



Release Notes for Cisco ONS 15310-MA Release 8.0

January 2008

Release notes address closed (maintenance) issues, caveats, and new features for the Cisco ONS 15310-MA. For detailed information regarding features, capabilities, hardware, and software introduced with this release, refer to Release 7.0 of the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Procedure Guide*, *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*, and the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Troubleshooting Guide*, and Release 8.0 of the *Cisco ONS SONET TL1 Command Guide*. For the most current version of the Release Notes for Cisco ONS 15310-MA Release 8.0, visit the following URL:

http://www.cisco.com/en/US/products/hw/optical/ps2001/prod_release_notes_list.html

Cisco also provides Bug Toolkit, a web resource for tracking defects. To access Bug Toolkit, visit the following URL:

http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl

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Changes to the Release Notes

This section documents supplemental changes that have been added to the *Release Notes for Cisco ONS 15310-MA Release 8.0* since the production of the Cisco ONS 15310-MA System Software CD for Release 8.0.

Caveats

Review the notes listed below before deploying the ONS 15310-MA. Caveats with tracking numbers are known system limitations that are scheduled to be addressed in a subsequent release. Caveats without tracking numbers are provided to point out procedural or situational considerations when deploying the product.

Maintenance and Administration



Caution

VxWorks is intended for qualified Cisco personnel only. Customer use of VxWorks is not recommended, nor is it supported by Cisco's Technical Assistance Center. Inappropriate use of VxWorks commands can have a negative and service affecting impact on your network. Please consult the troubleshooting guide for your release and platform for appropriate troubleshooting procedures. To exit without logging in, enter a Control-D (hold down the Control and D keys at the same time) at the Username prompt. To exit after logging in, type "logout" at the VxWorks shell prompt.

CSCse96077

When either you remove and then reinsert an I/O card, or a small burst of defects occurs for a very short period (less than 1 sec), false TCAs can be triggered that indicate line or traffic problems on an I/O port. Once triggered, the TCAs will be raised every 15 mins, after the 15 min pm report. There are no alarms for the associated ports. Traffic is not affected.

The cards affected are:

ONS 15454 DS1, DS1_E1_56, DS3 (including DS3, DS3N, DS3E, DS3NE), DS3_EC1, DS3XM, DWDM, E1, E1_42, OC3-8, OC12-4, MRC-12, OC192XFP; and ONS 15310-CL and ONS 15310-MA IO ports.

There are two workarounds:

1. Place the affected ports in OOS-DSBLD and then back to IS. This clears the problem for the specific port on the card, but the traffic will be down during the period of OOS-DSBLD.
2. Soft reset the card with problem ports. This clears the problem on all ports on the card. Soft reset might cause a protection switch if any port on that card or the card itself is in a protection group.

You can switch all protected ports away from the card that is to be soft-reset. In this case you can do manual switches away from the ports on that card, or in the case of an equipment switch, away from the equipment to be reset.

You can also perform a soft reset without any pre-action. This might result in protection switches of all active protected ports on that card. In the case of an equipment protection group resetting, the active equipment might incur a protection switch. The switch time will not exceed 60 ms.

For unprotected ports or card equipment, traffic will not be affected.

This issue will be resolved in a future release.

CSCsd84638

Sometimes IP connectivity to an ONS 15310-MA is lost and pinging the node fails. Also, as a result, CTC fails to come up. This can occur if both the Ethernet port on the CTXMA card and the Ethernet port on the backplane are accidentally connected to the same network, resulting in loops in the switching network. In normal operation the backport should be used to connect to the network and the frontport should only be used for onsite maintenance. If this issue occurs detach the Ethernet cables from both the frontport and the backport and connect via the backport (or frontport) only, rather than via both at the same time. This issue will not be resolved.

CSCse87943

RFI-P is raised on both Working and Protect path in a 1+1 topology on an ONS 15310-MA. This occurs with an ML card with an STS cross connection with another ML card in another chassis and when the POS port on the 15310 MA side is shut down. There is no workaround for this issue.

TL1



Note

To be compatible with TL1 and DNS, all nodes must have valid names. Node names should contain alphanumeric characters or hyphens, but no special characters or spaces.

Resolved Caveats for Release 8.0

The following items are resolved in Release 8.0.

Software

CSCsh57792

CTX crashes on preprovisioning Standby CTX after changing values in NE def. On a single CTX (Simplex configuration), CTX-2500.PPM.portAssignment is changed to the OC-3/OC-12/OC-48 port and CTX-2500.PPM.slotAssignment is changed to PPM (Node view -> Provisioning -> Defaults -> CTX-2500 -> PPM). After applying these changes, attempts to preprovision CTX-2500 in the empty slot causes the node reboot. When the node comes up, the following error is shown and no card has been provisioned "EID-3169 'Error Adding Card.'" The workaround is to not change CTX-2500.PPM.portAssignment to the OC-3/OC-12/OC-48 port. Instead, the port can be provisioned after the card is provisioned. This issue will be resolved in a future release.

Maintenance and Administration

CSCsc56694

IPPM enabled by CTC for an OCn trunk card is disabled automatically after two hours. This issue is resolved in Release 8.0.

Common Control Cards

CSCsc52028

The CTX 2500 card does not accept more than 52 ENE sessions. Figuring 16 ENE sessions per GNE session, the expected ENE logins for 7 GNE sessions is 112, whereas the CTX 2500 accepts only 52. This issue is resolved in Release 8.0.

New Features and Functionality

This section highlights new features and functionality for Release 8.0. For complete documentation of each of the features of the ONS 15310-MA, consult the user documentation.

New Hardware Features

The following sections describe new hardware features for Release 8.0.

FILLER Card

If a card slot is left empty, a filler card must be installed in the slot. The filler card serves three functions: it prevents exposure to hazardous voltages and currents inside the chassis, it eliminates electromagnetic interference (EMI) that might disrupt other equipment, and it directs the flow of cooling air through the chassis.

**Caution**

Do not operate the ONS 15310-CL or ONS 15310-MA system unless a card is plugged into each card slot.

The blank card is a printed circuit board (PCB) with a blank faceplate and two rear connectors that plug into receptacles at the back of the slot. CTC detects when a filler card is plugged in and displays it in node view.

The FILLER card is used to fill unused traffic card slots in the ONS 15310-CL and ONS 15310-MA shelves. The Cisco Transport Controller (CTC) graphical user interface (GUI) detects the filler card.

The CTX FILLER card is used to fill unused CTX2500 card slots in the ONS 15310-MA shelf. CTC detects the filler card.

TST-DSX Card

The ONS 15310-MA TST-DSX Test card provides the means for cabinet integrators and cabling/installation technicians to verify the wiring continuity of DS1 and DS3/EC1 electrical connections between the ONS 15310-MA and the external frame or digital signal cross connect (DSX) panel. The TST-DSX card is part of a kit that consists of these components:

- TST-DSX card
- AC to DC power adapter
- Hand-held remote receiver
- Carrying case.

The TST-DSX card, when used with the remote receiver, provides indications that the wiring connections are valid or not, which allows users to take corrective action prior to turning up service. The TST-DSX card is normally used in systems where there are no working services and likely no power applied. A hand-held remote receiver module is used with the TST-DSX card and is plugged into the DSX panel during testing. The receiver allows the user to initiate tests, display test status and errors, and store test results that can be transferred to a PC over an EIA-232 connection.

The TST-DSX card plugs into Side A, slots 1 or 2, or into Side B, slots 5 or 6 of the ONS 15310-MA. Power can be supplied either from the shelf or from an external AC to DC power supply that is provided with the test kit.

Wall Mount Enclosure (WME)

The Cisco ONS 15310-MA can be integrated in numerous enclosures, that is, wall mount (indoors or outside plant, pad mount, or pole mount), and equipped with customer-approved third-party support components. These configurations are built and customized by a Cisco approved partner, PCI (PlastiComm Industries, Inc.).

The Cisco ONS 15310-MA Wall Mount Enclosure (WME), a secure, wall-mountable cabinet, addresses those important FTTB requirements cost-effectively so that service providers can take full advantage of this opportunity at a fraction of the cost, in a fraction of the time. The Cisco ONS 15310-MA WME offers a rectifier with redundant modules, 8 hours of battery backup capability, and a Cisco ONS 15310-MA Metro Edge Optical Transport Platform as a single, convenient solution.

The WME is designed to operate in a covered facility that may be exposed to outside air and contaminants. It is also designed with a separate battery cabinet enclosure for the battery backup. The Cisco ONS 15310-MA WME provides multiple alarm inputs, which can be used to collect information at a remote location and transmit it back to a management center. The enclosure comes with all components premounted and prewired (Cisco ONS 15310-MA cables are orderable) so that it can be installed, provisioned, and put into service in less than 4 hours.

Installation for Side-by-Side Chassis and Cabling

The ONS 15310-MA is easily mounted in a 19-inch (482.6 mm) or 23-inch (584.2 mm) equipment rack. The shelf assembly can be mounted so that it projects five inches from the front of the rack. It mounts in both EIA-standard and Telcordia-standard racks. A single shelf assembly is 10.67 inches (27.1 mm) wide and occupies 6 RUs (10.5 in. [267.6 mm]) in a rack when installed with a standard cable management bracket. If an extended cable management bracket is installed below the shelf assembly, an additional RU is occupied, for a total of 7 RUs (12.25 in. [311.1 mm]). Two shelf assemblies can be installed side-by-side in a single 23-inch rack.

Most standard seven-foot (2.1 m) racks can hold numerous ONS 15310-MA nodes and a fuse and alarm panel.

Two shelf assemblies can be installed side-by-side in a single 23-inch rack, using a special mounting bracket. You must install both ONS 15310-MA shelves in the 23-inch rack at one time using the dual-node bracket to support the two shelf assemblies. Cisco does not support the installation of a second ONS 15310-MA adjacent to another node after the first shelf assembly is already installed.

New Software Features

The following sections describe new software features for Release 8.0.

Complete Database Backup and Restore

You can store a back-up version of the database on the workstation running CTC. This operation should be part of a regular ONS 15310-CL and ONS 15310-MA maintenance program performed at approximately weekly intervals and should also be completed when preparing an ONS 15310-CL or ONS 15310-MA for a pending natural disaster, such as a flood.

A database backup may be restored in two ways, partial or complete. A partial database restore operation restores only the provisioning data. A complete database restore operation restores both system and provisioning data. For more information on restore database, refer to the *Cisco ONS 15310-CL and Cisco ONS 15310-MA Procedure Guide*.



Note

The following parameters are not backed up and restored: node name, IP address, mask and gateway, and Internet Inter-ORB Protocol (IIOP) port. If you change the node name and then restore a backed up database with a different node name, the circuits will map to the new node name. Cisco recommends keeping a record of the old and new node names.

PM Threshold Reset Button

In node view, you can double-click the card where you want to view PM thresholds, and click the Reset button in CTC to reset the values of all PM thresholds to the default threshold values saved on the NE.

CTC displays a confirmation dialog of the default threshold values in the applicable threshold panel when you click the one-button threshold reset.

CTC supports the one-button reset (reset to default thresholds) for all Electrical, SONET, SDH, and Optical PM thresholds.

CTC AINS Ethernet Ports

The Ethernet ports can be set to the ESM service states including the In-Service, Automatic In-Service (IS,AINS) administrative state. IS,AINS initially puts the port in the Out-of-Service and Autonomous, Automatic In-Service (OOS-AU,AINS) state. In this service state, alarm reporting is suppressed, but traffic is carried and loopbacks are allowed. After the soak period passes, the port changes to In-Service and Normal (IS-NR). Raised fault conditions, whether their alarms are reported or not, can be retrieved on the CTC Conditions tab or by using the TL1 RTRV-COND command.

ML-AINS and other Enhanced State Model (ESM) changes.

Several changes have been made to the Cisco ONS 15454 SONET alarms and transient conditions. See the *Cisco ONS 15454 Troubleshooting Guide* for more details.

Link Aggregation Control Protocol (LACP)

In Software Release 8.0.0, ML100T-12, ML1000-2, ML100T-8, and CE-100T-8 cards can utilize the link aggregation control protocol (LACP) to govern reciprocal peer packet transmission with respect to LACP's detection of flawed packets. The cards' ports transport a signal transparently (that is, without intervention or termination).

Passive Mode and Active Mode

Passive mode or active are configured for a port in IEEE 802.17 RPR mode. They differ in how they direct a card to transmit packets: In passive mode, the LACP resident on the node transmits packets only after it receives reciprocal valid packets from the peer node. In active mode, both peers transmit packets without determining the validity of what they receive.

LACP Functions

LACP performs the following functions in the system:

- Maintains configuration information in order to control aggregation
- Exchanges configuration information with other peer devices
- Attaches or detaches ports from the link aggregation group based on the exchanged configuration information
- Enables data flow when both sides of the aggregation group are synchronized

In addition, LACP provides the following benefits:

- Logical aggregation of bandwidth
- Load balancing
- Fault tolerance

SFP Management Completion

Supported services (rates, wavelengths, formats, reach, and so on) are encoded in the EEPROMs of SFPs and XFPs following industry standards. PPMs (SFPs or XFPs) that do not follow this standard cannot be read by the platform and are referred to as Unrecognized PPMs.

PPMs that are inserted into a card may be checked for the validity of an MD5 security code. PPMs failing this test are referred to as non-Cisco PPMs. PPMs passing this test are referred to in this document as Cisco PPMs.

Different cards are tested with a limited subset of Cisco PPMs. Customers are encouraged to use these PPMs, referred to as Qualified Cisco PPMs (for the particular card). Since each card supports different services (rates and formats), a PPM qualified for one card is not necessarily qualified for another. For example, a PPM qualified to work on a DWDM card may not be qualified to work on a SONET card. Cisco PPMs that are not recommended for use with a particular card are termed Unqualified Cisco PPMs (for the particular card).

**Note**

This feature may not be described in the Release 8.0 documentation

DISA Password Complexity, Max Password Length, Min Password Length.

The password length, by default, must be set to a minimum of six and a maximum of 20 characters. You can configure the default values in node view through Provisioning > NE Defaults > Node > security > passwordComplexity. The minimum length can be set to eight, ten or twelve characters, and the maximum length to 80 characters. The password must be a combination of alphanumeric (a-z, A-Z, 0-9) and special (+, #, %) characters, where at least two characters are nonalphabetic and at least one character is a special character. For TL1 compatibility, the password must be 6 to 10 characters. The password must not contain the user name.

Required JRE Version is 5.0

JRE version 5.0 was optional in Release 7.0. It is required for release 8.0 that JRE be version 5.0.

Solaris 10 Supported.

Solaris 10 is supported in release 8.0

Mozilla 1.7 Supported on Solaris 9 with Java plug-in 5.0.

Mozilla 1.7 on Solaris 9 with Java plug-in 5.0 is supported in release 8.0.

IPv6

Cisco ONS 15xxx products can function in an IPv6 network when an internet router that supports Network Address Translation - Protocol Translation (NAT-PT) is positioned between the GNE, such as an ONS 15454, and the client workstation. NAT-PT is defined in RFC-2766. IPv4 and IPv6 nodes communicate with each other using NAT-PT by allowing both IPv6 and IPv4 stacks to interface between the IPv6 DCN and the IPv4 DCC networks.

NAT-PT binds addresses in IPv6 networks with addresses in IPv4 networks and vice versa to provide transparent routing for the packets traveling between address types. This requires no changes to end nodes and IP packet routing is completely transparent to end nodes. It does, however, require NAT-PT to track the sessions it supports and mandates that inbound and outbound datagrams pertaining to a session traverse the same NAT-PT router. Protocol translation is used to extend address translation with protocol syntax/semantics translation.

**Note**

Only Mozilla 1.7 is supported on clients interfacing with IPv6 networks.

CTC Launcher 8.0

The CTC Launcher application is an executable file, StartCTC.exe, that is provided on Software Release 8.0 CDs for Cisco ONS products. You can use CTC Launcher to log into multiple ONS nodes that are running CTC Software Release 3.3 or higher, without using a web browser.

CTC Launcher provides two connection options. The first option is used to connect to ONS network elements (NEs) that have an IP connection to the CTC computer. The second option is used to connect to ONS NEs that reside behind third party, OSI-based gateway network elements (GNEs). For this option, CTC Launcher creates a TL1 tunnel to transport the TCP traffic through the OSI-based GNE.

The TL1 tunnel transports the TCP traffic to and from ONS ENEs through the OSI-based GNE. TL1 tunnels are similar to the existing static IP-over-CLNS tunnels GRE and Cisco IP that can be created at ONS NEs using CTC. (Refer to the Cisco ONS product documentation for information about static IP-over-CLNS tunnels.) However, unlike the static IP-over-CLNS tunnels, TL1 tunnels require no provisioning at the ONS ENE, the third-party GNE, or DCN routers. All provisioning occurs at the CTC computer when the CTC Launcher is started.

TL1

RTRV-PM-ALL for FEND and NEND

The Retrieve Performance Monitoring All (RTRV-PM-ALL) command retrieves the values of all the performance monitoring parameters for the specified AID. When the ALL AID is used, the response will include the PM parameters for all cards and ports in the chassis.

The format for the NEND and FEND input parameters is:

- FEND: Action occurs on the far end of the facility
- NEND: Action occurs on the near end of the facility

TL1 Command Changes

New Commands

The following new TL1 commands are added for Release 8.0.

- LIST
- DLT-NNI-ETH
- DLT-QNQ-ETH
- DLT-RMONTH-MOD2-DATA
- DLT-VLAN
- DLT-WDMSIDE
- ED-COS-ETH
- ED-ETH
- ED-L2-ETH
- ED-LMP
- ED-OTU2
- ED-QNQ-ETH
- ED-VLAN
- ED-WDMSIDE

- ENT-NNI-ETH
- ENT-QNQ-ETH
- ENT-VLAN
- ENT-WDMSIDE
- LMP-CTRL
- LMP-DLINK
- LMP-TLINK
- RTRV-COS-ETH
- RTRV-ETH
- RTRV-L2-ETH
- RTRV-NNI-ETH
- RTRV-PATH-OCH-TYPE
- RTRV-PM-ALL
- RTRV-QNQ-ETH
- RTRV-VLAN
- RTRV-WDMSIDE
- RTRV-WLEN

Removed Commands

The following commands were removed in Release 8.0.

- DLT-OSC
- ED-OSC
- ENT-OSC
- RTRV-OSC

Command Syntax Changes

The syntax of the following commands is changed in Release 8.0.

CHG-EQPT syntax changed:

```
CHG-EQPT[:<TID>]:<aid>:<CTAG>::<new_eqpt_type>;
```

```
CHG-EQPT[:<TID>]:<aid>:<CTAG>::<new_eqpt_type>[:PPMTYPE=<ppmtype>],[PPMNUM=<ppmnum>],[PORTNUM=<portnum>],[PORTRATE=<portrate>];
```

ED-APC syntax changed:

```
ED-APC[:<TID>]::<CTAG>[:::APCENABLE=<apcenable>][:];
```

```
ED-APC[:<TID>]:<aid>:<CTAG>[:::APCENABLE=<apcenable>][:];
```

The syntax of the following commands was changed from the last release:

(ALW-SWTOPROTN-EQPT enum changes:

DIRECTION)

(ALW-SWTOWKG-EQPT enum changes:

DIRECTION)

(CHG-EQPT enum changes:

EQUIPMENT_TYPE

PORTRATE)

(COPY-IOSCFG enum changes:

RFILE)

(DLT-RMONTH-MOD2-DATA enum changes

MOD2_DATA)

ED-APC syntax changed:

ED-APC[:<TID>]::<CTAG>[::APCENABLE=<apcenable>][:];

ED-APC[:<TID>]:<aid>:<CTAG>[::APCENABLE=<apcenable>][:];

(ED-BITS enum changes:

SYNC_CLOCK_REF_QUALITY_LEVEL)

(ED-E1 enum changes:

SYNC_CLOCK_REF_QUALITY_LEVEL)

ED-EQPT syntax changed:

ED-EQPT[:<TID>]:<aid>:<CTAG>[::PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=<rvrtv>],[RV
VTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<peerid>],[REGENNAME=<regenname>],[C
MDMDE=<cmdmde>],[RETIME=<retime>],[SHELFROLE=<shelfrole>],[NEWSHELFID=<newshelf
id>][:<pst>[,<sst>]]];

ED-EQPT[:<TID>]:<aid>:<CTAG>[::PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=<rvrtv>],[R
VTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<peerid>],[REGENNAME=<regenname>],[P
EERNAME=<peername>],[CMDMDE=<cmdmde>],[RETIME=<retime>],[SHELFROLE=<shelfrole>
,][NEWSHELFID=<newshelfid>],[FRPROLE=<frprole>],[FRPSTATE=<frpstate>][:<pst>[,<sst>]]];

(ED-EQPT enum changes:

CARDMODE (454, 310MA, 310CL : Lotus20gCE2, Gt3CE2)

FRPROLE

FRPSTATE)

(ED-FAC enum changes:

PAYLOAD)

ED-FSTE syntax changed:

```
ED-FSTE[:<TID>]:<src>:<CTAG>[:::FLOW=<flow>],[EXPDUPLICATE=<expduplex>],[EXPSPEED=<
expspeed>],[VLANCOS=<vlancosthreshold>],[IPTOS=<iptosthreshold>],[NAME=<name>],[CMDM
DE=<cmdmde>],[SOAK=<soak>][:<pst>[,<sst>]];
```

```
ED-FSTE[:<TID>]:<src>:<CTAG>[:::FLOW=<flow>],[EXPDUPLICATE=<expduplex>],[EXPSPEED=<
expspeed>],[VLANCOS=<vlancosthreshold>],[IPTOS=<iptosthreshold>],[NAME=<name>],[CMDM
DE=<cmdmde>],[SUPPRESS=<suppress>],[SOAK=<soak>][:<pst>[,<sst>]];
```

ED-GIGE syntax changed:

```
ED-GIGE[:<TID>]:<aid>:<CTAG>:::[ADMINSTATE=<adminstate>],[LINKSTATE=<linkstate>],[M
TU=<mtu>],[FLOWCTRL=<flowctrl>],[AUTONEG=<autoneg>],[HIWMRK=<hiwmrk>],[LOWMRK
=<lowmrk>],[OPTICS=<optics>],[DUPLEX=<duplex>],[SPEED=<speed>],[NAME=<name>],[CMD
MDE=<cmdmde>],[MACADDR=<macaddr>],[FREQ=<freq>],[LOSSB=<lossb>],[SOAK=<soak>][:
<pst>[,<sst>]];
```

```
ED-GIGE[:<TID>]:<aid>:<CTAG>:::[ADMINSTATE=<adminstate>],[LINKSTATE=<linkstate>],[M
TU=<mtu>],[FLOW=<flow>],[FLOWCTRL=<flowctrl>],[AUTONEG=<autoneg>],[HIWMRK=<hiw
mrk>],[LOWMRK=<lowmrk>],[OPTICS=<optics>],[DUPLEX=<duplex>],[SPEED=<speed>],[NAM
E=<name>],[CMDMDE=<cmdmde>],[MACADDR=<macaddr>],[FREQ=<freq>],[LOSSB=<lossb>],[
SUPPRESS=<suppress>],[SOAK=<soak>],[SQUELCH=<sqelch>],[CIR=<cir>],[CBS=<cbs>],[EBS
=<ebs>][:<pst>[,<sst>]];
```

(ED-G1000 enum changes:

ENCAP)

(ED-L2-ETH enum changes:

ETH_BRIDGESTATE

ETH_NIMODE

ETH_QNQMODE)

(ED-LMP enum changes:

OPSTATE

WDM_ROLE)

ED-NE-GEN syntax changed:

```
ED-NE-GEN[:<TID>]:<CTAG>[:::NAME=<name>],[IPADDR=<ipaddr>],[IPMASK=<ipmask>],[DEFRTR=<defrtr>],[IIOPPORT=<iioport>],[NTP=<ntp>],[PROXYSRV=<isProxyServer>],[FIREWALL=<isFireWall>],[SUPPRESSIP=<mode>],[MODE=<mode>];
```

```
ED-NE-GEN[:<TID>]:<CTAG>[:::NAME=<name>],[IPADDR=<ipaddr>],[IPMASK=<ipmask>],[DEFRTR=<defrtr>],[IIOPPORT=<iioport>],[NTP=<ntp>],[SUPPRESSIP=<mode>],[MODE=<mode>],[SERIALPORTECHO=<serialportecho>];
```

ED-NE-PATH syntax changed:

```
ED-NE-PATH[:<TID>]:<CTAG>[:::PDIP=<pdip>];
```

```
ED-NE-PATH[:<TID>]:<CTAG>[:::PDIP=<pdip>],[XCMODE=<xcmode>];
```

ED-OCH syntax changed:

```
ED-OCH[:<TID>]:<aid>:<CTAG>[:::RDIRN=<rdirn>],[EXPWLEN=<expwlen>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[CHPOWER=<chpower>],[NAME=<portname>],[SFBER=<sfber>],[SDBER=<sdber>],[OSDBER=<sdber>],[COMM=<comm>],[GCCRATE=<gccrate>],[DWRAP=<drwap>],[FEC=<fec>],[PAYLOADMAP=<payloadmap>],[MACADDR=<macaddr>],[SYNMSG=<syncmsg>],[SENDDUS=<senddus>],[SOAK=<soak>],[OSPF=<ospf>],[MFS=<mfs>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];
```

```
ED-OCH[:<TID>]:<aid>:<CTAG>[:::EXPWLEN=<expwlen>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[CHPOWER=<chpower>],[NAME=<portname>],[OSDBER=<sdber>],[GCC=<gcc>],[GCCRATE=<gccrate>],[DWRAP=<drwap>],[FEC=<fec>],[PAYLOADMAP=<payloadmap>],[SOAK=<soak>],[CMDMDE=<cmdmde>][:<pst>[,<sst>]];
```

(ED-OCH enum changes:

```
RDIRN_MODE)
```

(ED-OCHCC enum changes:

```
MOD2)
```

ED-OCHNC syntax changed:

```
ED-OCHNC[:<TID>]:<src>,<dst>:<CTAG>[:::CKTID=<ctkid>],[CMDMDE=<cmdmde>][:<pst>][,<sst>];
```

```
ED-OCHNC[:<TID>]:<src>,<dst>:<CTAG>[:::CKTID=<ctkid>],[CMDMDE=<cmdmde>],[WLOPWR=<wlopwr>],[VOAATTN=<voaattn>][:<pst>][,<sst>];
```

ED-OMS syntax changed:

```
ED-OMS[:<TID>]:<aid>:<CTAG>[:::RDIRN=<rdirn>],[EXPBAND=<expband>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[CHPOWER=<chpower>],[NAME=<name>],[SOAK=<soak>],[CMDMDE=<cmdmde>][[:<pst>[,<sst>]]];
```

```
ED-OMS[:<TID>]:<aid>:<CTAG>[:::EXPBAND=<expband>],[VOAATTN=<voaattn>],[VOAPWR=<voapwr>],[CALOPWR=<calopwr>],[CHPOWER=<chpower>],[NAME=<name>],[SOAK=<soak>],[CMDMDE=<cmdmde>][[:<pst>[,<sst>]]];
```

(ED-OMS enum changes:

RDIRN_MODE)

(ED-OTU2 enum changes:

PMMODE

REACH)

(ED-POS enum changes:

ENCAP)

(ED-QNQ-ETH enum changes:

ETH_RULE)

(ED-T1 enum changes:

SYNC_CLOCK_REF_QUALITY_LEVEL)

ED-WDMANS syntax changed:

```
ED-WDMANS[:<TID>]:<aid>:<CTAG>[:::POWERIN=<powerIn>],[POWEROUT=<powerOut>],[POWEREXP=<powerExp>],[NTWTYPE=<ringType>];
```

```
ED-WDMANS[:<TID>]:<aid>:<CTAG>[:::POWERIN=<powerIn>],[POWEROUT=<powerOut>],[POWEREXP=<powerExp>],[NTWTYPE=<ringType>],[PPMESH=<ppmesh>],[DITHER=<dither>];
```

(ED-WDMANS enum changes:

PPMESH)

(ENT-CKT-ORIG enum changes:

MOD_PATH)

(ENT-CKT-TERM enum changes:

MOD_PATH)

ENT-EQPT syntax changed:

```
ENT-EQPT[:<TID>]:<aid>:<CTAG>::<aidtype>[:PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=
<rvrtv>],[RVTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<protid>],[REGENNAME=<rege
nname>],[CMDMDE=<cmdmde>],[TRANSMODE=<transmode>],[RETIME=<retime>],[SHELFROL
E=<shelfrole>][:];
```

```
ENT-EQPT[:<TID>]:<aid>:<CTAG>::<aidtype>[:PROTID=<protid>],[PRTYPE=<prtype>],[RVRTV=
<rvrtv>],[RVTM=<rvtm>],[CARDMODE=<cardmode>],[PEERID=<protid>],[REGENNAME=<rege
nname>],[CMDMDE=<cmdmde>],[TRANSMODE=<transmode>],[RETIME=<retime>],[SHELFROL
E=<shelfrole>],[FRPROLE=<frprole>],[FRPSTATE=<frpstate>][:];
```

(ENT-EQPT enum changes:

CARDMODE (454, 310MA, 310CL : Lotus20GCE2, Gt3CE2)

EQUIPMENT_TYPE (454, 454 SDH,310MA, 310CL : Lotus20GCE2, Gt3CE2)

FRPROLE

FRPSTATE)

ENT-OCHNC syntax changed:

```
ENT-OCHNC[:<TID>]:<src>,<dst>:<CTAG>[:<wct>][:CKTID=<ctid>],[CMDMDE=<cmdmde>][:
<pst>][,<sst>];
```

```
ENT-OCHNC[:<TID>]:<src>,<dst>:<CTAG>[:<wct>][:CKTID=<ctid>],[CMDMDE=<cmdmde>],[
WLOPWR=<wlopwr>],[VOAATTN=<voaattn>][:<pst>][,<sst>];
```

(ENT-OCHNC enum changes:

WCT)

(ENT-QNQ-ETH enum changes:

ETH_RULE)

(INH-SWTOPROTN-EQPT enum changes:

DIRECTION)

(INH-SWTOWKG-EQPT enum changes:

DIRECTION)

(LMP-CTRL enum changes:

OPSTATE)

(LMP-DLINK enum changes:

DATALINK

OPSTATE)

(LMP-TLINK enum changes:

MUXCAP

OPSTATE)

OPR-APC syntax changed:

OPR-APC[:<TID>]::<CTAG>;

OPR-APC[:<TID>]:<aid>:<CTAG>;

RTRV-ALM-ALL syntax changed: (All platforms)

RTRV-ALM-ALL[:<TID>][[:<aid>]:<CTAG>[:<ntfcncde>],[<condtype>],[<srveff>][,,,];

RTRV-ALM-ALL[:<TID>][[:<aid>]:<CTAG>[:<ntfcncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>][,];

RTRV-ALM-ALL response changes:

[<aid>],[<aidtype>]:<ntfcncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>,,:[<desc>],[<aiddet>]

[<aid>],[<aidtype>]:<ntfcncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>,[<location>],[<direction>]:[<desc>],[<aiddet>]

(RTRV-ALM-ALL enum changes:

DIRECTION

MOD2B)

RTRV-ALM-BITS syntax changed: (All platforms)

RTRV-ALM-BITS[:<TID>]:<aid>:<CTAG>[:<ntfcncde>],[<condtype>],[<srveff>][,,,];

RTRV-ALM-BITS[:<TID>]:<aid>:<CTAG>[:<ntfcncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>][,];

RTRV-ALM-BITS response changes:

<aid>,[<aidtype>]:<ntfcncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],,:[<desc>],

<aid>,[<aidtype>]:<ntfncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],[<location>],[<direction>]:
[<desc>],

(RTRV-ALM-BITS enum changes:

DIRECTION

MOD2B)

RTRV-ALM-EQPT syntax changed: (All platforms)

RTRV-ALM-EQPT[:<TID>]:<aid>:<CTAG>[::<ntfncde>],[<condtype>],[<srveff>][,,,];

RTRV-ALM-EQPT[:<TID>]:<aid>:<CTAG>[::<ntfncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>]
][,];

RTRV-ALM-EQPT response changes:

[<aid>],[<aidtype>]:<ntfncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],[<stringValue>],[<desc>]
,

[<aid>],[<aidtype>]:<ntfncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],[<location>],[<direction>]
]:<desc>],

(RTRV-ALM-EQPT enum changes:

DIRECTION

MOD2B)

RTRV-ALM-SYNCN syntax changed: (All platforms)

RTRV-ALM-SYNCN[:<TID>]:<aid>:<CTAG>[::<ntfncde>],[<condtype>],[<srveff>][,,,];

RTRV-ALM-SYNCN[:<TID>]:<aid>:<CTAG>[::<ntfncde>],[<condtype>],[<srveff>],[<locn>],[<dirn>]
>][,];

RTRV-ALM-SYNCN response changes:

<aid>,[<aidtype>]:<ntfncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],,:[<desc>],

<aid>,[<aidtype>]:<ntfncde>,<condtype>,<srveff>,[<ocrdat>],[<ocrtm>],[<location>],[<direction>]:
[<desc>],

(RTRV-ALM-SYNCN enum changes:

DIRECTION

MOD2B)

REPT^ALM^<MOD2ALM> response changes : (All platforms)

```
"<aid>:< ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>]>],,:[<desc>],[<aiddet>]";
"<aid>:<
ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>]>],<locn>,<dirn>,:[<desc>],[<aiddet>]";
```

REPT^ALM^BITS response changes: (All platforms)

```
"<aid>:<ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>]:<desc>]";
"<aid>:<ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>,<locn>,<dirn>]:<desc>]";
```

REPT^ALM^COM response changes: (All platforms)

```
"[<aid>]:<ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>]:<desc>]";
"[<aid>]:<ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>,<locn>,<dirn>]:<desc>]";
```

REPT^ALM^EQPT response changes: (All platforms)

```
"<aid>:<ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>]:<desc>],[<aiddet>]";
"<aid>:<ntfncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>,<locn>,<dirn>]:<desc>],[<aiddet>]";
```

Same response change applies to REPT^ALM^SYNCN

REPT^EVT^<MOD2ALM> response changes : (All platforms)

```
"<aid>:<condtype>,<condeff>],,,[<monval>],[<thlev>],[<tmper>]:<desc>],[<aiddet>]";
"<aid>:<condtype>,<condeff>],,,[<locn>],[<dirn>],[<monval>],[<thlev>],[<tmper>]:<desc>],[<aiddet>]";
```

REPT^EVT^BITS response changes: (All platforms)

```
"<aid>:<condtype>,<condeff>],,,[<desc>]";
"<aid>:<condtype>,<condeff>],,,[<locn>],[<dirn>],:[<desc>]";
```

REPT^EVT^COM response changes: (All platforms)

```
"[<aid>]:<condtype>,<condeff>],,,[<desc>]";
"[<aid>]:<condtype>,<condeff>],,,[<locn>],[<dirn>],,:[<desc>]";
```

REPT^EVT^SECU response changes: (All platforms)

```
"<aid>:<condtype>,<condeff>],,,[<security>:<msg>]";
"<aid>:<condtype>,<condeff>],,,[<locn>],[<dirn>],,:[<security>:<msg>]";
```

REPT^EVT^EQPT response changes: (All platforms)

```
"<aid>:<condtype>,<condeff>],,,,,:<desc>,<aiddet>]";
"<aid>:<condtype>,<condeff>],,,,,,<locn>,<dirn>:<desc>,<aiddet>]";
```

Same response change applies to REPT^EVT^SYNCN

RTRV-APC syntax changed:

```
RTRV-APC[:<TID>]:<CTAG>[:::];
RTRV-APC[:<TID>]:<aid>:<CTAG>[:::];
```

RTRV-APC response changes:

```
::<apcenable>,<apcstate>];
<aid>::<apcenable>,<apcstate>];
```

RTRV-BITS response changes:

```
<aid>::<linecde>,<fmt>,<lbo>,<syncmsg>,<aisthrshld>,<saBit>,<bitsfac>,<admssm>]:<pst>]
```

```
<aid>::<linecde>,<fmt>,<lbo>,<syncmsg>,<aisthrshld>
[<saBit>,<impedance>,<bitsfac>,<admssm>] [<pst>]
```

(RTRV-BITS enum changes:

```
SYNC_CLOCK_REF_QUALITY_LEVEL)
```

(RTRV-CKT-ORIG enum changes:

```
MOD_PATH)
```

(RTRV-CKT-TERM enum changes:

```
MOD_PATH)
```

RTRV-COND-ALL syntax changed:

```
RTRV-COND-ALL[:<TID>]:<aid>:<CTAG>[:<typereq>][,];
RTRV-COND-ALL[:<TID>]:<aid>:<CTAG>[:<typereq>,<locn>,<dirn>][,];
```

RTRV-COND-ALL response changes:

```
<aid>,<aidtype>]:<ntfcncde>,<typerep>,<srveff>,<ocrdat>,<ocrtm>],,<desc>
```

```
<aid>,<aidtype>]:<ntfcncde>,<typerep>,<srveff>,<ocrdat>,<ocrtm>,<location>,<direction>
],<desc>]
```

(RTRV-COND-ALL enum changes:

DIRECTION
MOD2B)

RTRV-COND-BITS syntax changed:

RTRV-COND-BITS[:<TID>]:<aid>:<CTAG>[:<typereq>][,,,];
RTRV-COND-BITS[:<TID>]:<aid>:<CTAG>[:<typereq>][<locn>][<dirn>][.];

RTRV-COND-BITS response changes:

<aid>,<aidtype>[:<ntfncde>],<typerep>,<srveff>,<ocrdat>,<ocrtm>,,,<desc>

<aid>,<aidtype>[:<ntfncde>],<typerep>,<srveff>,<ocrdat>,<ocrtm>,<location>,<direction>,
,<desc>

(RTRV-COND-BITS enum changes:

DIRECTION
MOD2B)

RTRV-COND-EQPT syntax changed:

RTRV-COND-EQPT[:<TID>]:<aid>:<CTAG>[:<typereq>][,,,];
RTRV-COND-EQPT[:<TID>]:<aid>:<CTAG>[:<typereq>][<locn>][<dirn>][.];

RTRV-COND-EQPT response changes:

<aid>,<aidtype>[:<ntfncde>],<typerep>,<srveff>,<ocrdat>,<ocrtm>,,,<desc>

<aid>,<aidtype>[:<ntfncde>],<typerep>,<srveff>,<ocrdat>,<ocrtm>,<location>,<direction>,
,<desc>

(RTRV-COND-EQPT enum changes:

DIRECTION
MOD2B)

RTRV-COND-SYNCN syntax changed:

RTRV-COND-SYNCN[:<TID>]:<aid>:<CTAG>[:<typereq>][,,,];
RTRV-COND-SYNCN[:<TID>]:<aid>:<CTAG>[:<typereq>][<locn>][<dirn>][.];

RTRV-COND-SYNCN response changes:

<aid>,<aidtype>[:<ntfncde>],<typerep>,<srveff>,<ocrdat>,<ocrtm>,,,<desc>

<aid>,[<aidtype>]:[<ntfcncde>],<typerep>,[<srveff>],[<ocrdat>],[<ocrtm>],[<location>],[<direction>],[<desc>]

(RTRV-COND-SYNCN enum changes:

DIRECTION

MOD2B)

RTRV-DGN-EQPT response changes:

<aid>:

<slot>:

(RTRV-E1 enum changes:

DIRECTION

SYNC_CLOCK_REF_QUALITY_LEVEL)

(RTRV-E4 enum changes:

PAYLOAD)

RTRV-EQPT response changes:

<aid>:<aidtype>,<equip>,[<role>],[<status>]:[<protid>],[<prtype>],[<rvrtv>],[<rvtm>],[<cardname>],[<ioscfg>],[<cardmode>],[<peerid>],[<regenname>],[<transmode>],[<retime>],[<shelfrole>]:<pst>,[<sst>]

<aid>:<aidtype>,<equip>,[<role>],[<status>]:[<protid>],[<prtype>],[<rvrtv>],[<rvtm>],[<cardname>],[<ioscfg>],[<cardmode>],[<peerid>],[<regenname>],[<peername>],[<transmode>],[<retime>],[<shelfrole>],[<frprole>],[<frpstate>]:<pst>,[<sst>]

(RTRV-EQPT enum changes:

CARDMODE (454, 310MA, 310CL : Lotus20gCE2, Gt3CE2)

FRPROLE

FRPSTATE)

RTRV-FSTE response changes:

<aid>::[<adminstate>],[<linkstate>],[<mtu>],[<flowctrl>],[<optics>],[<duplex>],[<speed>],[<flow>],[<expduplex>],[<expspeed>],[<vlancosthreshold>],[<iptosthreshold>],[<name>],[<soak>],[<soakleft>]:<pst>,[<sst>]

```
<aid>::[<adminstate>],[<linkstate>],[<mtu>],[<flowctrl>],[<optics>],[<duplex>],[<speed>],[<flow>],[
<expduplex>],[<expspeed>],[<vlancostthreshold>],[<iptosthreshold>],[<name>],[<suppress>],[<soak>
],[<soakleft>]:<pst>,<sst>]
```

RTRV-GIGE response changes:

```
<aid>:,<role>,<status>:[ adminstate>],[ linkstate>],[mtu>],[ encap>],[
flowctrl>],[<autoneg>],[hiwmrk>],[<lowmrk>],[<optics>],[<duplex>],[<speed>],
[<name>],[<freq>],[<lossb>],[<soak>],[<soakleft>],[<sqlch>]:<pst>,<sst>;
```

```
<aid>:,<role>,<status>:[ adminstate>],[ linkstate>],[mtu>],[ encap>],[<flow
>],[flowctrl>],[<autoneg>],[hiwmrk>],[<lowmrk>],[<optics>],[<duplex>],[<speed>],[<name>],[<freq
>],[<lossb>],[<suppress>],[<soak>],[<soakleft>],[<sqlch>],[<cir>],[<cbs>],[<ebs>]:<pst>,<sst>;
```

(RTRV-G1000 enum changes:

ENCAP)

RTRV-INV response changes:

```
<aid>,<aidtype>::[<pn>],[<hwrev>],[<fwrev>],[<sn>],[<clei>],[<twl1=nwl in
code>],[<pluginvendorid>],[<pluginpn>],[<pluginhwrev>],[<pluginfwrev>],[<pluginsn>],[<ilossref>],
[<productId>],[<versionId>],[<fpgaVersion>],[<vendorId>]
```

```
<aid>,<aidtype>::[<pn>],[<hwrev>],[<fwrev>],[<sn>],[<clei>],[<twl>],[<pluginvendorid>],[<pluginp
n>],[<pluginhwrev>],[<pluginfwrev>],[<pluginsn>],[<ilossref>],[<productId>],[<versionId>],[<fpgaV
ersion>],[<vendorId>],[<moduletype>]
```

(RTRV-L2-ETH enum changes:

ETH_BRIDGESTATE

ETH_NIMODE

ETH_QNQMODE)

(RTRV-NE-APC enum changes:

MOD2)

RTRV-NE-GEN response changes :

```
[IPADDR=<ipaddr>],[IPMASK=<ipmask>],[DEFRTR=<defrtr>],[IIOPORT=<iioport>],[NTP=<ntp
>],[ETHIPADDR=<ethipaddr>],[ETHIPMASK=<ethipmask>],[NAME=<name>],[SWVER=<swver>]
,[LOAD=<load>],[PROTSWVER=<protswver>],[PROTLOAD=<protload>],[DEFDESC=<defdesc>],[
PLATFORM=<platform>],[SECUMODE=<secumode>],[SUPPRESSIP=<suppressip>],[MODE=<mo
de>]
```

```
[IPADDR=<IPADDR>],[IPMASK=<IPMASK>],[DEFRTR=<DEFRTR>],
```

[IOPPORT=<IOPPORT>],[NTP=<NTP>],[ETHIPADDR=<ETHIPADDR>],
 [ETHIPMASK=<ETHIPMASK>],[NAME=<NAME>],[SWVER=<SWVER>],[LOAD=<LOAD>],
 [PROTSWVER=<PROTSWVER>],[PROTLOAD=<PROTLOAD>],[DEFDESC=<DEFDESC>],
 [PLATFORM=<PLATFORM>],[SECUMODE=<SECUMODE>],[SUPPRESSIP=<SUPPRESSIP>],
 [PROXYSRV=<PROXYSRV>],[FIREWALL=<FIREWALL>],[AUTOPM=<AUTOPM>],
 [SERIALPORTECHO=<SERIALPORTECHO>

RTRV-NE-PATH response changes:

<rvtm>
 <pdip>,<loxcmode>

RTRV-NE-SYNCN response changes:

[<aid>]:[<tmmd>],[<ssmgen>],[<qres>],[<rvrtv>],[<rvtm>]
 [<aid>]:[<tmmd>],[<ssmgen>],[<qres>],[<rvrtv>],[<rvtm>],[<systemn>]

(RTRV-NE-SYNCN enum changes:

SYSTEM_TIMING)

RTRV-OCH response changes:

<aid>:.,[<role>],[<status>]:[<rdirn>],[<opticalPortType>],[<power>],[<expWlen>],[<actWlen>],[<iloss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<refopwr>],[<calopwr>],[<chpower>],[<portname>],[<sfber>],[<sdber>],[<comm>],[<gccrate>],[<dwrap>],[<fec>],[<payloadmap>],[<lbclcurr>],[<optcurr>],[<oprcurr>],[<osfber>],[<osdber>],[<macaddr>],[<syncmsg>],[<senddus>],[<soak>],[<soakleft>],[<ospf>],[<mfs>]:<pst>,<sst>

<aid>:.,[<role>],[<status>]:[<opticalPortType>],[<power>],[<expWlen>],[<actWlen>],[<iloss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<refopwr>],[<calopwr>],[<chpower>],[<chpowerFlg>],[<portname>],[<gcc>],[<gccrate>],[<dwrap>],[<fec>],[<payloadmap>],[<lbclcurr>],[<optcurr>],[<oprcurr>],[<osfber>],[<osdber>],[<soak>],[<soakleft>],[<lossb>]:<pst>,<sst>

(RTRV-OCH enum changes:

RDIRN_MODE
 WDMANS_FLAG)

RTRV-OCHCC response changes:

```
[<aid>]:<payload>:[<pst>]
<aid>::<payload>],[<cktId>]:<pst>,[<sst>]
```

(RTRV-OCHCC enum changes:

MOD1PAYLOAD)

RTRV-OCHNC response changes:

```
[<src>]:<wct>:[<pst>]
<aidsrc>,<aiddst>:<wct>:[<cktId>],[<wlopwr>],[<opwr>],[<voaattn>]:<pst>,[<sst>]
```

(RTRV-OCHNC enum changes:

WCT)

RTRV-OMS response changes:

```
<aid>::<rdirn>,<opticalPortType>,[<power>],[<expBand>],[<actBand>],[<iLoss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<refopwr>],[<calopwr>],[<chpower>],[<name>],[<soak>],[<soakleft>]:<pst>,[<sst>]
```

```
<aid>::<opticalPortType>,[<power>],[<expBand>],[<actBand>],[<iLoss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<refopwr>],[<calopwr>],[<chpower>],[<chpowerFlg>],[<name>],[<soak>],[<soakleft>]:<pst>,[<sst>]
```

(RTRV-OMS enum changes:

RDIRN_MODE

WDMANS_FLAG)

RTRV-OPM response changes:

```
<aid>::<powerout>],[<poweradd>],[<powerpt>]:
```

RTRV-OTS response changes:

```
<aid>::<rdirn>,<opticalPortType>,[<power>],[<iLoss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<osri>],[<amplmode>],[<chpower>],[<gain>],[<expgain>],[<refopwr>],[<offset>],[<refilt>],[<caltilt>],[<aseopwr>],[<dcLoss>],[<awgst>],[<heatst>],[<name>],[<soak>],[<soakleft>]:<pst>,[<sst>]
```

<aid>::<opticalPortType>,[<power>],[<iloss>],[<voamode>],[<voaattn>],[<voapwr>],[<voarefattn>],[<voarefpwr>],[<osri>],[<amplmode>],[<amplmodeFlg>],[<chpower>],[<chpowerFlg>],[<gain>],[<expgain>],[<expgainFlg>],[<refopwr>],[<offset>],[<refilt>],[<refiltFlg>],[<caltilt>],[<aseopwr>],[<dculoss>],[<awgst>],[<heatst>],[<name>],[<soak>],[<soakleft>]:<pst>,[<sst>]

(RTRV-OTS enum changes:

 RDIRN_MODE
 WDMANS_FLAG)

(RTRV-PM-ALL enum changes:

 DIRECTION)

(RTRV-QNQ-ETH enum changes:

 ETH_RULE)

(RTRV-STM1E enum changes:

 PAYLOAD)

(RTRV-TH-ALL enum changes:

 MOD2B)

(RTRV-TRC-OC48 enum changes:

 MOD_PATH)

(RTRV-TRC-OCH enum changes:

 MOD2)

RTRV-VC syntax changed:

RTRV-VC[:<TID>]:<aid>:<CTAG>[:::BLSRPTHTYPE=<blsrpthtype>][:];
RTRV-VC[:<TID>]::<CTAG>;

(RTRV-VC enum changes:

 PRODUCT_TYPE)

(RTRV-WLEN enum changes:

 WCT)

(SW-TOPROTN-EQPT enum changes:

DIRECTION)

(SW-TOWKG-EQPT enum changes:

DIRECTION)

TL1 ENUM Changes

TL1 ENUM Items Added or Removed

The following section highlights ENUM items changed (added or removed) for Release 8.0, by ENUM type.

AUTOPM_TMPER

AUTOPM_TMPER enum added with the following items in it (all platforms):

AUTOPM_TMPER_NONE
 AUTOPM_TMPER_15MIN
 AUTOPM_TMPER_1DAY
 AUTOPM_TMPER_BOTH

CARDMODE

CARDMODE enum items added (454, 310 MA, 310 CL)
 CARDMODE_CEMR_AUTO => "CEMR-AUTO" (Lotus20gCE2,Gt3CE2)
 CARDMODE_CEMR_MANUAL => "CEMR-MANUAL" (Lotus20gCE2, Gt3CE2)

CARDMODE is used in the following commands (454, 310 MA, 310 CL):

ED-EQPT (Lotus20gCE2,Gt3CE2)
 ENT-EQPT (Lotus20gCE2,Gt3CE2)
 RTRV-EQPT (Lotus20gCE2,Gt3CE2)

DIRECTION

DIRECTION enum items added (454, 454 SDH, 310 MA, 310 CL, 600, 600 SDH):

DIRECTION_TD_NA => "NA"

DIRECTION is used in the following commands:

ALW-SWTOPROTN-EQPT
 ALW-SWTOWKG-EQPT
 EX-SW-OCN-BLSR
 INH-SWTOPROTN-EQPT
 INH-SWTOWKG-EQPT

INIT-REG-MOD2
 OPR-PROTNSW-OCN-TYPE
 RLS-PROTNSW-OCN-TYPE
 RTRV-ALM-ALL
 RTRV-ALM-BITS
 RTRV-ALM-EQPT
 RTRV-ALM-MOD2ALM
 RTRV-ALM-SYNCN
 RTRV-COND-ALL
 RTRV-COND-BITS
 RTRV-COND-EQPT
 RTRV-COND-MOD2ALM
 RTRV-COND-SYNCN
 RTRV-E1
 RTRV-PM-ALL
 RTRV-PM-MOD2
 SW-TOPROTN-EQPT
 SW-TOWKG-EQPT

ENCAP

ENCAP enum items added to (454, 454 SDH, 310 MA, 310 CL, 600 SDH):

ENCAP_RPR_GFP_F => "RPR-GFP-F"

ENCAP is used in the following commands:

ED-G1000
 ED-POS
 RTRV-FC
 RTRV-G1000
 RTRV-POS

EQPT_TYPE

EQPT_TYPE enum items dropped:

EQPT_TYPE_EQPT_ID_ML2_EXIGE_MAPPER_CARD => "CE-100T-8"

EQPT_TYPE enum items added:

EQPT_TYPE_EQPT_ID_CEMR_310 => "CE-MR-6" (310 MA, 310CL: Gt3CE2)

EQPT_TYPE_EQPT_ID_ML2_EXIGE_MAPPER => "CE-100T-8" (454, 454 SDH, 310 MA, 310CL)

EQUIPMENT_TYPE

EQUIPMENT_TYPE enum items dropped:

EQUIPMENT_TYPE_ET_ML2_EXIGE_MAPPER_CARD => "CE-100T-8"

EQUIPMENT_TYPE enum items added:

EQUIPMENT_TYPE_ET_CEMR_310 => "CE-MR-6" (310 MA, 310CL: Gt3CE2)

EQUIPMENT_TYPE_ET_ML2_EXIGE_MAPPER => "CE-100T-8" (454, 454 SDH, 310 MA, 310 CL)

EQUIPMENT_TYPE

EQUIPMENT_TYPE is used in the following commands:

CHG-EQPT

ENT-EQPT

ETH_RULE

ETH_RULE enum items added:

ETH_RULE_ADD => "ADD"

ETH_RULE_XLTE => "XLTE"

ETH_RULE is used in the following commands:

ED-QNQ-ETH

ENT-QNQ-ETH

RTRV-QNQ-ETH

MOD2

MOD2 enum items dropped:

MOD2_M2_OCHNC => "OCHNC"

MOD2 enum items added (454, 454 SDH):

MOD2_M2_ETH => "ETH" (454, 454 SDH, 310 MA, 310CL, Lotus20gCE2, Gt3CE2)

MOD2 is used in the following commands:

ED-OCHCC

RTRV-FFP-MOD2

RTRV-NE-APC

RTRV-NE-WDMANS

RTRV-TRC-OCH

SCHED-PMREPT-MOD2

RTRV-PMSCHED-ALL

RTRV-PMSCHED-MOD2
RTRV-TRC-MOD2

MOD2ALM

MOD2ALM enum items added:

MOD2ALM_M2_ETH => "ETH" (454, 454 SDH, 310 MA, 310CL, Lotus20gCE2, Gt3CE2)

MOD2ALM is used in the following commands:

RTRV-ALM-MOD2ALM
RTRV-COND-MOD2ALM

MOD2B

MOD2B enum items added:

MOD2B_M2_ETH => "ETH" (454, 454 SDH, 310 MA, 310CL, Lotus20gCE2, Gt3CE2)

MOD2B is used in the following commands:

ALS
RTRV-ALM-ALL
RTRV-ALM-BITS
RTRV-ALM-EQPT
RTRV-ALM-SYNCN
RTRV-COND-ALL
RTRV-COND-BITS
RTRV-COND-EQPT
RTRV-COND-SYNCN
RTRV-PM-MOD2
RTRV-TH-ALL
RTRV-TH-MOD2

MOD2O

MOD2O enum items added:

MOD2O_M2_ILK => "ILK" (454)
MOD2O_M2_OTU2 => "OTU2" (454, 454 SDH)

MOD2O is used in the following commands:

RTRV-ALMTH-MOD2O

MOD2_DATA

MOD2_DATA enum items added:

MOD2_DATA_M2_ETH => "ETH" (454, 454 SDH, 310 MA, 310CL, Lotus20gCE2, Gt3CE2)

MOD2_DATA is used in the following commands:

DLT-RMONTH-MOD2-DATA

OPTICAL_NODE_TYPE

OPTICAL_NODE_TYPE enum items added:

OPTICAL_NODE_TERMINAL => "TERMINAL"

OPTICAL_NODE_TYPE is used in the following commands:

RTRV-WDMANS

PAYLOAD

PAYLOAD enum items dropped:

PAYLOAD_PT_ETHER => "ETHERNET"

PAYLOAD enum items added:

PAYLOAD_PT_ETHER => "ETH" (454, 454 SDH, 310 MA, 310CL, Lotus20gCE2, Gt3CE2)

PAYLOAD_PT_ILK => "ILK"

PAYLOAD_PT_OCH => "OCH"

PAYLOAD_PT_OTU2 => "OTU2"

PAYLOAD is used in the following commands:

ED/RTRV-FAC

ED/RTRV-E4

ED/RTRV-STM1E

PMMODE

PMMODE enum items added:

PMMODE_PROPRIETARY => "PROPRIETARY"

PMMODE_STD => "STD"

PMMODE is used in the following commands:

ED/RTRV-OTU2

REACH

REACH enum items added:

```
REACH_CWDM => "CWDM"
REACH_DWDM => "DWDM"
REACH_ZR => "ZR"
```

REACH is used in the following commands:

```
ED-DWDM-CLNT
ED-FC
ED-GIGE
ED-OCH
ED-OCN-TYPE
ED-OTU2
RTRV-DWDM-CLNT
RTRV-FC
RTRV-GIGE
RTRV-OCH
RTRV-OCN-TYPE
RTRV-OTU2
```

REGULATED_PORT_TYPE

REGULATED_PORT_TYPE enum items added:

```
REGULATED_PORT_MISSING_PARAM => "MISSING-PARAM"
```

REGULATED_PORT_TYPE is used in the following commands:

```
RTRV-NE-WDMANS
```

REPTPM_TYPE

REPTPM_TYPE enum added with the following items in it (all platforms)

```
REPTPM_TYPE_NONE
REPTPM_TYPE_AUTO
REPTPM_TYPE_SCHED
REPTPM_TYPE_BOTH
```

REPTPM_TYPE

REPTPM_TYPE is used in the following commands:

```
SCHED-PMREPT-<MOD2>
```

RFILE

RFILE enum items added (454, 454 SDH, 310 MA, complete Db backup):

RFILE_COMPDB => "RFILE-COMPDB"

RFILE is used in the following commands:

COPY-IOSCFG

COPY-RFILE

RSYNC_CLOCK_REF_QUALITY_LEVEL

SYNC_CLOCK_REF_QUALITY_LEVEL enum items added:

SYNC_CLOCK_REF_QUALITY_LEVEL_QREF_SSM_FAILED => "SSM-FAILED"

SYNC_CLOCK_REF_QUALITY_LEVEL is used in the following commands:

ED-BITS

ED-E1

ED-OCN-TYPE

ED-T1

RTRV-BITS

RTRV-E1

RTRV-OCN-TYPE

RTRV-SYNCN

RTRV-T1

SYSTEM_TIMING

SYSTEM_TIMING enum items added:

SYSTEM_TIMING_SDH => "SDH"

SYSTEM_TIMING_SONET => "SONET"

SYSTEM_TIMING is used in the following commands:

ED-NE-SYNCN

RTRV-NE-SYNCN

VALIDITY

VALIDITY enum items dropped:

VALIDITY_CV_OFF => "OFF"

VALIDITY enum items added:

VALIDITY_CV_OFF => "NA"

VALIDITY is used in the following commands:

RTRV-PM-MOD2

WCT

WCT enum items added:

WCT_DIAG => "DIAG"

WCT_TWOWAYDCN => "2WAYDCN"

WCT is used in the following commands:

ENT-OCHNC

RTRV-OCHNC

RTRV-WLEN

Related Documentation

Release-Specific Documents

- *Release Notes for the Cisco ONS 15310-MA Release 7.2*
- *Release Notes for the Cisco ONS 15310-CL Release 8.0*
- *Release Notes for the Cisco ONS 15454 SDH Release 8.0*
- *Release Notes for the Cisco ONS 15600 SDH Release 8.0*
- *Release Notes for the Cisco ONS 15600 Release 8.0*
- *Release Notes for the Cisco ONS 15454 Release 8.0*

Platform-Specific Documents

- *Cisco ONS 15310-CL and Cisco ONS 15310-MA Procedure Guide*
Provides installation, turn up, test, and maintenance procedures
- *Cisco ONS 15310-CL and Cisco ONS 15310-MA Reference Manual*
Provides technical reference information for cards, nodes, and networks
- *Cisco ONS 15310-CL and Cisco ONS 15310-MA Troubleshooting Guide*
Provides a list of SONET alarms and troubleshooting procedures, general troubleshooting information, transient conditions, and error messages
- *Cisco ONS SONET TL1 Command Guide*
Provides a comprehensive list of TL1 commands
- *Cisco ONS SONET TL1 Reference Guide*
Provides general information, procedures, and errors for TL1
- *Cisco ONS 15310-CL and Cisco ONS 15310-MA Ethernet Card Software Feature and Configuration Guide*
Provides software feature and operation information for Ethernet cards

**Note**

From Release 8.0 onwards, the platform-specific documents listed above are not available through the CTC Help menu. You can access PDF and HTML versions of these documents on Cisco.com.

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

The Product Documentation DVD is a comprehensive library of technical product documentation on a portable medium. The DVD enables you to access multiple versions of installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the same HTML documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .PDF versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Cisco Optical Networking Product Documentation CD-ROM

Optical networking-related documentation, including Cisco ONS 15xxx product documentation, is available in a CD-ROM package that ships with your product. The Optical Networking Product Documentation CD-ROM is updated periodically and may be more current than printed documentation.

Ordering Documentation

Registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at tech-doc-store-mkpl@external.cisco.com or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

Documentation Feedback

You can rate and provide feedback about Cisco technical documents by completing the online feedback form that appears with the technical documents on Cisco.com.

You can submit comments about Cisco documentation by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For Emergencies only — security-alert@cisco.com

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT at the aforementioned e-mail addresses or phone numbers before sending any sensitive material to find other means of encrypting the data.

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



Note

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command

output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco offerings. To order and find out more about the Cisco Product Quick Reference Guide, go to this URL:

<http://www.cisco.com/go/guide>

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:
- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

<http://www.cisco.com/go/iqmagazine>

or view the digital edition at this URL:

<http://cisoiq.texterity.com/cisoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

<http://www.cisco.com/ipj>

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>

Use this document in conjunction with the documents listed in the “Related Documentation” section on page 33.

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