



Cable Commands: show I through show z

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show lacp

To display Link Aggregation Control Protocol (LACP) information, use the **show lacp** command in either user EXEC or privileged EXEC mode.

```
show lacp {channel-group-number {counters | internal [detail] | neighbor [detail] | sys-id}}
```

Syntax Description	
<i>channel-group-number</i>	Number of the channel group. The range is from 1 to 128.
counters	Displays information about the LACP traffic statistics.
internal	Displays LACP internal information.
neighbor	Displays information about the LACP neighbor.
detail	(Optional) Displays detailed internal information when used with the internal keyword and detailed LACP neighbor information when used with the neighbor keyword.
sys-id	Displays the LACP system identification. It is a combination of the port priority and the MAC address of the device

Command Modes User EXEC (>) Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS 12.2(33)SCJ	This command was introduced.

Usage Guidelines Use the **show lacp** command to troubleshoot problems related to LACP in a network.

If you do not specify a value for the argument *channel-group-number*, all channel groups are displayed.

show lacp sys-id Example

This example shows how to display the LACP system identification using the **show lacp sys-id** command:

```
Device> show lacp sys-id
```

```
8000,AC-12-34-56-78-90
```

The system identification is made up of the system priority and the system MAC address. The first two bytes are the system priority, and the last six bytes are the globally administered individual MAC address that is associated to the system.

LACP Statistics for a Specific Channel Group Examples

This example shows how to display the LACP statistics for a specific channel group:

```
Device# show lacp 1 counters
```

```

          LACPDU      Marker      LACPDU
Port      Sent   Recv      Sent   Recv      Pkts  Err
-----
Channel group: 1
Fa4/1      8     15         0     0         3     0
Fa4/2     14     18         0     0         3     0
Fa4/3     14     18         0     0         0
Fa4/4     13     18         0     0         0

```

The output displays the following information:

- The LACPDU Sent and Recv columns display the LACPDU that are sent and received on each specific interface.
- The LACPDU Pkts and Err columns display the marker-protocol packets.

The following example shows output from a **show lacp channel-group-number counters** command:

```
Device1# show lacp 5 counters
```

```

          LACPDU      Marker      Marker Response      LACPDU
Port      Sent   Recv      Sent   Recv      Sent   Recv      Pkts  Err
-----
Channel group: 5
Gi5/0/0   21    18         0     0         0     0         0

```

The following table describes the significant fields shown in the display.

Table 1: show lacp channel-group-number counters Field Descriptions

Field	Description
LACPDU Sent Recv	Number of LACP PDU sent and received.
Marker Sent Recv	Attempts to avoid data loss when a member link is removed from an LACP bundle.
Marker Response Sent Recv	Cisco IOS response to the Marker protocol.
LACPDU Pkts Err	Number of LACP PDU packets transmitted and the number of packet errors.

The following example shows output from a **show lacp internal** command:

```
Device1# show lacp 5 internal
```

```

Flags:  S - Device is requesting Slow LACPDU
        F - Device is requesting Fast LACPDU
        A - Device is in Active mode           P - Device is in Passive mode
Channel group 5

Port      Flags  State      LACP port  Admin  Oper  Port      Port
Gi5/0/0   SA     bndl      32768     0x5    0x5    0x42     0x3D

```

The following table describes the significant fields shown in the display.

Table 2: show lacp internal Field Descriptions

Field	Description
Flags	Meanings of each flag value, which indicates a device activity.
Port	Port on which link bundling is configured.
Flags	Indicators of device activity.
State	Activity state of the port. States can be any of the following: <ul style="list-style-type: none"> • Bndl--Port is attached to an aggregator and bundled with other ports. • Susp--Port is in suspended state, so it is not attached to any aggregator. • Indep--Port is in independent state (not bundled but able to switch data traffic). This condition differs from the previous state because in this case LACP is not running on the partner port. • Hot-sby--Port is in hot standby state. • Down--Port is down.
LACP port Priority	Priority assigned to the port.
Admin Key	Defines the ability of a port to aggregate with other ports.
Oper Key	Determines the aggregation capability of the link.
Port Number	Number of the port.
Port State	State variables for the port that are encoded as individual bits within a single octet with the following meaning: <ul style="list-style-type: none"> • bit0: LACP_Activity • bit1: LACP_Timeout • bit2: Aggregation • bit3: Synchronization • bit4: Collecting • bit5: Distributing • bit6: Defaulted • bit7: Expired

Internal Information About a Specific Channel Group Example

This example shows how to display internal information for the interfaces that belong to a specific channel:

```
Device# show lacp 1 internal
```

```
Flags: S - Device sends PDUs at slow rate. F - Device sends PDUs at fast rate.
       A - Device is in Active mode.           P - Device is in Passive mode.
Channel group 1
```

Port	Flags	State	LACPDU Interval	LACP Port Priority	Admin Key	Oper Key	Port Number	Port State
Fa4/1	saC	bndl	30s	32768	100	100	0xc1	0x75
Fa4/2	saC	bndl	30s	32768	100	100	0xc2	0x75
Fa4/3	saC	bndl	30s	32768	100	100	0xc3	0x75
Fa4/4	saC	bndl	30s	32768	100	100	0xc4	0x75

```
Device#
```

The following table describes the significant fields shown in the display.

Table 3: show lacp internal Field Descriptions

Field	Description
State	Current state of the port; allowed values are as follows: <ul style="list-style-type: none"> • bndl--Port is attached to an aggregator and bundled with other ports. • susp--Port is in a suspended state; it is not attached to any aggregator. • indep--Port is in an independent state (not bundled but able to switch data traffic. In this case, LACP is not running on the partner port). • hot-sby--Port is in a hot-standby state. • down--Port is down.
LACPDU Interval	Interval setting.
LACP Port Priority	Port-priority setting.
Admin Key	Defines the ability of a port to aggregate with other ports.
Oper Key	Determines the aggregation capability of the link.
Port Number	Port number.
Port State	Activity state of the port. <ul style="list-style-type: none"> • See the Port State description in the show lacp internal Field Descriptions table for state variables.

Information About LACP Neighbors for a Specific Port Example

This example shows how to display the information about the LACP neighbors for a specific port channel:

```
Device# show lacp 1 neighbors
```

```
Flags: S - Device sends PDUs at slow rate. F - Device sends PDUs at fast rate.
       A - Device is in Active mode.           P - Device is in Passive mode.
```

```

Channel group 1 neighbors
      Partner
Port   System ID          Partner      Age      Flags
Fa4/1  8000,00b0.c23e.d84e   0x81        29s     P
Fa4/2  8000,00b0.c23e.d84e   0x82        0s      P
Fa4/3  8000,00b0.c23e.d84e   0x83        0s      P
Fa4/4  8000,00b0.c23e.d84e   0x84        0s      P
      Port      Admin  Oper      Port
      Priority  Key    Key      State
Fa4/1  32768  200    200      0x81
Fa4/2  32768  200    200      0x81
Fa4/3  32768  200    200      0x81
Fa4/4  32768  200    200      0x81
Device#

```

The following table describes the significant fields shown in the display.

Table 4: show lacp neighbors Field Descriptions

Field	Description
Port	Port on which link bundling is configured.
Partner System ID	Peer's LACP system identification (sys-id). It is a combination of the system priority and the MAC address of the peer device.
Partner Port Number	Port number on the peer device
Age	Number of seconds since the last LACP PDU was received on the port.
Flags	Indicators of device activity.
Port Priority	Port priority setting.
Admin Key	Defines the ability of a port to aggregate with other ports.
Oper Key	Determines the aggregation capability of the link.
Port State	Activity state of the port. See the Port State description in the show lacp internal Field Descriptions table for state variables.

If no PDUs have been received, the default administrative information is displayed in braces.

Related Commands

Command	Description
clear lacp counters	Clears the statistics for all interfaces belonging to a specific channel group.
lacp port-priority	Sets the priority for the physical interfaces.
lacp system-priority	Sets the priority of the system.

show lcha logging

To display the information about the cable line card switchover event and state logs, use **show lcha logging** command in privileged EXEC mode.

```
show lcha logging level { error [ { sort using { { slot slot number } | {transaction transaction number } } ] } | {info [ { sort using { { slot slot number } | {transaction transaction number } } ] } | {noise [ { sort using { { slot slot number } | {transaction transaction number } } ] } | {notice [ { sort using { { slot slot number } | {transaction transaction number } } ] } | {warning [ { sort using { { slot slot number } | {transaction transaction number } } ] } ] }
```

Syntax Description

error	Displays all error logs.
sort using	Sorts the records.
slot slot number	The line card slot number. Valid range is from 0 to 13.
transaction transaction number	The line card transaction number. Valid range is from 0 to 65535.
info	Displays information, notice, warning and error logs.
noise	Displays noise and other related error logs.
notice	Displays notice and other related error logs.
warning	Displays all warning and error logs.

Command Default

None.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE Release 3.16.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Examples

The following example shows how to display the cable modem line card logs.

```
Router# show lcha logging level noise
11:02:03.313 CST Tue Nov 18 2014 [error] [slot=3] [txn=229] Peer-Up Message [tag=1011]
to slot 3 complete [36144 ms]; status=nak response
11:02:03.313 CST Tue Nov 18 2014 [error] [slot=0] [txn=229] Slot 0 downloaded
configuration for slot 3; result=peer-up notification failed
11:02:03.316 CST Tue Nov 18 2014 [noise] [slot=0] [txn=none]
lcha_plfm_get_max_port_count_for_slot: slot 0 maximum port count is 1794
11:02:03.316 CST Tue Nov 18 2014 [noise] [slot=0] [txn=none]
lcha_plfm_get_starting_port_index: slot 0 starting port count is 0
11:02:03.331 CST Tue Nov 18 2014 [note] [slot=0] [txn=none] Slot 0 is being reset
11:02:04.352 CST Tue Nov 18 2014 [note] [slot=0] [txn=none] slot 0 removed
```

Related Commands

Command	Description
show lcha rfsw	Displays the internal RF switch PIC state information.

show lcha rfs

To display the internal RF switch PIC state information, use **show lcha rfs** command in privileged Exec mode.

show lcha rfs

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Privileged Exec (#)

Release	Modification
IOS-XE Release 3.16.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Examples

The following example shows how to display the internal RF switch PIC state information:

```
Router# show lcha rfs
Slot 0 =====
Type : Secondary PIC State: normal
Slot 1 =====
Type : Primary PIC State: normal
```

Command	Description
show lcha logging	Displays information about the cable line card switchover event and state logs.

show license summary

To display the 10G and 100G WAN license information summary.

show license summary

Syntax Description This command has no arguments or keywords.

Command Default Disabled

Command Modes Privileged EXEC (#)

Release	Modification
IOS-XE 16.8.1	This command was introduced.

The command displays the following information, depending on the **cable license 100G-conversion** configuration.

- With the **cable license 100G-conversion**, the **show license summary** would display:

```
Router(config)# show license summary
-----
Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: CBR8_DEV_1
  Virtual Account: cbr8-dev-test
  Export-Controlled Functionality: Allowed
  Last Renewal Attempt: None
  Next Renewal Attempt: Jun 13 00:47:13 2018 CST

License Authorization:
  Status: AUTHORIZED
  Last Communication Attempt: SUCCEEDED
  Next Communication Attempt: Jan 14 11:25:01 2018 CST

License Usage:
  License                               Entitlement tag                Count Status
  -----
  regid.2014-11.com.ci... (WAN_License)                20 AUTHORIZED
```

- With the **no cable license 100G-conversion**, the **show license summary** would display:

```
Router(config)# show license summary
-----
Smart Licensing is ENABLED

Registration:
  Status: REGISTERED
  Smart Account: CBR8_DEV_1
  Virtual Account: cbr8-dev-test
  Export-Controlled Functionality: Allowed
  Last Renewal Attempt: None
  Next Renewal Attempt: Jun 13 00:47:13 2018 CST
```

show license summary

License Authorization:
Status: AUTHORIZED
Last Communication Attempt: SUCCEEDED
Next Communication Attempt: Jan 14 11:34:13 2018 CST

License Usage:

License	Entitlement tag	Count	Status
regid.2017-09.com.ci...	(WAN_100G_License)	2	AUTHORIZED

show logging onboard

To view the OBFL logging information, use the **show logging onboard** command in privileged EXEC mode. To clear the OBFL logging information, use the **clear logging onboard** command.

show logging onboard {slot|module|bay} {slotnumbersubslotnumbermodulenumbers} {dram|message|serdes|status|temperature|uptime|voltage|firmware}

clear logging onboard {slot|module|bay} {slotnumbersubslotnumbermodulenumbers} {dram|message|serdes|status|temperature|uptime|voltage|firmware}

Syntax Description

<i>slotnumber</i>	Displays the slot information.
<i>subslotnumber</i>	Displays the sub slot information.
<i>modulenumbers</i>	Displays the module information.
dram	Displays slot information.
message	Displays or clears the DRAM ECC error log.
serdes	Displays or clears the onboard serdes log.
status	Displays whether onboard logging is enabled or disabled.
uptime	Displays information such as the time when you powered on the card, the number of times the card was reset, the number of times you moved a card from one slot to another, the reason why a card was reset, the current slot in which you installed the card, and the last time when you powered on the card.
temperature	Displays the onboard temperature information.
voltage	Displays the onboard voltage information.
firmware	Displays firmware versions of slot cards such as SUP and LC and PIC cards such as SUP-PIC, RF-PIC, D-PIC and so on.

Command Default

None.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 16.8.1	The firmware keyword was added. Using the uptime keyword, you can view additional information such as: <ul style="list-style-type: none"> • the time when you powered on the card • the number of times the card was reset • the number of times you moved a card from one slot to another • the reason why a card was reset • the current slot in which you installed the card • the last time when you powered on the card
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

Use **show logging onboard slot *slot* message** to check OBFL messages. Use this command to identify the hardware or software-related failures.

Examples

The following is a sample output of the **show logging onboard slot *slot* message** command:

```
Router# show logging onboard slot 8 message
timestamp message
```

```
03/09/15 18:35:29 US-PHY 1 SN Unknown Mg0 TGC-verify not sampled at frame-sync
pulse 0x4a900046, 520 times
03/09/15 18:35:29 US-PHY 1 SN Unknown Mg1 TGC-verify not sampled at frame-sync
pulse 0x4a900046, 520 times
03/09/15 18:35:29 US-PHY 1 SN Unknown Mg3 TGC-verify not sampled at frame-sync
pulse 0x4a900046, 520 times
03/09/15 18:35:29 US-PHY 1 SN Unknown Mg2 TGC-verify not sampled at frame-sync
pulse 0x4a900046, 520 times
03/09/15 18:41:59 US-PHY 1 SN Unknown Mg2 TGC-verify not sampled at frame-sync
pulse 0x389a0047, 540 times
03/09/15 18:41:59 US-PHY 1 SN Unknown Mg1 TGC-verify not sampled at frame-sync
pulse 0x389a0047, 540 times
```

The following is a sample output of the **show logging onboard slot *slot* voltage** command:

```
Router#show logging onboard slot R1 voltage
```

```
Name          Id      Data (mV)  Poll  Last Update
-----
PSOC-MB2_20: VO  40      1791      1      01/01/12 17:03:03
PSOC-MB2_21: VO  41      3290      1      01/01/12 17:03:03
PSOC-MB2_22: VO  42      3293      1      01/01/12 17:03:03
PSOC-MB2_23: VO  43      3299      1      01/01/12 17:03:03
PSOC-MB2_24: VO  44      4958      1      01/01/12 17:03:03
PSOC-MB2_25: VO  45      4508      1      01/01/12 17:03:03
PSOC-MB3_0: VOU  46      4999      1      01/01/12 17:03:03
PSOC-MB3_1: VOU  47      4982      1      01/01/12 17:03:03
PSOC-MB3_2: VOU  48      1499      1      01/01/12 17:03:03
PSOC-MB3_3: VOU  49      1193      1      01/01/12 17:03:03
PSOC-MB3_4: VOU  50      708       1      01/01/12 17:03:03
```

```

PSOC-MB3_5: VOU 51          757 1          01/01/12 17:03:03
PSOC-MB3_6: VOU 52          585 1          01/01/12 17:03:03
PSOC-MB3_7: VOU 53          1501 1         01/01/12 17:03:03

```

The following is a sample output of the **show logging onboard slot slot temperature** command:

```

Router#show logging onboard slot R1 temperature
Name          Id      Data (C)  Poll    Last Update
-----
Temp: BB_DIE  159     25 1       01/02/12 23:04:19
Temp: VP_DIE  160     21 1       01/02/12 23:04:19
Temp: RT-E_DIE 161     29 1       01/02/12 23:04:19
Temp: INLET_1  162     20 1       01/02/12 23:04:19
Temp: INLET_2  163     18 1       01/02/12 23:04:19
Temp: OUTLET_1 164     22 1       01/02/12 23:04:19
Temp: 3882_1   165     44 1       01/02/12 23:04:19
Temp: 3882_1A  166     38 1       01/02/12 23:04:19
Temp: 3882_1B  167     36 1       01/02/12 23:04:19
Temp: 3882_2   168     38 1       01/02/12 23:04:19
Temp: 3882_2A  169     37 1       01/02/12 23:04:19
Temp: 3882_2B  170     35 1       01/02/12 23:04:19
Temp: 3882_3   171     38 1       01/02/12 23:04:19

```

The following is a sample output of the **show logging onboard slot slot uptime latest** command:

```

Router#show logging onboard slot R1 uptime latest
Slot          Reset reason  Power On
-----
1             reset local software 01/02/12 23:02:46

```

The following is a sample output of the **show logging onboard slot slot uptime** command:

```

Router#show logging onboard slot R1 uptime
Slot          Reset reason  Power On
-----
0             reset local software 01/06/12 01:52:26
4             reset local software 01/06/12 01:52:42
0             reset local software 01/06/12 01:52:45
0             reset local software 01/06/12 02:20:27
4             reset local software 01/06/12 02:20:43
0             reset local software 01/06/12 02:20:46
0             reset local software 01/06/12 05:12:02
4             reset local software 01/06/12 05:12:19
0             reset local software 01/06/12 05:12:22
0             reset local software 01/06/12 05:17:31
4             reset local software 01/06/12 05:17:48
0             reset local software 01/06/12 05:17:51
0             reset power on      01/01/12 08:56:44
4             reset power on      01/01/12 08:57:00

```

The following is a sample output of the **show logging onboard slot slot firmware** command:

```

Router# show logging onboard slot R0 firmware
slot          timestamp          firmware          version
-----
0             2018-01-16T00:00:00.000 09:36:38.000    CPLD              16052011
0             2018-01-16T00:00:00.000 09:36:38.000    ViperSO CPLD     14091201
0             2018-01-16T00:00:00.000 09:36:38.000    ViperSIO CPLD   14092901
0             2018-01-16T00:00:00.000 09:36:39.000    Rommon           16.6(1r)S
0             2018-01-16T00:00:00.000 09:36:39.000    SUP-DC CPLD     ffffffff
0             2018-01-16T00:00:00.000 09:36:39.000    SUP PSOC        v4.1.0_i2c1
0             2018-01-16T00:00:00.000 09:36:39.000    SUP PSOC 1      v4.0.8_i2c1
0             2018-01-16T00:00:00.000 09:36:39.000    SUP PSOC 2      v4.1.1_IVB"
0             2018-01-16T00:00:00.000 09:36:39.000    SUP PSOC 3      v4.0.6_i2c1
0             2018-01-16T00:00:00.000 09:36:39.000    SUP-DC PSOC 0   N/A

```

show logging onboard

```

0          2018-01-16T00:00:00.000  09:36:39.000  SUP-DC PSOC 1  N/A
0          2018-01-16T00:00:00.000  09:36:39.000  SUP-PIC PSOC 0 V2.0.6
0          2018-01-16T00:00:00.000  09:36:39.000  SUP-PIC PSOC 1 V2.0.6
0          2018-01-16T00:00:00.000  09:36:39.000  Blackbird      00000112

```

The following is a sample output of the **show logging onboard slot *slot* firmware reverse** command:

```

Router# show logging onboard slot R0 firmware reverse
slot          timestamp          firmware          version
-----
0             01/16/18 09:38:12          Raptor ESI       0001003b
0             01/16/18 09:36:39          Blackbird        00000112
0             01/16/18 09:36:39          SUP-PIC PSOC 1   V2.0.6
0             01/16/18 09:36:39          SUP-PIC PSOC 0   V2.0.6
0             01/16/18 09:36:39          SUP-DC PSOC 1    N/A
0             01/16/18 09:36:39          SUP-DC PSOC 0    N/A
0             01/16/18 09:36:39          SUP PSOC 3       v4.0.6_i2c1
0             01/16/18 09:36:39          SUP PSOC 2       v4.1.1_IVB
0             01/16/18 09:36:39          SUP PSOC 1       v4.0.8_i2c1
0             01/16/18 09:36:39          SUP PSOC 0       v4.1.0_i2c1
0             01/16/18 09:36:39          SUP-DC CPLD      ffffffff
0             01/16/18 09:36:39          Rommon           16.6(1r)S
0             01/16/18 09:36:38          ViperSIO CPLD    14092901
0             01/16/18 09:36:38          ViperSO CPLD     14091201
0             01/16/18 09:36:38          CPLD             16052011

```

Examples

The following is a sample output of the **show logging onboard slot *slot* firmware backup** command:

```

Router#show logging onboard bay 4/4 firmware backup
slot timestamp          firmware          version
-----
4 01/16/18 09:40:20     SUP-PIC CPLD     14071504
4 01/16/18 09:40:20     DTI Client FPGA  00000005
4 01/16/18 09:40:20     DTI Firmware     00000a03
4 01/16/18 09:40:20     Raptor MAC       00010031
4 01/16/18 09:40:20     Cortina PHY      201402061607
...
4 01/17/18 08:38:22     SUP-PIC CPLD     14071504
4 01/17/18 08:38:22     DTI Client FPGA  00000005
4 01/17/18 08:38:22     DTI Firmware     00000a03

```

The following is a sample output of the **show logging onboard slot *slot* backup reverse** command:

```

Router# show logging onboard bay 4/4 firmware backup reverse
slot timestamp          firmware          version
-----
4 01/17/18 08:38:22     Cortina PHY      201402061607
4 01/17/18 08:38:22     Raptor MAC       00010031
4 01/17/18 08:38:22     DTI Firmware     00000a03
4 01/17/18 08:38:22     DTI Client FPGA  00000005
4 01/17/18 08:38:22     SUP-PIC CPLD     14071504
4 01/16/18 09:40:20     Cortina PHY      201402061607
4 01/16/18 09:40:20     Raptor MAC       00010031
4 01/16/18 09:40:20     DTI Firmware     00000a03
4 01/16/18 09:40:20     DTI Client FPGA  00000005
4 01/16/18 09:40:20     SUP-PIC CPLD     14071504

```

show nls

To display the Network Layer Signalling (NLS) functionality state, use the **show nls** command in privileged EXEC mode.

show nls[ag-id | flow]

Command Default

Information for the NLS state is displayed.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(21a)BC3	This command was introduced.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Examples

The following example shows the output of the **show nls** command:

```
Router# show nls
NLS enabled
NLS Authentication enabled
NLS resp-timeout 45
```

Examples

The following example shows the output of the **show nls ag-id** command:

```
Router# show nls ag-id
Auth Group Id
12345
```

The following example shows the output of the **show nls flow** command:

```
Router# show nls flow
NLS flowid CPE IP CR Type CR ID NLS State
4294967295 16.16.1.1 1 1 PEND_B_RESP
```

Examples for Cisco cBR Series Converged Broadband Router

This example shows the output of the **show nls** command:

```
Router# show nls
NLS Enabled
NLS Authentication Enabled
NLS resp-timeout 20
```

This example shows the output of the **show nls ag-id** command for the Cisco cBR Series Converged Broadband Router:

```
Router#show nls ag-id
Auth Group Id
100

Router#
```

This example shows the output of the **show nls flow** command for the Cisco cBR Series Converged Broadband Router:

```
Router# show nls flow
NLS flowid CPE IP CR Type CR ID NLS State
4294967295 16.16.1.1 1 1 PEND_B_RESP
```

Related Commands

Command	Description
cpd	Enables CPD.
nls	Enables NLS.

show nls ag-id

To display authorization group ID information, use the **show nls ag-id** command in privileged EXEC mode.

show nls ag-id

Command Default

Authorization group ID information is displayed. The authentication key is saved encrypted and is not displayed.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(21a)BC3	This command was introduced.

Examples

The following example shows the output of the **show nls-sg-id** command:

```
Router# show nls ag-id
Auth Group Id
12345
```

Related Commands

Command	Description
cpd	Enables CPD.

show nls flow

To display NLS active flow information, use the **show nls flow** command in privileged EXEC mode.

show nls flow

Command Default Information for NLS active flows are displayed.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.3(21a)BC3	This command was introduced.

Examples The following example shows the output of the show cpd command:

```
Router# show nls flow
NLS flowid CPE IP CR Type CR ID NLS State
4294967295 16.16.1.1 1 1 PEND_B_RESP
```

Related Commands	Command	Description
	cpd	Enables CPD.

show cable oudp-leak-detect

See the [OFDMA OUDP Leak Detection Configuration](#) section in the configuration guide for the EXEC, Global configuration, Configuration and Show commands.

To display information related to OUDP leakage detection test sessions, use the **show cable oudp-leak-detect** command.

```
show cable oudp-leak-detect { settings | test-sessions }
```

```
show cable oudp-leak-detect session-id OUDP parent test session id { detail | cm-stats }
```

```
show cable oudp-leak-detect { system-boot-holdoff | burst-profiles | schedules | rf-detector | docsis-clock slot CLC slot }
```

Syntax Description

settings	Displays the values of OUDP global configuration parameters and the CBR-8 capabilities (specifically the OSSI SupportsNumBurstsNotReceived—We support RxNoEnergy stat.)
test-sessions	Displays summary of the test session that includes parent/child IDs, start/stop times, interfaces, and status.
detail	Displays the parent or child test session details. Includes OSSI information pertaining to: <ul style="list-style-type: none"> • LeakageDetectionTestSessionStatus • LeakageDetectionTestChannelStatus
cm-stats	Displays the child test session CM stats for BurstGrants, BurstRx, BurstNoEnergyRx, and BytesRx. Includes OSSI information pertaining to: <ul style="list-style-type: none"> • LeakageDetectionTestSessionStats All child session CM stats are displayed when the parent session-id is entered.
system-boot-holdoff	Time delay during system boot to allow OFDMA channels to reach up state and CMs to reach online. After this holdoff time expires, OUDP test sessions will begin.
burst-profiles	Displays persistent OUDP burst profiles configured in NVRAM (startup-config).
schedules	Displays persistent OUDP schedules configured in NVRAM (startup-config).
rf-detector	Displays currently available OFDMA channels and frequencies in the system. Useful for identifying OFDMA channel participation for a given OUDP frequency range.
docsis-clock slot <i>CLC slot</i>	Displays the timing reference information of the SUP and selected CLC slot.

Command Modes

Privileged EXEC (#)

Release	Modification
17.6.1z	This command was introduced.

show packetcable cms

To display all gate controllers that are connected to the PacketCable client, use the **show packetcable cms** command in privileged EXEC mode.

show packetcable cms [**all** | **verbose**]

Syntax Description	all	(Optional) Specifies all gate controllers including the Common Open Policy Service (COPS) servers for which the PacketCable connection is gone down.
	<i>verbose</i>	(Optional) Provides detailed output with statistics for all gate controllers that are connected to the PacketCable client.

Command Default All gate controllers currently connected to the PacketCable client are displayed.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS Release 12.2(33)SCF	This command was introduced.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Usage Guidelines The **show packetcable cms** command displays various PacketCable counters including message exchanges and error frequency details to help detect any PacketCable errors. This command output can be periodically monitored to validate the overall health of a PacketCable solution.

In normal circumstances, the output of the **show packetcable cms all** command is not different from the output of the **show packetcable cms** command (default form of the command). However, the **show packetcable cms** command with the **all** keyword is used to capture all COPS servers including the servers for which the PacketCable connection is gone down.

Examples

The following is a sample output of the **show packetcable cms** command that shows all gate controllers that are currently connected to the PacketCable client in Cisco IOS Release 12.2(33)SCF:

```
Router# show packetcable cms
GC-Addr      GC-Port  Client-Addr  COPS-handle  Version  PSID  Key  PDD-Cfg
1.100.30.2   47236    2.39.34.1    0x2FF9E268/1  4.0     0     0     0
2.39.26.19   55390    2.39.34.1    0x2FF9D890/1  1.0     0     0     2
```

The following is a sample output of the **show packetcable cms** command with the **all** keyword in Cisco IOS Release 12.2(33)SCF:

```
Router# show packetcable cms all
GC-Addr      GC-Port  Client-Addr  COPS-handle  Version  PSID  Key  PDD-Cfg
1.100.30.2   47236    2.39.34.1    0x2FF9E268/1  4.0     0     0     0
2.39.26.19   55390    2.39.34.1    0x2FF9D890/1  1.0     0     0     2
1.10.30.22   42307    2.39.34.1    0x0          /0       4.0     0     0     0
```

The following is a sample output of the **show packetcable cms** command with the **verbose** keyword. This output provides additional information with statistics for all gate controllers that are connected to the PacketCable client.

```
Router# show packetcable cms verbose
Gate Controller
  Addr       : 1.100.30.2
  Port       : 47236
  Client Addr : 2.39.34.1
  COPS Handle : 0x2FF9E268
  Version    : 4.0
  Statistics :
    gate del = 0 gate del ack = 0 gate del err = 0
    gate info = 0 gate info ack = 0 gate info err = 0
    gate open = 0 gate report state = 0
    gate set = 0 gate set ack = 0 gate set err = 0
    gate alloc = 0 gate alloc ack = 0 gate alloc err = 0
    gate close = 0
Gate Controller
  Addr       : 2.39.26.19
  Port       : 55390
  Client Addr : 2.39.34.1
  COPS Handle : 0x2FF9D890
  Version    : 1.0
  Statistics :
    gate del = 0 gate del ack = 0 gate del err = 0
    gate info = 0 gate info ack = 0 gate info err = 0
    gate open = 0 gate report state = 0
    gate set = 2 gate set ack = 2 gate set err = 0
  PCMM Timers Expired
  Timer T1 = 0 Timer T2 = 0 Timer T3 = 0 Timer T4 = 0
GC-Addr      GC-Port  Client-Addr  COPS-handle  Version  PSID  Key  PDD-Cfg
1.100.30.2   47236     2.39.34.1   0x2FF9E268/1  4.0     0     0     0
2.39.26.19   55390     2.39.34.1   0x2FF9D890/1  1.0     0     0     2
```

Table below describes the significant fields shown in the **show packetcable cms** command display.

Table 5: show packetcable cms Field Descriptions

Field	Description
GC-Addr	Gate controller IP address.
GC-Port	Port number of the gate controller.
Client-Addr	PacketCable client IP address.
COPS-handle	Unique value to identify a Common Open Policy Service (COPS) connection.
PSID	Policy server ID.

Examples for Cisco cBR Series Converged Broadband Router

This example shows the output of the **show packetcable cms** command with the **all** keyword:

```
Router#show packetcable cms all
GC-Addr      GC-Port  Client-Addr  COPS-handle  Version  PSID  Key  PDD-Cfg
```

```

1.100.30.2      45140    2.39.23.23    0x7F07E87170D0/1  4.0    0    0    0
1.100.30.2      45143    2.38.40.14    0x7F07E8717000/1  4.0    0    0    0
2.39.26.19      34934    2.39.23.23    0x7F079F594380/1  4.0    0    0    0
2.39.23.117     44902    2.38.40.14    0x7F079F594318/1  4.0    0    0    2

```

This example shows the output of the **show packetcable cms** command with the **verbose** keyword:

```

Router#show packetcable cms verbose
Gate Controller
  Addr       : 1.100.30.2
  Port       : 50406
  Client Addr : 2.38.40.14
  COPS Handle : 0x7FD926EEAC08
  Version    : 4.0
  Statistics  :
    gate del = 0 gate del ack = 0 gate del err = 0
    gate info = 0 gate info ack = 0 gate info err = 0
    gate open = 0 gate report state = 0
    gate set = 0 gate set ack = 0 gate set err = 0
    gate alloc = 0 gate alloc ack = 0 gate alloc err = 0
    gate close = 0

Gate Controller
  Addr       : 1.100.30.2
  Port       : 50408
  Client Addr : 2.39.23.23
  COPS Handle : 0x7FD926EEABA0
  Version    : 4.0
  Statistics  :
    gate del = 4 gate del ack = 0 gate del err = 4
    gate info = 0 gate info ack = 0 gate info err = 0
    gate open = 0 gate report state = 0
    gate set = 0 gate set ack = 0 gate set err = 0
    gate alloc = 0 gate alloc ack = 0 gate alloc err = 0
    gate close = 0

Gate Controller
  Addr       : 2.39.23.117
  Port       : 50874
  Client Addr : 2.38.40.14
  COPS Handle : 0x7FD92801E148
  Version    : 4.0
  Statistics  :
    gate del = 0 gate del ack = 0 gate del err = 0
    gate info = 0 gate info ack = 0 gate info err = 0
    gate open = 0 gate report state = 0
    gate set = 6 gate set ack = 0 gate set err = 6
    gate error statistics:
      Invalid subscriber = 6
    PCMM Timers Expired
    Timer T1 = 0 Timer T2 = 0 Timer T3 = 0 Timer T4 = 0

Gate Controller
  Addr       : 2.39.26.19
  Port       : 33525
  Client Addr : 2.39.23.23
  COPS Handle : 0x7FD92801DB30
  Version    : 4.0
  Statistics  :
    gate del = 0 gate del ack = 0 gate del err = 0
    gate info = 0 gate info ack = 0 gate info err = 0

```

```

gate open = 0  gate report state = 0
gate set = 0  gate set ack = 0  gate set err = 0
PCMM Timers Expired
Timer T1 = 0  Timer T2 = 0  Timer T3 = 0  Timer T4 = 0

```

Related Commands

Command	Description
cable dynamic-qos trace	Enables call trace functionality on the Cisco CMTS router for PacketCable or PacketCable Multimedia gates.
debug cable dynamic-qos subscriber	Enables debugging of the call trace functionality on the Cisco CMTS router for a particular subscriber.
debug cable dynamic-qos trace	Enables call trace debugging on the Cisco CMTS router for all the subscribers for whom call trace is configured.
show cable dynamic-qos trace	Displays the number of subscribers for whom call trace is configured on the Cisco CMTS router.

show packetcable event

To display information the PacketCable event message (EM) server, use the **show packetcable event** command in user EXEC or privileged EXEC mode.

show packetcable event {**df-group** | **radius-server** | **rks-group**}

Syntax Description	df-group	radius-server	rks-group
	Displays information about the Communications Assistance for Law Enforcement Act (CALEA) Delivery Function (DF) server groups that are configured on the router.	Displays information about the EM Remote Authentication Dial In User Service (RADIUS) servers that are configured on the router.	Displays information about the Record Keeping Server (RKS) groups that are configured on the router.

Command Modes

User EXEC, Privileged EXEC

Command History

Release	Modification
12.2(15)BC2	This command was introduced for the Cisco uBR7246VXR and Cisco uBR10012 universal broadband routers.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Usage Guidelines

This command displays information about the authentication, authorization, and accounting (AAA) servers that are configured on the Cisco CMTS router for PacketCable operations. These include DF servers (used for CALEA redirection of event messages and traffic), RADIUS servers (used for authentication), and RKS servers (used for billing).

Examples

The following example shows typical output for the **show packetcable event df-group** command, which shows the IP address and UDP port of the DF server to which event messages are being forwarded for CALEA electronic surveillance.

```
Router# show packetcable event df-group
CDC-address      CDC-port
1.9.62.12        1816
Router#
```

The following example shows a typical display for the **show packetcable event radius-server** command, which shows the IP address for each RADIUS server that is configured on the router for PacketCable operations, along with the UDP port number that it is using.

```
Router# show packetcable event radius-server
\
Server-address  Port
10.9.62.12     1816
10.9.62.20     1813
```

```
10.9.62.12    1813
Router#
```

The following example shows a typical display for the **show packetcable event rks-group** command.

```
Router# show packetcable event rks-group
Pri-addr      Pri-port  Sec-addr      Sec-port  Ref-cnt  Batch-cnt
1.9.62.12     1813     1.9.62.20    1813     2        0
Router#
```

Table below describes the major fields shown in the **show packetcable event rks-group** display.

Table 6: show packetcable event rks-group Field Display

Field	Description
Pri-addr	IP address for the primary RKS server.
Pri-port	UDP port for the primary RKS server.
Sec-addr	IP address for the secondary RKS server.
Sec-port	UDP port for the secondary RKS server.
Ref-cnt	Number of times that the router send single event messages to the RKS server.
Batch-cnt	Number of times that the router sent batch messages (multiple Event Messages within a single RADIUS message) to the RKS server.



Tip For complete information about PacketCable event messaging, see the *PacketCable Event Messages Specification*, which is available at the PacketCable Event Messages Specification PacketCable web site at the following URL : <http://www.packetcable.com>

Examples for Cisco cBR Series Converged Broadband Router

This example shows the output of the **show packetcable event** command:

```
Router# show packetcable event df-group
CDC-address    CDC-port
1.9.62.12     1816
Router#
```

```
Router# show packetcable event radius-server
Server-address Port
10.9.62.12     1816
10.9.62.20     1813
10.9.62.12     1813
Router#
```

```

Router# show packetcable event rks-group
Pri-addr      Pri-port  Sec-addr      Sec-port  Ref-cnt  Batch-cnt
1.9.62.12     1813     1.9.62.20     1813     2        0
Router#

```

Related Commands

Command	Description
clear packetcable gate counter commit	Resets the counters that track the total number of committed gates.
packetcable	Enables PacketCable operations on the Cisco CMTS.
show packetcable gate counter commit	Displays the total number of committed gates since system reset or since the counter was last cleared.
show packetcable global	Displays the current PacketCable configuration.

show packetcable gate

To display information about one or more gates in the gate database, use the **show packetcable gate** command in user EXEC or privileged EXEC mode.

show packetcable gate [**downstream** | **upstream**] {**summary***gate-id*}

show packetcable gate [**downstream** | **upstream** | **dqos** | **ipv6** | **multimedia**] {**summary***gate-id*}

Syntax Description	
downstream	(Optional) Display information only for gates in the downstream direction.
upstream	(Optional) Display information only for gates in the upstream direction.
summary	Display a summary containing the gate ID, subscriber ID, subscriber IP address, and current state information.
<i>gate-id</i>	Display information for a specific gate ID. The valid range is 0 to 4294967295.

Command Default Displays information about gates on both upstreams and downstreams, if **upstream** or **downstream** is not specified.

Command Modes User EXEC, Privileged EXEC

Command History	Release	Modification
	12.2(8)BC2	This command was introduced for the Cisco uBR7200 series universal broadband router.
	12.2(11)BC3	The output for the summary option was enhanced to display the cable interface and service flow IDs (SFIDs) associated with each PacketCable gate.
	12.2(15)BC1	Support was added for the Cisco uBR10012 router.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Usage Guidelines This command displays information about one or more gates in the gate database on the Cisco CMTS. You can display a summary for all currently active gates, for all downstream or all upstream gates, or you can display detailed information about a specific gate.

Examples The following example shows typical output for the **show packetcable gate summary** command, which displays all current gates on the CMTS:

```
Router# show packetcable gate summary
GateID   Slot SubscriberID  GC-Addr      State  SFID   SFID
          (us)          (ds)
-----
2566     2/0  3.18.1.4         172.22.87.45 COMMIT  9      10
18950    2/0  3.18.1.5         172.22.87.45 COMMIT  7      8
Total number of gates = 2
Total Gates committed(since bootup or clear counter) = 2
```

The following example shows a typical display for a specific gate. Both downstream and upstream gates are shown unless you also specify either the **downstream** or **upstream** option.

```
Router# show packetcable gate 196

GateID                : 196
Subscriber ID         : 4.4.1.22
GC Address            : 192.168.80.15
State                 : COMMITTED
Gate specs [UPSTREAM]
  Gate classifier     : [protocol 17,
                        src addr/port 4.4.1.22/0,
                        dest addr/port 3.3.1.3/3456
  diffserv dscp      : 0x6000000
  timer t1(ms)       : 180000
  timer t2(ms)       : 2000
  commit flags       : 0x0
  session class      : 0x1
  flowspec # 1       : [r/b/p/m/M 1176256512/1128792064/1176256512/200/200]
                        [R/S: 1176256512/0]
Gate specs [DOWNSTREAM]
  Gate classifier     : [protocol 17,
                        src addr/port 3.3.1.3/0,
                        dest addr/port 4.4.1.22/0
  diffserv dscp      : 0x9000000
  timer t1(ms)       : 180000
  timer t2(ms)       : 2000
  commit flags       : 0x0
  session class      : 0x1
  flowspec # 1       : [r/b/p/m/M 1176256512/1128792064/1176256512/200/200]
                        [R/S: 1176256512/0]
Remote Gate
  address/port        : 172.22.79.22/1812
  gate coord flag    : 2
  algo                : 100
  security key[16]   : 30 31 32 33 34 35 36 37 38 39 30 31 32 33 34 35
Billing Info
  primary RKS         : [addr/port 1.9.62.12/1813]
  secondary RKS       : [addr/port 255.255.255.255/65535]
  flags               : 0
  billing corr ID     : [3D 38 96 CC 20 20 20 20 31 30 20 30 00 00 00 41 ]
```

Table below describes the major fields shown in the **show packetcable gate** display.

Table 7: show packetcable gate Field Display

Field	Description
GateID	Unique number identifying the local gate.
Slot	Cable interface on the Cisco CMTS.
Subscriber ID	IP address for the subscriber for this service request.
GC-Addr	IP address for the gate controller that is responsible for this gate.

Field	Description
State	<p>Describes the current state of the gate in both the upstream and downstream directions. The possible state values are:</p> <ul style="list-style-type: none"> • ALLOC = The CMTS has received a Gate-Alloc command from the gate controller and has created the gate in response. The CMTS must now wait for the request to be authorized. • AUTH = The CMTS has received a Gate-Set command from the gate controller that authorizes the resources needed for the gate request. The CMTS must now wait for the actual resources to be reserved. • RSVD = All required resources for the gate have been reserved. • COMMIT = All resources have been committed at both the local CMTS and remote CMTS. The local CMTS has also received a commit notification from the local MTA and has finished all gate coordination with the remote end. The gate can now pass traffic. • INVLD = The gate is invalid, typically because of an error condition or lack of resources. The CMTS will eventually delete the gate. • UNKWN = The gate is an unknown state.
SFID (us)	SFID for the upstream associated with this PacketCable gate.
SFID (ds)	SFID for the downstream associated with this PacketCable gate.
Total number of gates	Displays the total number of gates that are currently allocated, authorized, reserved, or committed.
Total Gates committed	Displays the total number of gates that the CMTS has committed since the CMTS was last reset or since the counters were last cleared.



Tip For complete information about the State field, see section 5.4, Gate Control Protocol Operation, in the *PacketCable Dynamic Quality-of-Service Specification* (PKT-SP-DQOS-I03-020116).

Examples for Cisco cBR Series Converged Broadband Router

This example shows the output of the **show packetcable gate** command:

```
Router#show packetcable gate summary
GateID      i/f          SubscriberID  GC-Addr      State   Type  SFID(us) SFID(ds)
16383      Ca3/0/1      45.45.0.145  2.39.23.117  COMMIT MM    815

Total number of gates = 1
Total Gates committed(since bootup or clear counter) = 1
```

This example shows the output of the **show packetcable gate** command for a specific gate ID:

```
Router#show packetcable gate 16383
GateID : 16383
Subscriber ID : 192.0.2.199
```

```

COPS connection :
server handle : 0x7F76F046D988
server address : 1.100.30.2
server port : 57437
client address : 2.39.23.23
State : COMMIT
CALEA Version : -
Gate specs [UPSTREAM]
Gate classifier : protocol 17,
src addr/port 192.0.2.199/0,
dest addr/port 192.0.2.208/53456
diffserv dscp : 0xC0
timer t1(s) : 200
timer t7(s) : 300
timer t8(s) : 10
commit flags : 0x0
session class : 0x1
flowspec # 1 : [r/b/p/m/M 10000/200/10000/200/200] [R/S: 10000/800]
Gate specs [DOWNSTREAM]
Gate classifier : protocol 17,
src addr/port 192.0.2.208/0,
dest addr/port 192.0.2.199/53456
diffserv dscp : 0xC0
timer t1(s) : 200
timer t7(s) : 300
timer t8(s) : 10
commit flags : 0x0
session class : 0x1
flowspec # 1 : [r/b/p/m/M 10000/200/10000/200/200] [R/S: 10000/0]

```

Related Commands

Command	Description
clear packetcable gate counter commit	Resets the counters that track the total number of committed gates.
packetcable	Enables PacketCable operations on the Cisco CMTS.
show packetcable gate counter commit	Displays the total number of committed gates since system reset or since the counter was last cleared.
show packetcable global	Displays the current PacketCable configuration.

show packetcable gate counter commit

To display the total number of gates that the CMTS has put into the COMMITTED state since the CMTS was last reset or since the counter was last cleared, use the **show packetcable gate counter commit** command in user EXEC or privileged EXEC mode.

show packetcable gate counter commit

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes User EXEC, Privileged EXEC

Release	Modification
12.2(8)BC2	This command was introduced for the Cisco uBR7200 series universal broadband router.
12.2(15)BC1	Support was added for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Usage Guidelines This command displays the total number of gates that have been committed since the Cisco uBR7200 series router was restarted or since the counter was last cleared with the **clear packetcable gate counter commit** command.



Note This command displays only the count of committed gates. It does not include gates that were allocated, authorized, and reserved but that were not put into the COMMITTED state.

Examples

The following example shows that 132 gates have been committed since the Cisco CMTS was last reset or since the counters were last cleared:

```
Router# show packetcable gate counter commit

Total Gates committed (since bootup or clear counter) = 132
Router#
```

Examples for Cisco cBR Series Converged Broadband Router

This example shows the output of the **show packetcable gate counter commit** command:

```
Router#show packetcable gate counter commit
Total gates committed(since bootup or clear counter) = 4
```

Related Commands

Command	Description
clear packetcable gate counter commit	Resets the counters that track the total number of committed gates.
packetcable	Enables PacketCable operations on the Cisco CMTS.
show packetcable gate	Displays information about one or more gates in the gate database.
show packetcable global	Displays the current PacketCable configuration.

show packetcable gate ipv6

To display information about one or more PacketCable gates associated with IPv6 subscriber IDs in the gate database, use the **show packetcable gate ipv6** command in privileged EXEC mode.

show packetcable gate ipv6 summary [**downstream** {*gate-id*|**ipv6 summary**}] [**upstream** {*gate-id*|**ipv6 summary**}]

Syntax Description

ipv6	Specifies IPv6 subscriber IDs.
summary	Displays a summary of gates containing the gate ID, subscriber ID, subscriber IPv6 address, and the state information.
downstream <i>gate-id</i>	(Optional) Displays information for the specified gate ID in the downstream direction. The valid range is from 0 to 4294967295.
upstream <i>gate-id</i>	(Optional) Displays information for the specified gate ID in the upstream direction. The valid range is from 0 to 4294967295.

Command Default

None

Command Modes

Privileged EXEC(#)

Command History

Release	Modification
12.2(33)SCE	This command was introduced.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Router.

Usage Guidelines

This command provides a summary of all active gates (downstream or upstream gates) for IPv6 subscribers.

Examples

The following is a sample output of the **show packetcable gateipv6** command that shows a **summary of all the active downstream and upstream gates for IPv6** subscribers on a Cisco CMTS router:

```
Router# show packetcable gate ipv6 summary
GateID      i/f                SubscriberID                State  SFID(us) SFID(ds)
13582      Ca8/1/0            2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT  74
29962      Ca8/1/0            2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT  73
46354      Ca8/1/0            2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT  72
62738      Ca8/1/0            2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT                      69
```

TTotal number of gates = 4

Total Gates committed(since bootup or clear counter) = 8

The following is a sample output of the **show packetcable gateipv6** command that shows a **summary of all downstream gates for IPv6** subscribers on a Cisco CMTS router:

```
Router# show packetcable gate downstream ipv6 summary
GateID      i/f                SubscriberID      State  SFID(us) SFID(ds)
62738      Ca8/1/0           2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT 69
```

```
Total number of DS gates = 1
Total Gates committed(since bootup or clear counter) = 8
```

The following is a sample output of the **show packetcable gateipv6** command that shows a **summary of all upstream gates for IPv6** subscribers on the Cisco CMTS router:

```
Router# show packetcable gate upstream ipv6 summary
GateID      i/f                SubscriberID      State  SFID(us) SFID(ds)
13582      Ca8/1/0           2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT 74
29962      Ca8/1/0           2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT 73
46354      Ca8/1/0           2001:40:1:42:C0B4:84E5:5081:9B5C  COMMIT 72
Total number of US gates = 3
Total Gates committed(since bootup or clear counter) = 8
```

Table below describes the significant fields shown in the **command** display.

Table 8: show packetcable gate Field Display

Field	Description
GateID	Unique number identifying the local gate.
i/f	Cable interface on the Cisco CMTS.
Subscriber ID	IPv6 address of the subscriber for this service request.
State	Describes the state of the gate in both the upstream and downstream directions. The possible state values are: <ul style="list-style-type: none"> • ALLOC—The CMTS has received a Gate-Alloc command from the gate controller and has created the gate in response. The CMTS must now wait for the request to be authorized. • AUTH—The CMTS has received a Gate-Set command from the gate controller that authorizes the resources needed for the gate request. The CMTS must now wait for the actual resources to be reserved. • RSVD—All required resources for the gate have been reserved. • COMMIT—All resources are committed at both the local CMTS and remote CMTS. The local CMTS has also received a commit notification from the local MTA and has completed all gate coordination with the remote end. The gate can now pass traffic. • INVLD—The gate is invalid, typically because of an error condition or lack of resources. The CMTS will eventually delete the gate. • UNKWN—The gate is in an unknown state.
SFID (us)	SFID for the upstream associated with this PacketCable gate.
SFID (ds)	SFID for the downstream associated with this PacketCable gate.
Total number of gates	Displays the total number of PCMM gates that are allocated, authorized, reserved, or committed.

Field	Description
Total Gates committed (since bootup or clear counter)	Displays the total number of PCMM gates that the CMTS has committed since the CMTS was last reset or since the counters were last cleared.

Related Commands

Command	Description
packetcable	Enables PacketCable operations on a Cisco CMTS router.
show packetcable gate	Displays information about one or more PacketCable gates in the gate database.
show packetcable gate counter commit	Displays the total number of committed PacketCable gates since system reset or since the counter was last cleared.
show packetcable global	Displays the PacketCable configuration.

show packetcable gate multimedia

On Cisco uBR10012 router, to display information about the total number of PacketCable Multimedia (PCMM) multicast gates, use the **show packetcable gate multimedia** command in privileged EXEC mode.

On Cisco cBR-8 router, to display information about the total number of PacketCable Multimedia (PCMM) gates, use the **show packetcable gate multimedia** command in privileged EXEC mode.

show packetcable gate multimedia [summary]

Cisco cBR Series Converged Broadband Router

show packetcable gate multimedia[downstream | upstream]summary

Syntax Description	
downstream	(Optional) Display information only for Packetcable multimedia downstream gate.
upstream	(Optional) Display information only for Packetcable multimedia upstream gate.
multicast	(Optional for Cisco uBR10012 router) Displays PCMM information.
summary	For Cisco uBR10012 router— Provides a summary of PCMM multicast gate ID, subscriber ID, gate controller address, and current state information. For Cisco cBR-8 router— Provides a summary of PCMM gate ID, subscriber ID, gate controller address, and current state information.

Command Default None

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	12.2(33)SCE	This command was introduced.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router. The downstream and upstream keywords were added. PCMM Multicast option is not supported on the Cisco cBR Series Converged Broadband Router.

Examples

The following is a sample output of the **show packetcable gate multimedia** command on a Cisco CMTS router:

```
Router# show packetcable gate multimedia multicast summary
GateID      i/f          SubscriberID  GC-Addr      State      Type  SFID(us)  SFID(ds)
134         Ca5/0/0     60.1.1.202   2.39.26.19   COMMIT    MM    4          4
Total number of Multimedia-MCAST gates = 1
Total Gates committed(since bootup or clear counter) = 1
```

Table below describes the significant fields shown in the display.

Table 9: show packetcable gate multimedia Field Descriptions

Field	Description
GateID	Unique number identifying the local PCMM multicast gate.
i/f	Cable interface on the Cisco CMTS router.
Subscriber ID	IP address of the subscriber for this service request.
GC-Addr	IP address of the gate controller that is responsible for the gate.
State	Describes the current state of the gate in the downstream direction. The possible state values are: <ul style="list-style-type: none"> • ALLOC—The CMTS has received a Gate-Alloc command from the gate controller and has created the gate in response. The CMTS must now wait for the request to be authorized. • AUTH—The CMTS has received a Gate-Set command from the gate controller that authorizes the resources needed for the gate request. The CMTS must now wait for the actual resources to be reserved. • RSVD—All required resources for the gate have been reserved. • COMMIT—All resources are committed at both the local CMTS and remote CMTS. The local CMTS has also received a commit notification from the local MTA and has completed all gate coordination with the remote end. The gate can now pass traffic. • INVLD—The gate is invalid, typically because of an error condition or lack of resources. The CMTS will eventually delete the gate. • UNKWN—The gate is in an unknown state.
SFID (us)	Service flow ID (SFID) for the upstream associated with this PCMM multicast gate.
SFID (ds)	SFID for the downstream associated with this PCMM multicast gate.
Total number of Multimedia-MCAST gates	Total number of PCMM multicast gates that are currently allocated, authorized, reserved, or committed.
Total Gates committed (since bootup or clear counter)	Total number of PCMM multicast gates that are committed since the Cisco CMTS router was last reset or since the counters were last cleared.

Examples for Cisco cBR Series Converged Broadband Router

This example shows the output of the **show packetcable gate multimedia** command with the **summary** option:

```
Router#show packetcable gate multimedia summary
GateID i/f      SubscriberID GC-Addr  State  Type SFID(us) SFID(ds)
81919  Cal/0/4      24.232.100.16 1.2.0.101 COMMIT MM      363
98303  Cal/0/4      24.232.100.16 1.2.0.101 COMMIT MM      364
114687 Cal/0/0      24.232.100.46 1.2.0.101 COMMIT MM      301
131071 Cal/0/0      24.232.100.46 1.2.0.101 COMMIT MM      302
```

```

147455 Ca1/0/4 24.232.100.17 1.2.0.101 COMMIT MM          365
163839 Ca1/0/4 24.232.100.17 1.2.0.101 COMMIT MM          366
180223 Ca1/0/4 24.232.100.32 1.2.0.101 COMMIT MM          367
196607 Ca1/0/4 24.232.100.32 1.2.0.101 COMMIT MM          368
212991 Ca1/0/0 24.232.100.47 1.2.0.101 COMMIT MM          303
229375 Ca1/0/0 24.232.100.47 1.2.0.101 COMMIT MM          304
245759 Ca1/0/0 24.232.100.48 1.2.0.101 COMMIT MM          305
262143 Ca1/0/0 24.232.100.48 1.2.0.101 COMMIT MM          306

```

```

Total number of Multimedia gates = 12
Total Gates committed(since bootup or clear counter) = 12

```

This example shows the output of the **show packetcable gate multimedia** command with the **upstream summary** option:

```

Router#show packetcable gate multimedia upstream summary
GateID i/f      SubscriberID GC-Addr  State  Type SFID(us) SFID(ds)
81919  Ca1/0/4  24.232.100.16 1.2.0.101 COMMIT MM  363
131071 Ca1/0/0  24.232.100.46 1.2.0.101 COMMIT MM  302
147455 Ca1/0/4  24.232.100.17 1.2.0.101 COMMIT MM  365
180223 Ca1/0/4  24.232.100.32 1.2.0.101 COMMIT MM  367
229375 Ca1/0/0  24.232.100.47 1.2.0.101 COMMIT MM  304
245759 Ca1/0/0  24.232.100.48 1.2.0.101 COMMIT MM  305

```

```

Total number of Multimedia-US gates = 6
Total Gates committed(since bootup or clear counter) = 12

```

This example shows the output of the **show packetcable gate multimedia** command with the **downstream summary** option:

```

Router#show packetcable gate multimedia downstream summary
GateID i/f      SubscriberID GC-Addr  State  Type SFID(us) SFID(ds)
98303  Ca1/0/4  24.232.100.16 1.2.0.101 COMMIT MM  364
114687 Ca1/0/0  24.232.100.46 1.2.0.101 COMMIT MM  301
163839 Ca1/0/4  24.232.100.17 1.2.0.101 COMMIT MM  366
196607 Ca1/0/4  24.232.100.32 1.2.0.101 COMMIT MM  368
212991 Ca1/0/0  24.232.100.47 1.2.0.101 COMMIT MM  303
262143 Ca1/0/0  24.232.100.48 1.2.0.101 COMMIT MM  306

```

```

Total number of Multimedia-DS gates = 6
Total Gates committed(since bootup or clear counter) = 12

```

Table 10: show packetcable gate multimedia Field Descriptions for Cisco cBR Series Converged Broadband Router

Field	Description
GateID	Unique number identifying the local PCMM gate.
i/f	Cable interface on the Cisco CMTS router.
Subscriber ID	IP address of the subscriber for this service request.
GC-Addr	IP address of the gate controller that is responsible for the gate.

Field	Description
State	<p>Describes the current state of the gate in the downstream direction. The possible state values are:</p> <ul style="list-style-type: none"> • ALLOC—The CMTS has received a Gate-Alloc command from the gate controller and has created the gate in response. The CMTS must now wait for the request to be authorized. • AUTH—The CMTS has received a Gate-Set command from the gate controller that authorizes the resources needed for the gate request. The CMTS must now wait for the actual resources to be reserved. • RSVD—All required resources for the gate have been reserved. • COMMIT—All resources are committed at both the local CMTS and remote CMTS. The local CMTS has also received a commit notification from the local MTA and has completed all gate coordination with the remote end. The gate can now pass traffic. • INVLD—The gate is invalid, typically because of an error condition or lack of resources. The CMTS will eventually delete the gate. • UNKWN—The gate is in an unknown state.
SFID (us)	Service flow ID (SFID) for the upstream associated with this PCMM gate.
SFID (ds)	SFID for the downstream associated with this PCMM gate.
Total number of Multimedia-xx gates	<p>Total number of PCMM gates that are currently allocated, authorized, reserved, or committed.</p> <p>The "Total number of Multimedia-xx gates" depends on the options used. The field is given as:</p> <ul style="list-style-type: none"> • If no option is used—"Total number of Multimedia gates" , • For option multicast—"Total number of Multimedia-MCAST gates" • For option downstream—"Total number of Multimedia-DS gates" • For option upstream—"Total number of Multimedia-US gates"
Total Gates committed (since bootup or clear counter)	Total number of PCMM gates that are committed since the Cisco CMTS router was last reset or since the counters were last cleared.

Related Commands

Command	Description
cable multicast source	Configures a multicast session range for a PCMM multicast group on a Cisco CMTS router.
show cable multicast db	Displays the contents of the multicast explicit tracking database.

show packetcable global

To display the current PacketCable configuration, including the maximum number of gates, the Element ID, and the DQoS timer values, use the **show packetcable global** command in user EXEC or privileged EXEC mode.

show packetcable global

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes User EXEC, Privileged EXEC

Command History	Release	Modification
	12.2(8)BC2	This command was introduced for the Cisco uBR7200 series universal broadband router.
	12.2(11)BC1	Support was added to display the Element ID for the CMTS.
	12.2(11)BC2	Support was added to display whether non-PacketCable UGS service flows are authorized or not. The T2 and T5 timers were removed from the display to conform to the requirements of the PacketCable DQoS Engineering Change Notice (ECN) 02148.
	12.2(15)BC1	Support was added for the Cisco uBR10012 router.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Examples

The following example shows a typical PacketCable configuration that is enabled and has the default values for all configurable parameters, except for the Element ID:

```
Router# show packetcable global
Packet Cable Global configuration:
Enabled      : Yes
Element ID: 12456
Max Gates   : 1048576
Allow non-PacketCable UGS
Default Timer value -
  T0        : 30000 msec
  T1        : 300000 msec
Router#
```

Table below describes the fields shown in the **show packetcable global** display.

Table 11: show packetcable global Field Display

Field	Description
Enabled	Displays whether PacketCable operation is enabled or disabled. (See the packetcable command.)

Field	Description
Element ID	Displays the Element ID for the CMTS. If you do not manually configure this parameter with the packetcable element-id command, it defaults to a random value between 0 and 99,999 when PacketCable operations is enabled.
Max Gates	Displays the maximum number of gates that the CMTS supports. (See the packetcable gate maxcount command.)
Allow non-PacketCable UGS or Not Allow non-PacketCable UGS	Displays whether non-PacketCable, DOCSIS-style UGS service flows are allowed when PacketCable operations are enabled. (See the packetcable authorize vanilla-docsis-mta command.)
Default Timer value	Displays the current values of the following DQoS timers that the CMTS maintains. (See the packetcable timer command.)
T0	T0 specifies the amount of time that a gate ID can remain allocated without any specified gate parameters. The timer begins counting when a gate is allocated with a Gate-Alloc command. The timer stops when a Gate-Set command marks the gate as Authorized. If the timer expires without a Gate-Set command being received, the gate is deleted. The valid range is 1 to 1,000,000,000 milliseconds, with a default value of 30000 milliseconds (30 seconds).
T1	T1 specifies the amount of time that an authorization for a gate can remain valid. It begins counting when the CMTS creates a gate with a Gate-Set command and puts the gate in the Authorized state. The timer stops when the gate is put into the committed state. If the timer expires without the gate being committed, the CMTS must close the gate and release all associated resources. The valid range is 1 to 1,000,000,000 milliseconds, with a default value of 200000 milliseconds (200 seconds).

Examples for Cisco cBR Series Converged Broadband Router

This example shows the output of the **show packetcable gate counter commit** command:

```
Router#show packetcable global
Packet Cable Global configuration:
Packetcable DQoS Enabled : Yes
Packetcable Multimedia Enabled : Yes
Element ID: 49137
Max Gates : 512000
Not Allow non-PacketCable UGS
Default Multimedia Timer value -
T1 : 200000 msec
Persistent gate : 0 hour
Volume Limit : RUNNING
Default DQoS Timer value -
T0 : 30000 msec
T1 : 300000 msec
Client Accept Timer: Disabled
Client Accept Timer Expired: 0
```

```
Packetcable DQOS Gate Send SubscriberID Enabled: No
```

Table 12: show packetcable global Field Display

Field	Description
Packetcable DQOS Enabled	For Cisco cBR router— Displays whether PacketCable DQOS operation is enabled or disabled. (See the packetcable command.)
Packetcable Multimedia Enabled	For Cisco cBR router— Displays whether PacketCable multimedia operation is enabled or disabled.
Element ID	Displays the Element ID for the CMTS. If you do not manually configure this parameter with the packetcable element-id command, it defaults to a random value between 0 and 99,999 when PacketCable operations is enabled.
Max Gates	Displays the maximum number of gates that the CMTS supports. (See the packetcable gate maxcount command.)
Allow non-PacketCable UGS or Not Allow non-PacketCable UGS	Displays whether non-PacketCable, DOCSIS-style UGS service flows are allowed when PacketCable operations are enabled. (See the packetcable authorize vanilla-docsis-mta command.)
Default Timer value	Displays the current values of the following DQoS timers that the CMTS maintains. (See the packetcable timer command.)
T0	T0 specifies the amount of time that a gate ID can remain allocated without any specified gate parameters. The timer begins counting when a gate is allocated with a Gate-Alloc command. The timer stops when a Gate-Set command marks the gate as Authorized. If the timer expires without a Gate-Set command being received, the gate is deleted. The valid range is 1 to 1,000,000,000 milliseconds, with a default value of 30000 milliseconds (30 seconds).
T1	T1 specifies the amount of time that an authorization for a gate can remain valid. It begins counting when the CMTS creates a gate with a Gate-Set command and puts the gate in the Authorized state. The timer stops when the gate is put into the committed state. If the timer expires without the gate being committed, the CMTS must close the gate and release all associated resources. The valid range is 1 to 1,000,000,000 milliseconds, with a default value of 200000 milliseconds (200 seconds).
Client Accept Timer	For Cisco cBR router— Displays whether the Client Accept Timer is enabled.
Client Accept Timer Expired	For Cisco cBR router— Displays the time expired on the Client Accept Timer.
Packetcable DQOS Gate Send SubscriberID Enabled	For Cisco cBR router— Displays whether the Packetcable DQOS Gate Send SubscriberID operation is enabled.

Related Commands

Command	Description
packetcable	Enables PacketCable operations on the Cisco CMTS.
packetcable authorize vanilla-docsis-mta	Allows Unsolicited Grant Service (UGS) service flows without a proper PacketCable gate ID when PacketCable operations are enabled on the Cisco CMTS.
packetcable element-id	Configures the PacketCable Event Message Element ID on the Cisco CMTS.
packetcable gate maxcount	Changes the maximum number of PacketCable gate IDs in the gate database on the Cisco CMTS.
packetcable timer	Changes the value of the different PacketCable DQoS timers.
show packetcable gate	Displays information about one or more gates in the gate database.
show packetcable gate counter commit	Displays the total number of committed gates since system reset or since the counter was last cleared.

show platform hardware diagnostic status

To displays the field diagnostic tests status, use the **show platform hardware diagnostic status slot *slot-id*** command in Privileged EXEC mode.

show platform hardware diagnostic status slot *slot-id*

Syntax Description	slot <i>slot-id</i>	Specifies the slot performing field diagnostic test.
---------------------------	-------------------------------	--

Command Default None.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	IOS-XE 3.18.0S	This command was introduced on Cisco cBR Series Converged Broadband Routers.

Usage Guidelines The **show platform hardware diagnostic status slot *slot-id*** command displays field diagnostic test status.

Examples The following example shows a typical display for the **show platform hardware diagnostic status slot *slot-id*** command:

```
Router# show platform hardware diagnostic status slot 0
Online Offline Diagnostic Status (P=Passed, F=Failed, U=Untested)
State           Overall Test Num      Test Done Num      Test Result
-----
Running Auto Test      75                   70                   P:69 F:1 U:5
```

Related Commands	Command	Description
	request platform hardware diagnostic load	Loads the field diagnostic image and starts field diagnostic test.
	request platform hardware diagnostic unload	Unload the field diagnostic image from the line card.

show platform hardware dpic

To display information with regard to the Digital Physical Interface Card, use the **show platform hardware dpic slot-id** command in Privileged EXEC mode.

show platform hardware dpic slot-id

slot <i>slot-id</i>	Specifies the slot for which the information is displayed.
-------------------------------	--

Command Default None.

Command Modes Privileged EXEC (#)

Release	Modification
IOS-XE 16.10.1d	This command was introduced on Cisco cBR Series Converged Broadband Routers.

The **show platform hardware dpic slot-id** command displays information on the status of the DPIC.

```
Router# show pl hardware dpic subslot 4/2 transceiver 1 show status
Load for five secs: 6%/0%; one minute: 6%; five minutes: 8%
Time source is NTP, 11:13:49.865 CST Mon Mar 4 2019
```

```
The Transceiver in slot 2 subslot 1 port 1 is enabled.
Module temperature                = +29.582 C
Transceiver Tx supply voltage     = 3328.6 mVolts
Transceiver Tx bias current       = 2 uAmps
Transceiver Tx power              = -40.0 dBm
Transceiver Rx optical power     = -2.8 dBm
```

```
Router# show pl hardware dpic subslot 4/2 transceiver 0 show idprom
Load for five secs: 3%/0%; one minute: 7%; five minutes: 9%
Time source is NTP, 11:12:46.926 CST Mon Mar 4 2019
```

```
IDPROM for transceiver 2/1 port0:
Description                       = SFP or SFP+ optics (type 3)
Transceiver Type:                  = SFP+ 10GBASE-SR (273)
Product Identifier (PID)           = SFP-10G-SR-S
Vendor Revision                     = G4.1
Serial Number (SN)                 = AVD2032D1G7
Vendor Name                         = CISCO-AVAGO
Vendor OUI (IEEE company ID)       = 00.17.6a (5994)
CLEI code                          = CMUIAK6CAA
Cisco part number                   = 10-3105-01
Device State                       = Initialized.
Date code (yy/mm/dd)               = 16/08/09
Connector type                     = LC.
Encoding                            = 4b5b
                                   NRZ
                                   Manchester
Nominal bitrate                     = (10300 Mbits/s)
```

```
Minimum bit rate as % of nominal bit rate = not specified  
Maximum bit rate as % of nominal bit rate = not specified
```

show platform hardware qfp active cable dpic-lcha if-name

To display DPIC LCHA interface subblock information, use the **show platform hardware qfp [active | standby] cable dpic-lcha if-name *interface-name*** command in privileged EXEC mode.

The commands display the peer interface info. The output displays when protect Line Card becomes active. The same peer interface displays on both SUPs.

show platform hardware qfp [active | standby] cable dpic-lcha if-name *interface-name*

Syntax Description

Syntax Description	dpic-lcha	Display DPIC LCHA interface subblock information.
	if-name <i>interface-name</i>	Enter the interface name.

Command Default

None.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Dublin 17.12.1w	This command is introduced for the Cisco cBR Series Converged Broadband routers.

Usage Guidelines

The **show platform hardware qfp active cable dpic-lcha if-name *interface-name*** command displays DPIC LCHA interface subblock information.

Examples

The following example shows a typical display for the **show platform hardware qfp active cable us-dpic-lcha** command:

```
router#show platform hardware qfp active cable dpic-lcha if-name te6/1/0
if_h: 30
ppe_addr: 0x3c99dc04
rsrc_h: 0x1ea6770049901803
peer_uidb in client: 261554
peer_uidb in exmem: 261554
```

The output line `peer uidb in client: 261554` refers to TE9/1/0 interface.

```
router#show platform hardware qfp active cable dpic-lcha if-name te9/1/0
if_h: 590
ppe_addr: 0x3c99dc00
rsrc_h: 0x1ea6770009901803
peer_uidb in client: 262114
peer_uidb in exmem: 262114
```

The output line `peer uidb in client: 262114` refers to TE6/1/0 interface.

```
router#show platform hardware qfp active interface if-handle 30 | i Name | Tx uidb
Interface Name: TenGigabitEthernet6/1/0
Tx uidb: 262114
```

```
router#show platform hardware qfp active interface if-handle 590 | i Name|Tx uidb
Interface Name: TenGigabitEthernet9/1/0
Tx uidb: 261554
router#
```

show platform hardware qfp active cable us-mpls-tc

To display MPLS TC bits marking information, use the **show platform hardware qfp active cable us-mpls-tc** command in Privileged EXEC mode.

show platform hardware qfp active cable us-mpls-tc vslot vslot_number md md_number uflow-idx uflow_index

Syntax Description	Parameter	Description
	vslot vslot_number	Specifies the virtual slot in which the linecard is inserted.
	md md_number	Specifies the MAC domain.
	uflow-idx uflow_index	Specifies the SID of the upstream service flow.

Command Default None.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	IOS-XE 3.17.0S	This command was introduced on Cisco cBR Series Converged Broadband Routers.

Usage Guidelines The **show platform hardware qfp active cable us-mpls-tc** command displays MPLS TC bits marking information.

Examples

The following example shows a typical display for the **show platform hardware qfp active cable us-mpls-tc** command:

```
Router# show cable modem
c8fb.26a5.5402 31.89.0.9      C3/0/0/U2      w-online(pt)    19    -4.50  1781  0  Y
c8fb.26a5.5730 31.89.0.29     C3/0/0/U0      w-online(pt)    20     1.50  1781  0  Y
c8fb.26a5.530c 31.89.0.14     C3/0/0/U3      w-online(pt)    21    -0.50  1782  0  Y

Router# show platform hardware qfp active cable us-mpls-tc vslot 3 md 0 uflow-idx 19
vslot  md      SF_ID  mpls_tc_se...  mpls_tc (hex)
-----
   3     0         19         0x1           0x5

Router# show platform hardware qfp active cable us-mpls-tc vslot 3 md 0 uflow-idx 20
vslot  md      SF_ID  mpls_tc_se...  mpls_tc (hex)
-----
   3     0         20         0x1           0x5

Router# show platform hardware qfp active cable us-mpls-tc vslot 3 md 0 uflow-idx 21
vslot  md      SF_ID  mpls_tc_se...  mpls_tc (hex)
-----
   3     0         21         0x1           0x5
```

Related Commands

Command	Description
show platform hardware qfp active feature docsis mpls_tc-precfy db	Displays MPLS TC bits classification informaiton.

show platform hardware qfp active feature docsis bf

To display DOCSIS bundle-flood feature information, use the **show platform hardware qfp active feature docsis bf** command in Privileged EXEC mode.

show platform hardware qfp active feature docsis bf *bundle-interface-handle* { **replist** | **subblock detail** }

Syntax Description

bf	Specifies the DOCSIS bundle-flood feature.
<i>bundle-interface-handle</i>	Specifies the bundle interface handle. The valid range is from 1 to 2147483647.
replist	Specifies the bundle-flood replication list.
subblock	Specifies the bundle-flood subblock.

Command Default

None.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.15.0S	This command was introduced on Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

The **show platform hardware qfp active feature docsis bf** command displays DOCSIS bundle-flood information.

Examples

The following example shows a typical display for the **show platform hardware qfp active feature docsis bf** command:

```
Router# platform hardware qfp active interface if-name Bundle1
General interface information
  Interface Name: Bundle1
  Interface state: VALID
  Platform interface handle: 3689
  QFP interface handle: 7
. . .
Router# show platform hardware qfp active feature docsis bf ?
<1-2147483647> Vbundle Intf handle

Router# show platform hardware qfp active feature docsis bf 7 ?
replist  Cable Bundle Flood Replication List
subblock Cable Bundle Flood Subblock

Router# show platform hardware qfp active feature docsis bf 7 replist
  cbl fwd uidx (dec)  replica entry ppe-address (hex)
-----
                1839                3d9c5000
                1840                3d9c5008
                1841                3d9c5010
                1842                3d9c5018
```

```
Router# show platform hardware qfp active feature docsis bf 7 subblock
Bundle Flood Tx Subblock
  Subblock PPE Address: 0x3bd00000

Recycle Queue Info:
Object ID: 84
Queue Info PPE Address: 0x711453c0

Replica Info:
Depth Encoding: 0x01000004
List Head PPE Address: 0x3d9c5000
```

Related Commands

Command	Description
show platform hardware qfp active interface	Displays QFP interface information. The bundle interface handle can be obtained through this command.

show platform hardware qfp active feature docsis cbl-vrf-steering

To display cable VRF steering feature information, use the **show platform hardware qfp active feature docsis cbl-vrf-steering** command in Privileged EXEC mode.

show platform hardware qfp active feature docsis cbl-vrf-steering *CM-bundle-handle*

Syntax Description	Parameter	Description
	cbl-vrf-steering	Specifies the bundle interface handle. The valid range is from 1 to 2147483647.
	<i>CM-bundle-handle</i>	Specifies the bundle interface handle. The valid range is from 1 to 2147483647.

Command Default None.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	IOS-XE 3.15.0S	This command was introduced on Cisco cBR Series Converged Broadband Routers.

Usage Guidelines The **show platform hardware qfp active feature docsis cbl-vrf-steering** command displays cable VRF steering information.

Examples

The following example shows a typical display for the **show platform hardware qfp active feature docsis cbl-vrf-steering** command:

```
Router# show platform hardware qfp active interface if-name Bundle1
General interface information
  Interface Name: Bundle1
  Interface state: VALID
  Platform interface handle: 3689
  QFP interface handle: 7
  . . .
Router# show platform hardware qfp active feature docsis cbl-vrf-steering ?
<1-2147483647> CM Bundle handle

Router# show platform hardware qfp active feature docsis cbl-vrf-steering 10
  cpe bundle uidx (dec)
  -----
                245751
Router#
```

Related Commands	Command	Description
	show platform hardware qfp active interface	Displays QFP interface information. The CM bundle handle can be obtained through this command.

show platform hardware qfp active feature docsis mpls_tc-precfy db

To display MPLS TC bits classification information, use the **show platform hardware qfp active feature docsis mpls_tc-precfy db** command in Privileged EXEC mode.

show platform hardware qfp active feature docsis mpls_tc-precfy db

Command Default None.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	IOS-XE 3.17.0S	This command was introduced on Cisco cBR Series Converged Broadband Routers.

Usage Guidelines The **show platform hardware qfp active feature docsis mpls_tc-precfy db** command displays MPLS TC bits classification information.

Examples

The following example shows a typical display for the **show platform hardware qfp active feature docsis mpls_tc-precfy db** command:

```
Router# show platform hardware qfp active feature docsis mpls_tc-precfy db
mpls_tc pre classification database
```

CM	IF	HDL	Subblk	RSRC	HDL	Subblk	PPE	Addr	VPNTbl	RSRC	HDL	VPNTbl	PPE	Addr
0x00000740			0x0018fd4009280003			0x498fd400			0x005b3c0009280003			0x4db3c000		
0x00000751			0x0018fd4049280003			0x498fd404			0x005b3c0109280003			0x4db3c010		
0x0000074e			0x0018fd4089280003			0x498fd408			0x005b3c0209280003			0x4db3c020		

Related Commands	Command	Description
	show platform hardware qfp active cable us-mpls-tc	Displays MPLS TC bits marking information.

show platform hardware qfp active infrastructure punt sbrl

To display and clear the Source-Based Rate Limiting (SBRL) statistics, use the **show platform hardware qfp active infrastructure punt sbrl** command in privileged EXEC mode.

show platform hardware qfp active infrastructure punt sbrl [**sub-mac-addr** | **sub-cm** | **wan-ipv4** | **wan-ipv6**] [**threshold** *threshold_value*] [**clear**]

Syntax Description

sub-mac-addr	(Optional) Displays only the SBRL subscriber-side MAC-address statistics.
sub-cm	(Optional) Displays only the SBRL subscriber-side cable modem statistics.
wan-ipv4	(Optional) Display only the SBRL WAN-side IPv4 statistics.
wan-ipv6	(Optional) Display only the SBRL WAN-side IPv6 statistics.
threshold <i>threshold_value</i>	(Optional) Specifies the threshold for displaying SBRL statistics. Rows which have a drop-cnt greater than or equal to the threshold are displayed. The default threshold is 1.
clear	(Optional) Clears the SBRL statistics.

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers. This command replaces the clear pxf statistics drl cable-wan-ip command.

Usage Guidelines

The SBRL statistics algorithm stores data for the worst offenders. Sources with small drop counts may be overwritten if the *drop-cnt* is not continually increasing. The *evict-cnt* increases in tandem with *drop-cnt*, and decreases when a source is no longer active. When the *evict-cnt* is below 10, the record may be overwritten.

In the WAN-IPv4 and WAN-IPv6 statistics, the *quar value* is either 1 or 0, where 1 indicates that the source is in quarantine. The *quar value* is updated only when a packet from the source is dropped, so if a source enters quarantine but then stops sending packets, the quar value will remain at 1 even after the source exits quarantine. However, the *drop-cnt* fails to increment.

The statistics can be displayed all at once, or individually. The **threshold** and **clear** keywords can be entered in any order. Only non-zero statistics are displayed.

Examples

The following example shows a typical display for the **show platform hardware qfp active infrastructure punt sbrl** command:

```
Router# show platform hardware qfp active infrastructure punt sbrl
SBRL statistics

Subscriber CM
  drop-cnt  evict-cnt   SID  Interface
```

```

-----
      1          1          5  Cable3/0/0
    982        982          5  Cable3/0/0

Subscriber MAC-addr
  nothing to report

WAN-IPv4
  drop-cnt  evict-cnt  quar  VRF  cause  IP-address
-----
    456788    456788     0    0    050  1.2.0.66

WAN-IPv6
  drop-cnt  evict-cnt  quar  VRF  cause  IP-address
-----
    129334    129334     1    0    011  3046:1829:fefb::ddd1
     965      965     0    0    011  2001:420:2c7f:fc01::3

```

Table 13: show platform hardware qfp active infrastructure punt sbrl Field Descriptions

Field	Description
drop-cnt	Counter for dropped packets.
SID	Service ID.
Interface	Cable interface.
quar	Quarantine status. The value is either 1 or 0, where 1 indicates that the source is in quarantine.
cause	Punt cause.
IP-address	WAN-IPv4 and WAN-IPv6 IP address.

Related Commands

Command	Description
show platform hardware qfp active infrastructure punt summary	Displays the summary of punt-path rate-limiting statistics.
platform punt-sbri	Rate-limits the packet streams identified by the Source-Based Rate-Limit (SBRL).

show platform hardware qfp active infrastructure punt summary

To display and clear the summary of punt-path rate-limiting statistics, use the **show platform hardware qfp active infrastructure punt summary** command in privileged EXEC mode.

show platform hardware qfp active infrastructure punt summary [**threshold** *threshold_value*]
[**clear**]

Syntax Description

threshold <i>threshold_value</i>	(Optional) Specifies the threshold for displaying the summary statistics. Rows which have a CPP punt value greater than or equal to the threshold are displayed. The default threshold is 1.
clear	(Optional) Clears the summary statistics.

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

The summary statistics provide a fast way to determine the status of punt-path rate-limiting. When the Supervisor is receiving an excessive number of punted packets, **clear** and **show** the summary statistics to determine how to configure SBRL and/or punt-policing. The **threshold** and **clear** keywords can be entered in any order. The default behavior is to display only non-zero statistics.

Examples

The following example shows a typical display for the **show platform hardware qfp active infrastructure punt summary** command:

```
Router# show platform hardware qfp active infrastructure punt summary threshold 10
Punt Path Rate-Limiting summary statistics
Subscriber-side
ID  punt cause                CPP punt      CoPP  ARPFilt/SBRL  per-cause    global
-----
017 IPv6 Bad hop limit         22            0      0              0             0
050 IPv6 packet                13            0      0              0             0
080 CM not online              335           0      0              0             0

WAN-side
ID  punt cause                CPP punt      CoPP  SBRL  per-cause    global
-----
017 IPv6 Bad hop limit         471           0      0              0             0
018 IPV6 Hop-by-hop Options    29901         0      0      1430          0             0
024 Glean adjacency            450911        0      308912         0             0
025 Mcast PIM signaling         19            0      0              0             0
050 IPv6 packet                 11            0      0              0             0
```

Related Commands

Command	Description
show platform hardware active qfp infrastructure punt sbrl	Displays and clears the Source-Based Rate Limiting (SBRL) statistics.
platform punt-sbrl	Rate-limits the packet streams identified by the Source-Based Rate-Limit (SBRL).

show platform integrity

To display checksum record for the boot stages, use the **show platform integrity** command in privileged EXEC mode.

show platform integrity [**sign** [**nonce** *nonce*]]

Syntax Description	sign (Optional) Show signature				
Command Modes	Privileged EXEC (#)				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>IOS-XE 17.3.1</td> <td>This command was introduced on the Cisco cBR Series Converged Broadband Routers.</td> </tr> </tbody> </table>	Release	Modification	IOS-XE 17.3.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
Release	Modification				
IOS-XE 17.3.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.				

Example

This example shows how to view the checksum record for boot stages:

```

router#show platform integrity
Platform: CBR-8-CCAP-CHASS
Boot 0 Version: F01013R10.283bb08f92014-10-28
Boot 0 Hash: 9CC305A6C7089195B408D93BF11BD2FB8C000B25B4D14D7AE7AB38AD73C4EB61
Boot Loader Version: 16.7(6r)S
Boot Loader Hash:
F75B1988F328A9BFBF9DECCB5556D2553EB00F0808B1E5112B8560841A1F05EB9CA694E7FE70BD912A2682D8205DA5E29823B5F62E17FFEA2876EA91BB2498FF
OS Version: 17.03.01w
OS Hashes:
cbrsup-universalk9.17.03.01w.SPA.bin:
2005312A49A02A9EB9BF018012580FFE6E333EA3F09D5058BC9B03566BC3C3F7E753460267A5CAC27B0673574B50BA80958004B1E5874396C0898E21CA924900
cbrsup-clccontrol.17.03.01w.SPA.pkg:
0E2FA5D224738C9F8F7574EAB549C859E74CA3411777EEF270C2DE0175FCD7EE23D4B500C7C7EAA4FB12F4698224D902F6E4F7A5ABD52146E688EB1106DE67C5F
cbrsup-rpvideo.17.03.01w.SPA.pkg:
2BA9A4631C9466A651E59A30841A5BD65E21DDB355D205EE47EEB080747D97E23155FE57C88A2AB18988CFA982BEE622AC3E2ED20C9D234557759B78E5100A
cbrsup-rprpPHY.17.03.01w.SPA.pkg:
44D1811AE7E36C8A6D1A63BF9C5E7EDF2476CB078BB157E429C92EBF689D15F9587EB51AAE38CDF078F42FC190CBAD7F15FF7EA5728518875D45F34F021C14B5
cbrsup-webui.17.03.01w.SPA.pkg:
594C520EB603E253B312C54DC9C92C738CC20E07A07B7695048B627D9396F66C268DF41331FB65D42DFD8D1F55F163D07E700D62A237F7A31E242ACCB4778FD8
cbrsup-clcdocsis.17.03.01w.SPA.pkg:
615E60F5FC0E1C82E5DA0B1A4D74A2B1DEFFA8DF701653491395589C58EDE065160BEBDF21A8ACDD3311A97107105BD2CF074882147E1L22E7AE7DB7FEBA61596
cbrsup-clcvideookobol.17.03.01w.SPA.pkg:
18CD98F02194D624E8D1F9F14DA50FC7C5FAA85151C427717029383C444D732756CD7FBE1B50F22F45670DD36739EFC342C72AE2C35502DF0DF3123AB9B49AB6
cbrsup-clcvideo.17.03.01w.SPA.pkg:
F81F6C09F9A4125A3CF1E32F8CE2AE6583ED78FE7035BFC29EA4FE4468408861815C91A2924D6C51FE36873F7208CC3ED639A76B41F53D21D36628EF9C550E04
cbrsup-rpaccess.17.03.01w.SPA.pkg:
2DB39AE2C9C5B4913A0C0D1159494FFA464549C1DF99F9C172AAD8116E8932FE99C6902D1EB3DEF9690DF594092EB5FEFFC94C9F36C45CE0A3BCDDA8A5864E1
cbrsup-clcios.17.03.01w.SPA.pkg:
621D90E67D446F9E60EB8F0FE92F936E2CCB477D73571D23E6D29AEDA8E3D7CA1BF78B79E1EE34DA649BDC37A8CBB29D32AE7F0A711BF4714A8A3D5AC66D367
cbrsup-clciosdb.17.03.01w.SPA.pkg:
19113B4605E7B528F14B37EA228A57328E34285DC65466EF6470189B7628494661731D292B2162F55EF52FDE27BF63872C54E621E1DAD30A55532A75D9D64E
cbrsup-rp-firmware.17.03.01w.SPA.pkg:
52AE6AAD152DFEA9040272C4E295DD74CF380238BB7B21443E01D5F80A6A9EBDD65060966CE706DDE95BCD75F660F3267721F6DDCC03FBC8FD6CF511A521E67F

```

```

cbrsup-clcmipsbase.17.03.01w.SPA.pkg:
BA07A071F0AF33D5656D7BC9098B887FCE1EB101BCD52C499450A5E0ED8A4797E888B4950510481A3942E3CC57F9DD17AC749964F939DCF90AA083BE131A1E4
cbrsup-cciomdsup.17.03.01w.SPA.pkg:
79403B96056330701721F0DECD9A5994F87ED0A7051A788BDEFA4C1D22AB597DF5F04ED2CAA0A9F993FD99E0E40E3D5197DA29BB1BEFF30CE8924702CDD2760D8
cbrsup-rpbase.17.03.01w.SPA.pkg:
239DDDE502B1F74415D27A3BA66B5367E760CEE9AD056D58F0FD4FD4BB5CF9B99FE661E293273409FEFF18A1356D37B89922FA7638E1466F1EAD117547CC500
cbrsup-esp86base.17.03.01w.SPA.pkg:
09C1C7B01517B38062CFA4F5112F55C6BE27786CB09E03105DD90CECEB452CE2EDA184E78B600FB2B042FCF2903730745FDA5BFC37042ABF3B7C63C347C4E6A8
cbrsup-rpcontrol.17.03.01w.SPA.pkg:
51EDF2EE01B4E78BF7EBA873686704B0F86E0B30A32E7ED3CF75DAB2A4CAD5C5AA4FC33839824429718375C673556F9D7822B35DE3A9EDAFAFC23D7031B7F7F0
cbrsup-rpios-universalk9.17.03.01w.SPA.pkg:
428AC6E8D56C37811CA80982173EFA750E589C9B300DC2183CD247458C19E43CED1A389DCA008322FCA1B811FEDEC54A063552CE2D8E57C0B8692E20F49BCD7
cbrsup-clc-firmware.17.03.01w.SPA.pkg:
D52D632D807CBA3F78F1CB2FE19CB4A7114E419A884EDADE2B9563F36E045615B1093567C6241B0E1A37BE57D35A7A17DED383BACB4B6E2B88207D1CC53CD6A
PCR0: 7D29EFC0558B5FB1C35DBD0849EDB8B532BB1842621056DA93867E5F486EEF31
PCR8: 0F420B7149D33A328E1AB34B580F2668AC114B74E4CC32E0E920CD28B1BA52A0

```

Example

This example shows how to view the checksum record for boot stages with a signature:

```

router#show platform integrity sign
Platform: CBR-8-CCAP-CHASS
Boot 0 Version: F01013R10.283bb08f92014-10-28
Boot 0 Hash: 9CC305A6C7089195B408D93BF11BD2FB8C000B25B4D14D7AE7AB38AD73C4EB61
Boot Loader Version: 16.7(6r)S
Boot Loader Hash:
F75B1988F328A9BFBF9DECCB5556D2553EB00F0808B1E5112B8560841A1F05EB9CA694E7FE70BD912A2682D8205DA5E29823B5F62E17FFEA287EA91BE2498FF
OS Version: 17.03.01w
OS Hashes:
cbrsup-universalk9.17.03.01w.SPA.bin:
2005312A49A02A9E9BF018012580FFE6E333EA3F09D5058BC9B03566BC3C3F7E753460267A5AC27B0673574E50BA809580041E1E5874396C0898E21CA924900
cbrsup-clccontrol.17.03.01w.SPA.pkg:
0E2FA5D224738C9F8F7574EAB549C859E74CA3411777EEF270C2DE0175FCD7EE23D4B50CC7C7EA4FB12F4698224D902F6E4F7A5AED52146F688EB1106DE67C5F
cbrsup-rpvideo.17.03.01w.SPA.pkg:
2EA9A4631C9466A651E59A30841A5BD65E21DDB355D205EE47EBE080747D97F23155FE57C88A2AB18988CFA982BEE6228AC3E2ED20C9D9234557759B78E5100A
cbrsup-rprphy.17.03.01w.SPA.pkg:
44D1811AE7E36C8A6D1A63BF9C5E7EDF2476CB078BB157EA29C92E9FB689D15F9587BB51AAE38CDF078F42FC19CCAD7E15FF7EA5728518875D45F34F021C14B5
cbrsup-webui.17.03.01w.SPA.pkg:
594C520EB603E253B312C54DC9C92C738CC20B07A07B7695048B627D9396F6BC268DF41331FB65D42DFD8D1F55F163D07E700D62237F7A31E242ACC4778FD8
cbrsup-clcdocsis.17.03.01w.SPA.pkg:
615660F5FC0E1C82E5DA0B1A4D74A2B1DEFFA8DF701653491395589C5E8EED065160BBEFD21A8ACDD3311A97107105ED2CF074882147E122E7AE7DB7FBA61596
cbrsup-clcvideokobol.17.03.01w.SPA.pkg:
18CD98F02194D624E8D1F9F14DA50FC7C5FAA85151C427717029383C444D732756CD7FBE1B50F22F45670DD36739EFC342C72AE2C35502DF0DF3123AB9B49AB6
cbrsup-clcvideo.17.03.01w.SPA.pkg:
F81F6C09F9A4125A3CF1E32F8CB2AE6583ED78FE7035BFC29EA4FE4468408861815C91A2924D6C51FE36873F7208CC3ED639A76B41F53D21D36628EF9C550E04
cbrsup-rpaccess.17.03.01w.SPA.pkg:
2DE39AE2C9C5B4913A00DD1159494FFA464549C1DF99FC172AAD8116E8932FE99C6902D1EB3DEF9690DF594092EB5FEEFC94C9F36C45CE0A3BC8DDA8A5864E1
cbrsup-clcios.17.03.01w.SPA.pkg:
621D90E67D446F9E60EBE8F0FE92F936E2CCB477D73571D23E6D29AEDA8E3D7CA1BF78B79E1EE34DA649BDC37A8CBB29D323AE7F0A711BF4714A8A3D5A66D367
cbrsup-clciosdb.17.03.01w.SPA.pkg:
19113B4605E7BB528F14B37EA228A57328E34285DC65466EF6470189B7628494661731D292B2162F55EF52FDE27BF63872C54E621E1DAD30A55532A75D9D64E
cbrsup-rp-firmware.17.03.01w.SPA.pkg:
52AF6AAD152DFEA9040272C4E295DD74CF380238BB7B21443E01D5F80A6A9BDD650609660E706DDE95BCD75F660F3267721F6DDC03FFC8FDF6CF511A521E67F
cbrsup-clcmipsbase.17.03.01w.SPA.pkg:
BA07A071F0AF33D5656D7BC9098B887FCE1EB101BCD52C499450A5E0ED8A4797E888B4950510481A3942E3CC57F9DD17AC749964F939DCF90AA083BE131A1E4
cbrsup-cciomdsup.17.03.01w.SPA.pkg:
79403B96056330701721F0DECD9A5994F87ED0A7051A788BDEFA4C1D22AB597DF5F04ED2CAA0A9F993FD99E0E40E3D5197DA29BB1BEFF30CE8924702CDD2760D8
cbrsup-rpbase.17.03.01w.SPA.pkg:
239DDDE502B1F74415D27A3BA66B5367E760CEE9AD056D58F0FD4FD4BB5CF9B99FE661E293273409FEFF18A1356D37B89922FA7638E1466F1EAD117547CC500
cbrsup-esp86base.17.03.01w.SPA.pkg:
09C1C7B01517B38062CFA4F5112F55C6BE27786CB09E03105DD90CECEB452CE2EDA184E78B600FB2B042FCF2903730745FDA5BFC37042ABF3B7C63C347C4E6A8

```

show platform integrity

```

cbrsup-rpcontrol.17.03.01w.SPA.pkg:
51EDF2EE01B4B78BF7BBA873686704B0F86E0B30A32E7ED3CF75DAB2A4CADC5C5AA4FC33839824429718375C673556F9D7822B35DE3A9EDA9C237D031B7F70
cbrsup-rpios-universalk9.17.03.01w.SPA.pkg:
4280AC6E8D56C37811CA80982173EFA750E589C9B3CDDC2183CD247458C19E43CED1A389DCA008322FCA1B811FEDEC54A063552CE2D8E57C0B8692E20F49BCD7
cbrsup-clc-firmware.17.03.01w.SPA.pkg:
D52D632D807CBA3F78F1CE2EE19CB4A7114E419A884BDADDE2B9563F36E045615B1093567C6241B0E1A37BE57D35A7A17DED383BA0CBAB6E2B88207D1CC53CD6A
PCR0: 7D29EFC0558B5FB1C35DBD0849EDB8B532BB1842621056DA93867E5F486EEF31
PCR8: 0F420B7149D33A328E1AB34B580F2668AC114B74E4CC32E0E920CD28B1BA52A0
Signature version: 1

```

Example

This example shows how to view the checksum record for boot stages with a signature and nonce:

```

router#show platform integrity sign nonce 18446744073709551615
Platform: CBR-8-CCAP-CHASS
Boot 0 Version: F01013R10.283bb08f92014-10-28
Boot 0 Hash: 9CC305A6C7089195B408D93BF11BD2FB8C000B25B4D14D7AE7AB38AD73C4EB61
Boot Loader Version: 16.7(6r)S
Boot Loader Hash:
F75B1988F328A9E9FF9DECC8E556D2553EB00F0808B1E5112B8560841A1F05EB9CA694E7FE70BD912A2682D8205DA5E29823B5F62E17FFEA2876FA91BE2498FF
OS Version: 17.03.01w
OS Hashes:
cbrsup-universalk9.17.03.01w.SPA.bin:
2005312A9A02A9EB9BF018012580FFE6E333FA3F09D5058BC9B03566BC3C3F7E753460267A5CAC27B0673574B50EA80958004E1E5874396C0898E21CA924900
cbrsup-clccontrol.17.03.01w.SPA.pkg:
0E2FA5D224738C9F8F7574EAB549C859E74CA3411777EEF270C2DE0175FCD7BE23D4B50CC7C7EAFB12F4698224D902F6E4F7A5ABD52146E688EB1106DE67C5F
cbrsup-rpvideo.17.03.01w.SPA.pkg:
2BA9A4631C9466A651E59A30841A5BD65E21DD3355D0205EFA7EBE080747D97F23155FE57C88A2AB18988CFA982BEE6228AC3E2ED20C9D9234557759B78E5100A
cbrsup-rprphy.17.03.01w.SPA.pkg:
44D1811AE7E36CA6D1A63BF9C5E7EDF2476CB078B157E429C92EBF689D15F9587BB51AAE38CDF078F42FC19CECAD7F15FF7EA5728518875D45F340F21C14B5
cbrsup-webui.17.03.01w.SPA.pkg:
594C520EB03E253B312C54DC9C92C738CC20E07A07B7695048B627D9396F6BC268DF41331FB65D42DFD8D1F55F163D07E700D62A237F7A31E242ACCB4778FD8
cbrsup-clcdocsis.17.03.01w.SPA.pkg:
615E60F5F0C0E1C82E5DA0B1A4D74A2B1DEFEA8DF701653491395589C58EED065160BEBDF21A8ACDD3311A97107105BD2CF074882147E122E7AE7DE7FEBA61596
cbrsup-clcvideokobol.17.03.01w.SPA.pkg:
18CD98F02194D624E8D1F9F14DA50FC7C5FAA85151C427717029383C444D732756CD7FBE1B50F22F45670DD36739EFC342C72AE2C35502F0DF3123AB9B49AB6
cbrsup-clcvideo.17.03.01w.SPA.pkg:
F81F6C09F9A4125A3CF1E32F8C2AE6583ED78FE7035BFC29EA4FE4468408861815C91A2924D6C51FE36873F7208C3ED639A76B41F53D21D36628EF9C55E0D4
cbrsup-rpaccess.17.03.01w.SPA.pkg:
2DB39AB2C9C5B4913A00D1159494FFA464549C1DF99F9C172AAD8116E8932FE99C6902D1EB3DEF9690DF594092E5BEEFC94C9F36C45CE0A3BC8DA8A5864E1
cbrsup-clcios.17.03.01w.SPA.pkg:
621D90E67D446F9E60EBE8F0FE92F936E2CCB477D73571D23E6D29AEDA8E3D7CA1BF78B79E1EE34DA649BDC37A8CBB29D323AE7F0A711BF4714A8A3D5AC66D367
cbrsup-clciosdb.17.03.01w.SPA.pkg:
19113B4605E7EB528F14B37EA228A57328E34285DC65466EF6470189B7628494661731D292B2162F55EF52FDE27BF63872C54E621E1DAD30A55532A75D9D64E
cbrsup-rp-firmware.17.03.01w.SPA.pkg:
52E6AABD152DFA9040272C4B295DD74CF380238BB7E21443E01D5F80A6A9EDB65060966CE706DDE95BCD75F660F3267721F6DDC03FEC8FD6CF511A521E67F
cbrsup-clcmipsbase.17.03.01w.SPA.pkg:
BA07A0710AF33D5656D7BC9098B887FCEE1BB101BCD52C499450A5E0EDRA4797E888B4950510481A3942E3CC57F9DD17AC749964F939DCF90AA083FE131A1E4
cbrsup-cciomdsup.17.03.01w.SPA.pkg:
79403B96056330701721F0DECD9A5994F87ED0A7051A788BDF4AC1D22AB597DF5F04ED2CAA0A9F993FD99E0E40E3D5197DA29EB1BEFF3CC8924702CDD2760D8
cbrsup-rpbase.17.03.01w.SPA.pkg:
239DDEE502B1F74415D27A3BA66B5367E760CEE9AD056D58F0FD4FD4EB5CF9B99FE661E293273409FEFF18A1356D37B89922FA7638E1466F1EAD117547CC500
cbrsup-espx86base.17.03.01w.SPA.pkg:
09C1C7B01517B38062CFA4F5112F55C6BE27786CB09E03105DD90CECEBA452CE2EDA184B78B600FE2B042FCF2903730745FDA5BFC37042ABF3B7C63C347C4E6A8
cbrsup-rpcontrol.17.03.01w.SPA.pkg:
51EDF2EE01B4B78BF7BBA873686704B0F86E0B30A32E7ED3CF75DAB2A4CADC5C5AA4FC33839824429718375C673556F9D7822B35DE3A9EDA9C237D031B7F70
cbrsup-rpios-universalk9.17.03.01w.SPA.pkg:
4280AC6E8D56C37811CA80982173EFA750E589C9B3CDDC2183CD247458C19E43CED1A389DCA008322FCA1B811FEDEC54A063552CE2D8E57C0B8692E20F49BCD7
cbrsup-clc-firmware.17.03.01w.SPA.pkg:

```

```
D52D632D807CBA3F78F1CB2EE19CB4A7114E419A884BDADE2B9563F36E045615B1093567C6241B0E1A37BE57D35A7A17DED383BACBAB6E2B88207D1CC53CD6A  
PCR0: 7D29EFC0558B5FB1C35DBD0849EDB8B532BB1842621056DA93867E5F486EEF31  
PCR8: 0F420B7149D33A328E1AB34B580F2668AC114B74E4CC32E0E920CD28B1BA52A0  
Signature version: 1  
Signature: 0F420B7149D33A328E1AB34B580F2668AC114B74E4CC32E0E920CD28B1BA52A0
```

show platform software cable

To display the out-of-band information for downstream and upstream channels, use the **show platform software cable** command in privileged EXEC mode.

Show commands for OOB downstream channel:

- Shows OOB DS FMAN table details:

```
show platform software cable slot-number oob-ds
```

- Shows OOB DS FMAN table statistics status:

```
show platform software cable slot-number oob-ds statistics
```

- Shows OOB DS FMAN table details of the group:

```
show platform software cable slot-number oob-ds group G2 address
```

Show commands for OOB upstream channel:

- Shows OOB US FMAN table details:

```
show platform software cable slot-number oob-us
```

- Shows OOB DS FMAN table statistics status:

```
show platform software cable slot-number oob-us statistics
```

- Shows OOB DS FMAN table details of the source ID:

```
show platform software cable slot-number oob-us source-id RPD source ID
```

- Shows information on Upstream RF ports , 55-1 channels, and packet count information of the UEPI sessions.

```
show platform software cable fp active oob-chn-pkts
```

Syntax Description	<i>slot-number</i> The line card that is present in the specified slot. Valid numbers range 0–9, F0 to F1 and R0 to R1.
statistics	Displays the FMAN table statistics status.
group	Displays the line card groups.
<i>RPD source ID</i>	RPD source ID

Command Default None

Command Modes Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
Cisco IOS XE Amsterdam 17.3.1x	The output of the option fp active oob-chn-pkts was modified to include more 55-1 us oob debug information.

Usage Guidelines

Use this command to display the out-of-band information for downstream or upstream channels:

Displays the OOB Information for Upstream Channels

Use the following commands to verify the US details.

```
show platform software cable F0 oob-us
show platform software cable F0 oob-us statistics
clear platform software cable F0 oob-us statistics
show platform software cable F0 oob-us source-id <RPD source id>
```

Displays the OOB Information for Downstream Channels

Use the following commands to verify the DS details.

```
show platform software cable F0 oob-ds
show platform software cable F0 oob-ds statistics
clear platform software cable F0 oob-ds statistics
show platform software cable F0 oob-ds group <G2 address>
```

The following example shows a sample output for the command **show platform software cable fp active oob-chn-pkts**:

```
Router#show platform software cable fp active oob-chn-pkts
cable OOB US PACKET table information
```

Session ID	rfport	chn_Id	demodId	Total Cells	Perfect Cells	Corrected Cells
Uncorrected Cells	Power Level		Min Power Lvl	Max Power Lvl		
0x40300003	0	0	32	000000000	000000000	000000000
000000000		000000000		000000000	000000000	
0x60300003	0	0	32	000000000	000000000	000000000
000000000		000000000		000000000	000000000	
0x60300003	0	2	130	000000000	000000000	000000000
000000000		000000000		000000000	000000000	

show platform software iomd

To verify the MAC filtering status, use the **show platform software iomd** command in privileged EXEC mode.

```
show platform software iomd slot/bay mac-filter
```

Syntax Description

<i>slot/bay</i>	The SUP slot and SUP-PIC bay number.
-----------------	--------------------------------------

Command Default

None.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.18.1SP	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following example shows a typical display for the **show platform software iomd** command:

```
Router# show platform software iomd 4/4 mac-filter
IOMD (Input Output Module Driver) Mac Filter Status

port: 0      promiscuous mode:   unicast: enable   multicast: enable   broadcast:
enable
Input Drop cnt:                0      Total Drop cnt:
0
Entry Number: 1
Index   Mode   Action           Entry MAC           Entry MASK           Match
Count
00      enable pass   c4:14:3c:16:7c:04   ff:ff:ff:ff:ff:ff
0

port: 1      promiscuous mode:   unicast: enable   multicast: enable   broadcast:
enable
Input Drop cnt:                0      Total Drop cnt:
0
Entry Number: 1
Index   Mode   Action           Entry MAC           Entry MASK           Match
Count
00      enable pass   c4:14:3c:16:7c:05   ff:ff:ff:ff:ff:ff
1729

port: 2      promiscuous mode:   unicast: enable   multicast: enable   broadcast:
enable
Input Drop cnt:                0      Total Drop cnt:
0
Entry Number: 1
Index   Mode   Action           Entry MAC           Entry MASK           Match
Count
00      enable pass   c4:14:3c:16:7c:06   ff:ff:ff:ff:ff:ff
0
```

```

port: 3      promiscuous mode:   unicast: enable  multicast: enable  broadcast:
enable
  0          Input Drop cnt:           0          Total Drop cnt:
          Entry Number:  1
          Index      Mode   Action          Entry MAC          Entry MASK          Match
Count      00          enable   pass   c4:14:3c:16:7c:07  ff:ff:ff:ff:ff:ff
  0

port: 4      promiscuous mode:   unicast: enable  multicast: enable  broadcast:
enable
  0          Input Drop cnt:           0          Total Drop cnt:
          Entry Number:  1
          Index      Mode   Action          Entry MAC          Entry MASK          Match
Count      00          enable   pass   c4:14:3c:16:7c:08  ff:ff:ff:ff:ff:ff
  0

port: 5      promiscuous mode:   unicast: enable  multicast: enable  broadcast:
enable
  0          Input Drop cnt:           0          Total Drop cnt:
          Entry Number:  1
          Index      Mode   Action          Entry MAC          Entry MASK          Match
Count      00          enable   pass   c4:14:3c:16:7c:09  ff:ff:ff:ff:ff:ff
  15

port: 6      promiscuous mode:   unicast: enable  multicast: enable  broadcast:
enable
  0          Input Drop cnt:           0          Total Drop cnt:
          Entry Number:  1
          Index      Mode   Action          Entry MAC          Entry MASK          Match
Count      00          enable   pass   c4:14:3c:16:7c:0a  ff:ff:ff:ff:ff:ff
  0

port: 7      promiscuous mode:   unicast: enable  multicast: enable  broadcast:
enable
  0          Input Drop cnt:           0          Total Drop cnt:
          Entry Number:  1
          Index      Mode   Action          Entry MAC          Entry MASK          Match
Count      00          enable   pass   c4:14:3c:16:7c:0b  ff:ff:ff:ff:ff:ff
  0

```

Related Commands

Command	Description
mac-addr-filter	Configures the MAC filtering.

show platform software ios/cdman ipccl

To display information about IPC Client Library (IPCCL) on cable device manager, use the **show platform software** command in privileged EXEC mode. Use **cdman** keyword to display cable device manager's IPCCL statistics on linecards or use **ios** keyword to display IOS IPCCL statistics on Route Processor's or linecards.

```
show platform software {ios | cdman} slot-id ipccl { log-history { port-id } | outstanding { client
{port-id client-id} | port {port-id} } | statistics {client { port-id client-id } | {port { port-id
[rx-msg-stat] } } } | { service {port-id [svc-id apps] } } }
```

Syntax Description

cdman <i>slot-id</i>	Specifies the cable linecard slot number. The valid linecard slot range is 0-3 and 6- 9.
ios <i>slot-id</i>	Specifies the cable linecard slot number. The valid linecard slot range is 0-3, 6-9,R0, R1 and RP active/standby.
log-history	Specifies the log-history.
<i>port-id</i>	Specifies the port layer to which IPC messages are sent and received. The port-id values are for IOS are: <ul style="list-style-type: none"> • 1 - CABLE_IPCCL_PORT_DOCSIS The port-id values are for IOS-CLC are: <ul style="list-style-type: none"> • 1 - CABLE_IPCCL_PORT_DOCSIS • 2 - CABLE_IPCCL_PORT_CDMAN_NORMAL • 3 - CABLE_IPCCL_PORT_VIDMAN • 4 - CABLE_IPCCL_PORT_IDB_SYNC The port-id values for cable device manager is: <ul style="list-style-type: none"> • 2 - CABLE_IPCCL_PORT_CDMAN_NORMAL
outstanding	Specifies the statistics of outstanding messages.
client	Specifies the client statistics.
port	Specifies the port statistics.

<i>client-id</i>	<p>Specifies client statistics. Different client's will use different services and ports:</p> <ul style="list-style-type: none"> • CABLE_IPCCL_TEST_CLIENT = 1 • CABLE_IPCCL_APP_CLIENT_DUMMY = 2 • CABLE_IPCCL_DOCSIS_APP_CLIENT = 3 • CABLE_IPCCL_DOC_CDM_APP_CLIENT = 4 • CABLE_IPCCL_CDMAN_BINOS_APP_CLIENT = 5 • CABLE_IPCCL_UMP_APP_CLIENT = 6 • CABLE_IPCCL_DMP_APP_CLIENT = 7 • CABLE_IPCCL_MD_APP_CLIENT = 8 • CABLE_IPCCL_MD_CDMAN_APP_CLIENT = 9 • CABLE_IPCCL_DSBG_APP_CLIENT = 10 • CABLE_IPCCL_UCM_APP_CLIENT = 11 • CABLE_IPCCL_DCM_APP_CLIENT = 12 • CABLE_IPCCL_DCM_CDMAN_APP_CLIENT = 13 • CABLE_IPCCL_DSNB_APP_CLIENT = 14 • CABLE_IPCCL_PLAT_CLI_CLIENT = 15 • CABLE_IPCCL_STATS_APP_CLIENT = 16 • CABLE_IPCCL_SNMP_APP_CLIENT = 17 • CABLE_IPCCL_CMTS_IPC_APP_CLIENT = 18 • CABLE_IPCCL_SPECMGMT_APP_CLIENT = 19 • CABLE_IPCCL_SPECSVL_APP_CLIENT = 20 • CABLE_IPCCL_SPECSVL_CDMAN_APP_CLIENT = 21 • CABLE_IPCCL_RFCE_APP_CLIENT = 22 <p>The valid client-id values for cable device manager is:</p> <ul style="list-style-type: none"> • 2 - CABLE_IPCCL_PORT_CDMAN_NORMAL
statistics	Specifies statistics on route processor.
rx-msg-stat	(Optional) Specifies the RX message statistics based on TDL message type.
service	Specifies the service statistics
<i>svc-id</i>	<p>Specifies the service-id used by clients grouped under service layer. The valid values are:</p> <ul style="list-style-type: none"> • 0 - Normal • 1 - High • 4 - SNMP_NORMAL
apps	Specifies the list of application used by this service.

Command Default None

Command Modes Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

The **show platform software ios slot ipccl** command displays information about IPC Client Library (IPCCL) on cable device manager.

Examples

The following example shows a typical display for the **show platform software cdman ipccl** command:

```
Router# show platform software cdman 2 ipccl ?
log-history log history
outstanding statistics of outstanding messages
statistics statistics on Route Processor
```

Related Commands

Command	Description
show platform software infrastructure bipc summary	Displays the IOS XE BIPC summary.
show platform software infrastructure bipc identifier	Displays detailed information about the the BIPC identifier.

show platform software ios ipccl

To display information about the IPC Client Library (IPCCL) relative statistics, use the **show platform software ios ipccl** command in privileged EXEC mode.

```
show platform software ios slot ipccl { {outstanding {port [port_number] [peer_slot_number] }
| {client port_number client_id peer_slot_number } } | {statistics {port [port_number]
[peer_slot_number] [rx-msg-stat] } | {client port_number peer_slot_number } | {service
port_number service_id peer_slot_number } } | {log-history port port_number peer_slot_number } }
```

Syntax Description

<i>slot</i>	The cable line card Supervisor slot number.
outstanding	Displays statistics of outstanding messages.
port	Displays the port statistics.
<i>port_number</i>	The IPCCL predefined internal port ID.
<i>peer_slot_number</i>	The slot number of IPCCL peer session.
client	Displays the client statistics.
<i>client_id</i>	The IPCCL registered internal client ID.
statistics	Displays statistics on route processor.
rx-msg-stat	(Optional) Specifies the RX message statistics based on TDL message type.
service	Displays the service statistics.
<i>service_id</i>	The IPCCL predefined internal service ID.
log-history	Displays the log history.

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

The **show platform software ios slot ipccl** command displays the IPCCL statistics on Supervisor or line card.



Note To enable the log-history feature, use the **platform ipccl log-history** command in global configuration mode. To enable the rx-msg-stat feature, use the **platform ipccl rx-stat** command in global configuration mode.

Examples

The following example shows a typical display for the **show platform software ios slot ipcc1** command for all cable interfaces:

```
Router# show platform software ios R0 ipcc1 statistics ?
client      client statistics
port        port statistics
service     service statistics
```

```
Router# show platform software ios R0 ipcc1 statistics por
Router# show platform software ios R0 ipcc1 statistics port ?
 1  CABLE_IPCC1_PORT_DOCSIS
   | Output modifiers
   <cr>
```

```
Router# show platform software ios R0 ipcc1 statistics port 1 ?
 0  Cable-Linecard slot 0
 1  Cable-Linecard slot 1
 2  Cable-Linecard slot 2
 3  Cable-Linecard slot 3
 4  SUP-PIC slot 4
 5  SUP-PIC slot 5
 6  Cable-Linecard slot 6
 7  Cable-Linecard slot 7
 8  Cable-Linecard slot 8
 9  Cable-Linecard slot 9
```

```
Router# show platform software ios R0 ipcc1 statistics port 1 7
```

```
-----
IPCC1 Port 1 Dest CC7 Session 3604558

Session is up      : True
Session Up Cnt    : 1
Session Down Cnt  : 0
Message Flushed Cnt: 0
TX:
Message Send      : 2964
Message Send Success : 2964
Current Outstanding Message : 0
Outstanding High Watermark : 0
Port Config MAX Outstanding Msg: 10000
Port Current Pending message : 0
Port MAX Pending message : 0
Port Configured High Watermark : 3000
Port Configured Low Watermark : 1000
Port High Watermark Hit Count : 0
Port Low Watermark Hit Count : 0
Outstanding MAX Hit Count : 0
Ack Received      : 2
Overdue Ack Received : 0
Message Send Error : 0
Port Driver Error Counter : 0
TX Msg Drop Counter-Invalid Sess : 0
TX Msg Drop Counter-Invalid App : 0
TX Msg Drop Counter-Invalid SVC : 0
RX:
Message Received  : 894889
Total Ack Send Counter : 1
RX Msg Drop Counter-Invalid Sess : 0
RX Msg Drop Counter-Invalid App : 0
RX Msg Drop Counter-Invalid SVC : 0
RX Msg Drop Counter-Invalid Field : 0
RX ACK Drop Counter-Invalid Sess : 0
```

```

RX ACK Drop Counter-Invalid App      : 0
RX ACK Drop Counter-Invalid Field   : 0
ERR:
EAGAIN                               : 0
ETIMEOUT                             : 0
ENOMEM                               : 0
EFAULT                               : 0
ECANCELED                            : 0
Other Error                          : 0
Average Latencies in Microseconds:
Round Trip                           : 28659
Send                                  : 7537
Onwire                               : 5442
Total Ctx Switch                     : 14275
Peer Ctx Switch                      : 345
Local Ctx Switch                     : 13930
Router#show platform software ios R1 ipcc log-history 1 3
IPCC Port 1 Dest CC3
: 2015-04-16 16:32:50.090 Msg 191 seq 1113408 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.091 Msg 191 seq 1113409 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.092 Msg 191 seq 1113410 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.093 Msg 191 seq 1113411 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.093 Msg 191 seq 1113412 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.094 Msg 191 seq 1113413 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.095 Msg 191 seq 1113414 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.095 Msg 191 seq 1113415 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.096 Msg 191 seq 1113416 NBK MsgRx port 1 clnt 16 slot 3 E0
: 2015-04-16 16:32:50.096 Msg 191 seq 1113417 NBK MsgRx port 1 clnt 16 slot 3 E0

```

```

Router# show platform software ios R1 ipcc statistics port 1 3 rx-msg-stat
  client_id      tdl_msg_type      total_msg_count      last_msg_handle_usec
aver_msg_handle_usec      max_msg_handle_used

```

client_id	tdl_msg_type	total_msg_count	last_msg_handle_usec	aver_msg_handle_usec	max_msg_handle_used
3	2	1603	33	39	
	3518				
3	6	1618	44	36	
	2758				
3	216	6	163	429	
	1821				
3	243	2	30	24	
	30				
16	191	64395	37	39	
	408				
17	219	1040	51	41	
	108				

show platform software ios socket statistics 0

To display raw socket interprocess communication (IPC) infrastructure statistics for specified field replaceable unit (FRU), use the **show platform software ios *slot-id* socket statistics 0** command in privileged EXEC mode.

show platform software ios *slot-id* socket statistics 0

Syntax Description

<i>slot-id</i>	The field replaceable unit slot number.
----------------	---

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.18.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Examples

The following example shows a typical display for the **show platform software ios *slot-id* socket statistics 0** command:

```
Router# show platform software ios R0 socket statistics 0
-----

Session Slot           : 2
Socket FD              : 93
Client ID              : 0
Message Receive Count  : 0
Message Receive Bytes  : 0

-----

Session Slot           : 2
Socket FD              : 93
Client ID              : 1
Message Receive Count  : 30155
Message Receive Bytes  : 1326820

-----

Session Slot           : 3
Socket FD              : 86
Client ID              : 0
Message Receive Count  : 0
Message Receive Bytes  : 0

-----

Session Slot           : 3
Socket FD              : 86
Client ID              : 1
Message Receive Count  : 29611
Message Receive Bytes  : 69782901
```

show platform software patch

To display the patch version for each sub package, use the **show platform software patch** command in privileged EXEC mode.

```
show platform software patch slot info
```

To display the detailed patch information for all the field replaceable units (FRUs), use the **show platform software patch info** command in privileged EXEC mode.

```
show platform software patch info
```

Syntax Description

<i>slot</i>	The cable line card slot number.
-------------	----------------------------------

Command Default

None.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
IOS-XE 3.18.0SP	This command was modified on the Cisco cBR Series converged Broadband Routers. Only the show platform software patch info can be used to get the detailed patch information for all the FRUs.

Usage Guidelines

The **show platform software patch slot info** command is used to determine the patch information for each sub package on a particular slot.

The **show platform software patch info** command is used to determine the detailed patch information for all the FRUs. For example, to see the patch info for thirteen FRUs, you need not execute the **show platform software patch slot info** command thirteen times specifying FRU ID everytime. Instead use **show platform software patch info**, which will display the detailed patch information for all the FRUs.

Examples

The following example shows a typical display for the **show platform software patch slot info** command for all cable interfaces:

```
Router# show platform software patch 3 info
cbrsup-clciosdb: 3.15 (0.0)
cbrsup-clc-firmware: 3.15 (0.0)
cbrsup-clcvideo: 3.15 (0.0)
cbrsup-clcios: 3.15 (0.0)
cbrsup-clccontrol: 3.15 (0.0)
cbrsup-clcdocsis: 3.15 (0.0)
cbrsup-clcmipsbase: 3.15 (0.0)
```

The following example shows a typical display for the **show platform software patch info** command for all cable interfaces:

```
Router# show platform software patch info
Base Version: 3.18.0
```

show platform software patch

Subpkg	R0	R1	LC0	LC1	LC2	LC3	LC6	LC7	LC8	LC9
clc-firmware	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.0	N/A	N/A
clccontrol	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.0	N/A	N/A
clcdocsis	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.0	N/A	N/A
clcios	N/A	N/A	N/A	N/A	N/A	4.0	4.0	4.0	N/A	N/A
clciosdb	N/A	N/A	N/A	N/A	N/A	4.0	4.0	4.0	N/A	N/A
clcmipsbase	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.0	N/A	N/A
clcvideo	N/A	N/A	N/A	N/A	N/A	0.0	0.0	0.0	N/A	N/A
espx86base	0.0	0.0	N/A							
rp-firmware	0.0	0.0	N/A							
rpaccess	0.0	0.0	N/A							
rpbase	0.0	0.0	N/A							
rpcontrol	0.0	0.0	N/A							
rpios-universalk9	0.0	0.0	N/A							
rpvideo	0.0	0.0	N/A							
cciomdsup	0.0	0.0	N/A							

show platform software ptpd stat stream

To check the detailed stream statistics, use the **show platform software ptpd stat stream** *<id/ip>* command.

show platform software ptpd stat stream *<id/ip>*

Command Default None

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	IOS-XE 16.7.1y	This command was introduced.
	Cisco IOS XE Cupertino 17.9.1w	The command output includes units for the current data set section.

Example

This example shows the output for the **show platform software ptpd stat stream** *<id/ip>* command:

```
Router# show platform software ptpd stat stream 2001:120:101:16:A94F:61DB:D324:76B4

Load for five secs: 5%/0%; one minute: 4%; five minutes: 4%
Time source is NTP, 04:40:43.466 CST Tue Dec 19 2017
IP-Address : 2001:120:101:16:a94f:61db:d324:76b4 Stream-Number: 0
SYNC Contract
Remaining Duration : 105 (secs), State : ACTIVE
Tx packets : 247592, Rx Packets : 0 Error Packets : 0
Announce Contract
Remaining Duration : 105 (secs), State : ACTIVE
Tx packets : 15490, Rx Packets : 0 Error Packets : 0
Delay-Response Contract
Remaining Duration : 101 (secs), State : ACTIVE
Tx packets : 246878, Rx Packets : 0 Error Packets : 0
Router# show platform software ptpd stat stream 0
Load for five secs: 3%/0%; one minute: 4%; five minutes: 4%
Time source is NTP, 04:40:26.810 CST Tue Dec 19 2017
LOCK STATUS : FREERUN
SYNC Packet Stats
Time elapsed since last packet: 0.0
Configured Interval : -4, Acting Interval -4
Tx packets : 247325, Rx Packets : 0
Last Seq Number : 0, Error Packets : 0
Delay Req Packet Stats
Time elapsed since last packet: 0.0
Configured Interval : 0, Acting Interval : -4
Tx packets : 0, Rx Packets : 246612
Last Seq Number : 26116, Error Packets : 0
Delay Response Packet Stats
Time elapsed since last packet: 0.0
Configured Interval : -4, Acting Interval : -4
Tx packets : 246612, Rx Packets : 0
Last Seq Number : 0, Error Packets : 0
Announce Packet Stats
Time elapsed since last packet: 0.0
```

show platform software ptpd stat stream

```

Configured Interval : 0, Acting Interval : 0
Tx packets : 15474, Rx Packets : 0
Last Seq Number 0 Error Packets 0
Signalling Packet Stats
Time elapsed since last packet: 0.0
Configured Interval : 0, Acting Interval : 0
Tx packets : 162, Rx Packets : 162
Last Seq Number : 0, Error Packets : 0
Current Data Set
Offset from master : +0.000000008      Units      Within tolerance?
Mean Path Delay    : +0.000005055      seconds    Yes
Forward Path Delay : +0.000005063      seconds    Yes
Reverse Path Delay : +0.000005026      seconds    Yes
Steps Removed 1
General Stats about this stream
Packet rate : 0, Packet Delta (ns) : 0
Clock Stream handle : 0, Index : 0
Oper State : 3, Sub oper State : 6
Log mean sync Interval : 0, log mean delay req int : 0

```

show platform software punt-policer

To display the punt policer settings and statistics, and clear the statistics, use the **show platform software punt-policer** command in privileged EXEC mode.

show platform software punt-policer [**clear** | **drop-only**]

Syntax Description	clear (Optional) Displays the punt policer configuration and statistics and clears the statistics.				
	drop-only (Optional) Displays the punt policer with non-zero drop counters.				
Command Default	None				
Command Modes	Privileged EXEC (#)				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>IOS-XE 3.15.0S</td> <td>This command was introduced on the Cisco cBR Series Converged Broadband Routers. The show platform software punt-policer clear command replaces the clear pxf statistics drl max-rate and clear pxf statistics drl wan-non-ip commands.</td> </tr> </tbody> </table>	Release	Modification	IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers. The show platform software punt-policer clear command replaces the clear pxf statistics drl max-rate and clear pxf statistics drl wan-non-ip commands.
Release	Modification				
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers. The show platform software punt-policer clear command replaces the clear pxf statistics drl max-rate and clear pxf statistics drl wan-non-ip commands.				

Example

The following is a sample output of the **show platform software punt-policer** command:

```
Router# show platform software punt-policer
```

```
Per Punt-Cause Policer Configuration and Packet Counters
```

Punt Cause	Description	Configured (pps)		Conform Packets		Dropped Packets	
		Normal	High	Normal	High	Normal	High
2	IPv4 Options	4000	3000	0	0	0	0
3	Layer2 control and legacy	40000	10000	890	0	0	0
4	PPP Control	2000	1000	0	0	0	0
5	CLNS IS-IS Control	2000	1000	0	0	0	0
6	HDLC keepalives	2000	1000	0	0	0	0
7	ARP request or response	2000	1000	0	123	0	0
8	Reverse ARP request or re...	2000	1000	0	0	0	0
9	Frame-relay LMI Control	2000	1000	0	0	0	0
10	Incomplete adjacency	2000	1000	0	5	0	0
11	For-us data	40000	5000	1523592	0	211	0

show platform software punt-policer

12	Mcast Directly Connected ...	2000	1000	0	0	0	0
13	Mcast IPv4 Options data p...	2000	1000	0	0	0	0
15	MPLS TTL expired	5120	2000	0	0	0	0
16	MPLS Reserved label (ie: ...	5120	2000	0	0	0	0
18	IPV6 Hop-by-hop Options	2000	1000	0	0	0	0
19	Mcast Internal Copy	2000	1000	0	0	0	0
23	Mcast IGMP Unroutable	2000	1000	0	0	0	0
24	Glean adjacency	2000	5000	0	1525432	0	0
25	Mcast PIM signaling	2000	1000	0	0	0	0
27	Subscriber session control	10000	40000	0	0	0	0
98	cable arp filter	2000	1000	0	0	0	0
99	Cable L3 mobility	2000	1000	0	0	0	0
100	Source Verify inconclusive	2000	1000	0	0	0	0
101	cable modem pre reg	2000	1000	49	0	0	0
102	mpls receive adj	2000	2000	0	0	0	0
103	MKA EAPoL packet	2000	1000	0	0	0	0
104	ICMP Unreachable	1048	1000	0	0	0	0
105	Cable DHCP	2000	1000	697	0	0	0

The following is a sample output of the **show platform software punt-policer clear** command:

Router# **show platform software punt-policer clear**

Per Punt-Cause Policer Configuration and Packet Counters

Punt Cause	Description	Configured (pps)		Conform Packets		Dropped Packets	
		Normal	High	Normal	High	Normal	High
2	IPv4 Options	4000	3000	0	0	0	0
3	Layer2 control and legacy	40000	10000	890	0	0	0
4	PPP Control	2000	1000	0	0	0	0
5	CLNS IS-IS Control	2000	1000	0	0	0	0
6	HDLC keepalives	2000	1000	0	0	0	0
7	ARP request or response	2000	1000	0	123	0	0
8	Reverse ARP request or re...	2000	1000	0	0	0	0

```

 9  Frame-relay LMI Control          2000    1000    0        0        0        0
10  Incomplete adjacency            2000    1000    0         5         0        0
11  For-us data                     40000   5000   1523592  0         211       0
12  Mcast Directly Connected ...    2000    1000    0         0         0        0
13  Mcast IPv4 Options data p...    2000    1000    0         0         0        0
15  MPLS TTL expired                5120    2000    0         0         0        0
16  MPLS Reserved label (ie: ...    5120    2000    0         0         0        0
18  IPV6 Hop-by-hop Options         2000    1000    0         0         0        0
19  Mcast Internal Copy             2000    1000    0         0         0        0
23  Mcast IGMP Unroutable           2000    1000    0         0         0        0
24  Glean adjacency                 2000    5000    0        1525432   0        0
25  Mcast PIM signaling             2000    1000    0         0         0        0
27  Subscriber session control      10000   40000   0         0         0        0
. . .
98  cable arp filter                2000    1000    0         0         0        0
99  Cable L3 mobility               2000    1000    0         0         0        0
100 Source Verify inconclusive      2000    1000    0         0         0        0
101 cable modem pre reg             2000    1000    49        0         0        0
102 mpls receive adj                2000    2000    0         0         0        0
103 MKA EAPoL packet               2000    1000    0         0         0        0
104 ICMP Unreachable               1048    1000    0         0         0        0
105 Cable DHCP                     2000    1000    697       0         0        0

```

The following is a sample output of the **show platform software punt-policer drop-only** command:

```
Router# show platform software punt-policer drop-only
```

Per Punt-Cause Policer Configuration and Packet Counters

```

Punt          Configured (pps)  Conform Packets  Dropped Packets
Cause  Description  Normal  High  Normal  High  Normal  High
-----
11    For-us data  40000   5000   1523592  0     211     0

```

Table 14: show platform software punt-policer Field Descriptions

Field	Description
Punt Cause	Punt cause number.

Field	Description
Description	Description of the punt cause.
Configured (pps) Normal	Configured punt policing rate limit for normal-priority punts, in packets per second. Corresponds to the platform punt-policer punt-cause punt-rate command.
Configured (pps) High	Configured punt policing rate limit for high-priority punts, in packets per second. Corresponds to the platform punt-policer punt-cause punt-rate high command.
Conform Packets Normal	Number of packets that conform to the configured rate limit for normal-priority punts.
Conform Packets High	Number of packets that conform to the configured rate limit for high-priority punts.
Dropped Packets Normal	Number of dropped packets for normal-priority punts.
Dropped Packets High	Number of dropped packets for high-priority punts.

Related Commands

Command	Description
platform punt-policer	This command configures punt policing.

show platform software restart info

To view the stage in which the process restart is in, us the **show platform software restart info** command.

show platform software {**ios** | **us-scheduler**}*slot-number* **restart info**

Syntax Description

ios	Displays information for Cable Line Card Control Plane Restart feature.
us-scheduler	Displays information for Cable Line Card Upstream Scheduler Process Restart feature.
<i>slot-number</i>	Specifies the cable line card slot number for which the information is required to be displayed.

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
IOS-XE 3.16.0S	This command was introduced.
IOS-XE 3.17.0S	This command was modified. The us-scheduler keyword was added.

Usage Guidelines

This command is used for the following features:

- Cable Line Card Control Plane Restart feature.
- Cable Line Card Upstream Scheduler Process Restart feature.

Restart states displayed, by the **ios** keyword in the command output:

- NOT_RESTARTED — No restart happened after system boot
- GLB_CONFIG_PENDING — Configuration is synchronizing from database process.
- SYNC_PENDING — Modem data is synchronizing from database process.
- RECOVERY_PENDING — Modem data is being reconstructed inside the IOSd.
- RECONCILE_PENDING — Modem data is being reconciled between SUP IOSd, CDMAN and LCHAMAN is occurring.
- DB_RESET_PENDING — Stale modem data in database process is being flushed (This results in restart of database process IOSDB).
- BULK_SYNC_PENDING — Synchronizing the clean data to database process.
- DB_ACTIVE_PENDING — Waiting for confirmation from database process of the bulk synchronization.
- ACTIVE — IOSd active (ready for next restart).

Restart states displayed, by the **us-scheduler** keyword in the command output:

- BOOT — Process is booting up.
- INIT — Process initialization state.
- INFRA_READY — Basic infra is ready.
- IPC_INFRA_READY — Process can talk to other processes.
- OPERATIONAL — Process is ready for new sessions.
- RESTART_INIT — Process has restarted.
- RESTART_INFRA_READY — Basic infra after restart is ready.
- RESTART_IPC_INFRA_READY — Process can talk to other processes after restart.
- RESTART_CFG_RECOVER_DONE — Data has been read from Elcaro database and feature recovery is done.
- RESTART_RECON_PEND — Reconciliation has started.
- RESTART_OPERATIONAL — Process is ready after restart.

Example

This example shows the output for the **show platform software restart info** command with the **ios** keyword:

```
Router#show platform software ios 6 restart info
IOSD process restart info:
  Process restartable: Yes
  IOSD restart state : ACTIVE
  Total Modem Count  : 31
  Active Modem Count : 31
```

This example shows the output for the **show platform software restart info** command with the **us-scheduler** keyword:

```
Router#show platform software us-scheduler 6 restart info
us-scheduler process restart info:
  Process restartable           : Yes
  us-scheduler state            : RESTART_OPERATIONAL
  Features bit map              : 0x001e
  us-scheduler restart count    : 1
```

show platform software trace message lc-veman LC slot number/0

You can use the **show platform software trace message lc-veman <LC slot number>/0** to view the brace logs that provide for better debugging of VOD failures.

```
show platform software trace message lc-veman <LC slot number> /0
```

Syntax Description	<i>LC slot-number</i> Specifies the cable Line Card slot number for which the log is required to be displayed.				
Command Default	None				
Command Modes	Privileged EXEC (#)				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>IOS-XE 16.12.1y</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	IOS-XE 16.12.1y	This command was introduced.
Release	Modification				
IOS-XE 16.12.1y	This command was introduced.				

This example shows the output for the **show platform software trace message lc-veman <LC slot number>/0** command:

```
Router# show platform software trace message lc-veman 8/0
```

```
This command is being deprecated. Please use 'show logging process' command.
executing cmd on chassis local ...
2020/02/03 03:34:05.046653 {veman_8-0}{1}: [scs] [7197]: (warn): 02/03 20:34:04.477 [scs]:
[7197]: (warning): PERFORMANCE: entering ScsTask too late (65 ms since last tick)
2020/02/03 03:34:05.046624 {veman_8-0}{1}: [scs] [7197]: (warn): 02/03 20:34:04.179 [scs]:
[7197]: (warning): PERFORMANCE: entering ScsTask too late (67 ms since last tick)
2020/02/03 03:34:05.046558 {veman_8-0}{1}: [scs] [7197]: (warn): 02/03 20:34:04.073 [scs]:
[7197]: (warning): PERFORMANCE: entering ScsTask too late (61 ms since last tick)
```

show ptp clock

To display the PTP clock information synchronized with the PTP primary clock, use the **show ptp clock** command in privileged EXEC mode.

Cisco cBR Series Converged Broadband Router

show ptp clock { **dataset** [**current** | **default** | **parent** | **time-properties**] | **running domain** | **running domain id** }

Syntax Description		
datasetcurrent		Specifies the current dataset for the PTP clock synchronized with the PTP primary clock.
datasetdefault		Specifies default dataset for the PTP clock synchronized with the PTP primary clock.
datasetparent		Specifies parent dataset for the PTP clock synchronized with the PTP primary clock.
datasettime-properties		Specifies time-properties dataset for the PTP clock synchronized with the PTP primary clock.
running domain-number		The domain number of the PTP clock synchronized with the RPD synchronized with the PTP primary clock.
running domain <id>		Checks the PTP primary clock state.

Command Default None

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Everest 16.5.1	This command was introduced.

Usage Guidelines Use this command to monitor PTP clock status. Use this command to verify the IEEE 1588 PTP configuration and monitor its status.

The following example shows the sample output for the **show ptp clock datasetdefault** command:

```
Router#show ptp clock dataset default

CLOCK [Boundary Clock, domain 10]

Two Step Flag: No
Clock Identity: 0x2A:0:0:0:58:67:F3:4
Number Of Ports: 1
Priority1: 89
Priority2: 90
Domain Number: 10
Slave Only: No
Clock Quality:
```

```
Class: 224
Accuracy: Unknown
Offset (log variance): 4252
```

The following example shows the sample output for the **show ptp clock datasetdefault** command:

```
Router#show ptp clock dataset current

CLOCK [Boundary Clock, domain 10]

Steps Removed: 18522
Offset From Master: 4661806827187470336
Mean Path Delay: 314023819427708928
```

The following example shows the sample output for the **show ptp clock datasetparent** command:

```
Router#show ptp clock dataset parent

CLOCK [Boundary Clock, domain 10]

Parent Stats: No
Observed Parent Offset (log variance): 0
Observed Parent Clock Phase Change Rate: 58087144

Grandmaster Clock:
Identity: 0x3E:D3:D0:0:0:0:0:0
Priority1: 42
Priority2: 0
Clock Quality:
Class: 176
Accuracy: Unknown
Offset (log variance): 4252
```

The following example shows the sample output for the **show ptp clock datasettime-properties** command:

```
Router#show ptp clock dataset time-properties

CLOCK [Boundary Clock, domain 10]

Current UTC Offset Valid: TRUE
Current UTC Offset: 10752
Leap 59: FALSE
Leap 61: TRUE
Time Traceable: TRUE
Frequency Traceable: TRUE
PTP Timescale: TRUE
Time Source: Unknown
```

The following example shows the sample output for the **show ptp clock running domain** command:

```
Router#show ptp clock running domain 0
```

show ptp clock

PTP Ordinary Clock [Domain 0]

State	Ports	Pkts sent	Pkts rcvd	Redundancy Mode
PHASE_ALIGNED	1	34856	106046	Hot standby

PORT SUMMARY

Name	Tx Mode	Role	Transport	State	Sessions	PTP Master Port Addr
slave-from-903	unicast	slave	Lo1588	Slave	1	10.90.3.93

SESSION INFORMATION

slave-from-903 [Lo1588] [Sessions 1]

Peer addr	Pkts in	Pkts out	In Errs	Out Errs
10.90.3.93	106046	34856	0	0

show pxf cable

To display information about the multicast echo, packet intercept, or source-verify features for one or all cable interfaces, use the **show pxf cable** command in user EXEC or privileged EXEC mode.

show pxf cable {**feature-table** [cx/y/z] | **mactable** cx/y/z [sid] | **multicast-echo ds-group** | **multicast-echo** mcast-addr | **source-verify** [ip address]}

Syntax Description		
feature-table [cx/y/z]		Displays the multicast echo and packet intercept status on the PXF processor. If given without any options, displays the status for all cable interfaces and subinterfaces. If given with an optional cable interface, displays the status for that particular interface.
mactable cx/y/z [sid]		Displays memory and service ID (SID) information for a particular cable interface. If the optional <i>sid</i> parameter is specified, displays information for that particular SID.
multicast-echo ds-group		Displays the cable interfaces that are associated with each downstream group, where each downstream group is a unique DOCSIS MAC domain. (Interfaces that are bundled together are considered one MAC domain.)
multicast-echo mcast-addr		Displays the service flow ID (SFID) information for all multicast addresses that hash to the same index as the specified multicast IP address.
source-verify [ip-address]		Displays the interface and SFID mapping tables that are maintained by the source-verify feature. If the optional <i>ip-address</i> parameter is specified, displays information only for that particular IP address.

Command Default None

Command Modes User EXEC (>)

Privileged EXEC (#)

Command History	Release	Modification
	12.2(11)CY, 12.2(11)BC2	This command was introduced as show hardware pxf cable for the Cisco uBR10012 router.
	12.2(15)BC2	This command was renamed from show hardware pxf cable to show pxf cable .
	12.3BC	This command was integrated into Cisco IOS release 12.3BC.
	12.2(33)SCA	This command was integrated into Cisco IOS release 12.2(33)SCA.
	12.2(33)SCB	The command was modified and verbose option was removed.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

The **show pxf cable** command displays information about whether multicast echo and packet intercept are enabled on the cable interfaces. It can also be used to display the service flow ID (SFID) used for each multicast address that is being processed by the router.



Note The **source-verify** option is not supported on the PRE-2 module. Instead, use the **show pxf cpu cef verbose** command to display the primary SID information on the PRE-2 module.

Examples

The following example shows a typical display for the **show pxf cable feature-table** command for all cable interfaces:

```
Router# show pxf cable feature-table
```

Interface	SWInterface	VCCI	McastEcho	Intercept	DSGroup	InterceptGroup
Cable5/0/0	Cable5/0/0	3	On	On	0	0
Cable5/0/0.1	Cable5/0/0	9	On	On	0	0
Cable5/0/1	Cable5/0/1	4	On	Off	255	-
Cable6/0/0	Cable6/0/0	5	On	Off	255	-
Cable6/0/1	Cable6/0/1	6	On	Off	255	-
Cable7/0/0	Cable7/0/0	7	On	Off	1	-
Cable7/0/1	Cable7/0/1	8	On	Off	2	-

The following example shows a typical display for the **show pxf cable feature-table** option for a particular cable interface:

```
Router# show pxf cable feature-table c5/0/0
```

Interface	SWInterface	VCCI	McastEcho	Intercept	DSGroup	InterceptGroup
Cable5/0/0	Cable5/0/0	3	On	On	0	0
Cable5/0/0.1	Cable5/0/0	9	On	On	0	0

The following example shows a typical display for the **show pxf cable feature-table** option when a cable interface has a bundle interface configured without a corresponding primary interface:

```
Router# show pxf cable feature-table
```

Interface	SWInterface	VCCI	McastEcho	Intercept	DSGrp	InterceptGrp
Cable5/0/0	<No Cable Bundle Master Configured>					
Cable5/0/1	Cable5/0/1	4	On	Off	11	-
Cable5/1/0	<No Cable Bundle Master Configured>					
Cable5/1/1	Cable5/1/1	6	On	Off	15	-
Cable6/0/0	Cable6/0/0	7	On	Off	0	-
Cable6/0/1	Cable6/0/1	8	On	Off	1	-
Cable6/1/0	Cable6/1/0	9	On	Off	6	-
Cable6/1/1	Cable6/1/1	10	On	Off	7	-
Cable7/0/0	Cable7/0/0	11	On	Off	8	-
Cable7/0/1	Cable7/0/1	12	On	Off	9	-
Cable7/1/0	Cable7/1/0	13	On	Off	4	-
Cable7/1/1	Cable7/1/1	14	On	Off	5	-
Cable8/0/0	Cable8/0/0	15	On	Off	255	-
Cable8/0/1	Cable8/0/1	16	On	Off	3	-
Cable8/1/0	Cable8/1/0	17	On	Off	12	-
Cable8/1/1	Cable8/1/1	18	On	Off	13	-

Table below describes the fields shown by both forms of the **show pxf cable feature-table** command:

Table 15: show pxf cable feature-table Field Descriptions

Field	Description
Interface	Identifies the cable interface or subinterface.
SWInterface	Identifies the primary cable interface for bundled interfaces.
McastEcho	Displays whether multicast echo is enabled (On) or disabled (Off).
VCCI	Displays the Virtually Cool Common Index (VCCI) for this cable interface or subinterface. The VCCI is an index that uniquely identifies every interface or subinterface on the PXF processor, and that quickly maps that interface to the appropriate set of services and features.
Intercept	Displays whether packet intercept, as per the Communications Assistance of Law Enforcement Act (CALEA), is enabled (On) or disabled (Off).
DSGroup	Displays the downstream group (unique MAC domain) that is associated with this interface or subinterface. Interfaces that are bundled together are considered one MAC domain. Note A downstream group number of 255 indicates that the CMTS has not assigned the interface to a MAC domain, typically because the interface is shutdown.
InterceptGroup	Displays the intercept packet group assigned to this cable interface.

The following example shows a typical display for the **show pxf cable mactable** command for a particular cable interface:

```
Router# show pxf cable mactable c5/1/0
SID   VCCI   FIB Index   SrcVfy   Pri SID   CM IP Address
1     3       0           On       1         10.10.11.31
2     3       0           On       2         10.10.11.129
```

Table below describes the fields shown by the **show pxf cable mactable** command:

Table 16: show pxf cable mactable Field Descriptions

Field	Description
SID	Identifies the service ID (SID).
VCCI	Displays the Virtually Cool Common Index (VCCI) for this cable interface or subinterface. The VCCI is an index that uniquely identifies every interface or subinterface on the PXF processor, and that quickly maps that interface to the appropriate set of services and features.
FIB Index	Identifies the forwarding information base (FIB) being used.
SrcVfy	Identifies whether the source-verify feature (enabled with the cable source-verify command) is On or Off for this SID and interface.
Pri SID	Identifies the primary SID associated with this SID, in case this SID is a secondary or dynamic SID.
CM IP Address	Displays the IP address for the CM that is associated with this SID.

The following example shows a typical display for the **show pxf cable multicast-echo ds-group** command, listing each downstream multicast group and its associated cable interface:

```
Router# show pxf cable multicast-echo ds-group
```

```
DS Group      Interface
0             Cable5/0/0
1             Cable7/0/0
2             Cable7/0/1
```

The following example shows a typical display for the **show pxf cable multicast-echo** command for a particular multicast address:

```
Router# show pxf cable multicast-echo 230.1.1.1
```

```
Src          I/f          SFID   DS Jib Header          Packets   Bytes
230.1.1.1   Cable7/0/1   16385  0x0000 0000 1000 0001 1000          321      2160
```

Table below describes the fields shown by the **show pxf cable multicast-echo** command:

Table 17: show pxf cable multicast-echo Field Descriptions

Field	Description
Src	Multicast address being displayed.
I/F	Cable interface being used for this multicast address.
SFID	Displays the service flow ID (SFID) for this particular multicast address.

Field	Description
DS Jib Header	<p>Shows the bitmask used for this multicast address on the PRE's MAC-layer processor. The bitmask consists of ten hexadecimal bytes in the following format (reading left to right, from most significant to least significant bit):</p> <ul style="list-style-type: none"> • Bytes 9:8 = Specifies the key index for the downstream. • Bytes 7:6 = Identifies the rule number used for packet header suppression (if enabled) • Byte 5 = Bitmask that defines the type of packet transmitted: <ul style="list-style-type: none"> • Bit 4 = 1 if padding CRC for data packets, 0 if not padding the CRC • Bit 3 = 1 if inserting an extended header (EH) for PHS processing • Bit 2 = 1 if inserting an extended header (EH) for BPI+ processing • Bits 1:0 = Specifies the packet type: 00 = Data packet 01 = MAC management message for transmitted packets 10 = Internal MAP message on upstream 11 = Special packet • Byte 4 = Bitmask that identifies the type of map control and key sequence for the packet: <ul style="list-style-type: none"> • Bits 6:4 = Destination upstream for the MAP message • Bits 3:0 = BPI Key Sequence number • Bytes 3:2 = Index to obtain the downstream modem statistics. • Byte 1 = Specifies the assumed minimum size of a packet data unit. Multiply this byte by 4 to get the actual minimum size in bytes. • Byte 0 = Specifies the DOCSIS header size, with a maximum value of 0xE0 (248 decimal).
Packets	Number of packets sent to this address.
Bytes	Number of bytes sent to this address.

The following example shows a typical display for the **show pxf cable source-verify** command:

```
Router# show pxf cable source-verify
IP Address   Interface      Fib Index   Mac-Domain   SID
50.1.1.3     Cable5/0/0     0           0             1
50.1.1.29    Cable5/0/0     0           0             2
50.1.1.32    Cable5/0/0     0           0             2
50.1.2.6     Cable8/0/0     0           6             1
50.1.2.19    Cable8/0/0     0           6             1
```

Table below describes the fields shown by the **show pxf cable source-verify** command:

Table 18: show pxf cable source-verify Field Descriptions

Field	Description
IP Address	Identifies the IP addresses that have been verified by the source-verify feature.

Field	Description
Interface	Identifies the cable interface or subinterface used for this IP address.
FIB Index	Identifies the forwarding information base (FIB) being used.
Mac-Domain	Identifies the MAC DOCSIS downstream domain for this IP address.
SID	Identifies the service ID (SID).

Related Commands

Command	Description
cable source-verify	Enables verification of IP addresses for CMs and CPE devices on the upstream.
clear pxf	Clears the direct memory access (DMA) and error checking and correcting (ECC) error counters on the PXF processor.
debug pxf	Enables debugging of the PXF subsystems on the active PRE1 module on the Cisco uBR10012 router.
show pxf cable interface	Displays display DOCSIS-related information about a particular service ID (SID) on a particular cable interface.
show pxf cpu	Displays the display different statistics about the operation of the CPU processor during PXF processing.
show pxf microcode	Displays identifying information for the microcode being used on the processor.
show pxf xcm	Displays the current state of error checking and correcting (ECC) for the External Column Memory (XCM) on the PXF processor.

show pxf cable controller

To display information about radio frequency (RF) channel Versatile Traffic Management System (VTMS) links and link queues, use the **show pxf cable controller** command in privileged EXEC mode.

show pxf cable controller modular-cable slot /subslot /unit rf-channel channel link queues

Syntax Description	modular-cable	Specifies the modular cable interface.
	slot/subslot/unit	Identifies a cable interface on the Cisco uBR10012 router. The following are valid values: <ul style="list-style-type: none"> • slot = 1 or 3 • subslot = 0 or 1 • unit = 0
	rf-channel	Specifies the RF channel physical port on the Wideband SPA field-programmable gate array (FPGA).
	channel	Specifies the number of the RF channel. The range is 0 to 23.
	link queues	(Optional) Displays the link queue information for the specified RF channel.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(23)BC1	This command was introduced.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

The **show pxf cable controller** command displays information about VTMS link queues only on the Cisco uBR10012 universal broadband router.

Examples

The following example using the **show pxf cable controller** command, omitting the **link queues** option, displays only VTMS-related output:

```
Router# show pxf cable controller modular-cable 1/0/0 rf-channel 3
Link ID is 32259
      link next_send:    0x00000000    channel number:    0
      temporary bgbw:   0x00000000    reserved bgbw:    0x00000000
col.6 link bandwidth mult: 55778                shift:    18
col.7 link bandwidth mult: 55778                shift:    18
      link aggregate cir: 0x00000000    aggregate eir:    0x00000000
      bw reclaimed/trunc eir: 0/0                link cir_max:    0xFFFF
      link cir_sum:      70                link eir_sum:    2
      link bw_sum:       0                act. link q num:  0
```

The following example using the **show pxf cable controller** command including the **link queues** option, displays VTMS-related output as well as link queue-related output:

show pxf cable controller

```

Router# show pxf cable controller modular-cable 1/0/0 rf-channel 3 link-queues
Link ID is 32259
      link next_send: 0x00000000   channel number: 0
      temporary bgbw: 0x00000000   reserved bgbw: 0x00000000
col.6 link bandwidth mult: 55778   shift: 18
col.7 link bandwidth mult: 55778   shift: 18
      link aggregate cir: 0x00000000   aggregate eir: 0x00000000
      bw reclaimed/trunc eir: 0/0     link cir_max: 0xFFFF
      link cir_sum: 70               link eir_sum: 2
      link bw_sum: 0                 act. link q num: 0

Link Queues :
  QID  CIR(act/conf)    EIR      MIR      WB Chan.  Status
  420  13107/13107      1/1      65535/65535  0         Inactive
  423  32768/32768      1/1      65535/65535  2         Inactive

```

See Table below for descriptions of link queue fields.

Table 19: show pxf cable controller Link Queue Field Descriptions

Field	Description
QID	Displays the identification number of the link queue.
CIR (act/conf)	Displays the information for the committed information rate (CIR) of link queues on this RF channel. <ul style="list-style-type: none"> The first number, <i>act</i>, indicates the parameter that a link queue is actually using. The second number, <i>conf</i>, indicates the parameter that is configured for a link queue.
EIR	Displays the information for the excess information rate (EIR) of link queues on this RF channel. <ul style="list-style-type: none"> The first number in the output indicates the parameter that a link queue is actually using. The second number in the output indicates the parameter that is configured for a link queue.
MIR	Displays the information for the maximum information rate (MIR) of link queues on this RF channel. <ul style="list-style-type: none"> The first number in the output indicates the parameter that a link queue is actually using. The second number in the output indicates the parameter that is configured for a link queue.
WB Chan	The number of the wideband cable channel.
Status	Displays the state of the link queue.

Related Commands

Command	Description
debug cr10k-rp dbs-queue	Displays debug information for dynamic bandwidth sharing (DBS) on the Cisco uBR10012 universal broadband router.
show pxf cpu queue	Displays parallel express forwarding (PXF) queueing and link queue statistics.

show pxf cable feature

To display multicast echo, packet intercept, or source-verify features for one or all cable interfaces, to include information for virtual interface bundles, use the **show pxf cable feature** command in privileged EXEC mode.

show pxf cable feature

Syntax Description

This command has no additional arguments or keywords.

Command Default

Display output without page breaks and remove passwords and other security information.

Command Modes

User EXEC, Privileged EXEC

Command History

Release	Modification
12.3(21)BC	This command was introduced to support Multicast with Virtual Interface Bundling on the Cisco CMTS.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

Refer to the following document on Cisco.com for additional information about cable interface bundling and virtual interface bundling on the Cisco CMTS:

- *Cable Interface Bundling and Virtual Interface Bundling on the Cisco CMTS*

Examples

The following example illustrates Multicast Echo and virtual interface bundling information on the Cisco uBR10012 router.

```
Router# show pxf cable feature
Interface SWInterface VCCI McastEcho Intercept SrcVfy DHCP DSGrp InterceptGrp
Cable5/0/0 Bundle1 36 On Off On On 0
Cable5/0/1 Cable5/0/1 15 On Off Off Off 11
Cable5/1/0 Bundle1 36 On Off On On 0
Cable5/1/1 Cable5/1/1 17 On Off Off Off 9
Cable6/0/0 Bundle1 36 On Off On On 0
Cable6/0/1 Cable6/0/1 19 On Off Off Off 12
Cable6/1/0 Cable6/1/0 20 On Off Off Off 7
Cable6/1/1 Cable6/1/1 21 On Off Off Off 8
Cable7/0/0 Cable7/0/0 22 On Off Off Off 255
Cable7/0/0 Cable7/0/0.1 42 On Off Off Off 255
Cable7/0/1 Bundle200 38 On Off Off Off 3
```

Related Commands

Command	Description
cable bundle	Configures a cable interface to belong to an interface bundle or virtual interface bundle.
show arp	Displays the entries in the router's ARP table.

Command	Description
show cable bundle forwarding-table	Displays the MAC forwarding table for the specified bundle, showing the MAC addresses of each cable modem in a bundle and the physical cable interface that it is currently using.
show cable modem	Displays the cable modems that are online both before and after cable interface bundling has been configured.
show running-config interface cable	Displays the configuration for the specified cable interface.

show pxf cable interface

To display information about a particular service ID (SID) on a particular cable interface, use the **show pxf cable** command in user EXEC or privileged EXEC mode.

show pxf cable interface cable *x/y/z* **sid**
classifiers | **mac-rewrite** | **queue** | **service-flow ds** | **service-flow us**

Syntax Description	Parameter	Description
	cable <i>x/y/z</i>	Identifies the cable interface for which information should be displayed.
	<i>sid</i>	Identifies the service ID (SID) for which information should be displayed. The valid range is 1 to 8191.
	classifiers	Displays the packet classifiers used for this SID.
	mac-rewrite	Displays the CPE MAC information for this SID.
	queue	Displays the status of the queues being used by this SID.
	service-flow ds	Displays the service flow IDs (SFID) associated with the given SID on the downstream for the given cable interface.
	service-flow us	Displays the SFIDs associated with the given SID on the upstream for the given cable interface.

Command Default None

Command Modes User EXEC, Privileged EXEC

Command History	Release	Modification
	12.2(11)BC2	This command was introduced as show hardware pxf cable for the Cisco uBR10012 router.
	12.2(15)BC2	This command was renamed from show hardware pxf cable interface to show pxf cable interface .
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines The **show pxf cable interface** command displays the DOCSIS-related information for a particular service ID (SID) on a particular cable interface.

Examples The following example shows a typical display for SID 1 on cable interface c8/0/0 for the **show pxf cable interface classifiers** command:

```
Router# show pxf cable interface c8/0/0 1 classifiers
CM Classifiers:
Mac Rw Index: 18          CCB Index: 47
```

show pxf cable interface

```

id=1, sfid=91 CFR Index 16461 RP sfindex 16461,
  prio=7, sip=0.0.0.0, sip mask=0.0.0.0
  dip=0.0.0.0, dip mask=0.0.0.0, prot=17, tos=0,FF
  sport = 0,65535, dport = 0,65535 matches = 0
id=2, sfid=92 CFR Index 16462 RP sfindex 16462,
  prio=6, sip=0.0.0.0, sip mask=0.0.0.0
  dip=1.11.22.2, dip mask=255.255.255.255, prot=256, tos=0,FF
  sport = 0,65535, dport = 0,65535 matches = 0
id=0, sfid=0 CFR Index 0 RP sfindex 0,
  prio=0, sip=0.0.0.0, sip mask=0.0.0.0
  dip=0.0.0.0, dip mask=0.0.0.0, prot=0, tos=2,1
  sport = 1000,500, dport = 1000,500 matches = 0
id=0, sfid=0 CFR Index 0 RP sfindex 0,
  prio=0, sip=0.0.0.0, sip mask=0.0.0.0
  dip=0.0.0.0, dip mask=0.0.0.0, prot=0, tos=2,1
  sport = 1000,500, dport = 1000,500 matches = 0
-----
Router#

```



Note For a description of the fields that are displayed by this command, see section C.2.1., Packet Classification Encodings, in Appendix C of the DOCSIS 1.1 specification (*Data-Over-Cable Service Interface Specifications Radio Frequency Interface Specification*, SP-RF1v1.1-I08-020301).

The following example shows a typical display for SID 1 on cable interface c8/0/0 for the **show pxf cable interface mac-rewrite** command:

```

Router# show pxf cable interface c8/0/0 1 mac-rewrite

CPE Information for Interface Cable8/0/0 SID 1:
  Link Table Slot: 18 Mac-rw-index: 18
Router#

```

The following example shows a typical display for SID 1 on cable interface c8/0/0 for the **show pxf cable interface queue** command:

```

Router# show pxf cable interface c8/0/0 1 queue

RP SFID 16460 LC SFID 4
Queue Index: 281      QID 281 VCCI 6161      ClassID 9      Refcount 1
  Priority: Lo      Rates:(Act/Conf) CIR 0/0 MIR 0/16383 EIR 0/431
  Statistics: Length 0 Pkts 0 Octets 0 TailDrops 0 BufferDrops 0
RP SFID 16461 LC SFID 91
Queue Index: 282      QID 282 VCCI 6161      ClassID 10     Refcount 1
  Priority: Lo      Rates:(Act/Conf) CIR 0/0 MIR 0/16383 EIR 0/431
  Statistics: Length 0 Pkts 0 Octets 0 TailDrops 0 BufferDrops 0
RP SFID 16462 LC SFID 92
Queue Index: 283      QID 283 VCCI 6161      ClassID 11     Refcount 1
  Priority: Lo      Rates:(Act/Conf) CIR 0/0 MIR 0/16383 EIR 0/431
  Statistics: Length 0 Pkts 0 Octets 0 TailDrops 0 BufferDrops 0
RP SFID 16463 LC SFID 93
Queue Index: 284      QID 284 VCCI 6161      ClassID 12     Refcount 1
  Priority: Lo      Rates:(Act/Conf) CIR 0/0 MIR 0/16383 EIR 0/431
  Statistics: Length 0 Pkts 0 Octets 0 TailDrops 0 BufferDrops 0
RP SFID 16464 LC SFID 94
Queue Index: 285      QID 285 VCCI 6161      ClassID 13     Refcount 1
  Priority: Lo      Rates:(Act/Conf) CIR 0/0 MIR 0/16383 EIR 0/431
  Statistics: Length 0 Pkts 0 Octets 0 TailDrops 0 BufferDrops 0
Router#

```

The following example shows a typical display for SID 1 on cable interface c8/0/0 for the **show pxf cable interface service-flow ds** command:

```
Router# show pxf cable interface c8/0/0 1 service-flow ds

RP SFID      LC SFID      Bytes      Packets      QID
16460        4            0          0           281
16461        91          0          0           282
16462        92          0          0           283
16463        93          0          0           284
16464        94          0          0           285
Router#
```

The following example shows a typical display for SID 1 on cable interface c8/0/0 for the **show pxf cable interface service-flow us** command:

```
Router# show pxf cable interface c8/0/0 1 service-flow us
SFID      SID
3         1
90        21
Router#
```

Related Commands

Command	Description
clear pxf	Clears the direct memory access (DMA) and error checking and correcting (ECC) error counters on the PXF processor.
debug pxf	Enables debugging of the PXF subsystems on the active PRE1 module on the Cisco uBR10012 router.
show pxf cable	Displays information about the multicast echo and packet intercept features for one or all cable interfaces.
show pxf cpu	Displays the display different statistics about the operation of the CPU processor during PXF processing.
show pxf microcode	Displays identifying information for the microcode being used on the processor.
show pxf xcm	Displays the current state of error checking and correcting (ECC) for the External Column Memory (XCM) on the PXF processor.

show pxf cable multicast

To display information about multicast routes (mroute) in the PXF processor for a specified group, use the **show pxf cable multicast** command in privileged EXEC mode.

show pxf cable multicast [*multicast-group*]

Syntax Description	<i>multicast-group</i> (Optional) Displays the name of the multicast group.
---------------------------	---

Command Default None

Command Modes Privileged EXEC

Command History	Release	Modification
	12.2(33)SCB	The command was introduced.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines The **show pxf cable multicast** command displays information about whether routes are enabled on the cable interfaces.

Examples The following example shows a typical display for the **show pxf cable multicast** command for all cable interfaces:

```
Router# show pxf cable multicast multicast-group

MDB Flags: L - Local, F - Register flag, T - SPT-bit set, J - Join SPT
Z - Multicast Tunnel, N- No FastSwitching
OIF Flags: P - Prune Flag, A - Assert Flag
PXF multicast switching for vrf default is enabled.
Mdb at index= 3 hash= 0xE9F7:
next_mdb_idx: 0, fib_root: 0x0001, source_addr: 0.0.0.0, group_addr: 230.1.1.1
uses: 0, bytes: 0, vcci_in: 0, oif: 0x000002
rpf_failed: 0, drop_others: 0
rp_bit_mask:0x00, flags: [0xA0]
Ref Count=0, MDB Flags=0x0082, MDB FastFlags=0x10
```

Related Commands	Command	Description
	show pxf cable interface	Displays display DOCSIS-related information about a particular service ID (SID) on a particular cable interface.
	show pxf cpu	Displays the display different statistics about the operation of the CPU processor during PXF processing.

show pxf cpu

To display the different statistics about the operation of the CPU on the Performance Routing Engine (PRE1) module during Parallel eXpress Forwarding (PXF) processing, use the **show pxf cpu** command in user EXEC or privileged EXEC mode.

```
show pxf cpu {access-lists {qos | security} | buffers | cef [mem | verbose | vrf ip-address mask] |
context | mroute [ipaddress1] [ipaddress2] | queue [interface] | schedule [interface | summary] | statistics
[diversion | drop [interface] | ip | mlp] | subblocks [interface]}
```

Syntax Description

access-lists {qos security}	Displays information for either quality of service (QoS) access lists (ACLs) or security access lists. Note The PRE module automatically compiles all access lists into the turbo ACL format, so that they can be efficiently processed by the PXF processors. The only exception are very simple access lists that would require more processing time to be compiled than to be executed.
buffers	Displays information about buffer usage on the processor.
cef [mem verbose vrf ip-address mask]	Displays information about the memory usage and routing tables in the PXF processors for Cisco Express Forwarding (CEF) operation. Optionally displays detailed information about memory usage and about a particular entry in the virtual private network (VPN) routing/forwarding (VRF) tables.
context	Displays performance statistics on the processing of contexts on the processors. (A context is a unit of packet processing time on the PXF processor.) Note The show pxf cpu context command displays more useful information on the PXF processor's performance than the show processor cpu command that is used on other platforms.
mroute [ipaddress1] [ipaddress2]	Displays multicast static route (mroute) information for all groups, for one particular group, or for a range of groups. Displays information about IP multicast routes in the PXF processor for a specified IP prefix. For a more user-friendly display of the same information, use the show ip mroute command.
queue [interface]	Displays queue drop counters for all interfaces, or optionally for one selected interface. This can be useful in determining if traffic is being properly distributed among the correct interfaces.
schedule [interface / summary]	Displays the timing wheel dequeue schedule counters for all interfaces, or optionally for one interface, or optionally a summary of all interfaces.

statistics [diversion drop [<i>interface</i>] ip mlp]	Displays statistics for the packets that the PXF has processed. The default is to display all packet statistics, or you can optionally specify one of the following keywords to display a particular type of statistics: <ul style="list-style-type: none"> • diversion—(Optional) Displays packets that the PXF diverted to the main route processor for special handling. • drop [<i>interface</i>]—(Optional) Displays dropped packets and bytes. You can also optionally display the dropped packets for a particular interface. • ip—(Optional) Displays statistics for the processing of IP and ICMP packets. • mlp—(Optional) Displays statistics for multilink point-to-point protocol (MLPPP) packets.
subblocks [<i>interface</i>]	Displays subblocks information for all interfaces, or optionally for one interface.

Command Default No default behavior or values

Command Modes User EXEC, Privileged EXEC

Command History

Release	Modification
12.2(1)XF1	This command was introduced as show hardware pxf cpu for the Cisco uBR10012 router.
12.2(11)BC2	The MAC domain was added to the display of the show pxf cpu subblocks command for a particular cable interface.
12.2(15)BC2	This command was renamed from show hardware pxf cpu to show pxf cpu . In addition, the cef option was enhanced to display CEF tag adjacency information. The verbose option was also added to the cef option to display more detailed information about the Forwarding Information Base (FIB) tables being maintained by the CEF subsystem.
12.2(15)BC2	The detail option and additional counters were added to the show pxf cpu statisticsdiversion command.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Examples

See the following sections for typical displays for the different forms of the **show pxf cpu** command.

Access-Lists

The following example shows a typical display for the **access-list qos** option, which displays information about the processing of quality-of-service (QoS) access-lists:

```
Router# show pxf cpu access qos
```

```
PXF QoS ACL statistics:
ACL      State      Tables  Entries  Config  Fragment  Redundant  Memory
101      Operational  1       9        1       0         0         1Kb
First level lookup tables:
Block    Use          Rows     Columns  Memory used
0       TOS/Protocol  1/128   0/32     16384
```

```

1 IP Source (MS)          1/128    0/32    16384
2 IP Source (LS)         1/128    0/32    16384
3 IP Dest (MS)           1/128    0/32    16384
4 IP Dest (LS)           1/128    0/32    16384
5 TCP/UDP Src Port       1/128    0/32    16384
6 TCP/UDP Dest Port      1/128    0/32    16384
7 TCP Flags/Fragment     1/128    0/32    16384
Banknum  Heapsize  Freesize  %Free
0         4172800  4172800  100
1         4128768  4128768  100
2         2818048  2818048  100
3         4194304  4194304  100
4         3342336  3309568  99
5         3670016  3637248  99
6         3342336  3309568  99
7         3342336  3309568  99
Router#

```

The following example shows a typical display for the **access-list security** option:

```

Router# show pxf cpu access security

PXF Security ACL statistics:
ACL      State      Tables  Entries  Config  Fragment  Redundant  Memory
104      Operational  5       536      514     46        29        818Kb
105      Operational  1       4        6       0         3         7Kb
190      Operational  1       27       26      0         0         8Kb
cit01    Operational  1       26       24      12        11        9Kb
130      Unneeded
131      Unneeded

First level lookup tables:
Block    Use              Rows      Columns  Memory used
0        TOS/Protocol     18/128   5/32     16384
1        IP Source (MS)   27/128   5/32     16384
2        IP Source (LS)   36/128   5/32     16384
3        IP Dest (MS)     29/128   5/32     16384
4        IP Dest (LS)     37/128   5/32     16384
5        TCP/UDP Src Port 12/128   5/32     16384
6        TCP/UDP Dest Port 10/128   5/32     16384
7        TCP Flags/Fragment 13/128   5/32     16384
Banknum  Heapsize  Freesize  %Free
0         4156416  3451904  83
1         4194304  4180992  99
2         4194304  4161536  99
3         4194304  4107264  97
4         3670016  3637248  99
5         3670016  3637248  99
6         3670016  3637248  99
7         3670016  3637248  99
Router#

```

Table below describes the fields shown in the **show pxf cpu access-list** command:

Table 20: Field Descriptions for the show pxf cpu access-list Command

Field	Description
ACL	Identifies the access list (ACL) in use, by either name or number.

Field	Description
State	Displays the current state of the access list: <ul style="list-style-type: none"> • Copying—The ACL is in the process of being created or compiled. • Operational—ACL is active and filtering packets. • Out of acl private mem—ACL has run out of the private memory that was allocated exclusively to it. • Out of shared mem—ACL has run out of the memory that it shares with other ACLs. • Unknown Failure—ACL has failed because of an uncategorized reason. • Unneeded—ACL was allocated but is not currently in use.
Tables	Displays the number of tables that the ACL is currently using.
Entries	Displays the number of table entry slots for the fields or values that the ACL is currently using to match packets.
Config	Displays the number of simple or extended entries for this ACL.
Fragment	Displays the number of entries that were configured with the fragments keyword.
Redundant	Displays the number of duplicate entries for this ACL.
Memory	Displays the total amount of memory, rounded up to the nearest kilobyte, that the ACL is currently using.
First level lookup tables	Describes the blocks of memory that store the IP fields that are used to match packets for access list processing.
Block	Identifies the block of memory used for this particular lookup table.
Use	Describes the IP packet field that is being matched.
Rows	Describes the number of table rows currently in use and the total number of rows.
Columns	Describes the number of table columns currently in use and the total number of columns.
Memory used	Describes the total amount of memory, in bytes, currently being used by the memory block.
Banknum	Identifies the block of memory used for this particular lookup table.
Heapsize	Identifies the total amount of memory, in bytes, allocated for this block of memory.
Free size	Identifies the amount of memory, in bytes, that is currently available for use by this block of memory.
%Free	Identifies the percentage of memory that is free and available for use for this block of memory.

Buffers

The following example shows a typical display for the **buffers** option:

```
Router# show pxf cpu buffers

FP buffers
  pool   size   # buffer   available   allocate failures
-----
  0      9216   3203      3203        0
  1      1536   6406      6406        0
  2       640  89432     89432       0
  3       256  76872     76872       0
  4        64 128120    128120      0
Router#
```

Table below describes the fields shown in the **show pxf cpu buffers** command:

Table 21: Field Descriptions for the show pxf cpu buffers Command

Field	Description
pool	Identifies the buffer pool.
size	Displays the size, in bytes, of each buffer in this particular pool.
# buffer	Displays the total number of buffers in this particular pool.
available	Displays the number of buffers that are currently available.
allocate failures	Displays the number of attempts to allocate a buffer that have failed since the last reset.

CEF

The following example shows a typical display for the **cef** option:

```
Router# show pxf cpu cef

Shadow 10-9-5-8 Toaster Mtrie:
  97 leaves, 3104 leaf bytes, 40 nodes, 41056 node bytes
  141 invalidations
  233 prefix updates
  refcounts: 10293 leaf, 10144 node
Prefix/Length      Refcount   Parent
0.0.0.0/0          4512
1.10.0.0/16        1665       0.0.0.0/0
1.10.0.2/32        4          1.10.0.0/16
1.10.0.3/32        4          1.10.0.0/16
1.10.37.22/32      4          1.10.0.0/16
1.10.45.16/32      4          1.10.0.0/16
1.10.85.0/24       259        1.10.0.0/16
1.10.85.0/32       4          1.10.85.0/24
1.11.0.0/16        42         0.0.0.0/0
1.11.37.0/24       4          1.11.0.0/16
127.0.0.0/8        1601       0.0.0.0/0
127.0.0.0/32       4          127.0.0.0/8
144.205.188.0/24   259        0.0.0.0/0
```

```

144.205.188.0/32 4          144.205.188.0/24
144.205.188.1/32 4          144.205.188.0/24
144.205.188.2/32 4          144.205.188.0/24
144.205.188.255/32 4       144.205.188.0/24
164.120.151.128/25 131     0.0.0.0/0
164.120.151.128/32 4          164.120.151.128/25
164.120.151.129/32 4          164.120.151.128/25
166.135.216.255/32 4          166.135.216.128/25
221.222.140.0/22 772     0.0.0.0/0
221.222.140.0/32 4          221.222.140.0/22
221.222.141.1/32 4          221.222.140.0/22
221.222.143.255/32 4       221.222.140.0/22
223.255.254.0/24 4          0.0.0.0/0

```

26 routes with less specific overlapping parent route

FP CEF/MFIB/TFIB XCM Type usage:

Type	Name	Col	Total	Alloc	Size	Start	End	BitMap0	BitMap1	Error
0	Root	1	1000	1000	4096	50003100	503EB100	713AC814	61DFB48C	0
1	Node	1	2048	2009	2048	53000000	53400000	713AC8C0	61DFB538	0
2	Node	1	32768	2013	128	50864000	50C64000	713AC9F0	61DFB668	0
3	Node	1	4096	1021	1024	53864000	53C64000	713ADA20	61DFC698	0
4	Leaf	1	524288	8107	8	51064000	51464000	713ADC50	61DFC8C8	0
5	Adj	1	524288	3046	8	51820000	51C20000	713BDC80	61E0C8F8	0
6	Mac	5	524288	2040	8	58400000	58800000	713D12C4	61E1FF3C	0
7	Load	1	110376	4052	76	52000000	527FFFE0	713CDCB0	61E1C928	0
8	Mdb	1	65536	1	4	53440000	53480000	61E66AAC	714168CC	0
9	Midb	1	262144	1	4	51C20000	51D20000	61E68ADC	714188FC	0
10	TagI	1	51200	1008	68	53480000	537D2000	714012EC	61E4FF64	0
11	TagR	1	102400	2010	4	50800000	50864000	61E51894	71412C18	0

FP CEF state: 2



Note If the value in the Alloc column is equal to the number in the Total column, then the PXF has run out of its allocated memory for that level and the CEF entries for that particular level have been exhausted.

Table below describes the fields shown in the **show pxf cpu cef** command:

Table 22: Field Descriptions for the show pxf cpu cef Command

Field	Description
Shadow 10-9-5-8 Toaster Mtrie	Header for the memory used by the CEF switching tables, which use the optimized multiway tree (Mtrie) data structure format.
leaves	Number of leaves in the CEF Mtrie table.
leaf bytes	Number of bytes used by the leaves in the Mtrie table.
nodes	Number of nodes in the Mtrie table.
node bytes	Number of bytes used by the nodes in the Mtrie table.
invalidations	Number of times an existing entry in the adjacency table was invalidated because of updated information.
prefix updates	Number of updates made to the adjacency table.

Field	Description
refcounts	Number of references (leaves and nodes) to an adjacency that are currently stored in the adjacency table. There is one reference for each corresponding entry in the CEF table, plus a few others for maintenance and system purposes.
Prefix/Length	IP prefix and length (IP network or host number, with subnet) that is in the CEF adjacency table.
RefCount	Number of times this prefix is referenced in the adjacency table.
Parent	Parent of this prefix's leaf or node entry in the adjacency table.
FP CEF/MFIB/TFIB XCM Type usage—The following fields display the memory usage of the shadow forwarding information base (FIB).	
Type	Level number of this particular memory block.
Name	Identifier for this particular memory block.
Total	Total number of nodes available on each level and changes to other data structures.
Alloc	Number of nodes currently allocated.
Start, End	Starting and ending addresses for the memory block.
Error	Number of errors discovered in the memory block.

Context

The following example shows a typical display for the **context** option, which displays performance statistics for the PXF processors over the past 1-minute, 5-minute, and 60-minute periods:

```
Router# show pxf cpu context
```

```

FP context statistics  count      rate
-----
  feed_back          2002946946  645161
  new_work           3992307360  1293715
  null               2261726736  708206
-----
                          2647082

FP average context/sec 1min      5min      60min
-----
  feed_back            679377      707217    191844    cps
  new_work             1358758    1414842    391367    cps
  null                 587560     520274    2171829    cps
-----
  Total                2625695    2642333    2755040    cps

FP context utilization 1min      5min      60min
-----
  Actual               77 %      80 %      21 %

```

```

Theoretical      65 %      67 %      18 %
Maximum         84 %      84 %      88 %
Router#

```



Note The **show pxf cpu context** command displays more useful information on the processor's performance than the **show processor cpu command** that is used on other platforms.

This display shows statistics that are based on three counters on the PXF processors:

- **feed_back**—Incremented each time the processor requires another processor cycle to process a packet. Each PXF processor contains 8 columns that perform different packet header processing tasks, such as ACL processing or QoS processing. A typical IP packet passes through all 8 columns only once, but some types of packets can require more than one pass through these columns, and each additional pass through the PXF processor is referred to as feedback. This counter represents the amount of traffic that cannot be processed in an optimal manner.
- **new_work**—Incremented for new packets that come into the PXF pipeline. This counter represents a snapshot of the amount of incoming traffic being processed by the processor.
- **null**—Incremented for every context during which the PXF pipe is not processing traffic. This counter represents the processor's potential to handle additional traffic. As the processor becomes more busy, the value for null decreases until it becomes 0, at which point the processor has reached its maximum usage.

Table below describes the fields shown in the **show pxf cpu context** command:

Table 23: Field Descriptions for the show pxf cpu context Command

Field	Description
FP context statistics	
feed_back	Displays the current value for the feed_back counter and the rate that the counter is increasing per second (the difference between the current value and the previous value divided by the time period between the two).
new_work	Displays the current value for the new_work counter and the rate that the counter is increasing per second (the difference between the current value and the previous value divided by the time period between the two).
null	Displays the current value for the null counter and the rate that the counter is increasing per second (the difference between the current value and the previous value divided by the time period between the two).
FP average context/sec	
feed_back	Displays the rate, in terms of the number of contexts per second (cps) for the feed_back counter for the last 1-minute, 5-minute, and 60-minute time periods.
new_work	Displays the rate, in terms of the number of contexts per second (cps) for the new_work counter for the last 1-minute, 5-minute, and 60-minute time periods.
null	Displays the rate, in terms of the number of contexts per second (cps) for the null counter for the last 1-minute, 5-minute, and 60-minute time periods.

Field	Description
FP context utilization	
Actual	Displays the actual percentage of processor usage per second, compared to the theoretical maximum, for the last 1-minute, 5-minute, and 60-minute time periods. The value for Actual = $(\text{new_work} + \text{feed_back}) * 100 / (\text{new_work} + \text{feed_back} + \text{null})$.
Theoretical	Displays the percentage of processor usage compared to the ideal theoretical capacities for the last 1-minute, 5-minute, and 60-minute time periods. The value for Theoretical = $(\text{new_work} + \text{feed_back}) * 100 / 3125000$. (The theoretical maximum for the PXF processors is 3,125,000 contexts per second.)
Maximum	Displays the actual maximum percentage of processor usage that has occurred for the last 1-minute, 5-minute, and 60-minute time periods. The value for Actual = $(\text{new_work} + \text{feed_back} + \text{null}) * 100 / 3125000$.

Mroute

The following example shows a typical display for the **mroute** option:

```
Router# show pxf cpu mroute

Shadow G/SG[5624]: s: 0.0.0.0 g: 224.0.1.40 uses: 0 bytes 0 flags: [D ] LNJ
Interface          vcci  offset  rw_index mac_header
In :               0      0x000004
Shadow G/SG[3195]: s: 0.0.0.0 g: 234.5.6.7 uses: 0 bytes 0 flags: [5 ] NJ
Interface          vcci  offset  rw_index mac_header
In :               0      0x000008
Out: Cable5/1/0    5      0x00002C 1B      00000026800001005E05060700010
Out: Cable6/1/1    9      0x000028 1A      00000026800001005E05060700010
Out: Cable6/0/0    6      0x000024 19      00000026800001005E05060700010
Out: Cable5/0/0    3      0x000020 18      00000026800001005E05060700010
Out: Cable7/0/0    A      0x00001C 17      00000026800001005E05060700010
Out: Cable7/1/1    C      0x000018 16      00000026800001005E05060700010
Out: Cable7/1/0    B      0x000014 15      00000026800001005E05060700010
Out: Cable6/1/0    8      0x000010 14      00000026800001005E05060700010
Out: Cable6/0/1    7      0x00000C 13      00000026800001005E05060700010
Out: Cable5/0/1    4      0x000008 12      00000026800001005E05060700010
Router#
```

Table below describes the fields shown in the **show pxf cpu mroute** command:

Table 24: Field Descriptions for the show pxf cpu mroute Command

Field	Description
Interface	Cable interface or subinterface.
vcci	Virtually Cool Common Index (VCCI) for this cable interface or subinterface. The VCCI is an index that uniquely identifies every interface or subinterface on the PXF processor, and that quickly maps that interface to the appropriate set of services and features.
rw index	Index used to read and write into the multicast table for this entry.

Field	Description
mac_header	MAC header that is used when rewriting the packet for output.

Queue

The following example shows a typical display for the **queue** option, which displays the chassis-wide counters for the PXF pipeline counters that show drops on the output side of the processor:

```
Router# show pxf cpu queue

FP queue statistics for RP
Queue number 0   Shared
  wq_avg_qlen           0           wq_flags_pd_offset    1B48001
  wq_drop_factor        74
  wq_buffer_drop        0           wq_limit_drop         0
  wq_invalid_enq_wqb_drop 0           wq_invalid_deq_wqb_drop 0
  wq_rnd_pkt_drop       0           wq_rnd_byte_drop      0
  wq_static_qlen_drop   0
  wq_len                0
  Packet xmit           804833      Byte xmit              487438911
Queue number 15   Shared High priority
  wq_avg_qlen           0           wq_flags_pd_offset    1BC8001
  wq_drop_factor        174
  wq_buffer_drop        0           wq_limit_drop         0
  wq_invalid_enq_wqb_drop 0           wq_invalid_deq_wqb_drop 0
  wq_rnd_pkt_drop       0           wq_rnd_byte_drop      0
  wq_static_qlen_drop   0
  wq_len                0
  Packet xmit           69647      Byte xmit              41230926

Router#
```

The following example shows a typical display for the **queue** option for a particular cable interface:

```
Router# show pxf cpu queue c6/0/0

FP queue statistics for Cable5/0/0
FP queue statistics for Cable6/0/0
Queue algorithm 0x0
Queue number 0   Shared
  wq_avg_qlen           0           wq_flags_pd_offset    18A0001
  wq_drop_factor        40
  wq_buffer_drop        0           wq_limit_drop         0
  wq_invalid_enq_wqb_drop 0           wq_invalid_deq_wqb_drop 0
  wq_rnd_pkt_drop       0           wq_rnd_byte_drop      0
  wq_static_qlen_drop   0
  wq_len                0
  Packet xmit           56414      Byte xmit              14322357
Queue number 15   Shared High priority
  wq_avg_qlen           0           wq_flags_pd_offset    18A8001
  wq_drop_factor        1000
  wq_buffer_drop        0           wq_limit_drop         0
  wq_invalid_enq_wqb_drop 0           wq_invalid_deq_wqb_drop 0
  wq_rnd_pkt_drop       0           wq_rnd_byte_drop      0
  wq_static_qlen_drop   0
  wq_len                0
  Packet xmit           0           Byte xmit              0

Router#
```

Schedule

The following example shows a typical display for the **schedule summary** option:

```
Router# show pxf cpu schedule summary

FP average dequeue schedule rate in pps
Interface          Level 1    Level 2    maximum    1min      5min      60min
-----
Total              32 / 32   1 / 1     3125000    0 %       0 %       0 %
Router#
```

The following example shows a typical display for the **schedule** option for a particular interface:

```
Router# show pxf cpu schedule c5/0/0

FP average dequeue schedule rate in pps
Interface          Level 1    Level 2    maximum    1min      5min      60min
-----
Cable5/0/0        1 / 32    1 / 1     97656      0 %       0 %       0 %
Router#
```

Table below describes the fields shown in the **show pxf cpu schedule** command:

Table 25: Field Descriptions for the show pxf cpu schedule Command

Field	Description
Interface	Identifies the cable interface or subinterface.
Level 1	Displays the number of occupied level 1 (port) wheel slots and the total number of wheel slots for this interface or subinterface.
Level 2	Displays the number of occupied level 2 (channel) wheel slots and the total number of wheel slots for this interface or subinterface.
maximum	Displays the maximum number of packet dequeues per second.
1 min	Displays the dequeue rate for the last 1-minute period.
5 min	Displays the dequeue rate for the last 5-minute period.
60 min	Displays the dequeue rate for the last 60-minute period.

Statistics

The following example shows a typical display for the **statistics diversion** option, which shows chassis-wide statistics for PXF diversions, which occur whenever the PXF processor sends a packet to the main route processor for special processing (such as errored packets, address resolution protocol (ARP) packets, point-to-point protocol (PPP) control packets, an unsupported Layer 2 packet header, and so forth).

```
Router# show pxf cpu statistics diversion
```

```

Diversion Cause Stats:
  local      = 263171
  dest       = 0
  option     = 0
  protocol   = 0
  encap      = 541943
  oam f5 seg= 0
  oam f5 ete= 0
  oam f4 seg= 0
  oam f4 ete= 0
  atm ilmi   = 0
  fr_term    = 0
  comp       = 0
  ip_sanity  = 0
  ip_bcast   = 0
  ip_dest    = 0
  fib_punt   = 0
  mtu        = 0
  arp        = 127
  rarp       = 0
  icmp       = 0
  dsap_ssap  = 0
  acl        = 0
  divert     = 0
  no_group   = 0
  direct     = 0
  local_mem  = 0
  p2p_prune  = 0
  assert     = 0
  dat_prune  = 0
  join_spt   = 0
  null_out   = 0
  igmp       = 69
  register   = 0
  no_fast    = 136
  ipc_resp   = 0
  keepalive  = 0
  min_mtu    = 0
  icmp_frag  = 0
  icmp_bad   = 0
  mpls_ttl   = 0
  tfib       = 0
  multicast  = 69656
  clns_isis  = 0
  fr_lmi     = 0
  ppp_cntrl  = 0
Router#

```



Note As shown in this display, the majority of dropped packets should typically be either local (sent to the router for routing), encap (encapsulated for another protocol), or multicast (IP multicast traffic).

The following example shows a typical display for the **statistics drop** option, which shows chassis-wide PXF drop statistics:

```

Router# show pxf cpu statistics drop

FP drop statistics

```

	packets	bytes
icmp_on_icmp	0	0
ipc_cmd_invalid	0	0

```
icmp_unrch_interval 294          31164
bad_tag_opcode        0          0
bad_ch_handle        0          0
no_touch_from_rp     0          0
dst_ip_is_mcast      0          0
ib_re_bit            0          0
encap_too_big        0          0
no_tfib_route        0          0
mc_disabled          0          0
mc_rpf_failed        0          0
mc_prune_rate_limit  0          0
mc_null_oif          0          0
bad_drop_code        0          0
cobalt_re[00]        0          0
    [01]              0          0
    [02]              0          0
    [03]              0          0
    [04]              0          0
    [05]              0          0
    [06]              0          0
    [07]              0          0
    [08]              0          0
    [09]              0          0
    [10]              0          0
    [11]              0          0
    [12]              0          0
    [13]              0          0
    [14]              0          0
    [15]              0          0
    [16]              0          0
    [17]              0          0
null_config[00]      0          0
    [01]              0          0
    [02]              0          0
    [03]              0          0
    [04]              0          0
    [05]              0          0
    [06]              0          0
    [07]              1          362
    [08]              0          0
    [09]              0          0
    [10]              0          0
    [11]              0          0
    [12]              0          0
    [13]              0          0
    [14]              0          0
    [15]              0          0
    [16]              0          0
    [17]              0          0
inval_ib_resource[00] 0          0
    [01]              0          0
    [02]              0          0
    [03]              0          0
    [04]              0          0
    [05]              0          0
    [06]              0          0
    [07]              0          0
    [08]              0          0
    [09]              0          0
    [10]              0          0
    [11]              0          0
    [12]              0          0
    [13]              0          0
    [14]              0          0
```

```

[15] 0          0
[16] 0          0
[17] 0          0
[18] 0          0
[19] 0          0
[20] 0          0
[21] 0          0
[22] 0          0
[23] 0          0
[24] 0          0
[25] 0          0
[26] 0          0
[27] 0          0
[28] 0          0
[29] 0          0
[30] 0          0
[31] 0          0
    master drop count 794
Router#

```

The following example shows a typical display for the **statistics drop** option for a particular cable interface, which shows the input-side drop statistics for that particular interface:

```

Router# show pxf cpu statistics drop c7/1/0

FP drop statistics for Cable7/1/0
      packets      bytes
vcci undefined      0          0
vcci B
  bad hdlc addr      0          0
  mac length mismatch 0          0
  bad ip checksum    0          0
  ip length mismatch 0          0
  ip length short    0          0
  ip length long     0          0
  ip version mismatch 0          0
  bad rpf            0          0
  acl failure        0          0
  police            0          0
  ttl               0          0
  unreachable       0          0
  mlp_frag_received 0          0
  mlp_unexpected_pkt 0          0
  df_multicast      0          0
  encap_not_supported 0          0
  mtu_too_wee       0          0
  mtu_too_big       0          0
  atm_fp_rx_cell_size_err 0          0
  Data Received     0          0
Router#

```

The following example shows a typical display for the **statistics ip** option, which displays chassis-wide PXF forwarding statistics for IP, multicast, fragmented, and ICMP packets:

```

Router# show pxf cpu statistics ip

FP ip statistics
  dropped          0
  forwarded       1291
  punted          11393
  input_packets   14049
  icmps_created   1365
  noadjacency     0

```

```

        noroute          300
        unicast_rpf      0
        unresolved       0
FP ip multicast statistics
        mcast total      69665
        mcast drops      0
        mcast rpf        0
        mcast inputacl   0
        mcast outptacl   0
        mcast punts      69665
        mcast switched   0
        mcast failed     0
FP ip frag statistics
        packets          0
        fragments        0
        fragfail         0
        dontfrag         0
        mcdontfrag       0
FP icmp statistics
        unreachsent     0
        ttlsent          0
        echorepsent     0
        echorcvcv       0
        checksumerr     0
Router#

```



Note The `noroute` counter increases whenever the router drops a packet because its destination IP address is 0.0.0.0. This counter also increases whenever the Cisco Express Forwarding (CEF) adjacency tables drop a packet because it has a null, discard, or drop adjacency.

Subblocks

The following example shows a typical display for the `subblocks` option for all interfaces:

```

Router# show pxf cpu subblocks

Interface          Status  ICB   WQB_ID Fwding  Encap  VCCI map  VCCI
-----
POS1/0/0           initiali 6000  6146  disable 5      81800000  E
GigabitEthernet3/0/0  reset   E000  6148  disable 1      81800004  1
GigabitEthernet4/0/0  up      12000 6150  PXF     1      81800008  2
Cable5/0/0         down    14000 4096  disable 59     81805400  3
Cable5/0/1         down    14100 4097  disable 59     81805C00  4
Cable5/1/0         up      16000 4098  PXF     59     81806400  5
Cable6/0/0         up      18000 4099  PXF     59     81806C00  6
Cable6/0/1         up      18100 4100  PXF     59     81807400  7
Cable6/1/0         up      1A000 4101  PXF     59     81807C00  8
Cable6/1/1         up      1A100 4102  PXF     59     81808400  9
Cable7/0/0         up      1C000 4103  PXF     59     81808C00  A
Cable7/1/0         up      1E000 4104  PXF     59     81809400  B
Cable7/1/1         up      1E100 4105  PXF     59     81809C00  C
Cable7/1/1.1       up      1E100 4105  PXF     59     8180A400  D
Router#

```

The following example shows a typical display for the `subblocks` option for a particular cable interface:

```

Router# show pxf cpu subblocks c7/0/0

```

```

Cable7/0/0 is up
  ICB = D000, LinkId = 0, interface PXF, enabled
  IOS encapsulation type 59 MCNS
  PXF encapsulation type 5
  Min mtu: 14      Max mtu: 1538
  VCCI mactable location = A2B20000
  VCCI 2C7
  icmp ipaddress 0.0.0.0      timestamp 0
  fib_root 0x1, ipv6_fib_root 0x0, ipv6_rpf_root 0x0, vrf_mpls_tableid 0x0
  col0 cicc_flags 0x10, cicc_flags_ext 0x00 flags/netmask 0x00
  col1 cicc_out_flags 0x00
  interface_ip_addr 0x0
  col5 ib_chan 0x1000, encap_type 5, flags_srpthreshold 0x6
  mce_ds_group_index 0xFF, cable_flags 0x10
  col_4_cicc_flags: 0x10
  Inbound IP ACL CICB at A2002C70, acl_index = 0, Stats address = 00000000
  Outbound IP ACL CICB at A2002C70, acl_index = 0, Stats address = 00000000
  Inbound IPv6 ACL CICB at A5002C70, acl_index = 0, Stats address = 00000000
  Outbound IPv6 ACL CICB at A5002C70, acl_index = 0, Stats address = 00000000
Router#

```

Table below describes the fields shown in the display for the **show pxf cpu subblocks** command.

Table 26: show pxf cpu subblocks Field Descriptions

Field	Description
Interface	Identifies the interface or subinterface.
Status	Displays the status of the interface: <ul style="list-style-type: none"> • Administ—The interface has been shut down and is in the administrative down state. • Deleted—The subinterface has been removed from the router's configuration. • Down—The interface is down because of a cable or other connectivity problem. • Initiali—The interface is in the process of initializing. • Reset—The interface is currently being reset. • Up—The interface is up and passing traffic.
ICB	Displays the Interface Control Block (ICB) that is mapped to this interface.
MAC Domain	Displays the DOCSIS-layer domain for this interface or subinterface.
WQB_ID	Displays the Work Queue Block (WQB) identifier for this interface.
Fwding	Displays whether traffic is being forwarded (PXF) or not (disable).
Encap	Identifies the type of encapsulation being used on the interface. The most common types of encapsulation are: 0 = None 1 = Ethernet ARPA 2 = Ethernet SAP 3 = 802.2 SNAP 5 = Serial, raw HDLC 8 = Serial, LAPB 9 = Serial, X.25 20 = Frame Relay 21 = SMDs 22 = MAC level packets 27 = LLC 28 = Serial, SDLC (primary) 30 = Async SLIP encapsulation 33 = ATM interface 35 = Frame Relay with IETF encapsulation 42 = Dialer encapsulation 46 = Loopback interface 51 = ISDN Q.921 59 = DOCSIS (previously known as MCNS) 61 = Transparent Mode 62 = TDM clear channel 64 = PPP over Frame Relay 65 = IEEE 802.1Q 67 = LAPB terminal adapter 68 = DOCSIS Cable Modem

Field	Description
VCCI map	Displays the memory address for the Virtually Cool Common Index (VCCI) map table for this particular VCCI. The VCCI is an index that uniquely identifies every interface or subinterface on the PXF processor and that quickly maps that interface to the appropriate set of services and features.
VCCI	Identifies the VCCI (in hexadecimal) that is assigned to the interface or subinterface.

Related Commands

Command	Description
clear pxf	Clears the direct memory access (DMA) and error checking and correcting (ECC) error counters on the PXF processor.
debug pxf	Enables debugging of the PXF subsystems on the active PRE1 module on the Cisco uBR10012 router.
show pxf cable	Displays information about the multicast echo and packet intercept features for one or all cable interfaces.
show pxf cable interface	Displays information about a particular service ID (SID) on a particular cable interface.
show pxf dma	Displays information for the current state of the PXF DMA buffers, error counters, and registers.
show pxf microcode	Displays identifying information for the microcode being used on the processor.
show pxf xcm	Displays the current state of ECC for the External Column Memory (XCM) on the PXF processor.
show ip mroute	Displays the contents of the IP multicast routing table.

show pxf cpu drl-trusted-sites

To display the configured Divert-Rate-Limit (DRL) trusted sites, use the **show pxf cpu drl-trusted-sites** command in privileged EXEC mode.

show pxf cpu drl-trusted-sites

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SCB	This command was introduced.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

Use this command to display the configured DRL trusted sites.

Examples

The following example shows sample output for the **show pxf cpu drl-trusted-sites** command:

```
Router# show pxf cpu drl-trusted-sites
Divert-Rate-Limit Trusted-Site list
IP-addr      IP-addr mask  ToS   ToS mask  VRF
50.0.0.0     255.255.255.0 0x18  0xF8     global internet
50.0.1.0     255.255.0.0  0x01  0xFF     all
60.0.1.0     255.255.255.0 0x18  0xF8     blue
```

Table below describes the significant fields shown in the display.

Table 27: show pxf cpu drl-trusted-sites Field Descriptions

Field	Description
IP-addr	The IP address of the host or CM.
IP-addr mask	The IP address mask of the host or CM.
ToS	Type of Service value to be matched by the filter.
ToS Mask	Type of Service mask to be matched by the filter.
VRF	Name of the virtual interface that has been configured for DRL trusted sites.

Related Commands

Command	Description
show pxf cpu statistics dnl cable-wan-ip	This command displays the PXF DNL cable/wan-ip statistics table.
show pxf cpu statistics dnl wan-non-ip	This command displays the PXF DNL wan-non-ip statistics.

show pxf cpu queue wb-spa

To send queue and service flow information to and from the uBR10-MC 5x20 line cards, use the **show pxf cpu queue wb-spa** command in privileged EXEC mode.

show pxf cpu queue wb-spa

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Privileged EXEC

Command History	Release	Modification
	12.3(23)BC	This command was introduced for the uBR10012 router.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines A virtual time management system (VTMS) link and two queues are set up for each Wideband SPA allowing MAC Management Messages (MMM) to be sent from the uBR10-MC 5x20 line card to the Wideband SPA, which in turn sends the messages to the appropriate RF channels.

In addition to this, another VTMS link and two queues are set up for each uBR10-MC 5x20 line card so that the SIP can send statistics IPC messages and cable monitor packets to the uBR10-MC 5x20 line card. The queue and service flow information for these data paths can be displayed by using the **show pxf cpu queue wb-spa** command.

The output of this command shows the two RP service flows for each SPA, including the RP service flow index and the associated queue ID. Refer to the **show pxf cpu queue qid** command for more information.

Examples

The following is a sample output of the **show pxf cpu queue wb-spa** command for the Cisco Wideband SPA port 1, slot 1, and bay 0:

```
Router# show pxf cpu queue wb-spa
SPA 1/0/0
MAP/UCD Service Flow Index: 32926
  Ironbus Channel: 0x8000 Queue ID: 266 Queue Flags: 0x2
LP-MMM Service Flow Index: 32768
  Ironbus Channel: 0x8000 Queue ID: 264 Queue Flags: 0x0
CableInternal5/1
Statistics Service Flow Index: 32887
  Ironbus Channel: 0x500 Queue ID: 504 Queue Flags: 0x0
Cable Monitor Service Flow Index: 129
  Ironbus Channel: 0x500 Queue ID: 505 Queue Flags: 0x0
CableInternal6/0
Statistics Service Flow Index: 32893
  Ironbus Channel: 0x500 Queue ID: 516 Queue Flags: 0x0
Cable Monitor Service Flow Index: 135
  Ironbus Channel: 0x500 Queue ID: 517 Queue Flags: 0x0
```

The following is a sample output of the **show pxf cpu queue wb-spa** command for the Cisco Wideband SPA sharing downstreams with the Cisco uBR-MC3GX60V line card, in Cisco IOS Release 12.2(33)SCG:

```

Router# show pxf cpu queue wb-spa
SPA 1/1/0
MAP/UCD and LP-MMM Flow (IronBus Channel: 0xC020):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
8         0/255  251121646  0           0         1/10000    0       32771  hi-pri
131100    0/255  9634685   0           0         1/10000    0       32770  lo-pri
SPA 1/3/0
MAP/UCD and LP-MMM Flow (IronBus Channel: 0xC030):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
66        0/255    0         0           0         1/10000    0       32775  hi-pri
131216    0/255  4596528   0           0         1/10000    0       32774  lo-pri
Fauna6/0
Statistics and Cable Monitor Flow (IronBus Channel: 0x1FFF):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
131441    0/255    0         0           0         1/240      0       205    def
CableInternal6/0
Statistics and Cable Monitor Flow (IronBus Channel: 0x7000):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
178        0/255    0         0           0         1/10000    0       32789  hi-pri
131440    0/255  2303963   0           0         1/10000    0       32788  lo-pri
131439    0/255    0         0           0         1/240      0       20     def
CableInternal6/1
Statistics and Cable Monitor Flow (IronBus Channel: 0x0500):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
185        0/255    0         0           0         1/10000    0       32791  hi-pri
131454    0/255  2394164   0           0         1/10000    0       32790  lo-pri
131453    0/255    0         0           0         1/240      0       21     def
Fauna7/0
Statistics and Cable Monitor Flow (IronBus Channel: 0x1FFF):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
131557    0/255    0         0           0         1/240      0       266    def
CableInternal7/0
Statistics and Cable Monitor Flow (IronBus Channel: 0x7000):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
236        0/255  4596556   0           0         1/10000    0       32793  hi-pri
131556    0/255  2377280   0           0         1/10000    0       32792  lo-pri
131555    0/255    0         0           0         1/240      0       22     def
Fauna8/0
Statistics and Cable Monitor Flow (IronBus Channel: 0x1FFF):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
131903    0/255    0         0           0         1/240      0       453    def
CableInternal8/0
Statistics and Cable Monitor Flow (IronBus Channel: 0x7000):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)          (Kbps)
409        0/255    0         0           0         1/10000    0       32797  hi-pri
131902    0/255  3350878   0           0         1/10000    0       32796  lo-pri
131901    0/255    0         0           0         1/240      0       24     def

```

show pxf cpu queue wb-spa

```

Fauna8/1
Statistics and Cable Monitor Flow (IronBus Channel: 0x1FFF):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)
132261   0/255   0          0          0      1/240       0        697   def

CableInternal8/1
Statistics and Cable Monitor Flow (IronBus Channel: 0x7000):
QID      Len/Max  Dequeues  TailDrops  MinRt  Wt/Quantum  ShapeRt  FlowId
          (Kbps)
582      0/255   0          0          0      1/10000     0        32799 hi-pri
132260   0/255   0          0          0      1/10000     0        32798 lo-pri
132259   0/255   0          0          0      1/240       0        25     def

```

Table below describes the fields shown in the **show pxf cpu queue wb-spa** command display.

Table 28: show pxf cpu queue WB-SPA Field Descriptions

Field	Description
QID	CPU Queue ID.
Len/Max	Current CPU queue length/ CPU maximum queue length.
TailDrops	Number of CPU queue packet drops.
ShapeRt (Kbps)	Queue packet rate shaping.
FlowId	Service flow ID.

Related Commands

Command	Description
show pxf cpu queue <i>qid</i>	Displays parallel express forwarding queue statistics.

show pxf cpu statistics drl ipv4

To verify drop counters for WAN-IPv4 packets, use the **show pxf cpu statistics drl ipv4** command in the privileged EXEC mode.

show pxf cpu statistics drl ipv4 [*threshold*output modifiers]

Syntax Description	threshold	The packet threshold value. The valid range is 0 to 4294967295.
	output modifiers	<p>The following output modifiers are used.</p> <ul style="list-style-type: none"> • append—Appends the redirected output to URL (URLs supporting append operation only) • begin—Begins with the line that matches. • exclude—Excludes the lines that match. • include—Includes the lines that match. • redirect—Redirects the output to the URL. • section—Filters a specific section of the output. • tee—Copies the output to the URL.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SCE	This command was introduced.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Examples

The following examples indicate the drop counters for WAN-IPv4 packets.

```
Router# show pxf cpu statistics drl ipv4
Divert-Rate-Limit WAN-IPv4 statistics
  dropped  identifier
    460    11.12.13.10  VRF: global  divert_code: fib_rp_dest
    150    11.12.13.10  VRF: global  divert_code: fib_limited_broadcast
Router#
Router# show pxf cpu statistics drl ipv4 threshold 400
Divert-Rate-Limit WAN-IPv4 statistics :: threshold = 400
  dropped  identifier
    460    11.12.13.10  VRF: global  divert_code: fib_rp_dest
```

Related Commands

Command	Description
clear pxf statistics drl ipv4	Clears all the entries in the WAN IPv4 statistics table.
service divert-rate-limit trusted-site-ipv6	Adds IPv6-specific entries to the trusted site list.

Command	Description
show pxf cpu statistics drl us-cable	Displays the number of upstream cable packets that are dropped from the CMTS.
show pxf cpu statistics drlipv6	Verifies the drop counters for WAN-IPv4 packets.

show pxf cpu statistics drl ipv6

To verify drop counters for WAN-IPv6 packets, use the **show pxf cpu statistics drl ipv6** command in the privileged EXEC mode.

show pxf cpu statistics drl ipv6 [*threshold*output modifiers]

Syntax Description	threshold	The packet threshold value. The valid range is 0 to 4294967295.
	output modifiers	The following output modifiers are used. <ul style="list-style-type: none"> • append—Appends the redirected output to URL (URLs supporting append operation only) • begin—Begins with the line that matches. • exclude—Excludes the lines that match. • include—Includes the lines that match. • redirect—Redirects the output to the URL. • section—Filters a specific section of the output. • tee—Copies the output to the URL.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SCE	This command was introduced.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Examples

The following examples indicate the drop counters for WAN-IPv6 packets.

```
Router# show pxf cpu statistics drl ipv6
Divert-Rate-Limit WAN-IPv6 statistics
  dropped  identifier
    460    10FA:6604:8136:6502::/64 VRF: global divert_code: ipv6_rp_dest
    150    10FA:6604:8136:6502::/64 VRF: global divert_code: ipv6_rp_punt
Router#
Router# show pxf cpu statistics drl ipv6 threshold 400
Divert-Rate-Limit Cable/WAN-IP statistics :: threshold = 400
  dropped  identifier
    460    10FA:6604:8136:6502::/64 VRF: global divert_code: ipv6_rp_dest
Router#
```

Related Commands

Command	Description
clear pxf statistics drl ipv6	Clears all the entries in the WAN IPv6 statistics table.
service divert-rate-limit trusted-site-ipv6	Adds IPv6-specific entries to the trusted site list.

Command	Description
show pxf cpu statistics drlus-cable	Displays the number of upstream cable packets that are dropped from the CMTS.
show pxf cpu statistics drl ipv4	Verifies the drop counters for WAN-IPv4 packets.

show pxf cpu statistics drl max-rate us-cable

To verify drop counters for the DRL max-rate on the upstream cable interface, use the **show pxf cpu statistics drlmax-rate us-cable** command in the privileged EXEC mode.

```
show pxf cpu statistics drl max-rate us-cable
```

Command Modes	Privileged EXEC (#)
----------------------	---------------------

Command History	Release	Modification
	12.2(33)SCJ	This command was introduced.

Example

The following examples indicate the drop counters for max-rate on the upstream cable interface.

```
Router#show pxf cpu statistics drl max-rate us-cable
```

```
Load for five secs: 44%/4%; one minute: 45%; five minutes: 28%
Time source is hardware calendar, 16:52:36.953 CST Thu Dec 17 2015
Divert-Rate-Limit max-rate US-cable statistics
dropped divert_code
No max-rate US-cable drops.
```

Related Commands	Command	Description
	service divert-rate-limit max-rate us-cable	Sets per-divert-code rate limit on the upstream cable interface

show pxf cpu statistics drl max-rate wan

To verify drop counters for the DRL max-rate on the WAN interface, use the **show pxf cpu statistics drlmax-rate wan** command in the privileged EXEC mode.

show pxf cpu statistics drl max-rate wan threshold [*threshold-value*output modifiers]

Syntax Description	threshold	The packet threshold value. The valid range is 0 to 4294967295.
	output modifiers	The following output modifiers are used. <ul style="list-style-type: none"> • begin—Begins with the line that match. • exclude—Excludes the lines that match. • include—Includes the lines that match. • redirect—Redirects the output to the URL. • section—Filters a section of the output. • tee—Copies output to the URL.

Command Modes	Privileged EXEC (#)

Command History	Release	Modification
	12.2(33)SCH3	This command was introduced.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Example

The following examples indicate the drop counters for max-rate on the WAN interface.

```
Router#show pxf cpu statistics drl max-rate wan threshold 10
      dropped   divert_code
      18       fib_rp_dest
```

Related Commands

Command	Description
service divert-rate-limit max-rate wan	Sets per-divert-code rate limit on the WAN interface
clear pxf statistics drl max-rate	Clears the DRL max-rate statistics on the WAN interface.

show pxf cpu statistics drl us-cable

To view and verify the number of upstream cable packets that are dropped from the CMTS, use the **show pxf cpu statistics drl us-cable** command in the privileged EXEC mode.

show pxf cpu statistics drl us-cable [*threshold* | *output modifiers*]

Syntax Description		
	<i>threshold</i>	The packet threshold value. The valid range is 0 to 4294967295.
	<i>output modifiers</i>	The following output modifiers are used. <ul style="list-style-type: none"> • append—Appends the redirected output to URL (URLs supporting append operation only) • begin—Begins with the line that matches. • exclude—Excludes the lines that match. • include—Includes the lines that match. • redirect—Redirects the output to the URL. • section—Filters a specific section of the output. • tee—Copies the output to the URL.

Command Default Disabled

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	12.2(33)SCE	This command was introduced.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

Examples

The following examples indicate the statistics of upstream cable packets that are dropped from the CMTS.

```
Router# show pxf cpu statistics drl us-cable
Divert-Rate-Limit US-cable statistics
  dropped  identifier
    361    interface: Cable6/0/1  SID: 28
    2457   interface: Cable6/0/0  SID: 1
Router# show pxf cpu statistics drl us-cable threshold 400
Divert-Rate-Limit US-cable statistics :: threshold = 400
  dropped  identifier
    2457   interface: Cable6/0/0  SID: 1
Router#
```

Related Commands	Command	Description
	clear pxf statistics drl us-cable	Clears all the entries in the US-cable statistics table.

Command	Description
service divert-rate-limit trusted-site-ipv6	Adds IPv6-specific entries to the trusted site list.
show pxf cpu statistics drl ipv6	Verifies the drop counters for WAN-IPv6 packets.
show pxf cpu statistics drl ipv4	Verifies the drop counters for WAN-IPv4 packets.

show redundancy

To display the current redundancy status, use the **show redundancy** command in user EXEC or privileged EXEC mode.

Cisco uBR10012 Router

show redundancy [**clients** | **counters** | **history** | **states**]

Cisco cBR Series Converged Broadband Router

show redundancy [**application** | **clients** | **config-sync** | **counters** | **domain** | **history** | **ibd-sync-history** | **lincecard** | **rii** | **states** | **switchover history** | **trace history**]

Syntax Description

application	(Optional on Cisco cBR router) Displays box to box application information
clients	(Optional) Displays the Redundancy Facility (RF) client list.
counters	(Optional) Displays RF operational counters.
domain	(Optional on Cisco cBR router) Specifies the RF domain.
history	(Optional) Summarizes RF history.
ibd-sync-history	(Optional on Cisco cBR router) Displays the Redundancy Facility (RF) IDB sync history
states	(Optional) Displays RF states for active and standby modules.
switchover history	(Optional on Cisco cBR router) Displays the redundancy Facility (RF) switchover history.

Command Default

None

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.2(4)XF1	This command was introduced for the Cisco uBR10012 router.
12.2(11)BC3	The clients , counters , history , and states option were added, and the default display was enhanced to show the version of Cisco IOS software that is running on the standby PRE module.
12.2(15)BC2	The default display includes additional information about the history of switchovers, as well as a stack trace from the secondary PRE module's ROMMON for when it last crashed, if ever.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.

Release	Modification
12.2(44)SQ	This command was integrated into Cisco IOS Release 12.2(44)SQ. Support for the Cisco RF Gateway 10 was added.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router. The application , domain , idb-sync-history , and switchover keywords were added.

Usage Guidelines

The **show redundancy** command shows whether the PRE A slot or PRE B slot contains the active (primary) Performance Routing Engine (PRE1) module, the status of the standby (secondary) PRE1 module, and the values for the standby PRE1 module's boot variables and configuration register. In Cisco IOS Release 12.2(13)BC1 and later releases, it also shows the version of Cisco IOS software that is running on the standby PRE module.



Note The **show redundancy** command always shows the correct location of the active PRE1 module. The other PRE slot will always be marked as **Secondary**, even if a standby PRE1 module is not installed.

Cisco RF Gateway 10

The **show redundancy** command shows whether the Supervisor A slot or Supervisor B slot contains the active (primary) Supervisor card, the status of the standby (secondary) Supervisor card, and the values for the standby Supervisor card's boot variables and configuration register.



Note The **show redundancy** command always shows the correct location of the active Supervisor card. The other Supervisor slot will always be marked as **secondary**, even if a standby Supervisor card is not installed.

Cisco cBR Series Converged Broadband Router

The Cisco cBR Series Converged Broadband Router supports redundancy of Supervisor card and line cards. The **show redundancy** command shows whether the Supervisor A slot or Supervisor B slot contains the active (primary) Supervisor card, the status of the standby (secondary) Supervisor card, and the values for the standby Supervisor card's parameters

Examples

This section contains examples of typical displays for each of the options that are available for the **show redundancy** command.

Default Displays

The following example shows a typical display from the **show redundancy** command in Cisco IOS Release 12.2(15)BC2 and later releases:

```
PRE A           : Secondary
PRE B (This PRE) : Primary
Uptime since this PRE switched to active : 5 minutes
Total system uptime from reload       : 37 minutes
Switchovers this system has experienced : 5
Secondary failures since this PRE active : 0
```

```

The secondary PRE has been up for      : 1 minute
The reason for last switchover:  ACTIVE RP CRASHED
Secondary PRE information....
Secondary is up.
Secondary has 524288K bytes of memory.
Secondary BOOT variable = slot0:ubr10k-k8p6-mz.122-11.CY,12;
Secondary CONFIG_FILE variable = bootflash:030227.config
Secondary BOOTLDR variable =
Secondary Configuration register is 0x0
Secondary version:
Cisco Internetwork Operating System Software
IOS (tm) 10000 Software (UBR10K-K8P6-M), Experimental Version 12.2(15)BC2
Copyright (c) 1986-2004 by cisco Systems, Inc.
Compiled Mon 01-Mar-04 12:01 by anxrana
Primary version:
Cisco Internetwork Operating System Software
IOS (tm) 10000 Software (UBR10K-K8P6-M), Released Version 12.2(15)BC2
Copyright (c) 1986-2004 by cisco Systems, Inc.
Compiled Mon 01-Mar-04 12:01 by anxrana
Redundant RP last failure info as reported by Standby:
bus error at PC 0x605C8B24, address 0xFF012345
10000 Software (UBR10K-K8P6-M), Experimental Version 12.3(20040211:230003) [narana-geo_cable
123]
Compiled Mon 01-Mar-04 12:01 by anxrana
Image text-base: 0x60008CB8, data-base: 0x61F80000
Stack trace from system failure:
FP: 0x7234C8C8, RA: 0x605C8B24
FP: 0x7234CA30, RA: 0x604940F4
FP: 0x7234CA90, RA: 0x60151FF0
FP: 0x7234CAB0, RA: 0x604A5554
FP: 0x7234CB40, RA: 0x6051F638
FP: 0x7234CB58, RA: 0x6051F61C

```

The following example shows a typical display from the **show redundancy** command in Cisco IOS Release 12.2(15)BC1 and earlier releases. The active PRE1 module is in PRE slot A, and the standby PRE1 module is in PRE slot B:

```

Router# show redundancy

PRE A (This PRE)   : Primary
PRE B              : Secondary

Redundancy state is REDUNDANCY_PEERSECONDARY_INITED

Secondary PRE information....
Secondary is up.
Secondary has 524288K bytes of memory.
Secondary BOOT variable = bootflash:ubr10k-k8p6-mz
Secondary CONFIG_FILE variable =
Secondary BOOTLDR variable = bootflash:c10k-eboot-mz
Secondary Configuration register is 0x2102
Secondary version:
Cisco Internetwork Operating System Software
IOS (tm) 10000 Software (UBR10K-K8P6-M), Released Version 12.2(11)BC3
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled Mon 03-Mar-03 11:28 by texbnt
Router#

```

The following example shows the same display but after a switchover has occurred. The **show redundancy** command now shows that the active (primary) PRE has changed slots (in this case, moving from slot A to slot B):

```

Router# show redundancy

PRE A                : Secondary
PRE B (This PRE)    : Primary

Redundancy state is REDUNDANCY_PEERSECONDARY_INITED

Secondary PRE information....
Secondary is up.
Secondary BOOT variable = bootflash:ubr10k-k8p6-mz
Secondary CONFIG_FILE variable =
Secondary BOOTLDR variable = bootflash:c10k-eboot-mz
Secondary Configuration register is 0x2
Secondary version:
Cisco Internetwork Operating System Software
IOS (tm) 10000 Software (UBR10K-K8P6-M), Released Version 12.2(13)BC2
Copyright (c) 1986-2003 by cisco Systems, Inc.
Compiled 26 08-Feb-03 11:28 by texbnt
Router#

```

The following example shows a typical display when the standby PRE1 module is not installed or is not operational. The standby (secondary) PRE1 module is shown as not up, and its boot variables and configuration register are not shown.

```

Router# show redundancy

PRE A (This PRE)    : Primary
PRE B                : Secondary
Redundancy state is REDUNDANCY_PEERSECONDARY_NONOPERATIONAL
Secondary PRE information....
Secondary PRE is not up
Router#

```

This example shows the output of the **show redundancy** command on the Cisco cBR router:

```

Router#show redundancy
Redundant System Information :
-----
      Available system uptime = 1 day, 17 hours, 50 minutes
Switchovers system experienced = 0
      Standby failures = 0
      Last switchover reason = none

      Hardware Mode = Simplex
Configured Redundancy Mode = sso
Operating Redundancy Mode = Non-redundant
Maintenance Mode = Disabled
Communications = Down      Reason: Failure

Current Processor Information :
-----
      Active Location = slot 4
      Current Software state = ACTIVE
      Uptime in current state = 1 day, 17 hours, 50 minutes
      Image Version = Cisco IOS Software, cBR Software
(X86_64_LINUX_IOSD-UNIVERSALK9-M)
, Experimental Version 15.5(20150504:162424)
[mcp_docsis31_ds3_ios-japatel-mcp_docsis31_ds3_ios_0504
-ds3-20 105]
Copyright (c) 1986-2015 by Cisco Systems, Inc.
Compiled Mon 04-May-15 14:24 by japatel

```

```

BOOT =
CONFIG_FILE =
Configuration register = 0x0

```

Peer (slot: 5) information is not available because it is in 'DISABLED' state

Router#

Clients Display

The following example shows a typical display for the **show redundancy clients** command:

```

Router# show redundancy clients
clientID = 0          clientSeq = 0          RF_INTERNAL_MSG
clientID = 25         clientSeq = 130        CHKPT RF
clientID = 5          clientSeq = 170        RFS client
clientID = 50         clientSeq = 530        Slot RF
clientID = 65000      clientSeq = 65000     RF_LAST_CLIENT

```

This example shows the output on the Cisco cBR router:

```

Router#show redundancy clients
clientID = 29         group_id = 1          clientSeq = 60        Redundancy Mode RF
clientID = 139        group_id = 1          clientSeq = 61        IfIndex
clientID = 25         group_id = 1          clientSeq = 68        CHKPT RF
clientID = 3062       group_id = 1          clientSeq = 70        UBRCCCE PLFM RF Client
clientID = 77         group_id = 1          clientSeq = 84        Event Manager
clientID = 1340       group_id = 1          clientSeq = 101       RP Platform RF
clientID = 1501       group_id = 1          clientSeq = 102       Cat6k CWAN HA
clientID = 78         group_id = 1          clientSeq = 106       TSPTUN HA
clientID = 305        group_id = 1          clientSeq = 107       Multicast ISSU Consolidation
RF
clientID = 304        group_id = 1          clientSeq = 108       IP multicast RF Client
clientID = 22         group_id = 1          clientSeq = 109       Network RF Client
clientID = 88         group_id = 1          clientSeq = 110       HSRP
clientID = 114        group_id = 1          clientSeq = 111       GLBP
clientID = 225        group_id = 1          clientSeq = 112       VRRP
clientID = 4700       group_id = 1          clientSeq = 114       COND_DEBUG RF
clientID = 1341       group_id = 1          clientSeq = 115       IOSXE DPIDX
clientID = 1505       group_id = 1          clientSeq = 116       Cat6k SPA TSM
clientID = 75         group_id = 1          clientSeq = 126       Tableid HA
clientID = 1344       group_id = 1          clientSeq = 127       IOSXE RP SBC RF
clientID = 227        group_id = 1          clientSeq = 128       SBC-RF RF Client
clientID = 1345       group_id = 1          clientSeq = 129       VOIP RF CLIENT
clientID = 71         group_id = 1          clientSeq = 135       XDR RRP RF Client
clientID = 24         group_id = 1          clientSeq = 136       CEF RRP RF Client
clientID = 146        group_id = 1          clientSeq = 138       BFD RF Client
clientID = 301        group_id = 1          clientSeq = 142       MRIB RP RF Client
clientID = 306        group_id = 1          clientSeq = 146       MFIB RRP RF Client
clientID = 3064       group_id = 1          clientSeq = 150       UBRCCCE SUP RF Client
clientID = 3065       group_id = 1          clientSeq = 151       PKTCBL RF client
clientID = 1504       group_id = 1          clientSeq = 153       Cat6k CWAN Interface Events
clientID = 401        group_id = 1          clientSeq = 155       NAT HA
clientID = 404        group_id = 1          clientSeq = 156       NAT64 HA
clientID = 402        group_id = 1          clientSeq = 157       TPM RF client
clientID = 520        group_id = 1          clientSeq = 158       RFS RF
clientID = 5          group_id = 1          clientSeq = 160       Config Sync RF client
clientID = 68         group_id = 1          clientSeq = 191       Virtual Template RF Client
clientID = 23         group_id = 1          clientSeq = 194       Frame Relay

```

```

clientID = 49      group_id = 1      clientSeq = 195      HDLC
clientID = 72      group_id = 1      clientSeq = 196      LSD HA Proc
clientID = 113     group_id = 1      clientSeq = 197      MFI STATIC HA Proc
clientID = 290     group_id = 1      clientSeq = 198      MPLS TP HA
clientID = 209     group_id = 1      clientSeq = 202      L2FIB
clientID = 199     group_id = 1      clientSeq = 205      ELB RF

```

Counters Display

The following example shows a typical display for the **show redundancy counters** command:

```

Router# show redundancy counters
Redundancy Facility OMs
      comm link up = 1
      comm link down down = 0
      invalid client tx = 0
      null tx by client = 0
      tx failures = 0
      tx msg length invalid = 0
      client not rxing msgs = 0
rx peer msg routing errors = 0
      null peer msg rx = 0
      errored peer msg rx = 0
      buffers tx = 1009
tx buffers unavailable = 0
      buffers rx = 1006
      buffer release errors = 0
duplicate client registers = 0
failed to register client = 0
Invalid client syncs = 0

```

This example shows the output on the Cisco cBR router:

```

Router#show redundancy counters
Redundancy Facility OMs
      comm link up = 0
      comm link down = 0

      invalid client tx = 0
      null tx by client = 0
      tx failures = 0
      tx msg length invalid = 0

      client not rxing msgs = 0
rx peer msg routing errors = 0
      null peer msg rx = 0
      errored peer msg rx = 0

      buffers tx = 0
tx buffers unavailable = 0
      buffers rx = 0
      buffer release errors = 0

duplicate client registers = 0
failed to register client = 0
Invalid client syncs = 0

```

Router#

History Display

The following example shows a typical display for the **show redundancy history** command:

```
Router# show redundancy history
00:00:00 client added: RF_INTERNAL_MSG(0) seq=0
00:00:00 client added: RF_LAST_CLIENT(65000) seq=65000
00:00:00 client added: CHKPT RF(25) seq=130
00:00:01 client added: Slot RF(50) seq=530
00:00:15 client added: RFS client(5) seq=170
00:00:16 *my state = INITIALIZATION(2) *peer state = DISABLED(1)
00:00:16 RF_PROG_INITIALIZATION(100) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) CHKPT RF(25) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) RFS client(5) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) Slot RF(50) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) RF_LAST_CLIENT(65000) op=0 rc=11
00:00:16 *my state = NEGOTIATION(3) peer state = DISABLED(1)
00:00:16 RF_EVENT_GO_ACTIVE(512) op=0 rc=0
00:00:16 *my state = ACTIVE-FAST(9) peer state = DISABLED(1)
00:00:16 RF_STATUS_MAINTENANCE_ENABLE(403) CHKPT RF(25) op=0 rc=0
00:00:16 RF_STATUS_MAINTENANCE_ENABLE(403) RFS client(5) op=0 rc=0
00:00:16 RF_STATUS_MAINTENANCE_ENABLE(403) Slot RF(50) op=0 rc=0
00:00:16 RF_PROG_ACTIVE_FAST(200) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) CHKPT RF(25) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) RFS client(5) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) Slot RF(50) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) RF_LAST_CLIENT(65000) op=0 rc=11
00:00:16 *my state = ACTIVE-DRAIN(10) peer state = DISABLED(1)
00:00:16 RF_PROG_ACTIVE_DRAIN(201) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(201) CHKPT RF(25) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(201) RFS client(5) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(201) Slot RF(50) op=0 rc=11
```

This example shows the output on the Cisco cBR router:

```
Router#show redundancy history
00:00:05 client added: Redundancy Mode RF(29) seq=60
00:00:05 client added: IfIndex(139) seq=61
00:00:05 client added: CHKPT RF(25) seq=68
00:00:05 client added: Event Manager(77) seq=84
00:00:05 client added: RP Platform RF(1340) seq=101
00:00:05 client added: Cat6k CWAN HA(1501) seq=102
00:00:05 client added: Network RF Client(22) seq=109
00:00:05 client added: Cat6k SPA TSM(1505) seq=116
00:00:05 client added: IOSXE RP SBC RF(1344) seq=127
00:00:05 client added: SBC-RF RF Client(227) seq=128
00:00:05 client added: XDR RRP RF Client(71) seq=135
00:00:05 client added: CEF RRP RF Client(24) seq=136
00:00:05 client added: MFIB RRP RF Client(306) seq=146
00:00:05 client added: UBRCCCE SUP RF Client(3064) seq=150
00:00:05 client added: Cat6k CWAN Interface Events(1504) seq=153
00:00:05 client added: RFS RF(520) seq=158
00:00:05 client added: Config Sync RF client(5) seq=160
00:00:05 client added: DHCP(100) seq=225
00:00:05 client added: DHCPD(101) seq=226
00:00:05 client added: SNMP RF Client(34) seq=238
00:00:05 client added: CWAN APS HA RF Client(1502) seq=239
00:00:05 client added: History RF Client(35) seq=248
00:00:05 client added: REDSSOC(91) seq=269
00:00:05 client added: Dialer(48) seq=270
```

```

00:00:05 client added: ARP(57) seq=278
00:00:05 client added: IOSXE SpaFlow(1342) seq=297
00:00:05 client added: IOSXE IF Flow(1343) seq=298
00:00:05 client added: IOS STILE RF Client(1111) seq=299
00:00:05 client added: Call-Home RF(1510) seq=342
00:00:05 client added: IP Tunnel RF(151) seq=349
00:00:05 client added: Config Verify RF client(94) seq=350
00:00:05 client added: SISF table(515) seq=359
00:00:05 client added: IKE RF Client(135) seq=363
00:00:05 client added: IPSEC RF Client(136) seq=364
00:00:05 client added: CRYPTO RSA(130) seq=365
00:00:05 client added: PKI RF Client(131) seq=366
00:00:05 client added: GKM RF Client(157) seq=367
00:00:05 client added: DHCPv6 Relay(148) seq=372
00:00:05 client added: DHCPv6 Server(149) seq=373
00:00:05 client added: ISSU Test Client(4005) seq=381
00:00:05 client added: Network RF 2 Client(93) seq=385
00:00:05 client added: FEC Client(205) seq=387
00:00:05 client added: DATA DESCRIPTOR RF CLIENT(141) seq=395
00:00:05 client added: CTS HA(1000) seq=405
00:00:05 client added: UBRCCCE DB(4040) seq=412
00:00:05 client added: VIDEO RPHA(4042) seq=413
00:00:05 client added: CBR LCHA(4044) seq=415
00:00:05 client added: IOS Config ARCHIVE(4020) seq=425
00:00:05 client added: IOS Config ROLLBACK(4021) seq=426
00:00:05 client added: ANCP(4031) seq=427
00:00:05 client added: Smart_Agent_RF_Client(1376) seq=448
00:00:05 client added: Flow Metadata(255) seq=471
00:00:07 *my state = INITIALIZATION(2) peer state = DISABLED(1)
00:00:07 RF_PROG_INITIALIZATION(100) First Slave(0) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) Slave(3) op=0 rc=23
00:00:07 RF_PROG_INITIALIZATION(100) Redundancy Mode RF(29) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) IfIndex(139) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) CHKPT RF(25) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) Event Manager(77) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) RP Platform RF(1340) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) Cat6k CWAN HA(1501) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) Network RF Client(22) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) Cat6k SPA TSM(1505) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) IOSXE RP SBC RF(1344) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) SBC-RF RF Client(227) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) XDR RRP RF Client(71) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) CEF RRP RF Client(24) op=0 rc=11
00:00:07 RF_PROG_INITIALIZATION(100) MFIB RRP RF Client(306) op=0 rc=11

```

States Display

The following example shows a typical display for the **show redundancy states** command:

```

Router# show redundancy states
  my state = 13 -ACTIVE
  peer state = 8  -STANDBY HOT
    Mode = Duplex
    Unit = Primary
    Unit ID = 0
  Redundancy Mode = Hot Standby Redundancy
  Maintenance Mode = Disabled
  Manual Swact = Enabled
  Communications = Up
  client count = 5

```

```
client_notification_TMR = 30000 milliseconds
RF debug mask = 0x0
```

This example shows the output on the Cisco cBR router:

```
Router#show redundancy states
  my state = 13 -ACTIVE
  peer state = 1 -DISABLED
    Mode = Simplex
    Unit = Primary
    Unit ID = 48

Redundancy Mode (Operational) = Non-redundant
Redundancy Mode (Configured) = sso
Redundancy State = Non Redundant
  Maintenance Mode = Disabled
  Manual Swact = disabled (system is simplex (no peer unit))
  Communications = Down      Reason: Simplex mode

  client count = 120
  client_notification_TMR = 30000 milliseconds
  RF debug mask = 0x0

Router#
```

Cisco RF Gateway 10

The following example shows sample output for the show redundancy command on the Cisco RF Gateway 10:

```
Router#show redundancy
Redundant System Information :
-----
  Available system uptime = 3 minutes
Switchovers system experienced = 0
  Standby failures = 0
  Last switchover reason = none
    Hardware Mode = Simplex
  Configured Redundancy Mode = Stateful Switchover
  Operating Redundancy Mode = Stateful Switchover
  Maintenance Mode = Disabled
  Communications = Down      Reason: Simplex mode

Current Processor Information :
-----
  Active Location = slot 1
  Current Software state = ACTIVE
  Uptime in current state = 2 minutes
  Image Version = Cisco IOS Software, Catalyst 4500 L3 Switch So
tware (rfgw-ENTSERVICES-M), Version 12.2(FLO_RFGW_NIGHT_MON.2008-08-11) UBUILD1
Image, CISCO DEVELOPMENT TEST VERSION
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Mon 11-Aug-08 04:54 by aswitzer
  BOOT =
  Configuration register = 0x2100
Peer (slot: 2) information is not available because it is in 'DISABLED' state
Router
```

Clients Display

The following example shows a typical display for the **show redundancy clients** command:

```
Router# show redundancy clients
clientID = 0      clientSeq = 0      RF_INTERNAL_MSG
clientID = 25     clientSeq = 130    CHKPT RF
clientID = 5      clientSeq = 170    RFS client
clientID = 50     clientSeq = 530    Slot RF
clientID = 65000  clientSeq = 65000 RF_LAST_CLIENT
```

Table below describes the significant fields shown in the display.

Table 29: show redundancy clients Field Descriptions

Field	Description
clientID	Displays the client ID number.
clientSeq	Displays the client notification sequence number.

Counters Display

The following example shows a typical display for the **show redundancy counters** command:

```
Router# show redundancy counters
Redundancy Facility OMs
      comm link up = 1
      comm link down down = 0
      invalid client tx = 0
      null tx by client = 0
      tx failures = 0
      tx msg length invalid = 0
      client not rxing msgs = 0
rx peer msg routing errors = 0
      null peer msg rx = 0
      errored peer msg rx = 0
      buffers tx = 1009
tx buffers unavailable = 0
      buffers rx = 1006
      buffer release errors = 0
duplicate client registers = 0
failed to register client = 0
Invalid client syncs = 0
```

History Display

The following example shows a typical display for the **show redundancy history** command:

```
Router# show redundancy history
00:00:00 client added: RF_INTERNAL_MSG(0) seq=0
00:00:00 client added: RF_LAST_CLIENT(65000) seq=65000
00:00:00 client added: CHKPT RF(25) seq=130
```

```

00:00:01 client added: Slot RF(50) seq=530
00:00:15 client added: RFS client(5) seq=170
00:00:16 *my state = INITIALIZATION(2) *peer state = DISABLED(1)
00:00:16 RF_PROG_INITIALIZATION(100) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) CHKPT RF(25) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) RFS client(5) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) Slot RF(50) op=0 rc=11
00:00:16 RF_PROG_INITIALIZATION(100) RF_LAST_CLIENT(65000) op=0 rc=11
00:00:16 *my state = NEGOTIATION(3) peer state = DISABLED(1)
00:00:16 RF_EVENT_GO_ACTIVE(512) op=0 rc=0
00:00:16 *my state = ACTIVE-FAST(9) peer state = DISABLED(1)
00:00:16 RF_STATUS_MAINTENANCE_ENABLE(403) CHKPT RF(25) op=0 rc=0
00:00:16 RF_STATUS_MAINTENANCE_ENABLE(403) RFS client(5) op=0 rc=0
00:00:16 RF_STATUS_MAINTENANCE_ENABLE(403) Slot RF(50) op=0 rc=0
00:00:16 RF_PROG_ACTIVE_FAST(200) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) CHKPT RF(25) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) RFS client(5) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) Slot RF(50) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_FAST(200) RF_LAST_CLIENT(65000) op=0 rc=11
00:00:16 *my state = ACTIVE-DRAIN(10) peer state = DISABLED(1)
00:00:16 RF_PROG_ACTIVE_DRAIN(201) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(201) CHKPT RF(25) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(201) RFS client(5) op=0 rc=11
00:00:16 RF_PROG_ACTIVE_DRAIN(201) Slot RF(50) op=0 rc=11

```

States Display

The following example shows a typical display for the **show redundancy state** command:

```

Router# show redundancy states
    my state = 13 -ACTIVE
    peer state = 8  -STANDBY HOT
    Mode = Duplex
    Unit = Primary
    Unit ID = 0
    Redundancy Mode = Hot Standby Redundancy
    Maintenance Mode = Disabled
    Manual Swact = Enabled
    Communications = Up
        client count = 5
    client_notification_TMR = 30000 milliseconds
    RF debug mask = 0x0

```

Related Commands

Command	Description
associate	Associates two line cards for Automatic Protection Switching (APS) redundancy protection.
clear redundancy	Clears the counters and history information that are used by the Redundancy Facility (RF) subsystem.
mode (redundancy)	Configures the redundancy mode of operation.
redundancy	Enters redundancy configuration mode.
redundancy force-failover main-cpu	Forces a manual switchover between the active and standby PRE1 modules or Supervisor cards.

Command	Description
redundancy force-switchover	Forces the standby PRE or Supervisor card to assume the role of the active PRE or Supervisor card.
show redundancy config-sync	Displays failure information generated during a bulk synchronization from the active PRE to the standby PRE.
show redundancy platform	Displays active and standby PRE and software information.

show redundancy config-sync

To display failure information generated during a bulk synchronization from the active Performance Routing Engine (PRE) to the standby PRE, use the **show redundancy config-sync** command in user EXEC or privileged EXEC modes.

```
show redundancy config-sync {failures {bem | mcl | prc} | ignored failures mcl}
```

Syntax Description	failures	Displays failures related to bulk synchronisation of the standby PRE.
	bem	Displays Best Effort Method (BEM) failure list.
	mcl	Displays Mismatched Command List (MCL) failure list.
	prc	Displays Parser Return Code (PRC) failure list.
	ignored failures mcl	Displays mismatched commands in the MCL that are ignored.

Command Default None

Command Modes
User EXEC (>)
Privileged EXEC (#)

Command History	Release	Modification
	12.2(33)SCA	This command was introduced.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Usage Guidelines This command is used on the active PRE only.

If there are mismatched commands between the active and standby PRE, remove the configuration lines that are not supported on the standby image. If it is not possible to remove the mismatched lines, or it has been determined that the mismatched lines are not critical to the operation of the system, use the command **redundancy config-sync ignore mismatched-commands** to temporarily ignore them.

Examples

The examples in this section are supported on the Cisco cBR Series Converged Broadband Router.

The following example displays a mismatched command list:

```
Router# show redundancy config-sync failures mcl
Mismatched Command List
-----
- tacacs-server host 209.165.200.225 timeout 5
```

The following example shows that no mismatched commands are ignored:

```
router# show redundancy config-sync ignored failures mcl
Ignored Mismatched Command List
```

```
-----
The list is Empty
```

The following example displays a Parser Return Code failure list:

```
router# show redundancy config-sync failures prc
PRC Failed Command List
-----
router bgp 999
address-family ipv4 vrf TEST2
- bgp dampening 44 66 66 44
! </submode> "address-family"
address-family ipv4 vrf TEST1
- bgp dampening 44 66 66 44
! </submode> "address-family"
```

The following example displays a Best Effort Method failure list:

```
router# show redundancy config-sync failures bem
BEM Failed Command List
-----
interface Tunnel0
- tunnel mpls traffic-eng priority 7 7
! </submode> "interface"
- next-address loose 10.165.202.158
- next-address loose 10.165.202.129
```

Related Commands

Command	Description
redundancy force-switchover	Forces the standby PRE to assume the role of the active PRE.
show redundancy	Displays current active and standby PRE redundancy status.
show redundancy platform	Displays active and standby PRE and software information.

show redundancy linecard

To display information about the line card redundancy, use the **show redundancy linecard** command in privileged EXEC mode.

```
show redundancy linecard { all | group {group-id | all } | history | slot slot | {sub-block all } }
```

Syntax Description	all	Displays role and state information for all line cards.
	group <i>group-id</i>	Displays the line card redundancy information for the line card groups. The valid value is 0.
	group all	Displays all the line card groups.
	history	Displays the state change history log for all the line cards.
	slot <i>slot</i>	Displays the redundancy information for the line card slot number.
	sub-block	Displays the sub-block information.

Command Default None.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	IOS-XE Release 3.16.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Examples

The following example shows how to display the redundancy group information:

```
Router# show redundancy linecard group all
Group Identifier: 0
Revertive, Revert Timer: OFF (60000 sec)
Reserved Cardtype: 0xFFFFFFFF 4294967295
Group Redundancy Type: INTERNAL SWITCH
Group Redundancy Class: 1:N
Group Redundancy Configuration Type: LINECARD GROUP
Primary: Slot 6
Primary: Slot 7
Secondary: Slot 0
```

The following example shows how to displays the role and state information for all line cards:

```
Router# show redundancy linecard all
LC My Peer Peer Peer
Slot Subslot Group State State Slot Subslot Role Mode
-----
9 - 0 Active Stdb Cold 0 - Active Primary
8 - 0 Active Stdb Warm 0 - Active Primary
7 - 0 Active Stdb Warm 0 - Active Primary
6 - 0 Active Stdb Cold 0 - Active Primary
3 - 0 Active Stdb Cold 0 - Active Primary
```

show redundancy linecard

```

2 - 0 Active Stdbby Cold 0 - Active Primary
1 - 0 Active Stdbby Cold 0 - Active Primary
0 - 0 - - Multiple None Standby Secondary

```

The following is a sample output of the command when secondary card becomes active for a primary card, and the N+1 redundancy is changed to 1+1 redundancy:

```

Router# show redundancy linecard all
LC My Peer Peer Peer
Slot Subslot Group State State Slot Subslot Role Mode
-----
9 - 0 Stdbby Hot Active 0 - Standby Primary
8 - 0 Active Unavail 0 - Active Primary
7 - 0 Active Unavail 0 - Active Primary
6 - 0 Active Unavail 0 - Active Primary
3 - 0 Active Unavail 0 - Active Primary
2 - 0 Active Unavail 0 - Active Primary
1 - 0 Active Unavail 0 - Active Primary
0 - 0 Active Stdbby Hot 9 - Active Secondary

```

The following example displays the redundancy information for the line card:

```

Router# show redundancy linecard slot 9
LC Redundancy Is Configured:
LC Group Number: 0
LC Slot: 9 (idx=9)
LC Peer Slot: 0
LC Card Type: 0x4076 , 16502
LC Name: 9
LC Mode: Primary
LC Role: Active
LC My State: Active
LC Peer State: Stdbby Warm

```

The following example displays the state change history for all line cards:

```

Router# show redundancy linecard history
Jan 05 2012 12:24:27 20559 - st_mem(9): MY State Change, (Active Wait) -> (Active)
Jan 05 2012 12:24:27 20559 - st_mem(9): MY FSM execution, Active Wait:Init:State Ntfy
Jan 05 2012 12:24:27 20559 - st_mem(9): MY State Change, (Active LC Cfg Dnld) -> (Active
Wait)
Jan 05 2012 12:24:27 20559 - st_mem(9): MY FSM execution, Active LC Cfg Dnld:Init:Cfg
Dnld Done
Jan 05 2012 12:24:27 20559 - st_mem(9): MY State Change, (Active Cold) -> (Active LC
Cfg Dnld)
Jan 05 2012 12:23:09 12763 - st_mem(9): MY FSM execution, Active Cold:Init:Cfg Dnld
Jan 05 2012 12:23:09 12760 - st_mem(9): MY State Change, (Init) -> (Active Cold)
Jan 05 2012 12:23:09 12760 - st_mem(9): MY FSM execution, Init:Init:Up
Jan 05 2012 12:21:39 3746 - st_mem(9): PEER FSM Execution , Init:Init:Reset

```

Related Commands

Command	Description
class	Configures redundancy class on the line card.
description	Adds a description to the line card group.
member slot	Adds a slot to the line card redundancy group.
redundancy slot	Enters redundancy configuration mode.

show redundancy platform

To display active and standby Performance Routing Engine (PRE) and software information, use the **show redundancy platform** command in user EXEC or privileged EXEC modes.

show redundancy platform

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes
User EXEC (>)
Privileged EXEC (#)

Command History	Release	Modification
	12.2(33)SCA	This command was introduced.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Router.

Examples

The following example displays active and standby PRE information such as PRE states, reason for last failover, total system uptime, Cisco IOS release version, and so on:

```
Router# show redundancy platform

PRE A (This PRE)      : Active
PRE B                 : Standby

                        Operating mode : SSO
Uptime since this PRE became active from reload : 13 minutes
  Standby failures since this PRE active : 0
  The standby PRE has been up for : 3 minutes
Previous rp_cre_redun_reg bits - 1057h
Current  rp_cre_redun_reg bits - 1041h
Previous peer_ready_reg - 01
Current  peer_ready_reg - 11
Standby PRE information...
Standby is up
Standby has 1044480K bytes of memory
Standby BOOT variable = disk1:ubr10k2-k9p6u2-mz.Prednld-prototype-2,12;
Standby CONFIG_FILE variable =
Standby BOOTLDR variable =
Standby Configuration register is 0x0
Standby version:
Cisco IOS Software, 10000 Software (UBR10K2-K9P6U2-M), Version 12.2(122_33_SCA.2008-02-15)
  UBUILDT Image, CISCO DEVELOPMENT TEST VERSION
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Sat 16-Feb-08 03:12 by jdkerr
Active version:
Cisco IOS Software, 10000 Software (UBR10K2-K9P6U2-M), Version 12.2(122_33_SCA.2008-02-15)
  UBUILDT Image, CISCO DEVELOPMENT TEST VERSION
Copyright (c) 1986-2008 by Cisco Systems, Inc.
Compiled Sat 16-Feb-08 03:12 by jdkerr
```

Related Commands

Command	Description
debug ehssa	Enables debug information on the EHSA module.
redundancy force-switchover	Forces the standby PRE to assume the role of the active PRE.
show redundancy (ubr10012)	Displays the current redundancy status.
show redundancy config-sync	Displays failure information generated during a bulk synchronization from the active PRE to the standby PRE.

show running-config interface cable

To display the bundles that are configured on a Cisco CMTS router and display the running configuration for each of the cable interfaces, use the **show running-config interface cable** command in privileged EXEC mode.

Cisco IOS Release 12.2(33)SCE and later

show running-config interface cable *{slot/cable-interface-index | slot/subslot/cable-interface-index }*

showrunning-configinterfacecable

slot / | subslot / | port /

Cisco IOS Release 12.2(33)SCE and later

show running-config interface cable

slot / cable-interface-index | slot / subslot / cable-interface-index

Cisco cBR Series Converged Broadband Router

show running-config interface cable

slot / subslot / cable-interface-index

Syntax Description	
<i>slot</i>	Slot where the line card resides. <ul style="list-style-type: none"> • Cisco uBR7225VXR router—The valid value is 1 or 2. • Cisco uBR7246VXR router—The valid range is from 3 to 6. • Cisco uBR10012 router—The valid range is from 5 to 8. • Cisco cBR router—The valid range is 0 to 3, and 6 to 9.
<i>subslot</i>	(Cisco uBR10012 only) Secondary slot number of the cable interface line card. The valid subslots are 0 or 1. On the Cisco cBR router, the subslot is always 0.
<i>port</i>	Downstream port number. <ul style="list-style-type: none"> • Cisco uBR7225VXR router and Cisco uBR7246VXR router—The valid value is 0 or 1. • Cisco uBR10012 router—The valid range is from 0 to 4 (depending on the cable interface).
<i>cable-interface-index</i>	Downstream port of the Cisco uBR10-MC5X20 and Cisco uBR-MC28 line cards, or MAC domain index of the Cisco uBR-MC20X20V and Cisco uBR-MC3GX60V line cards. Cisco uBR7225VXR and Cisco uBR7246VXR routers—The valid port value is 0 or 1. Cisco uBR10012 router—The valid range for the Cisco uBR-MC20X20V and Cisco uBR-MC5X20 line cards is from 0 to 4. The valid range for the Cisco uBR-MC3GX60V line card is from 0 to 14. Cisco cBR router—The valid range is 0 to 7.

Command Default Displays screen output without page breaks, removes passwords and other security information.

Command Modes
User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.3(21)BC	This command was enhanced to support cable interface bundling and virtual interface bundling.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.
12.2(33)SCC	The command output was modified to display profile description for the specified profile.
12.2(33)SCE	This command was modified. The port parameter was changed to cable-interface-index to indicate the MAC domain index for the Cisco uBR-MC20X20V and Cisco uBR-MC3GX60V cable interface line cards.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Router.

Examples

The following example displays typical output for the show running-config command for a specified cable interface:

```
Router# show running-config interface cable 8/1/0
```

```
Building configuration...
Current configuration : 1563 bytes
!
interface Cable8/1/0
  downstream Modular-Cable 1/3/0 rf-channel 0 upstream 0-4
  no cable packet-cache
  cable bundle 1
  cable downstream channel-id 203
  cable downstream annex B
  cable downstream modulation 64qam
  cable downstream interleave-depth 32
  cable downstream frequency 525000000
  cable downstream rf-shutdown
  cable upstream max-ports 4
  cable upstream 0 connector 0
  cable upstream 0 frequency 5800000
  cable upstream 0 channel-width 1600000 1600000
  cable upstream 0 docsis-mode tdma
  cable upstream 0 minislot-size 4
  cable upstream 0 range-backoff 3 6
  cable upstream 0 modulation-profile 21
  cable upstream 0 attribute-mask 20000000
  no cable upstream 0 shutdown
  cable upstream 1 connector 1
  cable upstream 1 channel-width 1600000 1600000
  cable upstream 1 docsis-mode tdma
  cable upstream 1 minislot-size 4
```

```

cable upstream 1 range-backoff 3 6
cable upstream 1 modulation-profile 21
cable upstream 1 attribute-mask 20000000
no cable upstream 1 shutdown
cable upstream 2 connector 2
cable upstream 2 channel-width 1600000 1600000
cable upstream 2 docsis-mode tdma
cable upstream 2 minislots-size 4
cable upstream 2 range-backoff 3 6
cable upstream 2 modulation-profile 21
cable upstream 2 attribute-mask 20000000
cable upstream 2 shutdown
cable upstream 3 connector 3
cable upstream 3 channel-width 1600000 1600000
cable upstream 3 docsis-mode tdma
cable upstream 3 minislots-size 4
cable upstream 3 range-backoff 3 6
cable upstream 3 modulation-profile 21
cable upstream 3 attribute-mask 20000000
cable upstream 3 shutdown
end

```

The following example displays the virtual bundle information for the specified bundle:

```

Router# show running-config interface Bundle 1
Building configuration...
Current configuration : 158 bytes
!
interface Bundle1
 ip address 1.60.0.1 255.255.255.0
 cable arp filter request-send 3 2
 cable arp filter reply-accept 3 2
 no cable ip-multicast-echo
end

```

The following examples displays subinterface information for the specified bundle on a Cisco uBR10012 router:

```

Router# show ip interface brief | include Bundle
Wideband-Cable8/0/0:0 Bundle2 YES unset up up
In8/0/0:0 Bundle2 YES unset up up
Bundle1 1.60.0.1 YES NVRAM up up
Bundle2 1.80.0.1 YES NVRAM up up
Bundle5 unassigned YES NVRAM up up
Router# show running interface Bundle150.1
Building configuration...
Current configuration : 93 bytes
!
interface Bundle150.1
 ip address 30.0.0.1 255.0.0.0
 cable helper-address 1.8.35.200
end

```

The following example displays the profile description specified for an interface on a Cisco uBR10012 router:

```

Router#show running-config | include gold
cable multicast auth profile gold
 profile-description gold profile for higher bandwidth

```

show running-config interface cable

```

bootfile gold11_bpi.cm
tftp-server disk0:gold2.cm alias gold2.cm
tftp-server disk0:gold11_bpi.cm alias gold11_bpi.cm
tftp-server disk0:gold11_bpi.cm

```

Related Commands

Command	Description
cable bundle	Configures a cable interface to belong to an interface bundle or virtual interface bundle.
profile description	Configures profile descriptions for each profile in the selected cable multicast authorization profile.
show arp	Displays the entries in the router's ARP table.
show cable bundle <i>number</i> forwarding-table	Displays the MAC forwarding table for the specified bundle, showing the MAC addresses of each cable modem in a bundle and the physical cable interface that it is currently using.
show cable modem	Displays the cable modems that are online both before and after cable interface bundling has been configured.

show run interface VirtualPortGroup

To verify the VirtualPortGroup interface configuration, use the **show run interface VirtualPortGroup** command in privileged EXEC mode.

show run interface VirtualPortGroup *number*

Syntax Description	<i>number</i> Displays the information of the VirtualPortGroup with this number.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	Privileged EXEC (#)
----------------------	---------------------

Command History	Release	Modification
	Cisco IOS-XE Release 3.18.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines This command is used to verify the VirtualPortGroup interface configuration.

The following sample output shows the VirtualPortGroup interface configuration:

```
router#show run interface VirtualPortGroup 5
Building configuration...

Current configuration : 145 bytes
!
interface VirtualPortGroup5
 ip address 1.2.2.2 255.255.255.0 secondary
 ip address 1.2.2.1 255.255.255.0
 no mop enabled
 no mop sysid
end
```

Related Commands	Command	Description
	mgmt-intf	Defines a cable video management interface.
	interface	Defines a VirtualPortGroup interface.
	show run include mgmt-intf	Displays the cable video management interface configuration.
	show interfaces VirtualPortGroup	Displays the VirtualPortGroup interface state.

show run | se ptp

You can use the **show run | se ptp** command to check the PTP configuration on both cBR and RPD.

show run | se ptp

Command Default	None
Command Modes	Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Everest 16.7.1y	Support for checking PTP configuration was introduced.

Usage Guidelines Use the **show run | se ptp** command to view the PTP configuration status.

The following example shows the sample output for the **show run | se ptp** command:

```
Router# show run | se ptp

ptp clock boundary domain 55
servo tracking-type R-DTI
clock-port 22 master profile g8275.2
sync interval -5
sync one-step
transport ipv6 unicast interface Lo1588 negotiation
clock-port 33 master profile g8275.2
sync interval -5
sync one-step
transport ipv6 unicast interface Lo1589 negotiation
ptp r-dti 1
profile G.8275.2
ptp-domain 55
clock-port 22
ethernet 0
transport ipv6
clock source ipv6 2001:158:158:158::158 gateway ipv6 2001:120:101:16::1
clock source ipv6 2001:158:158:158::159 gateway ipv6 2001:120:101:16::2 alternate
```

show snmp | i queue

You can use the **show snmp | i queue** command to display the SNMP queue size. You can also view if the queue size has dropped and can also view the maximum queue size.

show snmp | i queue

Command Default

None

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Cupertino 17.9.1x	This command is introduced.

Usage Guidelines

Use the **show snmp | i queue** command to view the SNMP queue size.

The following example shows the sample output for the **show snmp | i queue** command:

```
Router# show snmp | i queue
0 Input queue packet drops (Maximum queue size 1000)
0 Dispatcher queue packet drops (Maximum queue size 75)
Packets currently in SNMP process input queue: 0, max 1000
Packets currently in SNMP PDU dispatcher queue: 0, max 75
Router#
```

The table below describes the significant fields shown in the display:

Table 30: show snmp | i queue Field Descriptions

Field	Description
Input queue	The process input queue holds SNMP packets from the dispatcher queue, waiting to be processed.
Dispatcher queue	The dispatcher queue holds SNMP packets from socket.

Related Commands

Command	Description
snmp snmp-server dispatcher-queue-size	Specify the dispatcher queue size.
snmp snmp-server local-queue-size	Specify the local queue size.

show tech-support

To automatically run **show** commands that display system information, use the **show tech-support** command in the EXEC mode.

show tech-support *keywords*

Syntax Description

Firewall	Displays firewall related information.
aaa	Displays aaa related information.
alg	Displays ALG related information.
appnav	Displays AppNav related information.
bgp	Displays BGP information.
called-number	Displays Called Number commands.
called-number-pool	Displays Called Number Pool commands.
cef	Displays CEF related information.
cft	Displays CFT related information.
cmts	Displays CMTS related information.
cmts rpd	Displays downstream cable and RPHY related information.
cmts queuestuck	Useful for debugging and working around queue stuck issues.
cube	Displays cube related information.
dhcpv4	Displays DHCPv4 related information.
dhcpv6	Displays DHCPv6 related information.
diagnostic	Displays diagnostic related information.
dial-peer	Displays dial-peer group.
dmvpn	Displays DMVPN related information.
dpg	Displays dial-peer groups.
e164-pattern-map	Displays e164 pattern maps.
e164-translation	Displays voice class e164-translation.
eigrp	Displays EIGRP related information.
ethernet	Displays ethernet protocols related information.
evc	Displays EVC related information.

fnf	Displays Flexible Netflow information
ipc	Displays IPC related information.
ipmulticast	Displays IP multicast related information.
ipsec	Displays IPSEC related information.
isis	Displays CLNS and ISIS related information.
issu	Displays ISSU related information.
iwan	Displays IWAN related information.
l2vpn	Displays L2VPN related information.
lisp	Displays Locator/ID Separation Protocol.
mdns-sd	Displays mdns-sd related information.
memory	Displays memory related information.
mfib	Displays MFIB related information.
mpls	Displays MPLS forwarding and application related information.
mvpn	Displays multicast VPN related information.
nat	Displays NAT related information.
nbar	Displays NBAR related information.
onep	Displays ONEP related information.
ospf	Displays OSPF related information.
ospfv3	Displays OSPFv3 related information.
otv-isis	Displays OTV and ISIS related information.
page	Displays page through output.
password	Includes passwords.
perf_measure	Displays PERF_MEASURE related information.
performance-monitor	Displays performance monitor related information.
pfrv3	Displays Pfrv3 related information.
pki	Displays PKI related information.
route-string	Displays route-string commands.
rsvp	Displays IP RSVP related information.
sbc	Displays SBC related information.

segment-routing	Displays segment-routing related information.
server-group	Displays server groups.
sip-options-keepalive	Displays voice class sip-options-keepalive.
sip-predefined-profiles	Displays predefined voice class sip profiles.
sisf	Displays SISF information.
subscriber	Displays subscriber related information.
video	Displays video related information.
virtual-service	Displays virtualization manager related information
voice	Displays voice related information.
vrrp	Displays VRRP related information.
wccp	Displays WCCP related information.

Command Default

None

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
Cisco IOS XE Fuji 16.8.2	This command was introduced.
Cisco IOS XE Bengaluru 17.6.1x	This command was updated to include the cmts rpd keywords.

Usage Guidelines

This command generates technical support information that is useful for Cisco Technical Support representatives when troubleshooting a router. If you want to share the command output with Cisco Technical Support, use **redirect show tech | redirect harddisk:<filename>.txt** to export the command output to a plain text file and share.

Examples

The commands that run automatically when you run the **show tech-support** command include but not limited to the following:

```
show clock
show version
show running-config
show redundancy history
show redundancy states
show redundancy switchover history
show stacks
show interfaces
show interfaces history
show controllers
show user
show data-corruption
```

```

show memory statistics
show process memory sorted
show process memory platform sorted
show process cpu sorted
show process cpu platform sorted
show process cpu extended history
show process cpu history
show file systems
show file descriptors
show bootflash: all
show harddisk: all
show webui: all
show stby-bootflash: all
show stby-harddisk: all
show controllers t1
show controllers e1
show ipc nodes
show ipc ports
show ipc queue
show ipc status
show derived-config interface
show cable card 0/0 ds-phy trigger
show alignment
show process cpu sorted
show facility-alarm status
show facility-alarm status critical
show redundancy
show redundancy counters
show redundancy linecard all
show lcha rfs
show redundancy linecard history
show lcha logging level info
show platform hardware network-clocks
show platform diag
show diag all eeprom detail
show environment all
show environment power
show platform software ios RP active ipcc1 statistics port
show platform software ios RP active ipcc1 statistics client
show platform software ios RP active ipcc1 statistics service 1
show platform hardware qfp active infrastructure chipset 0 ver
show platform software object f0 pending-ack-update sorted 600
show platform software object f1 pending-ack-update sorted 600
show platform hardware qfp active system fault stats

```

Examples

The commands that run automatically when you run the **show tech-support cmts rpd** command include but not limited to the following:

```

show cable rpd
show cable rpd ipv6
show cable rpd version
show cable rpd sw-version
show cable rpd lcha
show cable rpd depi
show cable rpd log rev
show cable rpd info
show cable rpd md-association
show cable rpd sum
show ip spd
show ipv6 spd
show ptp clock running

```

```
show platform software us-scheduler infra cpu utilization
show platform software process slot x monitor
show cable card cdman chunk
show cable card ds-mac all
show cable card scheduler info
show cable card us-mac counts all
show cable card us-triggered-spectrum uts-common
show controllers Downstream-Cable all
show controllers Downstream-Cable association
show controllers Downstream-Cable bandwidth rf-channel
show controllers Downstream-Cable bandwidth wb-channel
show controllers Downstream-Cable counter rf-channel
show controllers Downstream-Cable counter ofdm-channel
show controllers Downstream-Cable counter wb-channel
show controllers Downstream-Cable rpd
show controllers Downstream-Cable rf-channel 0-162 verbose
show controllers Downstream-Cable rf-channel prof-order
show platform software rphyman rp active gcp statistics in
show platform software rphyman rp active gcp statistics me
show platform software rphyman rp active gcp statistics ms
show logging process rphyman internal reverse
```

show usb-devices summary

To view a summary of all the system USB devices (eUSB Flash), use **show usb-devices summary** command in Privileged Exec mode.

show usb-devices summary

Syntax Description This command has no arguments or keywords.

Command Default None

Command Modes Privileged Exec (#)

Command History	Release	Modification
	Cisco IOS XE Dublin 17.12.1	This command is introduced on the Cisco cBR Series Converged Broadband Routers.

Examples

The following example shows how to display a summary of the system USB devices:

```
Router# show usb-devices summary
Load for five secs: 3%/0%; one minute: 4%; five minutes: 4%
Time source is NTP, 21:37:37.209 EDT Mon Jun 26 2023
```

```
USB Device: EHCI Host Controller
Bus: 01 Port: 00 Cnt: 00 Speed: 480
Vendor: 1d6b ProdID: 0002 Rev: 5.15
Manufacturer: Linux 5.15.12 ehci_hcd
Serial Number: 0000:00:1d.0
```

```
USB Device:
Bus: 01 Port: 00 Cnt: 01 Speed: 480
Vendor: 8087 ProdID: 0020 Rev: 0.00
Manufacturer:
Serial Number:
```

```
USB Device: DataTraveler 3.0
Bus: 01 Port: 00 Cnt: 01 Speed: 480
Vendor: 0951 ProdID: 1666 Rev: 1.00
Manufacturer: Kingston
Serial Number: 60A44C3FACCEB221996A0158
```

```
USB Device: EUSB
Bus: 01 Port: 03 Cnt: 02 Speed: 480
Vendor: 0e39 ProdID: 2f00 Rev: 3.49
Manufacturer: SMART
Serial Number: STP22370JF8
```

In this example USB Device: DataTraveler 3.0 indicates a front panel usb drive and USB Device: EUSB indicates a eUSB flash drive.

Related Commands	Command	Description
	show hdd-devices summary	Displays a summary of all the system HDD devices(SSD).

show usb-devices summary