = TrCreateLeafOp (PARSEOP_PLD_SHAPE);}
| PARSEOP_PLD_GROUPORIENTATION
    {$$ = TrCreateLeafOp (PARSEOP_PLD_GROUPORIENTATION);}
| PARSEOP_PLD_GROUPTOKEN   {$$ = TrCreateLeafOp (PARSEOP_PLD_GROUPTOKEN);}
| PARSEOP_PLD_GROUPPOSITION {$$ = TrCreateLeafOp (PARSEOP_PLD_GROUPPOSITION);}
| PARSEOP_PLD_BAY         {$$ = TrCreateLeafOp (PARSEOP_PLD_BAY);}
| PARSEOP_PLD_EJECTABLE   {$$ = TrCreateLeafOp (PARSEOP_PLD_EJECTABLE);}
| PARSEOP_PLD_EJECTREQUIRED {$$ = TrCreateLeafOp (PARSEOP_PLD_EJECTREQUIRED);}
| PARSEOP_PLD_CABINETNUMBER {$$ = TrCreateLeafOp
(PARSEOP_PLD_CABINETNUMBER);}
| PARSEOP_PLD_CARDCAGENUMBER {$$ = TrCreateLeafOp
(PARSEOP_PLD_CARDCAGENUMBER);}
| PARSEOP_PLD_REFERENCE   {$$ = TrCreateLeafOp (PARSEOP_PLD_REFERENCE);}
| PARSEOP_PLD_ROTATION    {$$ = TrCreateLeafOp (PARSEOP_PLD_ROTATION);}
| PARSEOP_PLD_ORDER       {$$ = TrCreateLeafOp (PARSEOP_PLD_ORDER);}
| PARSEOP_PLD_RESERVED
    {$$ = TrCreateLeafOp (PARSEOP_PLD_RESERVED);}
| PARSEOP_PLD_VERTICALOFFSET {$$ = TrCreateLeafOp (PARSEOP_PLD_VERTICALOFFSET);}
| PARSEOP_PLD_HORIZONTALOFFSET {$$ = TrCreateLeafOp
(PARSEOP_PLD_HORIZONTALOFFSET);}
;

```

#### RangeTypeKeyword

```

: PARSEOP_RANGETYPE_ISAONLY {$$ = TrCreateLeafOp (PARSEOP_RANGETYPE_ISAONLY);}
| PARSEOP_RANGETYPE_NONISAONLY {$$ = TrCreateLeafOp
(PARSEOP_RANGETYPE_NONISAONLY);}
| PARSEOP_RANGETYPE_ENTIRE {$$ = TrCreateLeafOp (PARSEOP_RANGETYPE_ENTIRE);}
;

```

#### RegionSpaceKeyword

```

: PARSEOP_REGIONSPACE_IO {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_IO);}
| PARSEOP_REGIONSPACE_MEM {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_MEM);}
| PARSEOP_REGIONSPACE_PCI {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_PCI);}
| PARSEOP_REGIONSPACE_EC {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_EC);}

```

```

| PARSEOP_REGIONSPACE_SMBUS
    {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_SMBUS);}
| PARSEOP_REGIONSPACE_CMOS      {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_CMOS);}
| PARSEOP_REGIONSPACE_PCIBAR    {$$ = TrCreateLeafOp
(PARSEOP_REGIONSPACE_PCIBAR);}
| PARSEOP_REGIONSPACE_IPMI      {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_IPMI);}
| PARSEOP_REGIONSPACE_GPIO      {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_GPIO);}
| PARSEOP_REGIONSPACE_GSBUS     {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_GSBUS);}
| PARSEOP_REGIONSPACE_PCC       {$$ = TrCreateLeafOp (PARSEOP_REGIONSPACE_PCC);}
| PARSEOP_REGIONSPACE_FFIXEDHW  {$$ = TrCreateLeafOp
(PARSEOP_REGIONSPACE_FFIXEDHW);}
;

```

#### ResourceTypeKeyword

```

: PARSEOP_RESOURCECTYPE_CONSUMER    {$$ = TrCreateLeafOp
(PARSEOP_RESOURCECTYPE_CONSUMER);}
| PARSEOP_RESOURCECTYPE_PRODUCER    {$$ = TrCreateLeafOp
(PARSEOP_RESOURCECTYPE_PRODUCER);}
;

```

#### SerializeRuleKeyword

```

: PARSEOP_SERIALIZERULE_SERIAL
    {$$ = TrCreateLeafOp (PARSEOP_SERIALIZERULE_SERIAL);}
| PARSEOP_SERIALIZERULE_NOTSERIAL    {$$ = TrCreateLeafOp
(PARSEOP_SERIALIZERULE_NOTSERIAL);}
;

```

#### ShareTypeKeyword

```

: PARSEOP_SHARETYPE_SHARED          {$$ = TrCreateLeafOp (PARSEOP_SHARETYPE_SHARED);}
| PARSEOP_SHARETYPE_EXCLUSIVE       {$$ = TrCreateLeafOp
(PARSEOP_SHARETYPE_EXCLUSIVE);}
| PARSEOP_SHARETYPE_SHAREDWAKE      {$$ = TrCreateLeafOp
(PARSEOP_SHARETYPE_SHAREDWAKE);}
| PARSEOP_SHARETYPE_EXCLUSIVEWAKE   {$$ = TrCreateLeafOp
(PARSEOP_SHARETYPE_EXCLUSIVEWAKE);}
;

```

#### SlaveModeKeyword

```

: PARSEOP_SLAVEMODE_CONTROLLERINIT  {$$ = TrCreateLeafOp
(PARSEOP_SLAVEMODE_CONTROLLERINIT);}
| PARSEOP_SLAVEMODE_DEVICEINIT      {$$ = TrCreateLeafOp
(PARSEOP_SLAVEMODE_DEVICEINIT);}
;

```

#### StopBitsKeyword

```

: PARSEOP_STOPBITS_TWO              {$$ = TrCreateLeafOp (PARSEOP_STOPBITS_TWO);}
| PARSEOP_STOPBITS_ONEPLUSHALF     {$$ = TrCreateLeafOp

```



```
(PARSEOP_STOPBITS_ONEPLUSHALF);}
| PARSEOP_STOPBITS_ONE      {$$ = TrCreateLeafOp (PARSEOP_STOPBITS_ONE);}
| PARSEOP_STOPBITS_ZERO    {$$ = TrCreateLeafOp (PARSEOP_STOPBITS_ZERO);}
;
```

#### TranslationKeyword

```
: PARSEOP_TRANSLATIONTYPE_SPARSE    {$$ = TrCreateLeafOp
(PARSEOP_TRANSLATIONTYPE_SPARSE);}
| PARSEOP_TRANSLATIONTYPE_DENSE    {$$ = TrCreateLeafOp
(PARSEOP_TRANSLATIONTYPE_DENSE);}
;
```

#### TypeKeyword

```
: PARSEOP_TYPE_TRANSLATION    {$$ = TrCreateLeafOp (PARSEOP_TYPE_TRANSLATION);}
| PARSEOP_TYPE_STATIC        {$$ = TrCreateLeafOp (PARSEOP_TYPE_STATIC);}
;
```

#### UpdateRuleKeyword

```
: PARSEOP_UPDATERULE_PRESERVE    {$$ = TrCreateLeafOp
(PARSEOP_UPDATERULE_PRESERVE);}
| PARSEOP_UPDATERULE_ONES      {$$ = TrCreateLeafOp (PARSEOP_UPDATERULE_ONES);}
| PARSEOP_UPDATERULE_ZEROS    {$$ = TrCreateLeafOp (PARSEOP_UPDATERULE_ZEROS);}
;
```

#### WireModeKeyword

```
: PARSEOP_WIREMODE_FOUR
    {$$ = TrCreateLeafOp (PARSEOP_WIREMODE_FOUR);}
| PARSEOP_WIREMODE_THREE      {$$ = TrCreateLeafOp (PARSEOP_WIREMODE_THREE);}
;
```

#### XferSizeKeyword

```
: PARSEOP_XFERSIZE_8          {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_8, 0);}
| PARSEOP_XFERSIZE_16        {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_16, 1);}
| PARSEOP_XFERSIZE_32        {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_32, 2);}
| PARSEOP_XFERSIZE_64        {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_64, 3);}
| PARSEOP_XFERSIZE_128       {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_128, 4);}
| PARSEOP_XFERSIZE_256       {$$ = TrCreateValuedLeafOp (PARSEOP_XFERSIZE_256, 5);}
;
```

#### XferTypeKeyword

```
: PARSEOP_XFERTYPE_8          {$$ = TrCreateLeafOp (PARSEOP_XFERTYPE_8);}
| PARSEOP_XFERTYPE_8_16      {$$ = TrCreateLeafOp (PARSEOP_XFERTYPE_8_16);}
| PARSEOP_XFERTYPE_16
    {$$ = TrCreateLeafOp (PARSEOP_XFERTYPE_16);}
;
```

#### Found in path(s):

```
* /opt/cola/permits/2091221321_1720638525.3444767/0/acpica-unix2-20180508-tar-gz/acpica-unix2-
```

# 1.899 postfix 3.3.1

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Included for the use of the `fix_strcasecmp.c` module which works around a Solaris problem.

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```
<one line to give the program's name and a brief idea of what it does.>  
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```

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```
<program> Copyright (C) by Bruce Korb - all rights reserved  
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This is free software, and you are welcome to redistribute it  
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```

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