Cable Commands: show m through show z

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New Commands

Command	Cisco IOS Software Release
show pxf cable controller	12.3(23)BC1
show pxf cpu queue wb-spa	12.3(23)BC
show redundancy config-sync	12.2(33)SCA
show redundancy platform	12.2(33)SCA
show pxf cable multicast	12.2(33)SCB
show pxf cpu drl-trusted-site	12.2(33)SCB
show packetcable gate ipv6	12.2(33)SCE
show packetcable gate multimedia	12.2(33)SCE
show pxf cpu statistics drl ipv4	12.2(33)SCE
show pxf cpu statistics drl ipv6	12.2(33)SCE
show pxf cpu statistics drl us-cable	12.2(33)SCE
show packetcable cms	12.2(33)SCF

Modified Commands

Command	Cisco IOS Software Release
show pxf cpu queue	12.3(23)BC1
show pxf cable	12.2(33)SCB
show pxf cable controller	12.2(33)SCB
show pxf cpu queue	12.2(33)SCB
show pxf cpu statistics	12.2(33)SCB
show upgrade fpd file	12.2(33)SCB
show upgrade fpd package default	12.2(33)SCB
show upgrade fpd progress	12.2(33)SCB

Command	Cisco IOS Software Release
show upgrade fpd table	12.2(33)SCB
show tech support	12.2(33)SCB1
show tech support	12.3(23)BC7
show processes cpu	12.2(33)SCB3
show pxf cpu statistics	12.2(33)SCE
show running-config interface cable	12.2(33)SCE
show pxf cpu queue wb-spa	12.2(33)SCG
show pxf cpu statistics	12.2(33)SCG
show tech-support	12.2(33)SCG

show nls

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

show nls

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.

Examples

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

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

Related Commands

Command	Description
cpd	Enables CPD.

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 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.
verbose	(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.

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

Table 228 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.

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

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 0-229 describes the major fields shown in the **show packetcable event rks-group** display.

Table 0-229 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 batrch 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 SpecificationPacketCable web site at the following URL:

http://www.packetcable.com

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*}

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.
gate-id	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.

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 0-230 describes the major fields shown in the **show packetcable gate** display.

Table 0-230 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.

Table 0-230 show packetcable gate Field Display (continued)

Field	Description
State	Describes the current state of the gate in both the upstream and downstream directions. The possible state values are: • 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).

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

No default behavior or values.

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(15)BC1	Support was added for the Cisco uBR10012 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 c**lear 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#
```

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.

Command	Description
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 *gate-id*	(Optional) Displays information for the specified gate ID in the downstream direction. The valid range is from 0 to 4294967295.
upstream *gate-id*	(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.

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 gate ipv6** 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 gate ipv6** 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 gate ipv6** 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 0-230 describes the significant fields shown in the command display.

Table 231 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: • 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.

Table 231 show packetcable gate Field Display (continued)

Field	Description
Total number of gates	Displays the total number of PCMM gates that are allocated, authorized, reserved, or committed.
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

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

show packetcable gate multimedia multicast summary

Syntax Description

multicast	Displays PCMM multicast information.
summary	Provides a summary of PCMM multicast 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.

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

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

Table 0-230 describes the significant fields shown in the display.

Table 232 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.

Table 232 show packetcable gate multimedia Field Descriptions (continued)

Field	Description
State	Describes the current state of the gate in the downstream direction. The possible state values are: • 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.

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

No default behavior or values.

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.

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 0-233 describes the fields shown in the **show packetcable global** display.

Table 0-233 show packetcable global Field Display

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

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 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*] | **maptable** *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.
maptable *cx/y/z* [*sid*]	Displays memory and service ID (SID) information for a particular cable interface. If the optional *sid* 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 *ip-address* parameter is specified, displays information only for that particular IP address.

Defaults

No default behavior or values.

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.

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 master 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 0-234 describes the fields shown by both forms of the **show pxf cable feature-table** command:

Table 0-234 show pxf cable feature-table Field Descriptions

Field	Description
Interface	Identifies the cable interface or subinterface.
SWInterface	Identifies the master cable interface for bundled interfaces.
McastEcho	Displays whether multicast echo is enabled (On) or disabled (Off).

Table 0-234 show pxf cable feature-table Field Descriptions (continued)

Field	Description
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 maptable** command for a particular cable interface:

```
Router# show pxf cable maptable 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 0-235 describes the fields shown by the **show pxf cable maptable** command:

Table 0-235 show pxf cable maptable 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 0-236 describes the fields shown by the **show pxf cable multicast-echo** command:

Table 0-236 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.
DS Jib Header	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): • 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: – 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: – 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 0-237 describes the fields shown by the **show pxf cable source-verify** command:

Table 0-237 show pxf cable source-verify Field Descriptions

Field	Description
IP Address	Identifies the IP addresses that have been verified by the source-verify feature.
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: • *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.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB.

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:

```
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 238 for descriptions of link queue fields.

Table 238 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. • The first number, *act*, indicates the parameter that a link queue is actually using. • The second number, *conf*, 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. • 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. • 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 Cicso 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.

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.
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

cable *x/y/z*	Identifies the cable interface for which information should be displayed.
sid	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

No default behavior or values.

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**.

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
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-RFIv1.1-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

multicast-group	(Optional) Displays the name of the multicast group.

Command Default

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(33)SCB	The command was introduced.

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 display 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** [**detail**] | **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** [**detail**] | **drop** [*interface*] | **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: • **diversion**—(Optional) Displays packets that the PXF diverted to the main route processor for special handling. Use the detail keyword to break down the statistics by the particular reason for the diversion. • **drop** [*interface*]—(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 [*interface*]	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.
12.3(X)BC	The **detail** option and additional counters were added to the **show pxf cpu statistics diversion** command.

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 0-239 describes the fields shown in the **show pxf cpu access-list** command:

Table 0-239 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.
State	Displays the current state of the access list: • 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.
Freesize	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 0-240 describes the fields shown in the **show pxf cpu buffers** command:

Table 0-240 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 0-241 describes the fields shown in the **show pxf cpu cef** command:

Table 0-241 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.
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.

Table 0-241 Field Descriptions for the show pxf cpu cef Command (continued)

Field	Description
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 0-242 describes the fields shown in the **show pxf cpu context** command:

Table 0-242 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.
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 = (new_work+feed_back)*100/(new_work+feed_back+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 = (new_work+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 = (new_work+feed_back+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 0-243 describes the fields shown in the **show pxf cpu mroute** command:

Table 0-243 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.
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 0-244 describes the fields shown in the **show pxf cpu schedule** command:

Table 0-244 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

Interface specific To RP punt statistics
  GigabitEthernet1/0/0            1000 packets     113946 bytes  RP Rx
  GigabitEthernet1/0/0            1000 packets     113946 bytes  Proc Enq

  Cable5/1/0                         0 packets          0 bytes  RP Rx
  Cable5/1/0                         0 packets          0 bytes  Proc Enq

  Cable5/1/1                         0 packets          0 bytes  RP Rx
  Cable5/1/1                         0 packets          0 bytes  Proc Enq

  Cable6/0/0                        32 packets       4509 bytes  RP Rx
  Cable6/0/0                        31 packets       3914 bytes  Proc Enq

  Cable6/0/1                         3 packets       1234 bytes  RP Rx
  Cable6/0/1                         3 packets       1222 bytes  Proc Enq

  Cable6/0/2                         0 packets          0 bytes  RP Rx
  Cable6/0/2                         0 packets          0 bytes  Proc Enq

  Cable6/0/3                         0 packets          0 bytes  RP Rx
  Cable6/0/3                         0 packets          0 bytes  Proc Enq

  Cable6/0/4                         0 packets          0 bytes  RP Rx
  Cable6/0/4                         0 packets          0 bytes  Proc Enq

  Cable7/0/0                         0 packets          0 bytes  RP Rx
  Cable7/0/0                         0 packets          0 bytes  Proc Enq

  Cable8/0/0                         0 packets          0 bytes  RP Rx
  Cable8/0/0                         0 packets          0 bytes  Proc Enq

  Cable8/0/1                         0 packets          0 bytes  RP Rx
  Cable8/0/1                         0 packets          0 bytes  Proc Enq

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). Also, the "Interface specific To RP punt statistics" counters appear only in Cisco IOS Release 12.3(X)BC and later releases.

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
    echorcv        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 c7/1/1

Cable7/1/1 is up
  ICB = 1E100,  WQB_ID = 4105, interface PXF, enabled
  MAC Domain = 2
  IOS encapsulation type 59  MCNS
  Min mtu: 18      Max mtu: 1538
  VCCI maptable location = 81809C00
  VCCI C
    icmp ipaddress 0.0.0.0          timestamp 0

Router#
```

Table 0-245 describes the fields shown in the display for the **show pxf cpu subblocks** command.

Table 0-245 show pxf cpu subblocks Field Descriptions

Field	Description
Interface	Identifies the interface or subinterface.
Status	Displays the status of the interface: • 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).

Table 0-245 show pxf cpu subblocks Field Descriptions

Field	Description
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 2 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
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.

Command	Description
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

No default behavior or values

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SCB	This command was introduced.

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 246 describes the significant fields shown in the display.

Table 246 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 drl cable-wan-ip	This command displays the parallel express forwarding (PXF) DRL cable/wan-ip statistics table.
show pxf cpu statistics drl wan-non-ip	This command displays the PXF DRL wan-non-ip statistics.

show pxf cpu queue

To display parallel express forwarding (PXF) queueing and link queue statistics, use the **show pxf cpu queue** command in privileged EXEC mode.

show pxf cpu queue [*interface* | *QID* | **summary**]

Cisco uBR10012 Universal Broadband Router

show pxf cpu queue [*interface* | *QID*]

Syntax Description

interface	(Optional) The interface for which you want to display PXF queueing statistics. This displays PXF queueing statistics for the main interface and all subinterfaces and permanent virtual circuits (PVCs). It also displays packets intentionally dropped due to queue lengths.
QID	(Optional) The queue identifier.
summary	(Optional) Displays queue scaling information such as: • Number of queues and recycled queues. • Number of available queue IDs (QIDs). • Number of packet buffers, recycled packet buffers, and free packet buffers.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2S	This command was introduced.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.3(7)XI1	This command was integrated into Cisco IOS Release 12.3(7)XI1.
12.3(23)BC1	The “Link Queues” output field for dynamic bandwidth sharing-enabled modular cable and wideband cable interfaces was added on the Cisco uBR10012 universal broadband router.
12.2(33)SB	This command was modified for virtual access interfaces (VAIs) and the output was modified for the **summary** option, and implemented on the Cisco 10000 series router for the PRE3 and PRE4.
12.2(33)SCB	The output of this command has been updated or re-arranged (compared to the VTMS version) for DOCSIS Weighted Fair Queuing (WFQ) Scheduler feature and implemented on the Cisco uBR10012 router.

Usage Guidelines

When neither the interface or QID is specified, the command displays queuing statistics for the route processors (RPs).

Cisco 10000 Series Router

The Cisco 10000 series router high-speed interfaces work efficiently to spread traffic flows equally over the queues. However, using single traffic streams in a laboratory environment might result in less-than-expected performance. To ensure accurate test results, test the throughput of the Gigabit Ethernet, OC-48 POS, or ATM uplink with multiple source or destination addresses. To determine if traffic is being properly distributed, use the **show pxf cpu queue** command.

In Cisco IOS Release 12.2(33)SB and later releases, the router no longer allows you to specify a virtual access interface (VAI) as **viX.Y** in the **show pxf cpu queue** command. Instead, you must spell out the VAI as **virtual-access**.

For example, the router accepts the following command:

```
Router# show pxf cpu queue virtual-access2.1
```

In releases prior to Cisco IOS Release 12.2(33)SB, the router accepts the abbreviated form of the VAI. For example, the router accepts the following command:

```
Router# show pxf cpu queue vi2.1
```

In Cisco IOS Release 12.2(33)SB and later releases, the output from the **show pxf cpu queue** *interface* **summary** command displays only the physical interface and the number of logical links. The output does not display the number of priority queues, class queues, and so on. This modification applies to the PRE3 and PRE4.

Cisco uBR10012 Universal Broadband Router

If dynamic bandwidth sharing (DBS) is enabled, the link queue information that is displayed refers to the specific type of interface that is configured—modular cable or wideband cable. The **summary** keyword option is not supported for the Cisco uBR10012 universal broadbandrRouter for wideband cable or modular cable interfaces. The **ATM** interface output is not available for this router.

See Table 247 for descriptions of the **interface** keyword fields.

Table 247 show pxf cpu queue Interface Option Field Descriptions

Field	Description
<0-131071>	QID (queue identifier)
ATM	Asynchronous transfer mode interface **Note** The ATM interface output is not available for the Cicso uBR10012 universal broadband router.
BVI	Bridge-group virtual interface
Bundle	Cable virtual bundle interface
CTunnel	CTunnel interface
Cable	Cable modem termination service (CMTS) interface
DTI	Digital trunk interface
Dialer	Dialer interface
Ethernet	IEEE 802.3
FastEthernet	FastEthernet IEEE 802.3
GigabitEthernet	GigabitEthernet IEEE 802.3z
Group-Async	Async group interface
Loopback	Loopback interface

Table 247 show pxf cpu queue Interface Option Field Descriptions (continued)

Field	Description
MFR	Multilink frame relay bundle interface
Modular-Cable	Modular cable interface
Multilink	Multilink group interface
Null	Null interface
Port-channel	Ethernet channel of interfaces
RP	Forwarding path (FP) to route processing (RP) queues
Tunnel	Tunnel interface
Vif	Pragmatic general multicast (PGM) host interface
Virtual-Template	Virtual template interface
Virtual-TokenRing	Virtual token ring
WB-SPA	line card to line card (LC-LC) queues
Wideband-Cable	Wideband CMTS interface

Examples

The following example shows PXF queueing statistics for an ATM interface when a QID is not specified. The sample output includes the dropped and dequeued packets for the VCs, and for classes associated with sessions that inherit queues from VCs.

```
Router# show pxf cpu queue atm 5/0/2

VCCI 2517: ATM non-aggregated VC 1/229, VCD 1, Handle 1, Rate 500 kbps

      VCCI/ClassID  ClassName      QID   Length/Max  Res  Dequeues  Drops
      0 2517/0      class-default  269   0/4096       11          3      0
      0 2517/31     pak-priority   268   0/32         11          4      0

   Queues Owned but Unused by VC (inheritable by sessions)

      ClassID       ClassName      QID   Length/Max  Res  Dequeues  Drops
            0       class-default  275   0/32         11        100      0
           31       pak-priority   268   0/32         11          4      0


VCCI 2517: ATM non-aggregated VC 1/233, VCD 4, Handle 4, Rate 50 kbps

      VCCI/ClassID  ClassName      QID   Length/Max  Res  Dequeues  Drops
      0 2517/0      class-default  269   0/4096       11          3      0
      0 2517/31     pak-priority   268   0/32         11          4      0

   Queues Owned but Unused by VC (inheritable by sessions)

      ClassID      ClassName       QID   Length/Max  Res  Dequeues  Drops
            0      class-default   274   0/32         11          0      0
           31      pak-priority    268   0/32         11          4      0


VCCI 2520: ATM non-aggregated VC 1/232, VCD 3, Handle 3, Rate 500 kbps

      VCCI/ClassID  ClassName       QID   Length/Max  Res  Dequeues  Drops
      0 2520/0      class-default   273   0/32         11          0      0
      0 2520/31     pak-priority    268   0/32         11          4      0
```

```
VCCI 2519: ATM non-aggregated VC 1/231, VCD 2, Handle 2, Rate 500 kbps

      VCCI/ClassID  ClassName       QID   Length/Max  Res  Dequeues  Drops
      0 2519/0      class-default   272   0/32         11         0      0
      0 2519/31     pak-priority    268   0/32         11         4      0
```

The following example displays PXF queuing statistics for QID 267:

```
Router# show pxf cpu queue 267

ID                                          : 267
Priority                                    : Lo
CIR (in-use/configured)                     : 0/65535
EIR (in-use/configured)                     : 0/0
MIR (in-use/configured)                     : 0/65535
Maximum Utilization configured              : no
Link                                        : 2
Flowbit (period/offset)                     : 32768/32768
Burst Size                                  : 1024 bytes
Bandwidth                                   : 133920 Kbps
Channel                                     : 0
Packet Descriptor Base                      : 0x00000100
ML Index                                    : 0
Length/Average/Alloc                        : 0/0/32
Enqueues (packets/octets)                   : 293352/9280610
Dequeues (packets/octets)                   : 293352/9280610
Drops (tail/random/max_threshold)           : 0/0/0
Drops (no_pkt_handle/buffer_low)            : 0/0
WRED (weight/avg_smaller)                   : 0/0
WRED (next qid/drop factor)                 : 0/0
WRED (min_threshold/max_threshold/scale/slope):
precedence 0                                : 0/0/0/0
precedence 1                                : 0/0/0/0
precedence 2                                : 0/0/0/0
precedence 3                                : 0/0/0/0
precedence 4                                : 0/0/0/0
precedence 5                                : 0/0/0/0
precedence 6                                : 0/0/0/0
precedence 7                                : 0/0/0/0
```

Cisco uBR10012 Universal Broadband Router

The following examples show link queue information for specific wideband cable and modular cable interfaces when dynamic bandwidth sharing is enabled.

Modular Cable Interface

```
Router(config)# interface modular-cable 1/0/0:1
.
.
.

Router(config-if)# cable dynamic-bw-sharing
.
.
.

Router# show pxf cpu queue modular-cable 1/0/0:1

Link Queues :
 QID   CIR(act/conf)       EIR            MIR       RF Chan.   Status
```

```
  420   19661/19661        1/1        65535/65535      0       Inactive
```

Wideband Cable Interface

```
Router(config)# interface wideband-cable 1/0/0:0
.
.
.
Router(config-if)# cable dynamic-bw-sharing
.
.
.
Router# show pxf cpu queue wideband-cable 1/0/0:0

Link Queues :
 QID   CIR(act/conf)       EIR            MIR       RF Chan.   Status
  419   32768/32768        1/1        65535/65535      0       Inactive
  566   19661/19661        1/1        65535/65535      1       Inactive
```

The following example shows service flow queue information for modular cable interfaces.

```
Router# show pxf cpu queue modular-cable 1/2/0:0

Cable Interface Queues:

QID     Len/Max  Dequeues   TailDrops   MinRt  Wt/Quantum  ShapeRt FlowId
                                        (Kbps)             (Kbps)
131147    0/255  190        0           0         1/240    0       58
131148    0/255  33820      0           0         1/10000  0       32824

Cable Service Flow Queues:

* Best Effort Queues

QID     Len/Max  Dequeues   TailDrops   MinRt  Wt/Quantum  ShapeRt FlowId
                                        (Kbps)             (Kbps)
131241    0/255  0          0           0         1/240    0       32881

* CIR Queues

QID     Len/Max  Dequeues   TailDrops   MinRt  Wt/Quantum  ShapeRt FlowId
                                        (Kbps)             (Kbps)
2049    254/255  131018     485751      99        1/1920   0       32880

* Low Latency Queues

QID     Len/Max  Dequeues   TailDrops
```

Related Commands

Command	Description
cable dynamic-bw-sharing	Enables DBS on a specific modular cable or wideband cable interface.
show pxf cable controller	Displays information about the RF channel VTMS links and link queues.
show pxf cpu statistics queue	Displays PXF CPU queueing counters for all interfaces.

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

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(23)BC	This command was introduced for the uBR10012 router.

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

Fauna8/1
Statistics and Cable Monitor Flow (IronBus Channel: 0x1FFF):
QID     Len/Max  Dequeues   TailDrops   MinRt  Wt/Quantum  ShapeRt FlowId
                                        (Kbps)             (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)             (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 248 describes the fields shown in the **show pxf cpu queue WB-SPA** command display.

Table 248 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 *qid*	Displays parallel express forwarding queue statistics.

show pxf cpu statistics

To display Parallel eXpress Forwarding (PXF) CPU statistics, use the **show pxf cpu statistics** command in privileged EXEC mode.

show pxf cpu statistics [**atom** | **backwalk** | **clear** | **diversion** | **drop** [*interface* | *vcci*] | **ip** | **ipv6** | **l2tp** | **mlp** | **qos** [*interface*] | **queue** [**OCQ** | **high Flowoff** | **low Flowoff**] | **rx** [*vcci*] | **security** | **arp-filter** | **drl** [**cable-wan-ip** | **wan-non-ip**]]

Cisco 10000 Series Router

show pxf cpu statistics diversion [**pxf** [**interface** {*interface* | *vcci*}] | **top** *number*]

Syntax Description

atom	(Optional) Displays Any Transport over MPLS (AToM) statistics.
backwalk	(Optional) Displays backwalk requests statistics.
clear	(Optional) Clears PXF CPU statistics.
diversion	(Optional) Displays packets that the PXF diverted to the Route Processor (RP) for special handling.
drop [*interface*] [*vcci*]	(Optional) Displays packets dropped by the PXF for a particular interface or Virtual Circuit Connection Identifier (VCCI).
ip	(Optional) Displays IP statistics.
ipv6	(Optional) Displays IPv6 statistics.
l2tp	(Optional) Displays packet statistics for an L2TP Access Concentrator (LAC) (Optional) and L2TP Network Server (LNS).
mlp	(Optional) Displays multilink PPP (MLP) statistics.
pxf	(Optional) Displays packets that the PXF diverted to the Route Processor (RP). Available on the Cisco 10000 series router only.
pxf interface *interface*	(Optional) Displays per-interface PXF statistical information for the divert cause policer on a particular interface. Available on the Cisco 10000 series router only.
pxf interface *vcci*	(Optional) Displays per-VCCI PXF statistical information for the divert cause policer on a particular Virtual Circuit Connection Identifier (VCCI). Available on the Cisco 10000 series router only.
qos [*interface*]	(Optional) Displays match statistics for a service policy on an interface.
queue	(Optional) Displays queueing counters for all interfaces.
OCQ	(Optional) Displays the OCQ statistics.
high Flowoff	(Optional) Displays high priority flowoff statistics.
low Flowoff	(Optional) Displays low priority flowoff statistics.
rx [*vcci*]	(Optional) Displays receive statistics for a VCCI.
security	(Optional) Displays ACL matching statistics.
top *number*	(Optional) Displays PXF statistical information for the number of top punters you specify. Available on the Cisco 10000 series router only. Valid values are from 1 to 100.
arp-filter	(Optional) Displays the ARP filter statistics.
drl	(Optional) Displays the divert rate limit.

cable-wan-ip	(Optional) Displays cable / wan-ip statistics for dropped packets.
wan-non-ip	(Optional) Displays DRL wan-non-ip statistics for dropped packets.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(7)XI1	This command was integrated into Cisco IOS Release 12.3(7)XI1.
12.2(28)SB	This command was introduced on the Cisco 10000 series router and integrated into Cisco IOS Release 12.2(28)SB.
12.2(31)SB2	This command was integrated into Cisco IOS Release 12.2(31)SB2.
12.2(33)SB	This command was enhanced to display per-interface or per-VCCI PXF statistical information for the divert cause policer on a particular interface or VCCI, to display the top punters on an interface, and to display the provisioned burst size for any divert causes. These enhancements were implemented on the Cisco 10000 series router for the PRE2, PRE3, and PRE4.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB on the Cisco uBR7246VXR and Cisco uBR10012 universal broadband routers. Support for the Cisco uBR7225VXR router was added. The **arp-filter, drl, cable-wan-ip,** and **wan-non-ip** keywords were added .
12.2(33)SCE	This command was modified in Cisco IOS Release 12.2(33)SCE. The **cable-wan-ip** keyword was removed.
12.2(33)SCG	This command was modified in Cisco IOS Release 12.2(3)SCG. The **OCQ**, **high Flowoff**, and **low Flowoff** keywords were added.

Usage Guidelines

Cisco 10000 Series Router Usage Guidelines

- The **show pxf cpu statistics diversion** command displays statistical information about diverted packets. Divert causes with the string "ipv6..." display as "v6..." in the output of all **show pxf cpu statistics diversion** commands
- The output from the **show pxf cpu statistics diversion pxf** command was enhanced in Cisco IOS Release 12.2(33)SB to display the provisioned burst size for any divert causes.
- The **show pxf cpu statistics diversion pxf interface** *interface* command displays statistical information about the divert cause policer on a specific interface. The output of this command is similar to the output displayed at the aggregated level. This command enables you to see the traffic types being punted from an inbound interface, subinterface, and session.
- The **show pxf cpu statistics diversion pxf interface** *vcci* command displays statistical information about the divert cause policer on a specific VCCI. The output of this command is similar to the output displayed at the aggregated level. This command enables you to see the traffic types being punted from an inbound interface, subinterface, and session.
- The **show pxf cpu statistics diversion top** *number* command displays the interfaces, subinterfaces, and sessions with the highest number of punter packets.

Examples

The following example shows PXF queueing counters information. These are aggregate counters for all interfaces. The Total column is the total for all columns.

Note If you are troubleshooting link utilization issues, the deq_vtp_req, deq_flow_off, and deq_ocq_off counters may indicate what is causing the versatile time management scheduler (VTMS) to slow down.

If you are troubleshooting overall PXF throughput issues, look at the High Next Time, Low Next Time, High Wheel Slot, and Low Wheel Slot counters.

```
Router# show pxf cpu statistics queue

Column 6 Enqueue/Dequeue Counters by Rows:

dbg Counters         0          1          2          3          4          5          6          7
Total
=============   ========== ========== ========== ========== ========== ========== ========== ==========
==========
enq_pkt         0x0000FD9B 0x0000FC77 0x0000FE4A 0x0000FF81 0x0000FC53 0x0000FD2E 0x0000FF19 0x0000FDDE
0x0007EE55
tail_drop_pkt   0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
deq_pkt         0x0000FD47 0x0000FEF2 0x0000FCB3 0x0000FF65 0x0000FCE7 0x0000FC45 0x0000FEE7 0x0000FDF1
0x0007EE55
deq_vtp_req     0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
deq_flow_off    0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
deq_ocq_off     0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
enqdeq_conflict 0x0000003A 0x00000043 0x0000004A 0x00000039 0x0000003A 0x0000004F 0x00000036 0x00000031
0x000001F0
bndl_pkt        0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
frag_pkt        0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg_frag_drop   0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg_bndl_sem    0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
context_inhibit 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
bfifo_enq_fail  0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg1            0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg2            0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg3            0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg4            0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg5            0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
dbg6            0x0000     0x0000     0x0000     0x0000     0x0000     0x0000     0x0000     0x0000
0x0000
dbg7            0x00       0x00       0x00       0x00       0x00       0x00       0x00       0x00       0x00


Column 7 Rescheduling State Counters by Rows:
```

```
dbg Counters         0          1          2          3          4          5          6          7
Total
=============   ========== ========== ========== ========== ========== ========== ========== ==========
==========
High Next Time  0x524E1100 0x524E1140 0x524E1140 0x524E1180 0x524E11C0 0x524E11C0 0x524E1200 0x524E1240     -
Low Next Time   0x524E1100 0x524E1140 0x524E1140 0x524E1180 0x524E11C0 0x524E1200 0x524E1200 0x524E1240     -
High Wheel Slot 0x00000844 0x00000845 0x00000846 0x00000846 0x00000847 0x00000848 0x00000848 0x00000849     -
Low Wheel Slot  0x00000844 0x00000845 0x00000846 0x00000846 0x00000847 0x00000848 0x00000848 0x00000849     -
DEQ_WHEEL       0x0001F5D0 0x0001F4BD 0x0001F56B 0x0001F6BF 0x0001F396 0x0001F3E8 0x0001F6BF 0x0001F4A7
0x000FA99B
DQ-lock Fails   0x0000039F 0x000003FD 0x000003B2 0x000003E1 0x000003CB 0x000003E2 0x000003FD 0x000003CD
0x00001EA6
TW ENQ Fails    0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
Q_SCHED         0x0000FACD 0x0000FC6B 0x0000FA38 0x0000FCE4 0x0000FA66 0x0000F994 0x0000FC62 0x0000FB8B
0x0007DA3B
FAST_SCHED      0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
Q_DEACT         0x0000FB03 0x0000F852 0x0000FB33 0x0000F9DB 0x0000F930 0x0000FA54 0x0000FA5D 0x0000F91C
0x0007CF60
Q_ACTIVATE      0x0000F9B6 0x0000F8D4 0x0000FA6C 0x0000FBA9 0x0000F87E 0x0000F95B 0x0000FB0A 0x0000F9DE
0x0007CF60
Q_CHANGE        0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
DEBUG1          0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
DEBUG2          0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
DEBUG3          0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
DEBUG4          0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
DEBUG5          0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
```

Table 249 describes the significant fields shown in the display.

Table 249 show pxf cpu statistics queue Field Descriptions

Field	Description
Column 6 Enqueue/Dequeue Counters by Rows:	
enq_pkt	Packets the PXF enqueued.
tail_drop_pkt	Packets the PXF tails dropped.
deq_pkt	Packets the PXF dequeued.
deq_vtp_req	Number of times a dequeue was inhibited due to the virtual traffic policer.
deq_flow_off	Numbers of times a dequeue was inhibited due to a flowoff from the line card.
deq_ocq_off	Number of times a dequeue was inhibited due to link level flow control.
enqdeq_conflict	Shows a dequeue failed due to an enqueue to the same queue in progress.
bndl_pkt	Count of packets that were fragmented.
frag_pkt	Count of fragments sent.

Table 249 show pxf cpu statistics queue Field Descriptions (continued)

Field	Description
dbg_frag_drop	Count of invalid multilink PPP (MLP) fragment handles.
dbg_bndl_sem	Count of semaphone collision (used for MLP).
context_inhibit	Number of times multilink transmit fragment processing was inhibited due to a lack of DMA resources.
bfifo_enq_fail	Count of bundle FIFO (BFIFO) enqueue failures.
Column 7 Rescheduling State Counters by Rows:	
High Next Time	Current next send time for the high priority wheel.
Low Next Time	Current next send time for the low priority wheel.
High Wheel Slot	Current high priority slot number.
Low Wheel Slot	Current low priority slot number.
DEQ_WHEEL	Count of successful dequeues from the timing wheel.
DQ-lock Fails	Count of timing wheel dequeue failures (both queue empty and race conditions).
TW ENG Fails	Timing wheel enqueue failures.
Q_SCHED	Count of queues scheduled/rescheduled onto the timing wheel.
FAST_SCHED	Count of queues fast scheduled/rescheduled onto the timing wheel.
Q_DEACT	Count of queue deactivations.
Q_ACTIVATE	Count of queue activations (activate state).
Q_CHANGE	Count of queue changes; for example, Route Processor (RP) inspired rates changes.

The following example displays PXF L2TP packet statistics.

Note For L2TP Access Concentrator (LAC) operation, all statistics are applicable. For L2TP Network Server (LNS) operation, only the PPP Control Packets, PPP Data Packets, and PPP Station Packets statistics are meaningful.

```
Router# show pxf cpu statistics l2tp

LAC Switching Global Debug Statistics:
    PPP Packets           51648
    PPP Control Packets   51647
    PPP Data Packets      1
    Not IPv4 Packets      1
    IP Short Hdr Packets  1
    IP Valid Packets      0
    IP Invalid Packets    1
    DF Cleared Packets    0
    Path MTU Packets      0
    No Path MTU Packets   0
    Within PMTU Packets   0
    Fraggable Packets     0
    PMTU Pass Packets     0
```

```
    PMTU Fail Packets     0
    Encapped Packets      51648

L2TP Classification Global Debug Statistics:
    LAC or Multihop Packets  151341
    Multihop Packets         0
    PPP Control Packets      51650
    PPP Data Packets         99691
    PPP Station Packets      151341
```

The following example displays match statistics for the police_test policy on an ATM interface. The Classmap Index differentiates classes within a policy while the Match Number differentiates match statements within a class.

```
Router# show pxf cpu statistics qos atm 6/0/0.81801

              Classmap          Match         Pkts          Bytes
               Index            Number       Matched       Matched
             ------------      -----------  ------------   ----------
 police_test (Output) service-policy :
        police_class    (0)       0            0             0
                                  1            0             0
                                  2            0             0
                                  3            0             0

        class-default   (1)       0            0             0
```

The following is a sample output of the **show pxf cpu statistics queue ocq** command for Cisco IOS Release 12.2(33)SCG:

```
Router# show pxf cpu statistics queue ocq

 OCQ counter per resource

 resource  flowResource    slot    counter

   00        00                     0x0 (0)
   01        01            to RP    0x0 (0)
   02        09             5/0     0x0 (0)
   03        08             5/1     0x0 (0)
   04        07             6/0     0x0 (0)
   05        06             6/1     0x0 (0)
   06        05             7/0     0x0 (0)
   07        04             7/1     0x0 (0)
   08        03             8/0     0x0 (0)
   09        02             8/1     0x0 (0)
   10        17             1/0     0x0 (0)
   11        16             1/1     0x0 (0)
   12        15             2/0     0x0 (0)
   13        14             2/1     0x0 (0)
   14        13             3/0     0x0 (0)
   15        12             3/1     0x0 (0)
   16        11             4/0     0x0 (0)
   17        10             4/1     0x0 (0)
   18        18                     0x0 (0)
   19        19                     0x0 (0)
   20        20                     0x0 (0)
   21        21                     0x0 (0)
   22        22                     0x0 (0)
   23        23                     0x0 (0)
   24        24                     0x0 (0)
   25        25                     0x0 (0)
   26        26                     0x0 (0)
   27        27                     0x0 (0)
```

```
   28        28                    0x0 (0)
   29        29                    0x0 (0)
   30        30                    0x0 (0)
   31        31                    0x0 (0)

* slot to resource mapping may not accurate for none PRE4
```

Cisco 10000 Series Router

The following example displays the top 10 packet types diverted to the RP. The output displays the top punters by interface and by Layer 2 packet flow.

```
Router# show pxf cpu statistics diversion top 10

Top 10 punters by interface are:
Rate (pps)      Packets  (diverted/dropped)      vcci      Interface
        1       10/0     2606Virtual-Access2.1
        Last diverted packet type is none.

Top 10 punters by Layer 2 flow are:
Rate (pps)      Packets  (diverted/dropped)     Interface       Layer 2 info
        1       15/0    ATM2/0/3       vpi 128/vci 4096/vcci 2591
        Last diverted packet type is oam_f4.
        1       15/0    ATM2/0/3       vpi 128/vci 4096/vcci 2593
        Last diverted packet type is oam_f4.
```

Related Commands

Command	Description
platform c10k divert- policer	Configures the rate and burst size of the divert policer.
show pxf statistics	Displays a summary of statistics in the PXF.

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	The following output modifiers are used. • *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.

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.
show pxf cpu statistics drl us-cable	Displays the number of upstream cable packets that are dropped from the CMTS.
show pxf cpu statistics drl ipv6	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. • *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.

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.
show pxf cpu statistics drl us-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 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

threshold	The packet threshold value. The valid range is 0 to 4294967295.
output modifiers	The following output modifiers are used. • *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.

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.
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 pxf dma

To display information for the current state of the direct memory access (DMA) buffers, error counters, and registers on the Parallel eXpress Forwarding (PXF) processor, use the **show pxf dma** command in user EXEC or privileged EXEC mode.

show pxf dma [**buffers** | **counters** | **registers**]

Syntax Description

buffers	(Optional) Displays information about the DMA buffers.
counters	(Optional) Displays packet and error counters for the DMA engine.
registers	(Optional) Displays information about the DMA registers.

Command Default

If given without any options, displays all information.

Command Modes

User EXEC, Privileged EXEC

Command History

Release	Modification
12.2(1)XF1	This command was introduced as **show hardware pxf dma** for the Cisco uBR10012 router.
12.2(15)BC2	This command was renamed from **show hardware pxf dma** to **show pxf dma**.

Usage Guidelines

The **show pxf dma** command displays technical information about the current state of the DMA engine onboard the PXF processor. The **buffers** and **registers** options display information that is useful primarily to Cisco TAC engineers that are troubleshooting problems. The **counters** option displays a set of packet and error counters that can help diagnose and resolve problems with memory on the PXF processor.

Examples

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

```
Router# show pxf dma buffers

PXF To-RP DMA Ring Descriptors & Buffers:

     Descriptor       Buffer        Buffer      Descriptor
     Address          Address       Length(b)   Flags
0    0x0B2A6CC0       0x08AA80C0      512       0x0002
1    0x0B2A6CD0       0x08AA8340      512       0x0002
2    0x0B2A6CE0       0x08AA8D40      512       0x0002
3    0x0B2A6CF0       0x08AA8AC0      512       0x0002
4    0x0B2A6D00       0x08AA8FC0      512       0x0002
5    0x0B2A6D10       0x08AA9240      512       0x0002
6    0x0B2A6D20       0x08AA9740      512       0x0002
7    0x0B2A6D30       0x08AA94C0      512       0x0002
8    0x0B2A6D40       0x08AA99C0      512       0x0002
```

```
9     0x0B2A6D50       0x08AA9C40       512        0x0002
10    0x0B2A6D60       0x08AA9EC0       512        0x0002
11    0x0B2A6D70       0x08AAA140       512        0x0002
12    0x0B2A6D80       0x08AAA640       512        0x0002
13    0x0B2A6D90       0x08AAA3C0       512        0x0002
14    0x0B2A6DA0       0x08AAA8C0       512        0x0002
15    0x0B2A6DB0       0x08AAAB40       512        0x0002
16    0x0B2A6DC0       0x08AAB040       512        0x0002
17    0x0B2A6DD0       0x08AAADC0       512        0x0002
18    0x0B2A6DE0       0x08AAB2C0       512        0x0002
19    0x0B2A6DF0       0x08AAB540       512        0x0002
20    0x0B2A6E00       0x08AAB7C0       512        0x0002
21    0x0B2A6E10       0x08AABA40       512        0x0002
22    0x0B2A6E20       0x08AABF40       512        0x0002
23    0x0B2A6E30       0x08AABCC0       512        0x0002
24    0x0B2A6E40       0x08AA6CC0       512        0x0002
25    0x0B2A6E50       0x08AA6F40       512        0x0002
26    0x0B2A6E60       0x08AA71C0       512        0x0002
27    0x0B2A6E70       0x08AA7440       512        0x0002
28    0x0B2A6E80       0x08AA7940       512        0x0002
29    0x0B2A6E90       0x08AA76C0       512        0x0002
30    0x0B2A6EA0       0x08AA7E40       512        0x0002
31    0x0B2A6EB0       0x08AA7BC0       512        0x0003

PXF From-RP DMA Ring Descriptors & Buffers:

      Descriptor       Buffer        Buffer      Descriptor    Context
      Address          Address       Length(b)   Flags         Bit
0     0x0B2A6F00       0x00000000        0       0x0000        Not set
1     0x0B2A6F10       0x00000000        0       0x0000        Not set
2     0x0B2A6F20       0x00000000        0       0x0000        Not set
3     0x0B2A6F30       0x00000000        0       0x0000        Not set
4     0x0B2A6F40       0x00000000        0       0x0000        Not set
5     0x0B2A6F50       0x00000000        0       0x0000        Not set
6     0x0B2A6F60       0x00000000        0       0x0000        Not set
7     0x0B2A6F70       0x00000000        0       0x0000        Not set
8     0x0B2A6F80       0x00000000        0       0x0000        Not set
9     0x0B2A6F90       0x00000000        0       0x0000        Not set
10    0x0B2A6FA0       0x00000000        0       0x0000        Not set
11    0x0B2A6FB0       0x00000000        0       0x0000        Not set
12    0x0B2A6FC0       0x00000000        0       0x0000        Not set
13    0x0B2A6FD0       0x00000000        0       0x0000        Not set
14    0x0B2A6FE0       0x00000000        0       0x0000        Not set
15    0x0B2A6FF0       0x00000000        0       0x0001        Not set
Router#
```

Table 0-250 describes the fields shown in the **show pxf dma buffers** command:

Table 0-250 Field Descriptions for the show pxf dma buffers Command

Field	Description
Descriptor Address	Memory address pointing to the descriptor for this buffer.
Buffer Address	Address of this buffer in memory.
Buffer Length	Length, in bytes, of this particular buffer.
Descriptor Flags	Internal flags identifying this buffer's use and status.
Context Bit	State of the context bit, which is set when the buffer is currently in use by a context (the basic unit of packet processing).

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

```
Router# show pxf dma counters

PXF DMA IOS Counters:
    To RP Counters:
        Packets: 874165, Cumulative Bytes: 531976708
        Output Drops: 0, No EOP: 0, No Buffers: 0, No OWN Clear 57
    From RP Counters:
        Packets: 1254593, Cumulative Bytes: 275832396
        Output Drops: 0, Own Errors 46
PXF DMA Driver Info:
    Times Enabled: 1
    GP Registers Address: 0x3C000000
    Pool Address: 0x703EADB0, Buffer Pool Group: 4
    ToRP Info:
        Ring Address: 0x0B2A6CC0, Shadow Address: 0x7046B2D0, Ring Size: 32
        Descriptor Head: 10, Starved: 0
        Pak Pointer: 0x626AAD98
    FromRP Info:
        Ring Address: 0x0B2A6F00, Shadow Address: 0x626AB0D0, Ring Size: 16
        Descriptor Head: 1, Descriptor Tail: 1, From RP count 0
        High Priority Queue: 0x6226A920, Low Priority Queue: 0x6226A930
        FromRP Queue Count: 0
PXF DMA Event Counters:
    Event1:
        PXF DMA Toaster Fault: 0
        PXF DMA FTC Parity Error: 0
        PXF DMA FTC Long Context Error: 0
        PFX DMA FTC Short Context Error: 0
        PXF DMA FTC Overflow Error: 0
        PXF DMA FTC Protocol Error: 0
        PXF DMA FTC Bad Address Error: 0
        PXF DMA FTC Bad Address Pair Error: 0
        PXF DMA FTC Invalid Command Error: 0
        PXF DMA FTC Queue Full Error: 0
        PXF DMA FTC Queue Threshold Exceeded Error: 0
        PXF DMA Full OCQ Wait Error: 0
        PXF DMA Toaster Status Wait Error: 0
        PXF DMA TTQ Context Wait Error: 0
        PXF DMA TBB Length Error: 0
                1/0: error: 0
                1/1: error: 0
                2/0: error: 0
                2/1: error: 0
                3/0: error: 0
                3/1: error: 0
                4/0: error: 0
                4/1: error: 0
                5/0: error: 0
                5/1: error: 0
                6/0: error: 0
                6/1: error: 0
                7/0: error: 0
                7/1: error: 0
                8/0: error: 0
                8/1: error: 0
                9/0: error: 0
                9/1: error: 0
        PXF DMA OQC Cmd Completion Status Queue Full Error: 0
        PXF DMA OQC Invalid Queue Number Error: 0
        PXF DMA OQC Invalid Length Error: 0
        PXF DMA PCI Parity Master Error: 0
        PXF DMA PCI Parity Dev Error: 0
```

```
        PXF DMA PCI System Error: 0
        PXF DMA PCI Target Abort: 0
        PXF DMA PCI Master Abort: 0
        PXF DMA PCI Retry Timeout: 0
        PXF DMA Single Bit SDRAM Error: 0
        PXF DMA Multi-bit SDRAM Error: 0
        PXF DMA Non-fatal SDRAM Error Counter Full Error: 0
        PXF DMA SDRAM Request Error: 0
        PXF DMA Toaster Stall Error: 0
        PXF DMA New Work TTQ Full Error: 0
        PXF DMA FBTTQ Full Error: 0
        PXF DMA New Work TTQ FSM Error: 0
    Event2:
        PXF DMA Search SOP Error: 0
        PXF DMA Debug Compare Match Event: 0
        PXF DMA FBB Line Card Error: 0
                1/0: len 0, msop 0, crc 0, ovr 0
                1/1: len 0, msop 0, crc 0, ovr 0
                2/0: len 0, msop 0, crc 0, ovr 0
                2/1: len 0, msop 0, crc 0, ovr 0
                3/0: len 0, msop 0, crc 0, ovr 0
                3/1: len 0, msop 0, crc 0, ovr 0
                4/0: len 0, msop 0, crc 0, ovr 0
                4/1: len 0, msop 0, crc 0, ovr 0
                5/0: len 0, msop 0, crc 0, ovr 0
                5/1: len 0, msop 0, crc 0, ovr 0
                6/0: len 0, msop 0, crc 0, ovr 0
                6/1: len 0, msop 0, crc 0, ovr 0
                7/0: len 0, msop 0, crc 0, ovr 0
                7/1: len 0, msop 0, crc 0, ovr 0
                8/0: len 0, msop 0, crc 0, ovr 0
                8/1: len 0, msop 0, crc 0, ovr 0
        PXF DMA FBB Flow Bit Error: 0
        PXF DMA New Work Queue Low Error: 0
        PXF DMA New Work Queue High Error: 0
        PXF DMA NWTTQ Word Valid Error: 0
        PXF DMA FBTTQ Word Valid Error: 0
        PXF DMA NWTTQ Context Valid Error: 0
        PXF DMA FBTTQ Context Valid Error: 0
        PXF DMA NWTTQ Context Used Error: 0
        PXF DMA PMAC Write Server Error: 0
        PXF DMA PMAC Read Server Error: 0
    Event3:
        Ironbus Event 1/0: 0
        Ironbus Event 1/1: 0
        Ironbus Event 2/0: 0
        Ironbus Event 2/1: 0
        Ironbus Event 3/0: 0
        Ironbus Event 3/1: 0
        Ironbus Event 4/0: 0
        Ironbus Event 4/1: 0
        Ironbus Event 5/0: 0
        Ironbus Event 5/1: 0
        Ironbus Event 6/0: 0
        Ironbus Event 6/1: 0
        Ironbus Event 7/0: 0
        Ironbus Event 7/1: 0
        Ironbus Event 8/0: 0
        Ironbus Event 8/1: 0
Router#
```

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

```
Router# show pxf dma registers

PXF DMA PCI Registers:
    Vendor and Device ID: 0x00001137
    Command and Status: 0x02A00147
    Revision ID and Class Code: 0x00000000
    Cache Latency and Header BIST: 0x00003010
    Base Address Registers:
        BAR0: 0x9C000000, BAR1: 0x00000000, BAR2: 0x00000000
        BAR3: 0x00000000, BAR4: 0x00000000, BAR5: 0x00000000
    CIS Pointer Register: 0x00000000
    Subsystem Vendor ID and Subsystem ID: 0x00000000
    Expansion ROM Base Address: 0x00000000
    Interrupt Grant Latency Register: 0x00000000
PXF DMA General Purpose Registers:
    Soft Reset: 0x000000FF, Line Card Reset: 0x00000000
    PXF DMA Part Number: 0x08034101, PXF DMA Version 0x00000003
    Event1: 0x00000000, Halt Mask1: 0x6500FE00, Fault Mask1: 0x6400B400
    Event2: 0x00000008, Halt Mask2: 0x0000003F, Fault Mask2: 0x0000000C
    Event3: 0x00000000, Halt Mask3: 0x0000FFFF, Fault Mask3: 0x0000C1CF
    Debug Registers:
        Address: 0x000000CE, Out: 0x00001E11, Compare: 0x00000000
    FTBB Registers:
        Control1: 0xE0404060, Control2: 0x44444040, Control3: 0x00000040
    FBB Registers:
        Flow: 0x00000001
        Length Error: 0x00000000, Multi-SOP Error: 0x00000000
        CRC Error: 0x00000000, IPM Overrun Error: 0x00000000
    TTC Registers:
        Control: 0xFF000022, Pad1: 0xAAAAAAAA, Pad2: 0x00000000
    FTC Control: 0x00000070
    OQC Registers:
        Control: 0x000002D0, Priority: 0x00007C40, Status: 0x00000000
    SDRAM Registers:
        Control: 0x00272400, Status: 0x00000000
        ECC Override: 0x00000000, Error Address 0x00000000
        Window: 0x00000007, Timing: 0x000061A8
    To RP Registers:
        Descriptor Ring Base Address: 0x0B2A6CC0, Buffer Size: 0x00000200
        Descriptor Status: 0x00E00008, DMA Control: 0x00103E04
        Descriptor Word0: 0x08AA9740, Descriptor Word1 0x02000002
    From RP Registers:
        Descriptor Ring Base Address: 0x0B2A6F00
        Descriptor Status: 0x00D0000C, DMA Control: 0x01007E04
        Descriptor Word0: 0x00000000, Descriptor Word1: 0x00000000
    RP Debug Out: 0x00000000
Debug Registers:
    FBB Rx Iron Bus Engine Debug Resource 04: 0x00000000
    FBB Rx Iron Bus Engine Debug Resource 06: 0x00000000
    FBB Rx Iron Bus Engine Debug Resource 07: 0x00000000
    FBB Rx Iron Bus Engine Debug Resource 11: 0x00000000
    FBB Rx Iron Bus Engine Debug Resource 12: 0x00000000
    FBB Rx Iron Bus Engine Debug Resource 13: 0x00000000
    FBB Rx Iron Bus Engine Debug Resource 14: 0x00000000
    FBB Rx Iron Bus Engine Debug Resource 15: 0x00000000
    OQC Output Command Queue 03 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
    OQC Output Command Queue 05 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
    OQC Output Command Queue 06 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
    OQC Output Command Queue 10 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
    OQC Output Command Queue 11 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
    OQC Output Command Queue 12 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
    OQC Output Command Queue 13 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
```

```
    OQC Output Command Queue 14 Debug Data: 0x00001040, qN_entry_cnt[5:0]: 0
    FTC FTQ State Debug Data: 0x00000D1A
        wr_context_num[13:7]: 26
        rd_context_num[6:0]:  26
Ironbus Registers:
    Control: 0x00000001, Spy: 0x00000000
    Reset: 0x0000C1CF,   Ready: 0x00003E34
    Slot 1, Subslot 0:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 1, Subslot 1:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 2, Subslot 0:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 2, Subslot 1:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 3, Subslot 0:
        Status:      0x00000DC0, Statistics1: 0x00000000
        Statistics2: 0x00000000, Statistics3: 0x00000000
    Slot 3, Subslot 1:
        Status:      0x00000DC0, Statistics1: 0x00000000
        Statistics2: 0x00000000, Statistics3: 0x00000000
    Slot 4, Subslot 0:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 4, Subslot 1:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 5, Subslot 0:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 5, Subslot 1:
        Status:      0x00000DC0, Statistics1: 0x00000000
        Statistics2: 0x00000000, Statistics3: 0x00000000
    Slot 6, Subslot 0:
        Status:      0x00000DC0, Statistics1: 0x00000000
        Statistics2: 0x00000000, Statistics3: 0x00000000
    Slot 6, Subslot 1:
        Status:      0x00000DC0, Statistics1: 0x00000000
        Statistics2: 0x00000000, Statistics3: 0x00000000
    Slot 7, Subslot 0:
        Status:      0x00000DC0, Statistics1: 0x00000000
        Statistics2: 0x00000000, Statistics3: 0x00000000
    Slot 7, Subslot 1:
        Status:      0x00000DC0, Statistics1: 0x00000000
        Statistics2: 0x00000000, Statistics3: 0x00000000
    Slot 8, Subslot 0:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
    Slot 8, Subslot 1:
        Status:      0xFFFFFFFF, Statistics1: 0xFFFFFFFF
        Statistics2: 0xFFFFFFFF, Statistics3: 0xFFFFFFFF
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 cable interface	Displays 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 ECC for the External Column Memory (XCM) on the PXF processor.

show pxf microcode

To display identifying information for the microcode being used on the Parallel eXpress Forwarding (PXF) processor, use the **show pxf microcode** command in user EXEC or privileged EXEC mode.

show pxf microcode

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values

Command Modes

User EXEC, Privileged EXEC

Command History

Release	Modification
12.2(4)XF1	This command was introduced as **show hardware pxf microcode** for the Cisco uBR10012 router.
12.2(15)BC2	This command was renamed from **show hardware pxf microcode** to **show pxf microcode**.

Usage Guidelines

The PXF processors onboard the Performance Routing Engine (PRE1) module automatically load their microcode at the same time that the Cisco IOS image is loaded into the PRE1 module. A fault situation can cause one or both of the PXF processors to reload the microcode as needed. You can use the **show pxf microcode** command to display the version of microcode currently loaded, as well as the number of times the microcode has been loaded since the Cisco IOS software was loaded at system bootup.

Examples

The following example shows a typical display for the **show pxf microcode** command:

```
Router# show pxf microcode

PXF complex: 2 Toasters 8 Columns total
Toaster processor tmc0 is running.
Toaster processor tmc1 is running.

Loaded microcode: system:pxf/u10k-1-ucode.2.3.1
        Version: 2.3.1
        Release Software created Wed 04-Sep-02 10:04
        Signature: c99db74b91f8fae0a15e62e152c3f49f
        Microcode load attempted 1 time(s), latest 3d17h ago
        DISABLE_BOOTSTRAP_CLEAR
        tmc0 FG_PC=1 BG_PC=5 WDog=1024 MinPhase=31
        tmc1 FG_PC=1 BG_PC=5 WDog=1024 MinPhase=31
        Cobalt Registers: 9 registers specified
                00000064 0000000F 00000001
                00000090 FFFF0000 FF000000
                00000090 000003C0 00000000
                00000090 00000003 00000002
                00000094 FFFFFFFF AAAAAAAA
```

```
                000000A0 000001C0 00000040
                000000B0 00000200 00000200
                000000B0 00000100 00000000
                000000B0 0000003F 00000010

Router#
```

Table 0-251 describes the fields shown in the **show pxf microcode** command:

Table 0-251 Field Descriptions for the show pxf microcode Command

Field	Description
PXF complex	Describes the number of PXF (Toaster) processors, their associate memory columns, and their current status.
Loaded microcode	Describes the source and filename for the microcode that is currently loaded on the PXF processor.
Version	Identifies the major and minor version numbers for the current release of microcode.
Release Software created	Identifies the time and date the current microcode was compiled.
Microcode load attempted	Identifies the number of times the PXF processor has loaded the microcode since the Cisco IOS image was loaded at system bootup. Also shows the time (in days and hours) since the last successful load of the microcode.
DISABLE_BOOTSTRAP	Displays the current state of operation for the PXF processor. During normal operation, this line shows “DISABLE_BOOTSTRAP_CLEAR”.
tmc0, tmc1	Identifies the current program counters and configuration for the two PXF processors.
Cobalt registers	Provides a hexadecimal dump of the current contents of the register for the Cobalt support chip, which manages the interface between the PXF processors and the backplane, and which also manages the memory for the packet buffers.

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.
microcode	Reloads the microcode software images on one or all line cards that support downloadable microcode.
microcode reload	Reloads the microcode software images on one or all line cards that support downloadable microcode.
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 cpu	Displays the display different statistics about the operation of the CPU processor during PXF processing.

Command	Description
show pxf dma	Displays information for the current state of the PXF DMA buffers, error counters, and registers.
show pxf xcm	Displays the current state of ECC for the External Column Memory (XCM) on the PXF processor.

show pxf xcm

To display the current state of error checking and correcting (ECC) for the External Column Memory (XCM) on the Parallel eXpress Forwarding (PXF) processor, use the **show pxf xcm** command in user EXEC or privileged EXEC mode.

show pxf xcm

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values

Command Modes

User EXEC, Privileged EXEC

Command History

Release	Modification
12.2(4)XF1	This command was introduced as **show hardware pxf xcm** to support the Performance Routing Engine (PRE1) module on the Cisco uBR10012 router.
12.2(15)BC2	This command was renamed from **show hardware pxf xcm** to **show pxf xcm**.

Usage Guidelines

The **show pxf xcm** command displays the register contents and error counters for the ECC function on the processor's XCM memory columns. Each PXF processor contains four memory columns, and ECC is enabled by default for each column.

Note The **show pxf xcm** command is supported only on the PRE1 and later processors for the Cisco uBR10012 router. This command is not supported on the PRE module.

Examples

The following example shows a typical display for the **show pxf xcm** command for a PRE1 module:

```
Router# show pxf xcm

Toaster 0:
    Number of Columns: 4
    Proc ID: 0x00000002 = TMC
    ASIC Revision: 0x00000002 = T2-ECC
    XCM0 type:SDRAM, size = 67108864
    ECC is enabled for column 0
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
    XCM1 type:SDRAM, size = 67108864
```

```
    ECC is enabled for column 1
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
    XCM2 type:SDRAM, size = 67108864
    ECC is enabled for column 2
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
    XCM3 type:SDRAM, size = 67108864
    ECC is enabled for column 3
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
Toaster 1:
    Number of Columns: 4
    Proc ID: 0x00000002 = TMC
    ASIC Revision: 0x00000002 = T2-ECC
    XCM0 type:SDRAM, size = 67108864
    ECC is enabled for column 0
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
    XCM1 type:SDRAM, size = 67108864
    ECC is enabled for column 1
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
    XCM2 type:SDRAM, size = 67108864
    ECC is enabled for column 2
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
    XCM3 type:SDRAM, size = 67108864
    ECC is enabled for column 3
        XCM Control Register: 0x00000001
        XCM Exception Type Register: 0x00000000
        SDRAM-A Counters
            Number of ECC single bit errors: 0
        SDRAM-B Counters
            Number of ECC single bit errors: 0
Router#
```

Table 0-252 describes the fields displayed by the **show pxf xcm** command.

Table 0-252 show pxf xcm Field Descriptions

Field	Description
The following fields appear for each PXF processor	
Toaster 0, Toaster 1	Identifies the PXF processor.
Number of Columns	Identifies the number of memory columns on the PXF processor. Each PXF processor contains 4 columns of memory.
Proc ID:	Identifies the type of processor (TMC=Toaster Memory Column).
ASIC Revision	Identifies the internal version number of the PXF processor.
The following fields appear for each XCM memory column	
XCM type	Identifies the type and size, in bytes, of memory used in this particular column.
ECC is enabled for column	Identifies whether ECC checking is enabled or disabled for this memory column.
XCM Control Register and Exception Type Register	Identifies the contents of these two registers for the memory column.
Number of ECC single bit errors	Identifies the number of single-bit errors that have been detected in the A and B banks of memory

The following example shows the error message that is displayed when this command is used on a PRE1 module:

```
Router# show pxf xcm

ECC is not supported for this revision

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 cable interface	Displays 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 dma	Displays the current state of ECC for the External Column Memory (XCM) on the PXF processor.

show redundancy (ubr10012)

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

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

Syntax Description

clients	(Optional) Displays the Redundancy Facility (RF) client list.
counters	(Optional) Displays RF operational counters.
history	(Optional) Summarizes RF history.
states	(Optional) Displays RF states for active and standby modules.

Defaults

No default behavior or values

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.

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.

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

Router#
```

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#
```

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
```

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 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
```

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.
redundancy force-switchover	Forces the standby PRE to assume the role of the active PRE.
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

No default behavior or values.

Command Modes

User EXEC (>)
Privilieged EXEC (#)

Command History

Release	Modification
12.2(33)SCA	This command was introduced.

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 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 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

No default behavior or values.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SCA	This command was introduced.

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 - 0l
Current  peer_ready_reg - 1l
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)
UBUILDIT 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)
UBUILDIT 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 ehsa	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.

show running-config interface cable {*slot/port* | *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* }

Syntax Description

slot	Slot where the line card resides. • 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.
subslot	(Cisco uBR10012 only) Secondary slot number of the cable interface line card. The valid subslots are 0 or 1.
port	Downstream port number. • 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).
cable-interface-index	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.

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.

Release	Modification
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.

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 minislot-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 minislot-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 rununning 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 a interface on a Cisco uBR10012 router:

```
Router#show running-config | include gold

cable multicast auth profile gold
   profile-description gold profile for higher bandwidth
   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 *number* **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 tech-support

To display general information about the Cisco CMTS router when reporting a problem to Cisco technical support, use the **show tech-support** command in privileged EXEC mode.

show tech-support [**page**] [**password**] [**cef** | **ipmulticast** | **isis** | **rsvp**]

Syntax Description

page	(Optional) Displays one-page of information at a time. Press **Return** key to display the next line of output or use the space bar to display the next page of information. If this keyword is not used, the output can be scrolled manually (that is, does not stop for page breaks).
password	(Optional) Displays the output without passwords and other security information in the output. If this keyword is not used, passwords and other security-sensitive information in the output are replaced with the label "<removed>" (this is the default).
cef	(Optional) Displays information about the Cisco Express Forwarding (CEF) protocol configuration and status.
ipmulticast	(Optional) Displays information about the IP multicast configuration and status.
isis	(Optional) Displays information about the Connectionless Network Service (CLNS) and Intermediate System-to-Intermediate System (IS-IS) routing protocol configuration and status. **Note** IS-IS support is provided only on CMTS platforms running Cisco IOS images that have a “-p-” as part of the image name.
rsvp	(Optional) Displays information about the IP Resource Reservation Protocol (RSVP) configuration and status.

Command Default

Displays output without page breaks, passwords, and other security information.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
11.2	This command was introduced.
12.0 T	This command was introduced for the Cisco 1700 series router.
12.0 T	This command was introduced for the Cisco 800 series router.
12.1(3a)XL	This command was introduced for the Cisco uBR905 cable access router.
12.1(3)T	Encryption module **show** commands were added for the Cisco 1700 series routers.
12.2(2)XA1	This command was introduced for the Cisco uBR925 cable access router.

Release	Modification
12.2(4)YA	This command was enhanced for the Cisco 806, Cisco 826, Cisco 827, and Cisco 828 routers, the Cisco 1700 series routers, and the Cisco uBR905 and Cisco uBR925 cable access routers by adding the output of Cisco Easy VPN, IPSec, access list, and NAT/PAT **show** commands.
12.2(15)BC2	This command added the **show pxf microcode** command to the output display on the Cisco uBR10012 router.
12.3(9a)BC	The output from this command was shortened to allows users with large numbers of online cable modems to collect information without consuming the console session for a long period of time. Several commands from the **show cable tech-support** command were added.
12.3(33)SCG	The **show issu state detail** command was added to the **show tech-support** command on the Cisco uBR10012 router.

Usage Guidelines

The **show tech-support** command displays a large amount of configuration, run-time status, and other information about the Cisco CMTS for troubleshooting problems. The output of this command can be provided to technical support representatives when reporting a problem.

Note The **show tech-support** command includes most of the information shown in the **show cable tech-support** command.

The **show tech-support** command automatically displays the output of a number of different **show** commands. The exact output depends on the platform, configuration, and type of protocols being used. Typically, the output includes the output from the following commands:

- **show version**
- **show running-config**
- **show stacks**
- **show chassis**
- **show pxf microcode** (Cisco uBR10012 only)
- **show pxf cpu statistics** (Cisco uBR10012 only)
- **show pxf cpu subblocks** (Cisco uBR10012 only)
- **show pxf cpu buffer** (Cisco uBR10012 only)
- **show pxf dma** (Cisco uBR10012 only)
- **show pxf cpu cef memory** (Cisco uBR10012 only)
- **show pxf cpu queue** (Cisco uBR10012 only)
- **show pxf cpu statistics drop** (Cisco uBR10012 only)
- **show interfaces**
- **show controllers** (for all cable interfaces)
- **show cable modem**
- **show cable flap-list**
- **show cable qos profile**

- **show cable modulation-profile**
- **show cable spectrum-group**
- **show cable hop**
- **show interface cable sid** (for each cable interface)
- **show interface cable sid connectivity** (for each cable interface)
- **show interface cable downstream**
- **show interface cable upstream**
- **show interface cable mac-scheduler**
- **show interface cable modem**
- **show issu state detail**
- **show process memory**
- **show process cpu**
- **show controllers** (for all non-cable interfaces)
- **show hccp detail**
- **show region**
- **show buffers**
- **show diag**
- **show pci hardware**
- **show pci controller**

Tip Depending on the platform and configuration, the output from the **show tech-support** command can easily exceed the buffers found in most communications programs. To capture this output so it can be sent to Cisco TAC, use a Telnet program that allows you to capture the output directly to a disk.

Tip In Cisco IOS Release 12.1(12)EC, Release 12.2(8)BC1, and later releases, you can add a timestamp to the **show** commands using the **exec prompt timestamp** command in line configuration mode.

Examples

The following is a sample output of the **show tech-support** command:

```
Router# show tech-support
```

Related Commands

Command	Description
show cable tech-support	Displays the output from **show** commands that display information about the cable interfaces and cable operations.
show controllers cable	Displays information about interface controllers of a specific line card..
show interface cable downstream	Displays information about the cable interface.
show running-config	Displays the current run-time configuration.

Command	Description
show startup-config	Displays the configuration that was used to initially configure the Cisco CMTS at system startup.
show version	Displays the configuration of the system hardware, the software version, names and sources of configuration files, and the boot images.

show voice port

To display configuration information about a specific voice port, use the **show voice port** command in privileged EXEC mode.

Cisco uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show voice port *number*

Syntax Description

number	Identifies the voice port. Valid entries are **0** (which corresponds to the RJ-11 connector labeled V1) and **1** (which corresponds to the RJ-11 connector labeled V2).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(4)XL	This command was introduced for the Cisco uBR924 cable access router.
12.1(5)XU1	Support was added for the Cisco CVA122 Cable Voice Adapter.
12.2(2)XA	Support was added for the Cisco uBR925 cable access router.

Examples

The following example shows typical output from the **show voice port** command for a cable access router:

```
Router# show voice port 0

Foreign Exchange Station 0
 Type of VoicePort is FXS
 Operation State is DORMANT
 Administrative State is UP
 No Interface Down Failure
 Description is not set
 Noise Regeneration is enabled
 Non Linear Processing is enabled
 Music On Hold Threshold is Set to -38 dBm
 In Gain is Set to -2 dB
 Out Attenuation is Set to 0 dB
 Echo Cancellation is enabled
 Echo Cancel Coverage is set to 8 ms
 Connection Mode is normal
 Connection Number is not set
 Initial Time Out is set to 10 s
 Interdigit Time Out is set to 10 s
 Call-Disconnect Time Out is set to 60 s
 Ringing Time Out is set to 180 s
 Region Tone is set for US

 Analog Info Follows:
 Currently processing none
 Maintenance Mode Set to None (not in mtc mode)
 Number of signaling protocol errors are 0
 Impedance is set to 600r Ohm
```

```
 Voice card specific Info Follows:
 Signal Type is loopStart
 Ring Frequency is 25 Hz
 Hook Status is On Hook
 Ring Active Status is inactive
 Ring Ground Status is inactive
 Tip Ground Status is inactive
 Digit Duration Timing is set to 100 ms
 InterDigit Duration Timing is set to 100 ms
Router#
```

Table 253 describes the fields shown in this display.

Table 253 show voice port Field Descriptions

Field	Description
Type of VoicePort	Type of voice port: always FXS for the cable access router.
Operations State	Operation state of the port.
Administrative State	Administrative state of the voice port.
Interface Down Failure	Last interface down failure that was reported, if any.
Description	Description of the voice port, if any.
Noise Regeneration	Whether or not background noise should be played to fill silent gaps if VAD is activated.
Non Linear Processing	Whether or not nonlinear processing is enabled for this port.
Music On Hold Threshold	Configured music-on-hold threshold value for this interface.
In Gain	Amount of gain inserted at the receiver side of the interface.
Out Attenuation	Amount of attenuation inserted at the transmit side of the interface.
Echo Cancellation	Whether or not echo cancellation is enabled for this port.
Echo Cancel Coverage	Echo cancel coverage for this port.
Connection Mode	Connection mode of the interface.
Connection Number	Full E.164 telephone number used to establish a connection with the trunk or PLAR mode.
Initial Time Out	Amount of time the system waits for an initial input digit from the caller.
Interdigit Time Out	Amount of time the system waits for a subsequent input digit from the caller.
Call-Disconnect Time Out	Number of seconds for an idle call to be disconnected.
Ringing Time Out	Ringing time out duration.
Region Tone	Configured regional tone for this interface.
Currently Processing	Type of call currently being processed: none, voice, or fax.
Maintenance Mode	Maintenance mode of the voice port.
Number of signaling protocol errors	Number of signalling protocol errors.
Impedance	Configured terminating impedance for the E&M interface.

Table 253 show voice port Field Descriptions (continued)

Field	Description
Signal Type	Type of signalling for a voice port: loop-start, ground-start, wink-start, immediate, and delay-dial.
Ring Frequency	Configured ring frequency for this interface.
Hook Status	Hook status of the FXO/FXS interface.
Ring Active Status	Ring active indication.
Ring Ground Status	Ring ground indication.
Tip Ground Status	Tip ground indication.
Digit Duration Timing	DTMF digit duration in milliseconds.
InterDigit Duration Timing	DTMF interdigit duration in milliseconds.
InterDigit Pulse Duration Timing	Pulse dialing interdigit timing in milliseconds.
Alias	User-supplied alias for this voice port, if any.
Coder Type	Voice compression mode used.
Hook Flash Duration Timing	Maximum length of hook flash signal.
Ring Cadence	Configured ring cadence for this interface.

Tip In Cisco IOS Release 12.2(8)T and later releases, you can add a timestamp to **show** commands using the **exec prompt timestamp** command in line configuration mode.

Related Commands

Command	Description
show call active voice	Displays the contents of the active call table.
show call history voice	Displays the contents of the call history table.
show dial-peer voice	Displays configuration information and call statistics for dial peers.