Cable IPC Statistics Collection Tool

First Published: November 16, 2009

Last Updated: November 29, 2010

The Cable Interprocess Communication (IPC) Statistics Collection tool provides debugging information about all CMTS related IPC messages. You can use this tool to analyze the IPC traffic in a cable communications network.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://tools.cisco.com/ITDIT/CFN/. An account on http://www.cisco.com/ is not required.

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Prerequisites for the Cable IPC Statistics Collection Tool

The table shows the hardware compatibility prerequisites for the Cable IPC Statistics Collection tool.

Note The hardware components introduced in a given Cisco IOS Release will be supported in all subsequent releases unless otherwise specified.

Table 1: Hardware Compatibility Matrix for Cable IPC Statistics Collection Tool

CMTS Platform	Processor Engine	Cable Interface Cards
Cisco uBR10012 Universal Broadband Router	Cisco IOS Release 12.2(33)SCA and later • PRE2 Cisco IOS Release 12.2(33)SCB and later • PRE4	Cisco IOS Release 12.2(33)SCB and later • Cisco uBR10-MC5X20U/H Cisco IOS Release 12.2(33)SCC and later • Cisco UBR-MC20X20V Cisco IOS Release 12.2(33)SCE and later • Cisco uBR-MC3GX60V [1]
Cisco uBR7246VXR Universal Broadband Router	Cisco IOS Release 12.2(33)SCA and later • NPE-G1 • NPE-G2	Cisco IOS Release 12.2(33)SCA and later • Cisco uBR-MC28U/X Cisco IOS Release 12.2(33)SCD and later • Cisco uBR-MC88V [2]
Cisco uBR7225VXR Universal Broadband Router	Cisco IOS Release 12.2(33)SCA and later • NPE-G1 Cisco IOS Release 12.2(33)SCB and later • NPE-G2	Cisco IOS Release 12.2(33)SCA and later • Cisco uBR-E-28U • Cisco uBR-E-16U • Cisco uBR-MC28U/X Cisco IOS Release 12.2(33)SCD and later • Cisco uBR-MC88V

1 Cisco uBR3GX60V cable interface line card is not compatible with PRE2. You must use PRE4 with the Cisco uBR3GX60V cable interface line card.

2 Cisco uBR-MC88V cable interface line card is not compatible with NPE-G1. You must use NPE-G2 with the Cisco uBR-MC88V cable interface line card.

Restrictions for the Cable IPC Statistics Collection Tool

The Cable IPC Statistics Collection tool has the following restrictions:

- Does not support the line cards running LCDOS images.
- Does not support checkpoint messages between the primary route processor (RP) and secondary RP on the Cisco UBR10012 router.

Information About the Cable IPC Statistics Collection Tool

The Cable IPC Statistics Collection tool monitors IPC messages between cable interface line cards and the RP in a cable communications network. The IPC messages include configuration commands, responses to the configuration commands, and other events that a cable interface line card reports to the RP.

The tool provides the following message statistics:

- Send and receive message counts and byte counts.
- Wait time between request sent and response received for blocked request messages.
- Process time used by the message handler for received request messages.

The tool provides the following queue statistics:

- Queue size.
- Wait time from a message that is enqueued to a message that is dequeued.
- Enqueue and dequeue message counts.
- Queue flush message counts.

Note To save system memory and keep the normal operation performance, the Cable IPC Statistics Collection tool is disabled by default. You can enable the tool using the cable ipc-stats command in global configuration mode. When you enable the tool, a new database memory buffer is allocated, and the API functions start updating the statistics database. When you disable the tool, the allocated memory is freed. We recommend that you enable this tool only when it is necessary as the tool consumes considerable amount of CPU memory while running on a Cisco CMTS router. The actual memory usage varies based on how many messages are defined in a particular Cisco IOS image.

How to Enable the Cable IPC Statistics Collection Tool

This section contains the following procedures:

Enabling the Cable IPC Statistics Collection Tool

The cable ipc-stats command is synchronized to all cable interface line cards from the active RP. You do not have to use this command on cable interface line cards separately.

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**cable ipc-stats** **Example:** `Router(config)# cable ipc-stats`	Enables the Cable IPC Statistics Collection tool on a Cisco CMTS router.

Verifying IPC Statistics

To verify IPC statistics, use the **show cable ipc-stats** command as shown in the following example:

```
Router# show cable ipc-stats
ubr10k2apatil#show cable ipc-stats
--- TIME ---
Start: 03:27:29 PDT Fri Oct 9 2009
End  : 03:28:22 PDT Fri Oct 9 2009
Total: 0 days 00 hrs 00 mins 53 secs (53 seconds)
size : 1407648 bytes
--- CR10K MSG ---
entity app      io    s/s reqid idx:    pkts      bytes lastEvt totalDur maxDur lastMax
                                                        (sec)   (msec)   (msec) (sec)
rp-lc c10k     TxReq 1/0 10241   1:       1         24      17
 rp-lc c10k     TxReq 1/0    10  14:      11        704       0
 rp-lc c10k     TxReq 2/1    10  14:      10        640       4
 rp-lc c10k     TxReq 3/0    10  14:      10        640       4
 rp-lc c10k     TxReq 3/1    10  14:      11        704       0
 rp-lc c10k     TxReq 4/0    10  14:      10        640       3
 rp-lc c10k     TxReq 6/0 10252   2:      10       9376      13
 rp-lc c10k     TxReq 6/0    10  14:      11        704       0
 rp-lc c10k     TxReq 6/1 10252   2:       1         88      53
 rp-lc c10k     TxReq 6/1    10  14:      11        704       0
 rp-lc c10k     TxReq 7/0 10252   2:       7        696       5
 rp-lc c10k     TxReq 7/0    10  14:      11        704       1
 rp-lc c10k     RxRsp 1/0 10241   1:       1          4      17        0      0 17
 rp-lc c10k     RxReq 1/0 10241   1:      60      21816       0        0      0 0
 rp-lc c10k     RxReq 1/0    10  14:      11        704       0        0      0 0
```

```
 rp-lc c10k     RxReq 2/1 10241   1:      26      13468       1         0       0 1
 rp-lc c10k     RxReq 2/1    10  14:      10        640       4         0       0 4
 rp-lc c10k     RxReq 3/0 10241   1:      20       1340       5         0       0 5
 rp-lc c10k     RxReq 3/0    10  14:      10        640       4         0       0 4
 rp-lc c10k     RxReq 3/1    10  14:      11        704       0         0       0 0
 rp-lc c10k     RxReq 4/0 10241   1:      20       1340       9         0       0 9
 rp-lc c10k     RxReq 4/0    10  14:      10        640       3         0       0 3
 rp-lc c10k     RxReq 6/0 10252   2:      13      27080       0         0       0 0
 rp-lc c10k     RxReq 6/0    10  14:      11        748       0         0       0 0
 rp-lc c10k     RxReq 6/1 10252   2:       1         68      25         0       0 25
 rp-lc c10k     RxReq 6/1    10  14:      11        748       0         0       0 0
 rp-lc c10k     RxReq 7/0 10252   2:      11      24548       3         0       0 3
 rp-lc c10k     RxReq 7/0    10  14:      11        748       1         0       0 1
 rp-lc pnego    TxReq 6/0    14   6:       3        363      13
 rp-lc pnego    TxReq 6/1    14   6:       1         30      53
 rp-lc pnego    TxReq 7/0    14   6:       2         62      13
 rp-lc plfm     RxReq 6/0    24  17:       1         12      37         0       0 37
 rp-lc plfm     RxReq 6/0    27  20:      11       1144       0         0       0 0
 rp-lc plfm     RxReq 6/0    28  21:     484      19360       0         0       0 0
 rp-lc plfm     RxReq 6/1    24  17:       1         12      25         0       0 25
 rp-lc plfm     RxReq 7/0    24  17:       1         12      45         0       0 45
 rp-lc plfm     RxReq 7/0    27  20:      10       1040       3         0       0 3
 rp-lc plfm     RxReq 7/0    28  21:     440      17600       3         0       0 3
 rp-lc docsis   TxReq 7/0   118 110:      10         80       5
 rp-lc hccp     TxReq 6/0     8   8:       8       8416      13
 rp-lc hccp     RxReq 6/0     2   2:       1         28      13         0       0 13
--- CR10K TXQ ---
 TXQ_6_0
 enQ: 10 pkts  max Q size 9 at 13 sec ago
 deQ: 10 pkts  max delay 24 msec at 13 sec ago
   delay between (  0,  10) msec:        6 pkts
   delay between ( 10,  20) msec:        3 pkts
   delay between ( 20,  30) msec:        1 pkts
   delay between (  0,   1) sec :       10 pkts
 flush: 0 ptks  0 times
 TXQ_6_1
 enQ: 1 pkts  max Q size 1 at 53 sec ago
 deQ: 1 pkts  max delay 0 msec at 53 sec ago
   delay between (  0,  10) msec:        1 pkts
   delay between (  0,   1) sec :        1 pkts
 flush: 0 ptks  0 times
 TXQ_7_0
 enQ: 7 pkts  max Q size 1 at 5 sec ago
 deQ: 7 pkts  max delay 48 msec at 13 sec ago
   delay between (  0,  10) msec:        1 pkts
   delay between ( 10,  20) msec:        5 pkts
   delay between ( 40,  50) msec:        1 pkts
   delay between (  0,   1) sec :        7 pkts
 flush: 0 ptks  0 times
--- CR10K WATERMARK ---
--- CR10K RXQ ---
 c10k rxq
 enQ: 236 pkts  max Q size 3 at 5 sec ago
 deQ: 236 pkts  max delay 4 msec at 35 sec ago
   delay between (  0,  10) msec:      236 pkts
   delay between (  0,   1) sec :      236 pkts
 flush: 0 ptks  0 times
 cr10k LP rxq
 enQ: 25 pkts  max Q size 1 at 0 sec ago
 deQ: 25 pkts  max delay 0 msec at 0 sec ago
   delay between (  0,  10) msec:       25 pkts
   delay between (  0,   1) sec :       25 pkts
 flush: 0 ptks  0 times
```

Note When you run the show cable ipc-stats command, a separate shadow database buffer is allocated, and the contents of the active database are copied to the shadow database to display the IPC statistics. This ensures that all the statistics are frozen at the same time for easy comparison and analysis. To clear the active database, use the clear cable ipc-stats command in privileged EXEC mode. This command resets all the statistics in the active database to zero.

Configuration Example for the Cable IPC Statistics Collection Tool

The following example shows how to configure the Cable IPC Statistics Collection Tool on a Cisco CMTS router:

```
Router# configure terminal
Router(config)# cable ipc-stats
```

Additional References

The following sections provide references related to the Cable IPC Statistics Collection tool feature.

Related Documents

Related Topic	Document Title
Commands on the Cisco CMTS (universal broadband) routers	*Cisco IOS CMTS Cable Command Reference* http://www.cisco.com/en/US/docs/ios/cable/command/reference/cbl_book.html
IPC messages	*Cisco IOS CMTS Cable System Messages Guide* http://www.cisco.com/en/US/docs/cable/cmts/system/message/uberrmes.html

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for the Cable IPC Statistics Collection Tool

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://tools.cisco.com/ITDIT/CFN/. An account on http://www.cisco.com/ is not required.

Note The below table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 2: Feature Information for the Cable IPC Statistics Collection Tool

Feature Name	Releases	Feature Information
Cable IPC Statistics Collection tool	12.2(33)SCC	The Cable IPC Statistics Collection tool provides debugging information about all IPC messages. The following sections provide information about this feature: The following commands were introduced: • **cable ipc-stats** • **clear cable ipc-stats** • **show cable ipc-stats**