Cable Commands: show ch through show cr

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New Commands

Command	Cisco IOS Software Release
show cr10k-rp cable	12.2(33)SCA
show cr10k-rp controller	12.2(33)SCA
show cr10k-rp queue	12.2(33)SCA
show cr10k-rp slots	12.2(33)SCA
show controller integrated-cable	12.2(33)SCC
show controller gigabitethernet	12.2(33)SCE
show cmts ipc-cable client base service	12.2(33)SCF
show controllers cable jib	12.2(33)SCF

Modified Commands

Command	Cisco IOS Software Release
show controllers cable	12.3(23)BC
show controllers modular-cable	12.3(23)BC5
show controllers jacket	12.2(33)SCB
show cr10k-rp controller	12.2(33)SCB
show cr10k-rp queue	12.2(33)SCB
show controllers modular-cable	12.3(23)BC6
show controllers cable	12.2(33)SCC
show controllers modular-cable	12.2(33)SCC
show controller integrated-cable	12.2(33)SCE
show controllers cable	12.2(33)SCE
show controllers modular-cable	12.2(33)SCE
show controllers cable	12.2(33)SCF

Command	Cisco IOS Software Release
show cr10k-rp controller	12.2(33)SCF
show controllers cable	12.2(33)SCG
show controllers modular-cable	12.2(33)SCG
show controllers modular cable	12.2(33)SCH

Obsolete Commands

Command	Effective Cisco IOS Release
show controllers cable upstream spectrum	12.3(21)BC
show cr10k-rp	12.2(33)SCB
show cr10k-rp service-flow ds	12.2(33)SCB

show checkpoint

To display information about the Checkpoint Facility (CF) subsystem on a Cisco CMTS, use the **show checkpoint** command in privileged EXEC mode.

show checkpoint {**clients** [*client-id*] | **entities** | **statistics**}

Syntax Description

clients	Displays a list of current checkpoint clients.
client-id	(Optional) Particular client statistics.
entities	Displays a list of current checkpoint entities.
statistics	Displays the current status for checkpoint operations.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(11)BC3	This command was introduced to support High Availability (HA) redundancy operations.
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.

Usage Guidelines

The Checkpoint Facility (CF) subsystem manages the passing of messages from the Active to Standby interfaces. It also handles sequencing and throttling, as needed during redundancy operations. Checkpoint clients, such as line cards and other subsystems, register with the CF subsystem so that they can update the Protect card or standby processor with state changes as necessary.

The **show checkpoint** command displays information about the clients (other processes on the CMTS that are sending checkpoint messages), entities, and run-time status for checkpoint operations.

The **show checkpoint clients** *client-id* command displays information about the client with a particular client ID.

Examples

The following shows typical output for the **show checkpoint clients** command:

```
Router# show checkpoint clients

                          Check Point List of Clients

 CHKPT on ACTIVE server.

Client Name    Client ID     Msg Send     Msg len  Bundling
                            (number of)   (Total)
------------------------------------------------------------
CHKPT DevTest          3          0           0             On
CHKPT EXAMPLE          2          0           0             On
CR10K RP CHKPT        20          0           0             On

Router#
```

The following shows typical output for the **show checkpoint clients** command with the *client-id* parameter:

```
Router# show checkpoint clients 1

------------------------------------------------------------------------------
Client Name            Client     Entity     Bundle
                           ID         ID       Mode
------------------------------------------------------------------------------
CHKPT Test client           1         --        On

  Total API Messages Sent:                       0
  Total Transport Messages Sent:                 0
  Length of Sent Messages:                       0
  Total Blocked Messages Sent:                   0
  Length of Sent Blocked Messages:               0
  Total Non-blocked Messages Sent:               0
  Length of Sent Non-blocked Messages:           0
  Total Messages Received:                       0
  Total Rcv Message Len:                         0
  Total Bytes Allocated:                         0
  Buffers Held:                                  0
  Huge Buffers Requested:                        0
  Transport Frag Count:                          0
  Transport Frag Peak:                           0
  Transport Sends w/Flow Off:                    0
  Send Errs:                                     0
  Send Peer Errs:                                0
  Rcv Xform Errs:                                0
  Xmit Xform Errs:                               0
  Incompatible Messages:                         0
  Client Unbundles to Process Memory:            T

Router#
```

The following shows typical output for the **show checkpoint entities** command:

```
Router# show checkpoint entities


                        Check Point List of Entities
 CHKPT on ACTIVE server.
------------------------------------------------------------------------------
Entity Name         Entity
                        ID
------------------------------------------------------------------------------
UBR10k HA Entity Gro     4
  Total API Messages Sent:             0
  Total IPC Sent:                      0
  Total Message Len:                   0
  Total Bytes Allocated:               0
```

The following shows typical output for the **show checkpoint statistics** command:

```
Router# show checkpoint statistics

             Check Point Status

 CHKPT on ACTIVE server.

Number of chkpt messages currently in hold queue 0
CHKPT MAX MTU size = 1422
IPC MAX MTU size = 4096
CHKPT Pending msg timer  = 100 ms

Router#
```

Related Commands

Command	Description
hccp authentication	Changes the minimum time between frequency hops.
hccp check version	Exits bypass version mode, and returns to normal HCCP operation.
hccp ds-switch	Specifies the downstream upconverter module for a Working CMTS or Protect CMTS (deprecated command).
hccp protect	Allows you to configure a Cisco CMTS to be a Protect CMTS for a specified Working CMTS in a 1+1 redundancy environment.
hccp working	Allows you to designate a Cisco CMTS to be a Working CMTS in a 1+1 redundancy environment.
show hccp	Displays information for all cable interfaces on which one or more HCCP groups and authentication modes have been configured.
show hccp interface	Displays group information for a specific cable interface on which one or more groups and authentication modes have been configured.

show cmts ipc-cable client base

To display the interprocess communication (IPC) session status, the service information for all the slots and subslots on the line cards, and statistics for each session on the Cisco uBR10012 router, use the **show cmts ipc-cable client base** command in user EXEC or privileged EXEC mode.

show cmts ipc-cable client base {**client** | **service** | **stats**}

Syntax Description

client	Displays the IPC session status information.
service	Displays all the IPC services for the slots and subslots on the Cisco uBR10012 router.
stats	Displays the IPC layer statistics information for every session.

Command Default

No default behavior or values.

Command Modes

User EXEC (>) or

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SCB	This command was introduced.
12.2(33)SCF	The **service** keyword was added to this command.

Usage Guidelines

The **show cmts ipc-cable client base client** command displays the IPC session information for a group of messages that are exchanged between a route processor (RP) and a line card or between two line cards. This information includes the client ID, client name, IPC transport information, slot and subslot information, session state to identify whether the session is ready for message exchange, number of messages that are pending, and number of messages dropped.

The **show cmts ipc-cable client base service** command displays the IPC service information for all the slots and subslots on the Cisco uBR10012 router. This information includes IPC port information, such as type of service and port ID, retry and timeout information of the IPC messages, and watermark information in the request queue.

The **show cmts ipc-cable client base stats** command displays the IPC layer error statistics for every session and is used for internal debugging purposes. The error statistics information includes the client ID, client name, transport type, slot and subslot information, client buffer, IPC layer state, error counter information for the sent and received messages, and IPC In Service Software Upgrade (ISSU) register information.

Examples

The following is a sample output of the **show cmts ipc-cable client base client** command:

```
Router# show cmts ipc-cable client base client

Client Id: 0     Name: CLNT DOCSIS

Slot/Subslot Seat    ISSU Sid Connection State Ready Transport Msg-Pending Msg-D
ropped ISSU MTU
5/0          0x70000 17       RP-CLC     Up    Yes   IPC       0           0
       32
6/1          0x50000 65540    RP-CLC     Up    Yes   IPC       0           0
       32
8/0          0x60000 589827   RP-CLC     Up    Yes   IPC       0           0
       32

Client Id: 1     Name: CLNT HCCP

Slot/Subslot Seat    ISSU Sid Connection State Ready Transport Msg-Pending Msg-D
ropped ISSU MTU
5/0          0x70000 17       RP-CLC     Up    Yes   IPC       0           0
       32
6/1          0x50000 65540    RP-CLC     Up    Yes   IPC       0           0
       32
8/0          0x60000 589827   RP-CLC     Up    Yes   IPC       0           0
       32

Client Id: 2     Name: CLNT PKTCBL

Slot/Subslot Seat    ISSU Sid Connection State Ready Transport Msg-Pending Msg-D
ropped ISSU MTU
5/0          0x70000 17       RP-CLC     Up    Yes   IPC       0           0
       32
6/1          0x50000 65540    RP-CLC     Up    Yes   IPC       0           0
       32
8/0          0x60000 589827   RP-CLC     Up    Yes   IPC       0           0
       32

Client Id: 3     Name: CLNT PNEGO

Slot/Subslot Seat    ISSU Sid Connection State Ready Transport Msg-Pending Msg-D
ropped ISSU MTU
5/0          0x70000 17       RP-CLC     Up    Yes   IPC       0           0
       32
6/1          0x50000 65540    RP-CLC     Up    Yes   IPC       0           0
       32
8/0          0x60000 589827   RP-CLC     Up    Yes   IPC       0           0
       32

Client Id: 4     Name: CLNT PLATFORM

Slot/Subslot Seat    ISSU Sid Connection State Ready Transport Msg-Pending Msg-D
ropped ISSU MTU
5/0          0x70000 17       RP-CLC     Up    Yes   IPC       0           0
       32
6/1          0x50000 65540    RP-CLC     Up    Yes   IPC       0           0
       32

!
.
.
.
```

Table 156 describes the significant fields shown in the display.

Table 156 show cmts ipc-cable client base client Field Descriptions

Field	Description
Client Id	ISSU client ID.
Name	Client session name.
Slot/subslot	Slot and subslot.
Seat	IPC seat number for the session.
ISSU Sid	ISSU application client session service identifier.
Connection	Connection type.
State	Connection state that is established.
Ready	Readiness of the session.
Transport	Transport stream that is used.
Msg-Pending	Total number of messages waiting for acknowledgement.
Msd-Dropped	Total number of messages dropped.
ISSU MTU	IPC Maximum Transmission Unit (MTU) of the ISSU session.

The following is a sample output of the **show cmts ipc-cable client base service** command:

```
Router# show cmts ipc-cable client base service

CMTS IPC service 1/0: default
        ipc_port_info  = 0x69390F4      ipc_port_id = A0000
        retry_max = 20  retry_period = 1        rpc_timeout = 120
        context = 0x6939164     pid = 399       name = ReqXmt 1/0: default
in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = True      block_done = False

CMTS IPC service 3/0: default
        ipc_port_info  = 0x6939084      ipc_port_id = B0000
        retry_max = 20  retry_period = 1        rpc_timeout = 120
        context = 0x6937FE4     pid = 405       name = ReqXmt 3/0: default
in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = True      block_done = False

CMTS IPC service 5/0: default
        ipc_port_info  = 0x465C0C14     ipc_port_id = D000A
        retry_max = 20  retry_period = 1        rpc_timeout = 120
        context = 0x6937874     pid = 420       name = ReqXmt 5/0: default
in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = True      block_done = True

CMTS IPC service 5/0: inband
        ipc_port_info  = 0xE6C7F50      ipc_port_id = D000B
        retry_max = 20  retry_period = 1        rpc_timeout = 20
        context = 0x6937644     pid = 424       name = ReqXmt 5/0: inband
in_transit = 0  reqQ size = 0   inband = True
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = False     block_done = False
```

```
CMTS IPC service 5/0: expedite
        ipc_port_info  = 0x34C3FA4      ipc_port_id = D000C
        retry_max = 3   retry_period = 1        rpc_timeout = 5
        context = 0x69380C4     pid = 353       name = ReqXmt 5/0: expedite
in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = True      block_done = False

CMTS IPC service 5/0: non critical
        ipc_port_info  = 0x4CFFBD34     ipc_port_id = D000D
        retry_max = 3   retry_period = 10       rpc_timeout = 30
        context = 0x6937954     pid = 419       name = ReqXmt 5/0: non critical
in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = False     block_done = False

CMTS IPC service 5/1: default
        ipc_port_info  = 0x6938134      ipc_port_id = C000A
        retry_max = 20  retry_period = 1        rpc_timeout = 120
        context = 0x69387C4     pid = 226       name = ReqXmt 5/1: default
in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = True      block_done = True

CMTS IPC service 5/1: inband
        ipc_port_info  = 0x34C1F4C      ipc_port_id = C000B
        retry_max = 20  retry_period = 1        rpc_timeout = 20
in_transit = 0  reqQ size = 0   inband = True
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = False     block_done = False

CMTS IPC service 5/1: expedite
        ipc_port_info  = 0x2DFFF38      ipc_port_id = C000C
        retry_max = 3   retry_period = 1        rpc_timeout = 5
        context = 0x465B73D4    pid = 96        name = ReqXmt 5/1: expedite
        in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = True      block_done = False

CMTS IPC service 5/1: non critical
        ipc_port_info  = 0x2E00100      ipc_port_id = C000D
        retry_max = 3   retry_period = 10       rpc_timeout = 30
        context = 0x465BE054    pid = 164       name = ReqXmt 5/1: non critical
in_transit = 0  reqQ size = 0   inband = False
        reqQ watermark low = 200        med = 500       high = 1000
        resume_send = False     block_done = False
```

Table 157 describes the significant fields shown in the display.

Table 157 show cmts ipc-cable client base service Field Descriptions

Field	Description
CMTS IPC service 1/0: default	Slot and subslot. Describes the type of service—default, inband, expedite, or non-critical.
ipc_port_info	IPC port information.
ipc_port_id	IPC port ID.
retry_max	Maximum retries in Cisco IOS software IPC layer.
retry_period	Time period of the retry interval in the IOS IPC layer.

Table 157 show cmts ipc-cable client base service Field Descriptions (continued)

Field	Description
rpc_timeout	RPC timeout value.
context	Context value.
pid	Program identifier value.
name	Type of IPC service.
in_transit	Indicates total number of messages waiting for acknowledgement
inband	Inband service type.
reqQ size	Size of the request queue.
reqQ watermark	Threshold value of the queue.
resume_send	IPC message sent is resumed.
block_done	IPC message is blocked.

The following is a sample output of the **show cmts ipc-cable client base stats** command:

```
Router# show cmts ipc-cable client base stats

Client Id: 0           Name: CLNT DOCSIS
Slot/subslot: 5 /0     Transport Type = RP-CLC

IPC getbuffer fail     : 0
IPC layer is down      : 0
Sender msg has error   : 0
Rcvd msg fail parser   : 0
Sender drop - Misc.    : 0
SID mgmt Q drop-No CM  : 0
SID mgmt Q drop-Misc   : 0
SID mgmt Q full        : 0
SID mgmt Q drop-IF down: 0
IPC timeout            : 0
IPC - no watch boolean : 0
Rcvd client no callback          : 0
CR10K IPC Header transform error : 0
CR10K IPC ISSU send nego failed  : 0
CR10K IPC ISSU not compatible    : 0
CR10K IPC ISSU start nego failed : 0
CR10K IPC ISSU register failed   : 0
```

Table 158 describes the significant fields shown in the display.

Table 158 show cmts ipc-cable client base stats Field Descriptions

Field	Description
Client Id	ISSU client ID.
Name	Client session name.
Slot/subslot	Slot and subslot.
Transport Type	Transport type.

Related Commands

Command	Description
show cable ipc-stats	Displays the statistics of all IPC messages on the Cisco CMTS router.

show controller gigabitethernet

To display information about the Gigabit Ethernet interface used by the Downstream External PHY Interface (DEPI), use the **show controller gigabitethernet** command in privileged EXEC mode.

show controller gigabitethernet *slot/subslot/*{*bay* | *port*}

Syntax Description

slot	The slot where a SIP or cable line card resides. • Cisco uBR7246VXR router—The valid range is from 3 to 6. • Cisco uBR7225VXR router—The valid range is from 1 to 2. • Cisco uBR10012 router—The valid range for: – Cable line card is from 5 to 8 – SIP is 1 and 3
subslot	The subslot where a SIP or cable line card resides. • Cisco uBR10012 router—The valid value for: – Cable line card in slot 5 to 8 is 0 or 1 – SPAs in a SIP in slot 1 or 3, prior to Cisco IOS Release 12.2(33)SCB is 0 or 1. For Cisco IOS Release 12.2(33)SCB and later, subslot is not specified.
bay	The bay in a SIP where a SPA is located. Valid values are 0 (upper bay) and 1 (lower bay).
port	Specifies the port number. • Cisco uBR7246VXR router and Cisco uBR7225VXR router—The valid range is from 0 to 1. • Cisco uBR10012 router—The valid value for: – Slot 1 and 3 is 0 – Slot 5 to 8 is from 0 to 4

Command Default

None.

Command Modes

Privilege EXEC

Command History

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

Examples

This is a sample output for the **show controller gigabitethernet** command:

```
Router# show controller gigabitethernet 6/1/0
```

```
DEPI INTERFACE : GigabitEthernet6/1/0
slot           : 6
subunit        : 256
unit           : 0
slotunit       : 24
type           : 27
fci            : 0x65D
ph_state       : 0x6
MAC            : 0013.5f06.7f74
status         : 0x210040
status2        : 0x80200010
state          : 0x4
encsz          : 14
oir            : 0x0
max_pak_size   : 1524
visible_bw     : 10000
visible_bw_def : 10000
IB CHANNEL     : 3074
Port0 Status   : 1
Port1 Status   : 1
DS             : 11B7A40C
```

Table 159 describes the significant fields shown in the display.

Table 159 show controller gigabitethernet Field Descriptions

Field	Description
visible_bw	Configured bandwidth for bypass traffic
IB CHANNEL	Ironbus channel ID for bypass traffic
Port0 Status	Status of GigE port 0
Port1 Status	Status of GigE port 1

Related Commands

Command	Description
show controller ethernet	Displays the hardware status of the backplane ethernet (BPE) device.

show controller integrated-cable

To view information about the Cisco UBR-MC20X20V or Cisco uBR-MC88V line card statistics, use the **show controller integrated-cable** command in privileged EXEC mode.

show controller integrated-cable {*slot/port* | *slot/subslot/port*} [**all** | **association** | **bpi-entry** *bpi-index* | **brief** | **config** | **counters** {**rf-channel** [*rf-channel*] | **wb-channel** [*wb-channel*]} | **errors** | **fpga_version** | **iofpga** | **mapping** {**rf-channel** [*rf-channel*] | **wb-channel** [*wb-channel*]} | **registers** | **rf-channel** [*rf-channel*] | **status** | **wideband-channel** [*wb-channel*]]

Syntax Description

slot/port | *slot/subslot/port*	Identifies the cable interface on the Cisco uBR7225VXR, Cisco uBR7246VXR, or Cisco uBR10012 router. • *slot*—Slot where the line card resides. – Cisco uBR7225VXR router: The valid range is from 1 to 2. – Cisco uBR7246VXR router: The valid range is from 3 to 6. – Cisco uBR10012 router: The valid range is from 5 to 8. • *subslot*—Subslot where the line card resides. Available slots are 0 or 1. This option is available on the Cisco uBR10012 router. • *port*—Downstream port number on the line card. – Cisco uBR10012 router: The valid range is from 0 to 4. – Cisco uBR7246VXR and Cisco uBR7225VXR routers: The valid port value is 0 or 1.
all	(Optional) Displays the complete information about the line card statistics.
association	(Optional) Displays the controller association information.
bpi-entry	(Optional) Displays the controller Baseline Privacy Interface (BPI) information. • *bpi-index*—BPI index number. The valid range is from 0 to 24575.
brief	(Optional) Displays brief information about the line card statistics.
config	(Optional) Displays statistics about the JIB hardware and downstream PHY configuration.
counters	(Optional) Displays information about the RF and wideband (WB) channel counters.
rf-channel	Displays the RF channel information.
rf-channel	(Optional) RF channel number. The valid range is from 0 to 3.
wb-channel	Displays the wideband channel information.
wb-channel	(Optional) Wideband channel number. The valid range is from 0 to 5.
errors	(Optional) Displays information about the error counters, such as DOCSIS processor error counters, BPI error counters, and queue manager error counters.
fpga_version	(Optional) Displays the FPGA version information.
iofpga	(Optional) Displays the IOFPGA information.
mapping	(Optional) Displays mapping statistics of the RF and WB channels.
registers	(Optional) Displays the list of JIB hardware downstream register values.

status	(Optional) Displays the JIB hardware and downstream PHY status.
wideband-channel	(Optional) Displays the controller wideband cable information.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SCC	This command was introduced.
12.2(33)SCD	The command was modified. Added support for the Cisco uBR-MC88V line card on Cisco uBR7246VXR and Cisco uBR7225VXR universal broadband routers.
12.2(33)SCE	This command was modified. The following optional keywords were added: • **fgpa_version** • **iofpga** • **rf-channel** • **wideband-channel**

Usage Guidelines

This command allows the user to view the following line card statistics:

- Controller association
- JIB hardware downstream configuration
- Channel counters
- Errors
- Mapping of WB and RF channels
- JIB hardware downstream registers
- JIB hardware downstream status

Note The channel counters are not reset or cleared when a line card switch-over occurs.

The following example shows a typical display of the **show controller integrated-cable** command and the **all** keyword:

```
Router# show controllers integrated-Cable 6/0/0 all

Integrated Cable Controller 6/0/0:
----------------------------------
  Channel 1  Annex = B  Modulation = 256 QAM
  Channel 2  Annex = B  Modulation = 256 QAM
  Channel 3  Annex = B  Modulation = 256 QAM
  Channel 4  Annex = B  Modulation = 256 QAM

JIB3_DS BPI registers (base address 0xF8880000)

bpi_int_isr_0                       [0x00000000] = 0x00000000
bpi_int_ier_0                       [0x00000004] = 0x0000000F
glb_int_isr_0                       [0x00000010] = 0x00000000
```

```
glb_int_ier_0                          [0x00000014] = 0x000003FF
glb_int_isr_1                          [0x00000020] = 0x00000000
glb_int_ier_1                          [0x00000024] = 0x000003FF
bpi_int_fesr_0                         [0x00000040] = 0x00000000
bpi_tst_tp_sel_reg                     [0x00000050] = 0x00000000
bpi_tst_tp_reg                         [0x00000054] = 0x00000000
bpi_cnt_good_packet_in_cnt             [0x00000064] = 0x61308806
bpi_cnt_bad_packet_in_cnt              [0x00000068] = 0x00006538
bpi_cnt_good_packet_out_cnt            [0x0000006C] = 0x61308806
bpi_cnt_bad_packet_out_cnt             [0x00000070] = 0x00006538
bpi_ecc_sbit_err_cnt                   [0x00000074] = 0x00000000
glb_sw_rev_id                          [0x00000078] = 0x00020002
glb_hw_rev_id                          [0x0000007C] = 0x00010008
frz_reg                                [0x00000080] = 0x00000000
frz_en                                 [0x00000084] = 0x00000001
glb_dcm_status                         [0x00000088] = 0x00000007
glb_sw_rst                             [0x0000008C] = 0x00000000

JIB3_DS ERP registers (base address 0xF8881000)

erp_irq_src_reg                        [0x00000000] = 0x00000000
erp_irq_en_reg                         [0x00000004] = 0x80000FFF
erp_tp_sel_reg                         [0x00000050] = 0x00000000
erp_tp_reg                             [0x00000054] = 0x00000000
erp_cfg_reg                            [0x00000060] = 0x00000000
erp_err_record_reg                     [0x00000064] = 0x00000000
erp_err_addr_record_reg                [0x00000068] = 0x00000000
erp_err_wd_record_reg                  [0x0000006C] = 0x00000000
erp_proc_err_addr_record_reg           [0x00000090] = 0x00000000

JIB3_DS RX SPI registers (base address 0xF8882000)

rxspi_irq_src_reg                      [0x00000000] = 0x00000000
rxspi_irq_en_reg                       [0x00000004] = 0x000001FF
rxspi_ferr_src_reg                     [0x00000040] = 0x00000000
rxspi_testpoint_sel_reg                [0x00000050] = 0x00000000
rxspi_testpoint_reg                    [0x00000054] = 0x00000000
rxspi_rst_cntl_reg                     [0x00000060] = 0x00000000
rxspi_cntl_status_reg                  [0x00000064] = 0x00000005
rxspi_cfg_cntl_reg                     [0x00000068] = 0x00000021
rxspi_afthres_reg                      [0x0000006C] = 0x01C00180
rxspi_cal_dur_reg                      [0x00000070] = 0x00030000
rxspi_non_drop_err_cnt_reg             [0x00000088] = 0x00000000
rxspi_drop_byte_cnt_reg                [0x0000008C] = 0x00000000
rxspi_rx_byte_cnt_reg[0]               [0x000000B0] = 0xFFFFFFFF
rxspi_rx_byte_cnt_reg[1]               [0x000000B4] = 0xFFFFFFFF
rxspi_rx_byte_cnt_reg[2]               [0x000000B8] = 0x14B49467
rxspi_rx_pkt_cnt_reg[0]                [0x000000C0] = 0x3FF2F36C
rxspi_rx_pkt_cnt_reg[1]                [0x000000C4] = 0x20F3AFA9
rxspi_rx_pkt_cnt_reg[2]                [0x000000C8] = 0x004A4A35
rxspi_fifo_pkt_drop_cnt_reg[0]         [0x000000E0] = 0x00000000
rxspi_fifo_pkt_drop_cnt_reg[1]         [0x000000E4] = 0x00000000
rxspi_fifo_pkt_drop_cnt_reg[2]         [0x000000E8] = 0x00000000
rxspi_calendar_table_reg[0]            [0x00000800] = 0x00000000
rxspi_calendar_table_reg[1]            [0x00000804] = 0x00000001
rxspi_calendar_table_reg[2]            [0x00000808] = 0x00000002
rxspi_calendar_table_reg[3]            [0x0000080C] = 0x00000003

JIB3_DS TX SPI registers (base address 0xF8883000)

txspi_irq_src_reg                      [0x00000000] = 0x00000000
txspi_irq_en_reg                       [0x00000004] = 0x0000001F
txspi_ferr_src_reg                     [0x00000040] = 0x00000000
txspi_testpoint_sel_reg                [0x00000050] = 0x00000000
```

```
txspi_testpoint_reg                 [0x00000054] = 0x00000000
txspi_rst_cntl_reg                  [0x00000060] = 0x00000000
txspi_cntl_status_reg               [0x00000064] = 0x00000009
txspi_cfg_cntl_reg                  [0x00000068] = 0x00000001
txspi_afthres_reg                   [0x0000006C] = 0x01EC01E8
txspi_cal_dur_reg                   [0x00000070] = 0x00040000
txspi_train_cntl_reg                [0x00000074] = 0x00000000
txspi_nonfatalerr_cnt_reg           [0x00000080] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[0]      [0x00000090] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[1]      [0x00000094] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[2]      [0x00000098] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[3]      [0x0000009C] = 0x00000000
txspi_eop_abort_byte_cnt_reg[0]     [0x000000A0] = 0x00000000
txspi_eop_abort_byte_cnt_reg[1]     [0x000000A4] = 0x00000000
txspi_eop_abort_byte_cnt_reg[2]     [0x000000A8] = 0x00000000
txspi_eop_abort_byte_cnt_reg[3]     [0x000000AC] = 0x00000000
txspi_tx_byte_cnt_reg[0]            [0x000000C0] = 0x00000000
txspi_tx_byte_cnt_reg[1]            [0x000000C4] = 0x00000000
txspi_tx_byte_cnt_reg[2]            [0x000000C8] = 0x00000000
txspi_tx_byte_cnt_reg[3]            [0x000000CC] = 0x00000000
txspi_tx_pkt_cnt_reg[0]             [0x00000100] = 0x00000000
txspi_tx_pkt_cnt_reg[1]             [0x00000104] = 0x00000000
txspi_tx_pkt_cnt_reg[2]             [0x00000108] = 0x00000000
txspi_tx_pkt_cnt_reg[3]             [0x0000010C] = 0x00000000
txspi_calendar_table_reg[0]         [0x00000800] = 0x00000000
txspi_calendar_table_reg[1]         [0x00000804] = 0x00000001
txspi_calendar_table_reg[2]         [0x00000808] = 0x00000002
txspi_calendar_table_reg[3]         [0x0000080C] = 0x00000003
txspi_calendar_table_reg[4]         [0x00000810] = 0x00000004

JIB3_DS DOC registers (base address 0xF8884000)

doc_int_err0                        [0x00000000] = 0x00000000
doc_int_err0_ier                    [0x00000004] = 0xFFBFBFFD
doc_int_err1                        [0x00000010] = 0x00000000
doc_int_err1_ier                    [0x00000014] = 0x003FFFF8
doc_int_fesr                        [0x00000040] = 0x00000000
doc_test_sel                        [0x00000050] = 0x00000000
doc_testpoint                       [0x00000054] = 0x00000000
doc_cfg_ctrl                        [0x00000060] = 0x031A0000
doc_err_cap_ctrl                    [0x00000064] = 0x001F0001
doc_err_cap_addr                    [0x00000068] = 0x00000000
doc_err_cap_data                    [0x0000006C] = 0x000080F7
doc_seg_num                         [0x00000070] = 0x00000001
doc_wb_chan_stats_sel               [0x00000074] = 0x00000077
doc_wb_pkt_cnt                      [0x00000078] = 0x00000000
doc_wb_byte_cnt                     [0x0000007C] = 0x00000000
doc_wb_police_sel                   [0x00000080] = 0x00000000
doc_wb_police_data                  [0x00000084] = 0x00000000
doc_wb_police_intv                  [0x00000088] = 0x00000000
doc_nb_chan_stats_sel               [0x0000008C] = 0x0000004C
doc_nb_pkt_cnt                      [0x00000090] = 0x00000000
doc_nb_byte_cnt                     [0x00000094] = 0x00000000
doc_nb_police_sel                   [0x00000098] = 0x00000000
doc_nb_police_data                  [0x0000009C] = 0x00000000
doc_nb_police_intv                  [0x000000A0] = 0x00000000
doc_int_doc_cnt                     [0x000000D4] = 0x00000000
doc_int_ecc_sbiterr_cnt             [0x000000D8] = 0x00000000
doc_pkt_good_in_cnt                 [0x000000DC] = 0x6130ED6F
doc_pkt_good_out_cnt                [0x000000E0] = 0x61308837
doc_pkt_err_in_cnt                  [0x000000E4] = 0x00000000
doc_pkt_err_out_cnt                 [0x000000E8] = 0x00006538
doc_pkt_drop_cnt                    [0x000000EC] = 0x00000000
doc_efc_all_cnt                     [0x000000F0] = 0x00000000
```

```
doc_efc_hi_cnt                      [0x000000F4] = 0x00000000
doc_efc_me_cnt                      [0x000000F8] = 0x00000000
doc_efc_lo_cnt                      [0x000000FC] = 0x00000000
doc_efc_ch_sel                      [0x00000100] = 0x00000000
doc_efc_debug_ctrl                  [0x00000104] = 0x00000000
doc_rldram_ext_ecc                  [0x00000114] = 0x00000000
doc_rldram_cfg                      [0x00000118] = 0x00101544
doc_rldram_ctrl                     [0x0000011C] = 0x00100389
doc_rldram_status                   [0x00000120] = 0x039D7403
doc_rldram_blk_clr                  [0x00000124] = 0x0B7FFFFF
doc_rldram_cal_match_win_h          [0x00000128] = 0x00000000
doc_rldram_cal_match_win_l          [0x0000012C] = 0x1FFFFFFF
doc_rldram_ecc_err_rec_addr         [0x00000130] = 0x00000000
doc_magic_num_err_pkt_ctrl          [0x00000150] = 0x00000000
doc_magic_num_err_pkt_addr          [0x00000154] = 0x00000000
doc_magic_num_err_pkt_data          [0x00000158] = 0x00000000

JIB3_DS RIF registers (base address 0xF8885000)

rif_int_err0                        [0x00000000] = 0x00000000
rif_int_ier0                        [0x00000004] = 0x00000007
rif_int_fesr0                       [0x00000040] = 0x00000000
rif_tp_sel                          [0x00000050] = 0x00000000
rif_tp                              [0x00000054] = 0x00000000
rif_cfg_ctrl                        [0x00000060] = 0x00000000
rif_cnt_in_mpeg_cnt                 [0x00000064] = 0xFFFFFFFF
rif_cnt_out_good_mpeg_cnt           [0x00000068] = 0xFFFFFFFF
rif_cnt_out_bad_mpeg_cnt            [0x0000006C] = 0x00000000
rif_cnt_drop_mpeg_cnt               [0x00000070] = 0x00000000
rif_1bit_ecc_err_stat               [0x00000074] = 0x00000000

JIB3_DS RTN registers (base address 0xF8886000)

return_int_isr                      [0x00000000] = 0x00000000
return_int_ier                      [0x00000004] = 0x000001FF
return_int_fesr                     [0x00000040] = 0x00000000
return_tp_sel                       [0x00000050] = 0x00000000
return_tp                           [0x00000054] = 0x00000000
return_ctrl_reg                     [0x00000060] = 0x00000000
return_pif_loopback_chnl            [0x00000064] = 0x00000000
return_sniffer_nonbonded_en         [0x00000068] = 0x00000000
return_sniffer_bonded_en            [0x0000006C] = 0x00000000
return_spi_chnl_sel                 [0x00000070] = 0x0000013A
return_err_drop_en                  [0x00000074] = 0x0000000F
return_snf_macda_cfg_addr           [0x00000078] = 0x00000000
return_snf_macda_cfg_data_hi        [0x0000007C] = 0x00000000
return_snf_macda_cfg_data_lo        [0x00000080] = 0x00000000
return_in_pifrx_good_cnt            [0x000000A0] = 0x00000000
return_in_pifrx_bad_cnt             [0x000000A4] = 0x00000000
return_in_piflp_good_cnt            [0x000000A8] = 0xFFFFFFFF
return_in_piflp_bad_cnt             [0x000000AC] = 0x00000000
return_in_sniffer_good_cnt          [0x000000B0] = 0x61308845
return_in_sniffer_bad_cnt           [0x000000B4] = 0x00006538
return_in_spi_loop_good_cnt         [0x000000B8] = 0x00000000
return_in_spi_loop_bad_cnt          [0x000000BC] = 0x00000000
return_out_spi0_cnt                 [0x000000C0] = 0x00000000
return_out_spi1_cnt                 [0x000000C4] = 0x00000000
return_out_spi2_cnt                 [0x000000C8] = 0x00000000
return_out_spi3_cnt                 [0x000000CC] = 0x00000000
return_out_spi4_cnt                 [0x000000D0] = 0x00000000
return_pifrx_if_par_err_drop_cnt    [0x000000D4] = 0x00000000
return_pifrx_if_len_err_drop_cnt    [0x000000D8] = 0x00000000
return_piflp_if_err_drop_cnt        [0x000000DC] = 0x00000000
return_piflp_if_chnl_drop_cnt       [0x000000E0] = 0x00000000
```

```
return_snf_pb_err_drop_cnt          [0x000000E4] = 0x00006538
return_snf_pkt_type_err_drop_cnt    [0x000000E8] = 0x61308845
return_spilp_if_err_drop_cnt        [0x000000EC] = 0x00000000
return_pifrx_traffic_mux_drop_cnt   [0x000000F0] = 0x00000000
return_piflp_traffic_mux_drop_cnt   [0x000000F4] = 0x00000000
return_snf_traffic_mux_drop_cnt     [0x000000F8] = 0x00000000
return_spilp_traffic_mux_drop_cnt   [0x000000FC] = 0x00000000
return_pifrx_fifo_overflow_drop_cnt [0x00000100] = 0x00000000
return_piflp_fifo_overflow_drop_cnt [0x00000104] = 0x00000000
return_snf_fifo_overflow_drop_cnt   [0x00000108] = 0x00000000
return_spilp_fifo_overflow_drop_cnt [0x0000010C] = 0x00000000
return_pifrx_if_par_err_cnt         [0x00000110] = 0x00000000
return_pifrx_if_len_err_cnt         [0x00000114] = 0x00000000
return_pifrx_fifo_ecc_1berr_cnt     [0x00000118] = 0x00000000
return_piflp_fifo_ecc_1berr_cnt     [0x0000011C] = 0x00000000
return_snf_fifo_ecc_1berr_cnt       [0x00000120] = 0x00000000
return_spilp_fifo_ecc_1berr_cnt     [0x00000124] = 0x00000000

JIB3_DS DLM registers (base address 0xF8890000)

dlm_int_isr_0                       [0x00000000] = 0x00000005
dlm_int_ier_0                       [0x00000004] = 0x00000000
dlm_cnt_local_ts_reg                [0x00000064] = 0x5B00EB07
dlm_cfg_tss_comp_reg                [0x00000068] = 0x00000027
dlm_cfg_tss_ctrl_reg                [0x0000006C] = 0x00000000
dlm_cfg_tss_cmd_reg                 [0x00000070] = 0x00000000
dlm_cnt_ts_load_cnt                 [0x000000BC] = 0x00000000
dlm_cnt_ts_chk_failed_cnt           [0x000000C4] = 0x00000000
dlm_cnt_tss_perr_cnt                [0x000000C8] = 0x00000000
dlm_cnt_load_ts_reg                 [0x000000D0] = 0x003F52EF

JIB3_DS SEQ registers (base address 0xF8892000)

seq_int_err0                        [0x00000000] = 0x0000000F
seq_int_ier0                        [0x00000004] = 0x000FFFFF
seq_int_err3                        [0x00000030] = 0x00000000
seq_int_ier3                        [0x00000034] = 0x00000001
seq_int_fatal_err                   [0x00000040] = 0x00000000
seq_tp_sel                          [0x00000050] = 0x00000000
seq_tp                              [0x00000054] = 0x00000000
seq_cfg_en                          [0x00000060] = 0x00000001
seq_cfg_sync_timer_sel              [0x00000064] = 0x00000004
seq_cfg_sync_timer_data             [0x00000068] = 0x00000000
seq_cfg_sync_sa_sel                 [0x0000006C] = 0x00000004
seq_cfg_sync_sa_data_lo             [0x00000070] = 0x70CC0B91
seq_cfg_sync_sa_data_hi             [0x00000074] = 0x00000000
seq_cfg_tkb_timer_sel               [0x00000078] = 0x00000014
seq_cfg_tkb_timer_data              [0x0000007C] = 0x00000000
seq_cfg_tkb_max                     [0x00000080] = 0x00000000
seq_hwdbg_dpv_proc_table_addr       [0x00000090] = 0x00000000
seq_hwdbg_dpv_ptr_mod_table         [0x00000094] = 0x00000000
seq_hwdbg_dpv_timestamp_table       [0x00000098] = 0x00000000
seq_hwdbg_dpv_hcs_table             [0x0000009C] = 0x00000000
seq_cnt_blkram_oecc_err_stat        [0x000000A4] = 0x00000000
seq_cnt_tran_mpeg_stat              [0x000000A8] = 0xFFFFFFFF
seq_cnt_tran_mpeg_sync_stat         [0x000000AC] = 0x00000000
seq_cnt_tran_only_sync_stat         [0x000000B0] = 0x00000000
seq_cnt_tran_dpv_stat               [0x000000B8] = 0x00000000

JIB3_DS QM registers (base address 0xF8893000)

qm_int_isr0                         [0x00000000] = 0x00000000
qm_int_ier0                         [0x00000004] = 0x0000007F
qm_int_isr1                         [0x00000010] = 0x00000000
```

```
qm_int_ier1                          [0x00000014] = 0x000FFFFF
qm_int_fat_err_isr                   [0x00000040] = 0x00000000
qm_tst_tp_sel                        [0x00000050] = 0x00000000
qm_tst_tp                            [0x00000054] = 0x00000000
qm_cfg_chnl_rst_0                    [0x00000060] = 0x00000000
qm_cfg_ctl                           [0x0000006C] = 0x00000011
qm_cfg_sqf_fac_addr                  [0x0000008C] = 0x00000014
qm_cfg_sqf_fac_data                  [0x00000090] = 0x00000000
qm_cfg_bond_chnl_map_addr            [0x00000094] = 0x00000020
qm_cfg_bond_chnl_map_data_lo         [0x00000098] = 0x00000000
qm_cfg_flt_thr_addr                  [0x000000A4] = 0x0000024F
qm_cfg_flt_thr_data                  [0x000000A8] = 0x00000000
qm_cfg_repl_addr                     [0x000000AC] = 0x0000002D
qm_cfg_repl_data_lo                  [0x000000B0] = 0x00000000
qm_hwdbg_buf_mag_addr                [0x000000BC] = 0x00000000
qm_hwdbg_wptr_data_lo                [0x000000C0] = 0x00000C60
qm_hwdbg_wptr_data_mi                [0x000000C4] = 0x00016080
qm_hwdbg_wptr_data_hi                [0x000000C8] = 0x000012A0
qm_hwdbg_rptr_data_lo                [0x000000CC] = 0x00000C60
qm_hwdbg_rptr_data_mi                [0x000000D0] = 0x00016080
qm_hwdbg_rptr_data_hi                [0x000000D4] = 0x000012A0
qm_hwdbg_qulen_data_lo               [0x000000D8] = 0x00000000
qm_hwdbg_qulen_data_mi               [0x000000DC] = 0x00000000
qm_hwdbg_qulen_data_hi               [0x000000E0] = 0x00000000
qm_hwdbg_contex_data                 [0x000000E4] = 0x00000000
qm_cfg_dir_stat_addr                 [0x000000E8] = 0x0000004E
qm_cnt_dir_pkt_stat                  [0x000000EC] = 0x00000000
qm_cnt_dir_byte_stat                 [0x000000F0] = 0x00000000
qm_cfg_qam_stat_addr                 [0x000000F4] = 0x0000004C
qm_cnt_qam_chnl_pkt_stat             [0x000000F8] = 0x00000000
qm_cnt_qam_chnl_byte_stat            [0x000000FC] = 0x00000000
qm_cnt_qam_chnl_sync_stat            [0x00000100] = 0x00000000
qm_cnt_bpram_ovrflw_stat             [0x00000108] = 0x00000000
qm_cnt_que_ovrflw_stat               [0x0000010C] = 0x00000000
qm_cnt_good_bpi_pkt_stat             [0x00000110] = 0x6130886C
qm_cnt_bad_bpi_pkt_stat              [0x00000114] = 0x000000FF
qm_cnt_bpram_out_good_pkt_stat       [0x0000011C] = 0xC38C8639
qm_cnt_bpram_out_dir_pkt_stat        [0x00000120] = 0x213DFA0E
qm_cnt_bpram_out_bonded_pkt_stat     [0x00000124] = 0x3486CDA6
qm_cnt_replicated_pkt_stat           [0x00000128] = 0x8399F7DB
qm_cnt_bpram_bad_type_pkt_stat       [0x00000134] = 0x00000000
qm_cnt_bpram_bad_eop_pkt_stat        [0x00000138] = 0x00000000
qm_cnt_bpram_bad_dir_pkt_stat        [0x0000013C] = 0x00000000
qm_cnt_bpram_bad_bonded_pkt_stat     [0x00000140] = 0x00000000
qm_cnt_bpram_oecc_err_pkt_stat       [0x00000144] = 0x00000000
qm_cnt_bpram_bad_pkt_stat            [0x00000148] = 0x000000FF
qm_cnt_wr_good_pkt_stat              [0x0000014C] = 0xC38C863A
qm_cnt_wr_bad_pkt_stat               [0x00000150] = 0x00000000
qm_cnt_drop_bad_pkt_stat             [0x00000154] = 0x000000FF
qm_cnt_drop_ovrflw_pkt_stat          [0x00000158] = 0x00000000
qm_cnt_rd_pkt_stat                   [0x0000015C] = 0xC38C8664
qm_cnt_rd_mpeg_stat                  [0x00000160] = 0xFFFFFFFF
qm_cnt_rd_mpeg_sync_stat             [0x00000164] = 0x06A0FC65
qm_cnt_rd_mpeg_only_sync_stat        [0x00000168] = 0x0620376C
qm_cnt_tran_pkt_stat                 [0x00000170] = 0xC38C8664
qm_cnt_tran_oecc_err_pkt_stat        [0x00000174] = 0x00000000
qm_cnt_tran_mpeg_stat                [0x00000178] = 0xFFFFFFFF
qm_cnt_tran_mpeg_sync_stat           [0x0000017C] = 0x06A0FC65
qm_cnt_tran_mpeg_only_sync_stat      [0x00000180] = 0x0620376C
qm_cnt_tran_dpv_stat                 [0x00000188] = 0x00000000
qm_rldram_ext_ecc                    [0x00000198] = 0x00000000
qm_rldram_cfg                        [0x0000019C] = 0x00101544
qm_rldram_ctrl                       [0x000001A0] = 0x00100389
qm_rldram_status                     [0x000001A4] = 0x03DF7C03
```

```
qm_rldram_cal_match_win_h           [0x000001A8] = 0x00000000
qm_rldram_cal_match_win_l           [0x000001AC] = 0x7FFFFFFF

JIB3_DS PG registers (base address 0xF8898000)

pg_mod                              [0x00000050] = 0x00000000
pg_dhs                              [0x00000054] = 0x00000000
pg_ipg                              [0x0000005C] = 0x00000000
pg_num                              [0x00000058] = 0x00000000
pg_payload_length                   [0x00000060] = 0x00000000
pg_payload_value                    [0x00000064] = 0x00000000
pg_pkt_hdr_prog_0                   [0x00000068] = 0x00000000
pg_pkt_hdr_prog_1                   [0x0000006C] = 0x00000000
pg_pkt_hdr_1                        [0x00000070] = 0x00000000
pg_pkt_hdr_2                        [0x00000074] = 0x00000000
pg_pkt_hdr_3                        [0x00000078] = 0x00000000
pg_pkt_hdr_4                        [0x0000007C] = 0x00000000
pg_pkt_hdr_5                        [0x00000080] = 0x00000000
pg_pkt_hdr_6                        [0x00000084] = 0x00000000

JIB3_DS PMBIST registers (base address 0xF8899000)

pmbist_ena_addr                     [0x00000060] = 0x00000002
pmbist_din_addr                     [0x00000064] = 0x00000000
pmbist_dout_addr                    [0x0000006C] = 0x00008101
pmbist_trgt_select_addr             [0x00000074] = 0x00000000
pmbist_ff_status                    [0x00000078] = 0x00000000
pmbist_num_wr_fr_pmbist             [0x0000007C] = 0x00000000
pmbist_num_rd_fr_pmbist             [0x00000080] = 0x00000000
pmbist_um_wr_2cmd_ff                [0x00000084] = 0x00000000
pmbist_num_rd_2cmd_ff               [0x00000088] = 0x00000000
pmbist_num_rd_rtn_pmbist            [0x0000008C] = 0x00000000
pmbist_num_wr_2dram                 [0x00000090] = 0x00000000
pmbist_num_rd_2dram                 [0x00000094] = 0x00000000
pmbist_num_rd_fr_dram               [0x00000098] = 0x00000000

DS PHY Configuration of Controller 0:
---------------------
  Base Frequency = 555000000Hz
  RF-Power = 52.0dBmV
  Annex = B Modulation = 256QAM
  Channel Status Interleave
  ------- ------ ----------
     0   Active     32
     1   Active     32
     2   Active     32
     3   Active     32
  DS_PHY PLL set for Annex-B

  DS PHY Device Information:
  -------------------
    Remora Version = 3.10
    UPX SW Version = 0x10D
    Upconverter Type:Unknown
    UPX Part Number =

  Device Status:
  --------------
    UPX Alarm Status = 0x3FF
    UPX Alarm Mask   = 0x19000
Remora registers (base address 0xF8900000)
-----------------------------------------
```

```
Remora General Registers (0xF8900000):
--------------------------------------
revision                            [0x00000000] = 0x00000003
hw_fpga_rev_id                      [0x00000004] = 0x0000000A
erp_scratch_pad0                    [0x00000008] = 0x00000000
erp_scratch_pad1                    [0x0000000C] = 0x00000000

Remora Reset and DCM Lock Registers (0xF8900100):
-------------------------------------------------
reset_ctrl                          [0x00000100] = 0x00000000
dcm_lock                            [0x00000104] = 0x0000000F

Remora Configuration Registers (0xF8900200):
--------------------------------------------
port_cfg[0]                         [0x00000200] = 0x00155549
port_cfg[1]                         [0x00000204] = 0x00155548
port_cfg[2]                         [0x00000208] = 0x00155548
port_cfg[3]                         [0x0000020C] = 0x00155548
port_cfg[4]                         [0x00000210] = 0x00155548
core_config_status                  [0x00000214] = 0x00000020
port_rm2tififo_prog_flags[0]        [0x00000218] = 0xBBA20C0D
port_rm2tififo_prog_flags[1]        [0x0000021C] = 0xBBA20C0D
port_rm2tififo_prog_flags[2]        [0x00000220] = 0xBBA20C0D
port_rm2tififo_prog_flags[3]        [0x00000224] = 0xBBA20C0D
port_rm2tififo_prog_flags[4]        [0x00000228] = 0xBBA20C0D

Remora DFT/Pattern Inject Registers (0xF8900300):
-------------------------------------------------
alt_sym_tst_mode                    [0x00000300] = 0x00005A69
alt_sym_tst_en_reg                  [0x00000304] = 0x00000000
qdr_mem_test_en_reg                 [0x00000308] = 0x00000000
qdr_mem_test_rd_wr_reg              [0x0000030C] = 0x00000A12
ready_for_data_input                [0x00000318] = 0x0000001F

Remora ECC Registers (0xF8900400):
----------------------------------
debug_cfg                           [0x00000400] = 0x00000000
sniff_frame_cnt                     [0x00000404] = 0x00000000
ecc_parity_conf_reg                 [0x00000408] = 0x00000003
ecc_uncorrect_data_log_reg          [0x0000040C] = 0x00002814
ecc_uncorrect_log_reg               [0x00000410] = 0x00000020
ecc_correctable_data_log_reg        [0x00000414] = 0x00002C14
ecc_correctable_log_reg             [0x00000418] = 0x00000028
qdr_ecc_corr_cnt_reg                [0x0000041C] = 0x00000000
fatal_err_log                       [0x00000420] = 0x00000000
err_inj_reg                         [0x00000424] = 0x00000000

Remora QDR Registers (0xF8900500):
----------------------------------
qdr_phy_idelayctrl_rst_reg          [0x00000500] = 0x00000000
qdr_phy_idelayctrl_rdy_err_reg      [0x00000504] = 0x00000261
qdr_phy_cal_tap_dly_reg             [0x00000508] = 0x00000ADB
qdr_phy_idelayctrl_ctrl_reg         [0x0000050C] = 0x00000002
qdr_init_ctrl_reg                   [0x00000510] = 0x801FFFFF

Remora Interrupt Status Registers (0xF8900600):
-----------------------------------------------
glb_int_stat_reg                    [0x00000600] = 0x00000000
int_stat_gr_reg[0]                  [0x00000604] = 0x00000000
int_stat_gr_reg[1]                  [0x00000608] = 0x00000000
int_stat_gr_reg[2]                  [0x0000060C] = 0x00000000
int_stat_gr_reg[3]                  [0x00000610] = 0x00000000
int_stat_gr_reg[4]                  [0x00000614] = 0x00000000
misc_int_stat_reg                   [0x00000618] = 0x00000001
```

```
fatal_err_src_reg                    [0x0000061C] = 0x00000000
port_local_interrupt_enable[0]       [0x00000620] = 0x0001FFFF
port_local_interrupt_enable[1]       [0x00000624] = 0x0001FFFF
port_local_interrupt_enable[2]       [0x00000628] = 0x0001FFFF
port_local_interrupt_enable[3]       [0x0000062C] = 0x0001FFFF
port_local_interrupt_enable[4]       [0x00000630] = 0x0001FFFF
misc_int_en_reg                      [0x00000634] = 0x00001FF8
fatal_err_en_reg                     [0x00000638] = 0x00000EFF
port_local_interrupt_override[0]     [0x0000063C] = 0x00000000
port_local_interrupt_override[1]     [0x00000640] = 0x00000000
port_local_interrupt_override[2]     [0x00000644] = 0x00000000
port_local_interrupt_override[3]     [0x00000648] = 0x00000000
port_local_interrupt_override[4]     [0x0000064C] = 0x00000000
misc_int_override                    [0x00000650] = 0x00000000
fatal_err_override                   [0x00000654] = 0x00000000

Remora Counts Registers (0xF8900800):
-------------------------------------
illegal_ch_num_pkt_drop_count        [0x00000800] = 0x00000000
fifo_full_mpeg_pkt_drop_count_hi     [0x00000804] = 0x00000000
fifo_full_mpeg_pkt_drop_count_lo     [0x00000808] = 0x00000000
channel_mpeg_pkt_count[0]            [0x0000080C] = 0x00000EE7
channel_mpeg_pkt_count[1]            [0x00000810] = 0x00000E8C
channel_mpeg_pkt_count[2]            [0x00000814] = 0x00000839
channel_mpeg_pkt_count[3]            [0x00000818] = 0x000009DF
channel_mpeg_pkt_count[4]            [0x0000081C] = 0x00000000
channel_mpeg_pkt_count[5]            [0x00000820] = 0x00000000
channel_mpeg_pkt_count[6]            [0x00000824] = 0x00000000
channel_mpeg_pkt_count[7]            [0x00000828] = 0x00000000
channel_mpeg_pkt_count[8]            [0x0000082C] = 0x00000000
channel_mpeg_pkt_count[9]            [0x00000830] = 0x00000000
channel_mpeg_pkt_count[10]           [0x00000834] = 0x00000000
channel_mpeg_pkt_count[11]           [0x00000838] = 0x00000000
channel_mpeg_pkt_count[12]           [0x0000083C] = 0x00000000
channel_mpeg_pkt_count[13]           [0x00000840] = 0x00000000
channel_mpeg_pkt_count[14]           [0x00000844] = 0x00000000
channel_mpeg_pkt_count[15]           [0x00000848] = 0x00000000
channel_mpeg_pkt_count[16]           [0x0000084C] = 0x00000000
channel_mpeg_pkt_count[17]           [0x00000850] = 0x00000000
channel_mpeg_pkt_count[18]           [0x00000854] = 0x00000000
channel_mpeg_pkt_count[19]           [0x00000858] = 0x00000000
port_re_timestamp_count[0]           [0x0000085C] = 0x97979796
port_re_timestamp_count[1]           [0x00000860] = 0x00000000
port_re_timestamp_count[2]           [0x00000864] = 0x00000000
port_re_timestamp_count[3]           [0x00000868] = 0x00000000
port_re_timestamp_count[4]           [0x0000086C] = 0x00000000
port_rx_fifo_overflow_drop_count[0] [0x00000870] = 0x00000000
port_rx_fifo_overflow_drop_count[1] [0x00000874] = 0x00000000
port_rx_fifo_overflow_drop_count[2] [0x00000878] = 0x00000000
port_rx_fifo_overflow_drop_count[3] [0x0000087C] = 0x00000000
port_rx_fifo_overflow_drop_count[4] [0x00000880] = 0x00000000
channel_jib_if_pkt_count[0]          [0x00000884] = 0x4AFC8612
channel_jib_if_pkt_count[1]          [0x00000888] = 0x44C96772
channel_jib_if_pkt_count[2]          [0x0000088C] = 0x42A048EA
channel_jib_if_pkt_count[3]          [0x00000890] = 0x43E61FF6
channel_jib_if_pkt_count[4]          [0x00000894] = 0x00000000
channel_jib_if_pkt_count[5]          [0x00000898] = 0x00000000
channel_jib_if_pkt_count[6]          [0x0000089C] = 0x00000000
channel_jib_if_pkt_count[7]          [0x000008A0] = 0x00000000
channel_jib_if_pkt_count[8]          [0x000008A4] = 0x00000000
channel_jib_if_pkt_count[9]          [0x000008A8] = 0x00000000
channel_jib_if_pkt_count[10]         [0x000008AC] = 0x00000000
channel_jib_if_pkt_count[11]         [0x000008B0] = 0x00000000
channel_jib_if_pkt_count[12]         [0x000008B4] = 0x00000000
```

```
channel_jib_if_pkt_count[13]        [0x000008B8] = 0x00000000
channel_jib_if_pkt_count[14]        [0x000008BC] = 0x00000000
channel_jib_if_pkt_count[15]        [0x000008C0] = 0x00000000
channel_jib_if_pkt_count[16]        [0x000008C4] = 0x00000000
channel_jib_if_pkt_count[17]        [0x000008C8] = 0x00000000
channel_jib_if_pkt_count[18]        [0x000008CC] = 0x00000000
channel_jib_if_pkt_count[19]        [0x000008D0] = 0x00000000

Remora Timestamp Registers (0xF8900900):
----------------------------------------
local_1024_ts_ctrl                  [0x00000900] = 0x00000039
local_1024_current_ts               [0x00000904] = 0xC354FFA0
local_1024_tcc_ts_latch             [0x00000908] = 0x7291125F
doc_ts_offset_ch_0_1                [0x0000090C] = 0x04AF04AF
doc_ts_offset_ch_2_3                [0x00000910] = 0x04AF04AF
doc_ts_offset_ch_4_5                [0x00000914] = 0x04F704F7
doc_ts_offset_ch_6_7                [0x00000918] = 0x04F704F7
doc_ts_offset_ch_8_9                [0x0000091C] = 0x04F704F7
doc_ts_offset_ch_10_11              [0x00000920] = 0x04F704F7
doc_ts_offset_ch_12_13              [0x00000924] = 0x04F704F7
doc_ts_offset_ch_14_15              [0x00000928] = 0x04F704F7
doc_ts_offset_ch_16_17              [0x0000092C] = 0x04F704F7
doc_ts_offset_ch_18_19              [0x00000930] = 0x04F704F7

Remora PRATE/SRATE Registers (0xF8900A00):
------------------------------------------
port_prate_regs[0].prate_ctrl       [0x00000A00] = 0x00000003
port_prate_regs[0].prate_m_prime_lo [0x00000A04] = 0x0005971E
port_prate_regs[0].prate_n_prime_lo [0x00000A08] = 0x08AA5B88
port_prate_regs[0].prate_m_prime_hi [0x00000A0C] = 0x00000000
port_prate_regs[1].prate_ctrl       [0x00000A10] = 0x00000003
port_prate_regs[1].prate_m_prime_lo [0x00000A14] = 0x00000191
port_prate_regs[1].prate_n_prime_lo [0x00000A18] = 0x00037E78
port_prate_regs[1].prate_m_prime_hi [0x00000A1C] = 0x00000000
port_prate_regs[2].prate_ctrl       [0x00000A20] = 0x00000003
port_prate_regs[2].prate_m_prime_lo [0x00000A24] = 0x00000191
port_prate_regs[2].prate_n_prime_lo [0x00000A28] = 0x00037E78
port_prate_regs[2].prate_m_prime_hi [0x00000A2C] = 0x00000000
port_prate_regs[3].prate_ctrl       [0x00000A30] = 0x00000003
port_prate_regs[3].prate_m_prime_lo [0x00000A34] = 0x00000191
port_prate_regs[3].prate_n_prime_lo [0x00000A38] = 0x00037E78
port_prate_regs[3].prate_m_prime_hi [0x00000A3C] = 0x00000000
port_prate_regs[4].prate_ctrl       [0x00000A40] = 0x00000003
port_prate_regs[4].prate_m_prime_lo [0x00000A44] = 0x00000191
port_prate_regs[4].prate_n_prime_lo [0x00000A48] = 0x00037E78
port_prate_regs[4].prate_m_prime_hi [0x00000A4C] = 0x00000000
port_srate_regs[0].srate_ctrl       [0x00000A50] = 0x00000003
port_srate_regs[0].srate_mn         [0x00000A54] = 0x004E0095
port_srate_regs[1].srate_ctrl       [0x00000A58] = 0x00000003
port_srate_regs[1].srate_mn         [0x00000A5C] = 0x0191032C
port_srate_regs[2].srate_ctrl       [0x00000A60] = 0x00000003
port_srate_regs[2].srate_mn         [0x00000A64] = 0x0191032C
port_srate_regs[3].srate_ctrl       [0x00000A68] = 0x00000003
port_srate_regs[3].srate_mn         [0x00000A6C] = 0x0191032C
port_srate_regs[4].srate_ctrl       [0x00000A70] = 0x00000003
port_srate_regs[4].srate_mn         [0x00000A74] = 0x0191032C
```

The following example shows a typical display of the **show controller integrated-cable** command and the **association** keyword:

```
Router# show controller integrated-Cable 7/1/0 association

WB Association Info for 7/1 No of WB 30
WB                    BG   Bundle  NB          NB chan  Reserved  Total
```

```
channel                 ID   num     channel     ID       CIR       CIR
Wideband-Cable7/1/0:0   1057 1       Cable7/1/0  121      0         21751500
                                     Multicast            0         21751500
Wideband-Cable7/1/3:0   1153 1       Cable7/1/3  133      0         12481000
                                     Multicast            0         12481000
```

The following example shows a typical display of the **show controller integrated-cable** command and the **brief** keyword:

```
Router# show controllers integrated-Cable 6/0/0  brief

Integrated Cable Controller 6/0/0:
----------------------------------
  Channel 1  Annex = B  Modulation = 256 QAM
  Channel 2  Annex = B  Modulation = 256 QAM
  Channel 3  Annex = B  Modulation = 256 QAM
  Channel 4  Annex = B  Modulation = 256 QAM

Jib3-DS Device Information:
---------------------------
   Jib3-DS Version = 2.2.1.8
   SW Rev ID = 0x00020002 HW Rev ID = 0x00010008
   Device Type: Coldplay
   Driver State: 3

Channel Resources:
------------------
   Total Non-bonded Channels..........= 20
   Per-Controller Non-bonded Channels = 4
   Total Bonded Channels..............= 32
   Per-Controller Bonded Channels.....= 6

Slot-Wide Resources:
--------------------
   Number of PHS Rules...........= 12K (0x3000)
   Number of BPI Table Entries...= 24K (0x6000)
   Number of Service Flows.......= 64K (0x10000)


  DS PHY Device Information:
  -------------------
    Remora Version = 3.10
    UPX SW Version = 0x10D
    Upconverter Type:Unknown
    UPX Part Number =

  Device Status:
  --------------
    UPX Alarm Status = 0x3FF
    UPX Alarm Mask   = 0x19000
```

The following example shows a typical display of the **show controller integrated-cable** command and the **bpi-entry** keyword:

```
Router# show controller integrated-cable 7/1/4 bpi-entry 3

BPI index:3 segment:0 key_no:3 said:2 key_seq:7 AES
Even  5A4B-68E8-5948-FD84-F5E2-1D28-311C-37D8
  Iv  4E33-379E-6FCF-9A8E-01CB-AC95-5B4D-AE76
 Odd  A871-76EA-1D3E-02F8-5EDA-8A8E-1F15-52E6
  Iv  6F62-765C-C9E7-DB8A-6FA5-91E8-BE41-3075
```

Example of the show controller integrated-cable Command that displays BPI key information stored on the Cisco UBR-MC20X20V line card from Cisco IOS Release 12.2(33)SCD onwards.

The following is a sample output of the **show controller integrated-cable** command with the **bpi-entry** keyword:

```
Router# show controller integrated-cable 6/0/0 bpi-entry 1

BPI Index: 1 Segment: 0
 Even Key: Valid, Odd Key: Valid
 Key Sequence Number: 1 Security Association: 0x2
 Key Type: DES
 Even Key: 1CE8-45A1-1903-E5  IV: 1513-236D-1FF7-046E
  Odd Key: 10EC-6DB2-5441-EC  IV: 07C7-1089-0E34-026B
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **wideband** keyword:

```
Router# show controller integrated-cable 7/1/4 wideband

WB                     BG    WB Host       Primary
channel                ID    Slot/Subslot  BG
Wideband-Cable7/1/4:0  1185  7/1           Yes
Wideband-Cable7/1/4:1  1186  7/1           Yes
Wideband-Cable7/1/4:2  1187  7/1           Yes
Wideband-Cable7/1/4:3  1188  7/1           Yes
Wideband-Cable7/1/4:4  1189  7/1           Yes
Wideband-Cable7/1/4:5  1190  7/1           Yes
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **config** keyword:

```
Router# show controllers integrated-Cable 6/0/0 config

Integrated Cable Controller 6/0/0:
----------------------------------
  Channel 1  Annex = B  Modulation = 256 QAM
  Channel 2  Annex = B  Modulation = 256 QAM
  Channel 3  Annex = B  Modulation = 256 QAM
  Channel 4  Annex = B  Modulation = 256 QAM

Jib3-DS Device Information:
---------------------------
   Jib3-DS Version = 2.2.1.8
   SW Rev ID = 0x00020002 HW Rev ID = 0x00010008
   Device Type: Coldplay
   Driver State: 3

Channel Resources:
------------------
   Total Non-bonded Channels..........= 20
   Per-Controller Non-bonded Channels = 4
   Total Bonded Channels..............= 32
   Per-Controller Bonded Channels.....= 6

Slot-Wide Resources:
--------------------
   Number of PHS Rules...........= 12K (0x3000)
   Number of BPI Table Entries...= 24K (0x6000)
   Number of Service Flows.......= 64K (0x10000)



Sniffer Configuration:
```

```
----------------------
Non-Bonded Channel Mask = 0x00000000
Bonded Channel Mask.....= 0x00000000
Sniff All Enable........= False

Configured Sniffer MAC Addresses:
Entry     MAC Address     Enabled
-----   ---------------   -------
0       0000.0000.0000     False
1       0000.0000.0000     False
2       0000.0000.0000     False
3       0000.0000.0000     False
4       0000.0000.0000     False
5       0000.0000.0000     False
6       0000.0000.0000     False
7       0000.0000.0000     False
8       0000.0000.0000     False
9       0000.0000.0000     False
10      0000.0000.0000     False
11      0000.0000.0000     False
12      0000.0000.0000     False
13      0000.0000.0000     False
14      0000.0000.0000     False
15      0000.0000.0000     False


Replication Table:
------------------

Replication Entry Index   Channel Mask
-----------------------   ------------
41                        0x0000000F
42                        0x0000000F
43                        0x0000000F
44                        0x0000000F



Configured Bonding Groups:
--------------------------
Bonded Channel   Channels in Bonding Group
--------------   -------------------------
00               0, 1, 2, 3


Sync Configuration:
-------------------

Channel   MAC Address      Interval
-------   --------------   --------
0         001d.70cc.0b90      10 ms
1         001d.70cc.0b90      10 ms
2         001d.70cc.0b90      10 ms
3         001d.70cc.0b90      10 ms

DS PHY Configuration of Controller 0:
---------------------
  Base Frequency = 555000000Hz
  RF-Power = 52.0dBmV
  Annex = B Modulation = 256QAM
  Channel Status Interleave
  ------- ------ ----------
     0   Active     32
     1   Active     32
```

```
    2   Active     32
    3   Active     32
  DS_PHY PLL set for Annex-B
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **counters** keyword:

```
Router# show controller integrated-Cable card 7/1 counters rf-channel

Controller  RF    MPEG       MPEG       MPEG       Sync       MAP/UCD
Chan  Packets    bps        Mbps       Packets    Packets

                  Tx                               Tx         Tx
7/1/0       0     510617849   1411052    1.411052   45424209   894786143
7/1/0       1     511430476   1415614    1.415614   45424208   894786138
7/1/0       2     510750271   1412707    1.412707   45424208   894786121
7/1/0       3     512009268   1416818    1.416818   45424207   894786108
7/1/1       0     268915155   743427     0.74347    45424206   223046013
7/1/1       1     0           0          0.0        0          0
7/1/1       2     0           0          0.0        0          0
7/1/1       3     0           0          0.0        0          0
7/1/2       0     0           0          0.0        0          0
7/1/2       1     0           0          0.0        0          0
7/1/2       2     0           0          0.0        0          0
7/1/2       3     0           0          0.0        0          0
7/1/3       0     269847377   746886     0.746886   45424206   223769698
7/1/3       1     269850587   746936     0.746936   45424205   223769696
7/1/3       2     269851105   746886     0.746886   45424204   223769690
7/1/3       3     269868256   747036     0.747036   45424199   223769663
7/1/4       0     0           0          0.0        0          0
7/1/4       1     0           0          0.0        0          0
7/1/4       2     0           0          0.0        0          0
7/1/4       3     0           0          0.0        0          0

Router# show controllers integrated-Cable 6/0/0 counters wb-channel

Controller      WB channel       Tx packets       Tx octets
6/0/0           0                881249714         466143984373
6/0/0           1                0                0
6/0/0           2                0                0
6/0/0           3                0                0
6/0/0           4                0                0
6/0/0           5                0                0
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **errors** keyword:

```
Router# show controllers integrated-Cable 6/0/0 errors

Rx SPI Error Counters:
----------------------
Non-Droppable Errors Channel 0 = 00  FIFO Pkt Drop Count Channel 0 = 00000000
Non-Droppable Errors Channel 1 = 00  FIFO Pkt Drop Count Channel 1 = 00000000
Non-Droppable Errors Channel 2 = 00  FIFO Pkt Drop Count Channel 2 = 00000000
Non-Droppable Errors Channel 3 = 00  Dropped Bytes                 = 00000000


Tx SPI Error Counters:
----------------------
DIP2 Errors              = 00        Illegal Src Pattern Errs  = 00
EOP Abort Pkts Channel 0 = 00000000  EOP Abort Bytes Channel 0 = 00000000
EOP Abort Pkts Channel 1 = 00000000  EOP Abort Bytes Channel 1 = 00000000
EOP Abort Pkts Channel 2 = 00000000  EOP Abort Bytes Channel 2 = 00000000
EOP Abort Pkts Channel 3 = 00000000  EOP Abort Bytes Channel 3 = 00000000
```

```
DOCSIS Processor Error Counters:
--------------------------------
EFC and Stats Errors = 00000000  DOCSIS Engine Errors = 00025934
PHS Errors           = 00000000  Parser Errors        = 00000000
Output Packet Errors = 00000000  Dropped Packets      = 00000000
Input Packet Errors  = 00000000  ECC Errors           = 00000000

BPI Error Counters:
-------------------
Bad Input Pkts  = 22  Single-bit ECC Errors = 0
Bad Output Pkts = 22

Queue Manager Error Counters:
-----------------------------
BPRAM Bad End of Packets..= 00000000  Bonded Map Errors.............= 00000000
BPRAM Overflows...........= 00000000  BPRAM Bad Packet Type Errors = 00000000
Directed Map Error Counts = 00000000  BPRAM ECC Errors.............= 00000000
RLDRAM ECC Errors.........= 00000000  Queue Overflows..............= 00000000

Sequencer Error Counters:
-------------------------
BlkRAM ECC Errors = 00000000

ERP Error Counters:
-------------------
Processor Bus Errored Address = 0x00000000

Return Interface Error Counters:
--------------------------------
Phys If Rx FIFO Oflow Drops = 00000000  Phys If LB FIFO Oflow Drops = 00000000
Sniffer FIFO Oflow Drops....= 00000000  Phys If Rx Parity Errors....= 00000000
Phys If Length Errors.......= 00000000  Phys If Rx FIFO ECC Errors..= 00000000
Phys If LB FIFO ECC Errors..= 00000000  Sniffer FIFO ECC Errors.....= 00000000
SPI LB FIFO ECC Errors......= 00000000


Jib3-DS (Coldplay) interrupt events
      count
 current   total    bursts  Event name
      21     25921       0  DOCSIS Processing Block: DSID Valid Error


Internal error packet buffer:
-----------------------------

IPH Header:
Packet type......... = 0x00
Flags............... = 0x00
Packet Length....... = 33015 (0x80F7)
DOCSIS Header Length = 11
Replication Index... = 0
Stats Index......... = 0x0546
Flags2.............. = 0x01040000
Service Flow........ = 0x00000000

Packet Body:
0x010500E1 0x4411C0FA 0x00895500 0x118072C7
0x6A001D70 0xCC0BE208 0x0045B800 0xCA000000
0x003F1121 0x42AC2200 0x63AC2200 0x82C004C0
0x0200B600 0x008000F1 0x318FF541 0x1BA16AE2
0xB303AF17 0x1652643F 0x4498F48E 0xE278F16B
0x167521EC 0x3CBF34DD 0xDCBEA10E 0x0B5AA70C
0xE6B9B77F 0x8E3590ED 0x4EC9388A 0x9B886A51
```

```
Internal magic number error packet buffer:
----------------------------------------
No magic number errored packet available
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **fpga_version** keyword:

```
Router# show controllers integrated-Cable 7/0/0 fpga_version

2020 CARD FPGA VERSION

CORABI FPGA               :  0.53
SPARROW FPGA              :  0.309
WAXBILL FPGA              :  1.7D
COLDPLAY FPGA             :  2.2.1.D
REMORA FPGA               :  0.1.0.14
FAUNA FPGA                :  0.8.0.3
FLORA FPGA                :  0.6.0.7
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **iofpga** keyword:

```
Router# show controllers integrated-Cable 7/0/0 iofpga

SPARROW PHY IOFPGA Registers - Address 0xF8800000:
    OFFSET    REGISTER                          VALUE
      0x00    Revision                          0x00000309
      0x08    DS RF Control                     0x80000003
      0x0C    FFT Process Low                   0x80007006
      0x1C    DCM Lock status                   0x00077411
      0x20    UPX SPI Control                   0x00000000
      0x24    UPX SPI Respond                   0x00000703
      0xB0    BCM 3140 SPI Start                0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
      0xC4    BCM 3140 SPI Done                 0x00000000 0x00000000 0x00000000 0x00000000
0x00000000
      0xD8    BCM3140 Reset                     0x000003FF
      0x100   FATAL Interrupt                   0x00002000
      0x104   FATAL Interrupt Enable            0x001FD8FF
      0x108   HIGH Priority Interrupt           0x00000000
      0x10C   HIGH Priority Interrupt Enable    0x00000000
      0x110   Low Priority Interrupt            0x00100000
      0x114   Low Priority Interrupt Enable     0x03E03C00
      0x118   CPU LB Data Parity Error          0x00000000
      0x200   Fauna ERP Interrupt Status        0x00000000
      0x204   Flora ERP Interrupt Status        0x00000000
      0x208   Coldplay ERP Interrupt Status     0x00000000
      0x20C   Remora ERP Interrupt Status       0x00000000
      0x210   VGA SPI RF Channel Selection      0x00000000
      0x214   VGA SPI RW Gain                   0x0000009E
      0x218   VGA SPI Write Gain(raven)         0x00000000
      0x220   VGA Enable                        0x000FFFFF
      0x300   Fauna Reset                       0x00000003
      0x304   Flora Reset                       0x00000003
      0x308   Coldplay Reset                    0x00000003
      0x30C   Remora Reset                      0x00000007
      0x310   Upstream LED                      0x00003C00
      0x380   Downstream Density License LED    0x00000000
** Sparrow PHY I/O FPGA counters ****
Spurious FFT Interrupts: 0        Spurious FFT CHIP ID: 0        FFT RDY CLEAR Err: 0
FFT Data Ready: 2A6
UPX:  SPI 0        Non-fatal 0        Boot OK 3
BCM3140: SPIA 0        SPIB 0        SPIC 0        SPID 0        SPIE 0
```

```
Non fatal US JIB Flora:    1         US JIB Fauna: 1
Non fatal DS JIB Coldplay: 1

Non fatal Remora FPGA:  1

US Port (BCM3140 channels):
0: 0       1: 0       2: 0       3: 0
4: 0       5: 0       6: 0       7: 0
8: 0       9: 0       10: 0       11: 0
12: 0       13: 0       14: 0       15: 0
16: 0       17: 0       18: 0       19: 0
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **mapping** keyword:

```
Router# show controllers integrated-Cable 6/0/0 mapping rf-channel

Ctrlr    RF       MC          MC Rem.     WB          WB          WB Rem.
         channel  BW %        Ratio       channel     BW %        Ratio
6/0/0    0        33          1           6/0/0:0      63         1
6/0/0    1        33          1           6/0/0:0      63         1
6/0/0    2        33          1           6/0/0:0      63         1
6/0/0    3        33          1           6/0/0:0      63         1

Router# show controllers integrated-Cable 6/0/0 mapping wb-channel
Load for five secs: 18%/1%; one minute: 11%; five minutes: 13%
Time source is NTP, *15:07:17.566 EDT Sun Mar 21 2010
Ctrlr    WB       RF          BW %        Remaining
         channel  channel                  Ratio
6/0/0    0        6/0/0:0      63         1
                  6/0/0:1      63         1
                  6/0/0:2      63         1
                  6/0/0:3      63         1
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **registers** keyword:

```
Router# show controllers integrated-Cable 6/0/0 registers

JIB3_DS BPI registers (base address 0xF8880000)

bpi_int_isr_0                       [0x00000000] = 0x00000000
bpi_int_ier_0                       [0x00000004] = 0x0000000F
glb_int_isr_0                       [0x00000010] = 0x00000000
glb_int_ier_0                       [0x00000014] = 0x000003FF
glb_int_isr_1                       [0x00000020] = 0x00000000
glb_int_ier_1                       [0x00000024] = 0x000003FF
bpi_int_fesr_0                      [0x00000040] = 0x00000000
bpi_tst_tp_sel_reg                  [0x00000050] = 0x00000000
bpi_tst_tp_reg                      [0x00000054] = 0x00000000
bpi_cnt_good_packet_in_cnt          [0x00000064] = 0x00045B37
bpi_cnt_bad_packet_in_cnt           [0x00000068] = 0x0000000D
bpi_cnt_good_packet_out_cnt         [0x0000006C] = 0x00045B37
bpi_cnt_bad_packet_out_cnt          [0x00000070] = 0x0000000D
bpi_ecc_sbit_err_cnt                [0x00000074] = 0x00000000
glb_sw_rev_id                       [0x00000078] = 0x00020002
glb_hw_rev_id                       [0x0000007C] = 0x00010008
frz_reg                             [0x00000080] = 0x00000000
frz_en                              [0x00000084] = 0x00000001
glb_dcm_status                      [0x00000088] = 0x00000007
glb_sw_rst                          [0x0000008C] = 0x00000000

JIB3_DS ERP registers (base address 0xF8881000)
```

```
erp_irq_src_reg                     [0x00000000] = 0x00000000
erp_irq_en_reg                      [0x00000004] = 0x80000FFF
erp_tp_sel_reg                      [0x00000050] = 0x00000000
erp_tp_reg                          [0x00000054] = 0x00000000
erp_cfg_reg                         [0x00000060] = 0x00000000
erp_err_record_reg                  [0x00000064] = 0x00000000
erp_err_addr_record_reg             [0x00000068] = 0x00000000
erp_err_wd_record_reg               [0x0000006C] = 0x00000000
erp_proc_err_addr_record_reg        [0x00000090] = 0x00000000

JIB3_DS RX SPI registers (base address 0xF8882000)

rxspi_irq_src_reg                   [0x00000000] = 0x00000000
rxspi_irq_en_reg                    [0x00000004] = 0x000001FF
rxspi_ferr_src_reg                  [0x00000040] = 0x00000000
rxspi_testpoint_sel_reg             [0x00000050] = 0x00000000
rxspi_testpoint_reg                 [0x00000054] = 0x00000000
rxspi_rst_cntl_reg                  [0x00000060] = 0x00000000
rxspi_cntl_status_reg               [0x00000064] = 0x00000005
rxspi_cfg_cntl_reg                  [0x00000068] = 0x00000021
rxspi_afthres_reg                   [0x0000006C] = 0x01C00180
rxspi_cal_dur_reg                   [0x00000070] = 0x00030000
rxspi_non_drop_err_cnt_reg          [0x00000088] = 0x00000000
rxspi_drop_byte_cnt_reg             [0x0000008C] = 0x00000000
rxspi_rx_byte_cnt_reg[0]            [0x000000B0] = 0x01A499EF
rxspi_rx_byte_cnt_reg[1]            [0x000000B4] = 0x00CF4ED0
rxspi_rx_byte_cnt_reg[2]            [0x000000B8] = 0x0001F030
rxspi_rx_pkt_cnt_reg[0]             [0x000000C0] = 0x0001D242
rxspi_rx_pkt_cnt_reg[1]             [0x000000C4] = 0x0002828C
rxspi_rx_pkt_cnt_reg[2]             [0x000000C8] = 0x00000684
rxspi_fifo_pkt_drop_cnt_reg[0]      [0x000000E0] = 0x00000000
rxspi_fifo_pkt_drop_cnt_reg[1]      [0x000000E4] = 0x00000000
rxspi_fifo_pkt_drop_cnt_reg[2]      [0x000000E8] = 0x00000000
rxspi_calendar_table_reg[0]         [0x00000800] = 0x00000000
rxspi_calendar_table_reg[1]         [0x00000804] = 0x00000001
rxspi_calendar_table_reg[2]         [0x00000808] = 0x00000002
rxspi_calendar_table_reg[3]         [0x0000080C] = 0x00000003

JIB3_DS TX SPI registers (base address 0xF8883000)

txspi_irq_src_reg                   [0x00000000] = 0x00000000
txspi_irq_en_reg                    [0x00000004] = 0x0000001F
txspi_ferr_src_reg                  [0x00000040] = 0x00000000
txspi_testpoint_sel_reg             [0x00000050] = 0x00000000
txspi_testpoint_reg                 [0x00000054] = 0x00000000
txspi_rst_cntl_reg                  [0x00000060] = 0x00000000
txspi_cntl_status_reg               [0x00000064] = 0x00000009
txspi_cfg_cntl_reg                  [0x00000068] = 0x00000001
txspi_afthres_reg                   [0x0000006C] = 0x01EC01E8
txspi_cal_dur_reg                   [0x00000070] = 0x00040000
txspi_train_cntl_reg                [0x00000074] = 0x00000000
txspi_nonfatalerr_cnt_reg           [0x00000080] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[0]      [0x00000090] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[1]      [0x00000094] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[2]      [0x00000098] = 0x00000000
txspi_eop_abort_pkt_cnt_reg[3]      [0x0000009C] = 0x00000000
txspi_eop_abort_byte_cnt_reg[0]     [0x000000A0] = 0x00000000
txspi_eop_abort_byte_cnt_reg[1]     [0x000000A4] = 0x00000000
txspi_eop_abort_byte_cnt_reg[2]     [0x000000A8] = 0x00000000
txspi_eop_abort_byte_cnt_reg[3]     [0x000000AC] = 0x00000000
txspi_tx_byte_cnt_reg[0]            [0x000000C0] = 0x00000000
txspi_tx_byte_cnt_reg[1]            [0x000000C4] = 0x00000000
txspi_tx_byte_cnt_reg[2]            [0x000000C8] = 0x00000000
```

```
txspi_tx_byte_cnt_reg[3]            [0x000000CC] = 0x00000000
txspi_tx_pkt_cnt_reg[0]             [0x00000100] = 0x00000000
txspi_tx_pkt_cnt_reg[1]             [0x00000104] = 0x00000000
txspi_tx_pkt_cnt_reg[2]             [0x00000108] = 0x00000000
txspi_tx_pkt_cnt_reg[3]             [0x0000010C] = 0x00000000
txspi_calendar_table_reg[0]         [0x00000800] = 0x00000000
txspi_calendar_table_reg[1]         [0x00000804] = 0x00000001
txspi_calendar_table_reg[2]         [0x00000808] = 0x00000002
txspi_calendar_table_reg[3]         [0x0000080C] = 0x00000003
txspi_calendar_table_reg[4]         [0x00000810] = 0x00000004

JIB3_DS DOC registers (base address 0xF8884000)

doc_int_err0                        [0x00000000] = 0x00000000
doc_int_err0_ier                    [0x00000004] = 0xFFBFBFFD
doc_int_err1                        [0x00000010] = 0x00000000
doc_int_err1_ier                    [0x00000014] = 0x003FFFF8
doc_int_fesr                        [0x00000040] = 0x00000000
doc_test_sel                        [0x00000050] = 0x00000000
doc_testpoint                       [0x00000054] = 0x00000000
doc_cfg_ctrl                        [0x00000060] = 0x031A0000
doc_err_cap_ctrl                    [0x00000064] = 0x001F0001
doc_err_cap_addr                    [0x00000068] = 0x00000020
doc_err_cap_data                    [0x0000006C] = 0x000080F7
doc_seg_num                         [0x00000070] = 0x00000001
doc_wb_chan_stats_sel               [0x00000074] = 0x00000077
doc_wb_pkt_cnt                      [0x00000078] = 0x00000000
doc_wb_byte_cnt                     [0x0000007C] = 0x00000000
doc_wb_police_sel                   [0x00000080] = 0x00000001
doc_wb_police_data                  [0x00000084] = 0x00000000
doc_wb_police_intv                  [0x00000088] = 0x00000000
doc_nb_chan_stats_sel               [0x0000008C] = 0x0000004C
doc_nb_pkt_cnt                      [0x00000090] = 0x00000000
doc_nb_byte_cnt                     [0x00000094] = 0x00000000
doc_nb_police_sel                   [0x00000098] = 0x00000001
doc_nb_police_data                  [0x0000009C] = 0x00000000
doc_nb_police_intv                  [0x000000A0] = 0x00000000
doc_int_doc_cnt                     [0x000000D4] = 0x00000000
doc_int_ecc_sbiterr_cnt             [0x000000D8] = 0x00000000
doc_pkt_good_in_cnt                 [0x000000DC] = 0x00045B5C
doc_pkt_good_out_cnt                [0x000000E0] = 0x00045B39
doc_pkt_err_in_cnt                  [0x000000E4] = 0x00000000
doc_pkt_err_out_cnt                 [0x000000E8] = 0x00000023
doc_pkt_drop_cnt                    [0x000000EC] = 0x00000000
doc_efc_all_cnt                     [0x000000F0] = 0x00000000
doc_efc_hi_cnt                      [0x000000F4] = 0x00000000
doc_efc_me_cnt                      [0x000000F8] = 0x00000000
doc_efc_lo_cnt                      [0x000000FC] = 0x00000000
doc_efc_ch_sel                      [0x00000100] = 0x00000000
doc_efc_debug_ctrl                  [0x00000104] = 0x00000000
doc_rldram_ext_ecc                  [0x00000114] = 0x00000000
doc_rldram_cfg                      [0x00000118] = 0x00101544
doc_rldram_ctrl                     [0x0000011C] = 0x00100389
doc_rldram_status                   [0x00000120] = 0x039D7403
doc_rldram_blk_clr                  [0x00000124] = 0x0B7FFFFF
doc_rldram_cal_match_win_h          [0x00000128] = 0x00000000
doc_rldram_cal_match_win_l          [0x0000012C] = 0x1FFFFFFF
doc_rldram_ecc_err_rec_addr         [0x00000130] = 0x00000000
doc_magic_num_err_pkt_ctrl          [0x00000150] = 0x00000000
doc_magic_num_err_pkt_addr          [0x00000154] = 0x00000001
doc_magic_num_err_pkt_data          [0x00000158] = 0x00000000

JIB3_DS RIF registers (base address 0xF8885000)
```

```
rif_int_err0                          [0x00000000] = 0x00000000
rif_int_ier0                          [0x00000004] = 0x00000007
rif_int_fesr0                         [0x00000040] = 0x00000000
rif_tp_sel                            [0x00000050] = 0x00000000
rif_tp                                [0x00000054] = 0x00000000
rif_cfg_ctrl                          [0x00000060] = 0x00000000
rif_cnt_in_mpeg_cnt                   [0x00000064] = 0x000A6226
rif_cnt_out_good_mpeg_cnt             [0x00000068] = 0x000A6226
rif_cnt_out_bad_mpeg_cnt              [0x0000006C] = 0x00000000
rif_cnt_drop_mpeg_cnt                 [0x00000070] = 0x00000000
rif_1bit_ecc_err_stat                 [0x00000074] = 0x00000000

JIB3_DS RTN registers (base address 0xF8886000)

return_int_isr                        [0x00000000] = 0x00000000
return_int_ier                        [0x00000004] = 0x000001FF
return_int_fesr                       [0x00000040] = 0x00000000
return_tp_sel                         [0x00000050] = 0x00000000
return_tp                             [0x00000054] = 0x00000000
return_ctrl_reg                       [0x00000060] = 0x00000000
return_pif_loopback_chnl              [0x00000064] = 0x00000000
return_sniffer_nonbonded_en           [0x00000068] = 0x00000000
return_sniffer_bonded_en              [0x0000006C] = 0x00000000
return_spi_chnl_sel                   [0x00000070] = 0x0000013A
return_err_drop_en                    [0x00000074] = 0x0000000F
return_snf_macda_cfg_addr             [0x00000078] = 0x0000000F
return_snf_macda_cfg_data_hi          [0x0000007C] = 0x00000000
return_snf_macda_cfg_data_lo          [0x00000080] = 0x00000000
return_in_pifrx_good_cnt              [0x000000A0] = 0x00000000
return_in_pifrx_bad_cnt               [0x000000A4] = 0x00000000
return_in_piflp_good_cnt              [0x000000A8] = 0x000A6224
return_in_piflp_bad_cnt               [0x000000AC] = 0x00000000
return_in_sniffer_good_cnt            [0x000000B0] = 0x00045B3A
return_in_sniffer_bad_cnt             [0x000000B4] = 0x00000023
return_in_spi_loop_good_cnt           [0x000000B8] = 0x00000000
return_in_spi_loop_bad_cnt            [0x000000BC] = 0x00000000
return_out_spi0_cnt                   [0x000000C0] = 0x00000000
return_out_spi1_cnt                   [0x000000C4] = 0x00000000
return_out_spi2_cnt                   [0x000000C8] = 0x00000000
return_out_spi3_cnt                   [0x000000CC] = 0x00000000
return_out_spi4_cnt                   [0x000000D0] = 0x00000000
return_pifrx_if_par_err_drop_cnt      [0x000000D4] = 0x00000000
return_pifrx_if_len_err_drop_cnt      [0x000000D8] = 0x00000000
return_piflp_if_err_drop_cnt          [0x000000DC] = 0x00000000
return_piflp_if_chnl_drop_cnt         [0x000000E0] = 0x00000000
return_snf_pb_err_drop_cnt            [0x000000E4] = 0x00000023
return_snf_pkt_type_err_drop_cnt      [0x000000E8] = 0x00045B3A
return_spilp_if_err_drop_cnt          [0x000000EC] = 0x00000000
return_pifrx_traffic_mux_drop_cnt     [0x000000F0] = 0x00000000
return_piflp_traffic_mux_drop_cnt     [0x000000F4] = 0x00000000
return_snf_traffic_mux_drop_cnt       [0x000000F8] = 0x00000000
return_spilp_traffic_mux_drop_cnt     [0x000000FC] = 0x00000000
return_pifrx_fifo_overflow_drop_cnt   [0x00000100] = 0x00000000
return_piflp_fifo_overflow_drop_cnt   [0x00000104] = 0x00000000
return_snf_fifo_overflow_drop_cnt     [0x00000108] = 0x00000000
return_spilp_fifo_overflow_drop_cnt   [0x0000010C] = 0x00000000
return_pifrx_if_par_err_cnt           [0x00000110] = 0x00000000
return_pifrx_if_len_err_cnt           [0x00000114] = 0x00000000
return_pifrx_fifo_ecc_1berr_cnt       [0x00000118] = 0x00000000
return_piflp_fifo_ecc_1berr_cnt       [0x0000011C] = 0x00000000
return_snf_fifo_ecc_1berr_cnt         [0x00000120] = 0x00000000
return_spilp_fifo_ecc_1berr_cnt       [0x00000124] = 0x00000000

JIB3_DS DLM registers (base address 0xF8890000)
```

```
dlm_int_isr_0                          [0x00000000] = 0x00000004
dlm_int_ier_0                          [0x00000004] = 0x00000000
dlm_cnt_local_ts_reg                   [0x00000064] = 0x8D7DF4CD
dlm_cfg_tss_comp_reg                   [0x00000068] = 0x00000027
dlm_cfg_tss_ctrl_reg                   [0x0000006C] = 0x00000000
dlm_cfg_tss_cmd_reg                    [0x00000070] = 0x00000000
dlm_cnt_ts_load_cnt                    [0x000000BC] = 0x00000000
dlm_cnt_ts_chk_failed_cnt              [0x000000C4] = 0x00000000
dlm_cnt_tss_perr_cnt                   [0x000000C8] = 0x00000000
dlm_cnt_load_ts_reg                    [0x000000D0] = 0x003F52EF

JIB3_DS SEQ registers (base address 0xF8892000)

seq_int_err0                           [0x00000000] = 0x0000000F
seq_int_ier0                           [0x00000004] = 0x000FFFFF
seq_int_err3                           [0x00000030] = 0x00000000
seq_int_ier3                           [0x00000034] = 0x00000001
seq_int_fatal_err                      [0x00000040] = 0x00000000
seq_tp_sel                             [0x00000050] = 0x00000000
seq_tp                                 [0x00000054] = 0x00000000
seq_cfg_en                             [0x00000060] = 0x00000001
seq_cfg_sync_timer_sel                 [0x00000064] = 0x00000014
seq_cfg_sync_timer_data                [0x00000068] = 0x00000000
seq_cfg_sync_sa_sel                    [0x0000006C] = 0x00000014
seq_cfg_sync_sa_data_lo                [0x00000070] = 0x00000000
seq_cfg_sync_sa_data_hi                [0x00000074] = 0x00000000
seq_cfg_tkb_timer_sel                  [0x00000078] = 0x00000015
seq_cfg_tkb_timer_data                 [0x0000007C] = 0x00000000
seq_cfg_tkb_max                        [0x00000080] = 0x00000000
seq_hwdbg_dpv_proc_table_addr          [0x00000090] = 0x00000001
seq_hwdbg_dpv_ptr_mod_table            [0x00000094] = 0x00000000
seq_hwdbg_dpv_timestamp_table          [0x00000098] = 0x00000000
seq_hwdbg_dpv_hcs_table                [0x0000009C] = 0x00000000
seq_cnt_blkram_oecc_err_stat           [0x000000A4] = 0x00000000
seq_cnt_tran_mpeg_stat                 [0x000000A8] = 0x000A6224
seq_cnt_tran_mpeg_sync_stat            [0x000000AC] = 0x00000000
seq_cnt_tran_only_sync_stat            [0x000000B0] = 0x00000000
seq_cnt_tran_dpv_stat                  [0x000000B8] = 0x00000000

JIB3_DS QM registers (base address 0xF8893000)

qm_int_isr0                            [0x00000000] = 0x00000000
qm_int_ier0                            [0x00000004] = 0x0000007F
qm_int_isr1                            [0x00000010] = 0x00000000
qm_int_ier1                            [0x00000014] = 0x000FFFFF
qm_int_fat_err_isr                     [0x00000040] = 0x00000000
qm_tst_tp_sel                          [0x00000050] = 0x00000000
qm_tst_tp                              [0x00000054] = 0x00000000
qm_cfg_chnl_rst_0                      [0x00000060] = 0x00000000
qm_cfg_ctl                             [0x0000006C] = 0x00000011
qm_cfg_sqf_fac_addr                    [0x0000008C] = 0x00000015
qm_cfg_sqf_fac_data                    [0x00000090] = 0x00000000
qm_cfg_bond_chnl_map_addr              [0x00000094] = 0x00000020
qm_cfg_bond_chnl_map_data_lo           [0x00000098] = 0x00000000
qm_cfg_flt_thr_addr                    [0x000000A4] = 0x00000250
qm_cfg_flt_thr_data                    [0x000000A8] = 0x00000000
qm_cfg_repl_addr                       [0x000000AC] = 0x00000000
qm_cfg_repl_data_lo                    [0x000000B0] = 0x00000000
qm_hwdbg_buf_mag_addr                  [0x000000BC] = 0x00000001
qm_hwdbg_wptr_data_lo                  [0x000000C0] = 0x00014F60
qm_hwdbg_wptr_data_mi                  [0x000000C4] = 0x000033A0
qm_hwdbg_wptr_data_hi                  [0x000000C8] = 0x00000AA0
qm_hwdbg_rptr_data_lo                  [0x000000CC] = 0x00014F60
```

```
qm_hwdbg_rptr_data_mi                [0x000000D0] = 0x000033A0
qm_hwdbg_rptr_data_hi                [0x000000D4] = 0x00000AA0
qm_hwdbg_qulen_data_lo               [0x000000D8] = 0x00000000
qm_hwdbg_qulen_data_mi               [0x000000DC] = 0x000000E7
qm_hwdbg_qulen_data_hi               [0x000000E0] = 0x00000000
qm_hwdbg_contex_data                 [0x000000E4] = 0x00000000
qm_cfg_dir_stat_addr                 [0x000000E8] = 0x0000004E
qm_cnt_dir_pkt_stat                  [0x000000EC] = 0x00000000
qm_cnt_dir_byte_stat                 [0x000000F0] = 0x00000000
qm_cfg_qam_stat_addr                 [0x000000F4] = 0x0000004C
qm_cnt_qam_chnl_pkt_stat             [0x000000F8] = 0x00000000
qm_cnt_qam_chnl_byte_stat            [0x000000FC] = 0x00000000
qm_cnt_qam_chnl_sync_stat            [0x00000100] = 0x00000000
qm_cnt_bpram_ovrflw_stat             [0x00000108] = 0x00000000
qm_cnt_que_ovrflw_stat               [0x0000010C] = 0x00000000
qm_cnt_good_bpi_pkt_stat             [0x00000110] = 0x00045B3C
qm_cnt_bad_bpi_pkt_stat              [0x00000114] = 0x0000000D
qm_cnt_bpram_out_good_pkt_stat       [0x0000011C] = 0x000BD95D
qm_cnt_bpram_out_dir_pkt_stat        [0x00000120] = 0x00028918
qm_cnt_bpram_out_bonded_pkt_stat     [0x00000124] = 0x00000029
qm_cnt_replicated_pkt_stat           [0x00000128] = 0x000A0738
qm_cnt_bpram_bad_type_pkt_stat       [0x00000134] = 0x00000000
qm_cnt_bpram_bad_eop_pkt_stat        [0x00000138] = 0x00000000
qm_cnt_bpram_bad_dir_pkt_stat        [0x0000013C] = 0x00000000
qm_cnt_bpram_bad_bonded_pkt_stat     [0x00000140] = 0x00000000
qm_cnt_bpram_oecc_err_pkt_stat       [0x00000144] = 0x00000000
qm_cnt_bpram_bad_pkt_stat            [0x00000148] = 0x0000000D
qm_cnt_wr_good_pkt_stat              [0x0000014C] = 0x000BD95D
qm_cnt_wr_bad_pkt_stat               [0x00000150] = 0x00000000
qm_cnt_drop_bad_pkt_stat             [0x00000154] = 0x0000000D
qm_cnt_drop_ovrflw_pkt_stat          [0x00000158] = 0x00000000
qm_cnt_rd_pkt_stat                   [0x0000015C] = 0x000BD933
qm_cnt_rd_mpeg_stat                  [0x00000160] = 0x000A6226
qm_cnt_rd_mpeg_sync_stat             [0x00000164] = 0x00008140
qm_cnt_rd_mpeg_only_sync_stat        [0x00000168] = 0x00007E93
qm_cnt_tran_pkt_stat                 [0x00000170] = 0x000BD95E
qm_cnt_tran_oecc_err_pkt_stat        [0x00000174] = 0x00000000
qm_cnt_tran_mpeg_stat                [0x00000178] = 0x000A6226
qm_cnt_tran_mpeg_sync_stat           [0x0000017C] = 0x00008140
qm_cnt_tran_mpeg_only_sync_stat      [0x00000180] = 0x00007E93
qm_cnt_tran_dpv_stat                 [0x00000188] = 0x00000000
qm_rldram_ext_ecc                    [0x00000198] = 0x00000000
qm_rldram_cfg                        [0x0000019C] = 0x00101544
qm_rldram_ctrl                       [0x000001A0] = 0x00100389
qm_rldram_status                     [0x000001A4] = 0x03DF7C03
qm_rldram_cal_match_win_h            [0x000001A8] = 0x00000000
qm_rldram_cal_match_win_l            [0x000001AC] = 0x7FFFFFFF

JIB3_DS PG registers (base address 0xF8898000)

pg_mod                               [0x00000050] = 0x00000000
pg_dhs                               [0x00000054] = 0x00000000
pg_ipg                               [0x0000005C] = 0x00000000
pg_num                               [0x00000058] = 0x00000000
pg_payload_length                    [0x00000060] = 0x00000000
pg_payload_value                     [0x00000064] = 0x00000000
pg_pkt_hdr_prog_0                    [0x00000068] = 0x00000000
pg_pkt_hdr_prog_1                    [0x0000006C] = 0x00000000
pg_pkt_hdr_1                         [0x00000070] = 0x00000000
pg_pkt_hdr_2                         [0x00000074] = 0x00000000
pg_pkt_hdr_3                         [0x00000078] = 0x00000000
pg_pkt_hdr_4                         [0x0000007C] = 0x00000000
pg_pkt_hdr_5                         [0x00000080] = 0x00000000
pg_pkt_hdr_6                         [0x00000084] = 0x00000000
```

```
JIB3_DS PMBIST registers (base address 0xF8899000)

pmbist_ena_addr                     [0x00000060] = 0x00000002
pmbist_din_addr                     [0x00000064] = 0x00000000
pmbist_dout_addr                    [0x0000006C] = 0x00008101
pmbist_trgt_select_addr             [0x00000074] = 0x00000000
pmbist_ff_status                    [0x00000078] = 0x00000000
pmbist_num_wr_fr_pmbist             [0x0000007C] = 0x00000000
pmbist_num_rd_fr_pmbist             [0x00000080] = 0x00000000
pmbist_um_wr_2cmd_ff                [0x00000084] = 0x00000000
pmbist_num_rd_2cmd_ff               [0x00000088] = 0x00000000
pmbist_num_rd_rtn_pmbist            [0x0000008C] = 0x00000000
pmbist_num_wr_2dram                 [0x00000090] = 0x00000000
pmbist_num_rd_2dram                 [0x00000094] = 0x00000000
pmbist_num_rd_fr_dram               [0x00000098] = 0x00000000

Remora registers (base address 0xF8900000)
------------------------------------------


Remora General Registers (0xF8900000):
--------------------------------------
revision                            [0x00000000] = 0x00000003
hw_fpga_rev_id                      [0x00000004] = 0x0000000A
erp_scratch_pad0                    [0x00000008] = 0x00000000
erp_scratch_pad1                    [0x0000000C] = 0x00000000

Remora Reset and DCM Lock Registers (0xF8900100):
-------------------------------------------------
reset_ctrl                          [0x00000100] = 0x00000000
dcm_lock                            [0x00000104] = 0x0000000F

Remora Configuration Registers (0xF8900200):
--------------------------------------------
port_cfg[0]                         [0x00000200] = 0x00155549
port_cfg[1]                         [0x00000204] = 0x00155548
port_cfg[2]                         [0x00000208] = 0x00155548
port_cfg[3]                         [0x0000020C] = 0x00155548
port_cfg[4]                         [0x00000210] = 0x00155548
core_config_status                  [0x00000214] = 0x00000020
port_rm2tififo_prog_flags[0]        [0x00000218] = 0xBBA20C0D
port_rm2tififo_prog_flags[1]        [0x0000021C] = 0xBBA20C0D
port_rm2tififo_prog_flags[2]        [0x00000220] = 0xBBA20C0D
port_rm2tififo_prog_flags[3]        [0x00000224] = 0xBBA20C0D
port_rm2tififo_prog_flags[4]        [0x00000228] = 0xBBA20C0D

Remora DFT/Pattern Inject Registers (0xF8900300):
-------------------------------------------------
alt_sym_tst_mode                    [0x00000300] = 0x00005A69
alt_sym_tst_en_reg                  [0x00000304] = 0x00000000
qdr_mem_test_en_reg                 [0x00000308] = 0x00000000
qdr_mem_test_rd_wr_reg              [0x0000030C] = 0x00000A12
ready_for_data_input                [0x00000318] = 0x0000001F

Remora ECC Registers (0xF8900400):
----------------------------------
debug_cfg                           [0x00000400] = 0x00000000
sniff_frame_cnt                     [0x00000404] = 0x00000000
ecc_parity_conf_reg                 [0x00000408] = 0x00000003
ecc_uncorrect_data_log_reg          [0x0000040C] = 0x00002814
ecc_uncorrect_log_reg               [0x00000410] = 0x00000020
ecc_correctable_data_log_reg        [0x00000414] = 0x00002C14
ecc_correctable_log_reg             [0x00000418] = 0x00000028
```

```
qdr_ecc_corr_cnt_reg                [0x0000041C] = 0x00000000
fatal_err_log                       [0x00000420] = 0x00000000
err_inj_reg                         [0x00000424] = 0x00000000

Remora QDR Registers (0xF8900500):
----------------------------------
qdr_phy_idelayctrl_rst_reg          [0x00000500] = 0x00000000
qdr_phy_idelayctrl_rdy_err_reg      [0x00000504] = 0x00000261
qdr_phy_cal_tap_dly_reg             [0x00000508] = 0x00000ADB
qdr_phy_idelayctrl_ctrl_reg         [0x0000050C] = 0x00000002
qdr_init_ctrl_reg                   [0x00000510] = 0x801FFFFF

Remora Interrupt Status Registers (0xF8900600):
-----------------------------------------------
glb_int_stat_reg                    [0x00000600] = 0x00000000
int_stat_gr_reg[0]                  [0x00000604] = 0x00000000
int_stat_gr_reg[1]                  [0x00000608] = 0x00000000
int_stat_gr_reg[2]                  [0x0000060C] = 0x00000000
int_stat_gr_reg[3]                  [0x00000610] = 0x00000000
int_stat_gr_reg[4]                  [0x00000614] = 0x00000000
misc_int_stat_reg                   [0x00000618] = 0x00000001
fatal_err_src_reg                   [0x0000061C] = 0x00000000
port_local_interrupt_enable[0]      [0x00000620] = 0x0001FFFF
port_local_interrupt_enable[1]      [0x00000624] = 0x0001FFFF
port_local_interrupt_enable[2]      [0x00000628] = 0x0001FFFF
port_local_interrupt_enable[3]      [0x0000062C] = 0x0001FFFF
port_local_interrupt_enable[4]      [0x00000630] = 0x0001FFFF
misc_int_en_reg                     [0x00000634] = 0x00001FF8
fatal_err_en_reg                    [0x00000638] = 0x00000EFF
port_local_interrupt_override[0]    [0x0000063C] = 0x00000000
port_local_interrupt_override[1]    [0x00000640] = 0x00000000
port_local_interrupt_override[2]    [0x00000644] = 0x00000000
port_local_interrupt_override[3]    [0x00000648] = 0x00000000
port_local_interrupt_override[4]    [0x0000064C] = 0x00000000
misc_int_override                   [0x00000650] = 0x00000000
fatal_err_override                  [0x00000654] = 0x00000000

Remora Counts Registers (0xF8900800):
-------------------------------------
illegal_ch_num_pkt_drop_count       [0x00000800] = 0x00000000
fifo_full_mpeg_pkt_drop_count_hi    [0x00000804] = 0x00000000
fifo_full_mpeg_pkt_drop_count_lo    [0x00000808] = 0x00000000
channel_mpeg_pkt_count[0]           [0x0000080C] = 0x00001118
channel_mpeg_pkt_count[1]           [0x00000810] = 0x0000106B
channel_mpeg_pkt_count[2]           [0x00000814] = 0x00000913
channel_mpeg_pkt_count[3]           [0x00000818] = 0x00000A6D
channel_mpeg_pkt_count[4]           [0x0000081C] = 0x00000000
channel_mpeg_pkt_count[5]           [0x00000820] = 0x00000000
channel_mpeg_pkt_count[6]           [0x00000824] = 0x00000000
channel_mpeg_pkt_count[7]           [0x00000828] = 0x00000000
channel_mpeg_pkt_count[8]           [0x0000082C] = 0x00000000
channel_mpeg_pkt_count[9]           [0x00000830] = 0x00000000
channel_mpeg_pkt_count[10]          [0x00000834] = 0x00000000
channel_mpeg_pkt_count[11]          [0x00000838] = 0x00000000
channel_mpeg_pkt_count[12]          [0x0000083C] = 0x00000000
channel_mpeg_pkt_count[13]          [0x00000840] = 0x00000000
channel_mpeg_pkt_count[14]          [0x00000844] = 0x00000000
channel_mpeg_pkt_count[15]          [0x00000848] = 0x00000000
channel_mpeg_pkt_count[16]          [0x0000084C] = 0x00000000
channel_mpeg_pkt_count[17]          [0x00000850] = 0x00000000
channel_mpeg_pkt_count[18]          [0x00000854] = 0x00000000
channel_mpeg_pkt_count[19]          [0x00000858] = 0x00000000
port_re_timestamp_count[0]          [0x0000085C] = 0xA6A5A6A6
port_re_timestamp_count[1]          [0x00000860] = 0x00000000
```

```
port_re_timestamp_count[2]          [0x00000864] = 0x00000000
port_re_timestamp_count[3]          [0x00000868] = 0x00000000
port_re_timestamp_count[4]          [0x0000086C] = 0x00000000
port_rx_fifo_overflow_drop_count[0] [0x00000870] = 0x00000000
port_rx_fifo_overflow_drop_count[1] [0x00000874] = 0x00000000
port_rx_fifo_overflow_drop_count[2] [0x00000878] = 0x00000000
port_rx_fifo_overflow_drop_count[3] [0x0000087C] = 0x00000000
port_rx_fifo_overflow_drop_count[4] [0x00000880] = 0x00000000
channel_jib_if_pkt_count[0]         [0x00000884] = 0x00038EA2
channel_jib_if_pkt_count[1]         [0x00000888] = 0x00031ADE
channel_jib_if_pkt_count[2]         [0x0000088C] = 0x0001B869
channel_jib_if_pkt_count[3]         [0x00000890] = 0x00020053
channel_jib_if_pkt_count[4]         [0x00000894] = 0x00000000
channel_jib_if_pkt_count[5]         [0x00000898] = 0x00000000
channel_jib_if_pkt_count[6]         [0x0000089C] = 0x00000000
channel_jib_if_pkt_count[7]         [0x000008A0] = 0x00000000
channel_jib_if_pkt_count[8]         [0x000008A4] = 0x00000000
channel_jib_if_pkt_count[9]         [0x000008A8] = 0x00000000
channel_jib_if_pkt_count[10]        [0x000008AC] = 0x00000000
channel_jib_if_pkt_count[11]        [0x000008B0] = 0x00000000
channel_jib_if_pkt_count[12]        [0x000008B4] = 0x00000000
channel_jib_if_pkt_count[13]        [0x000008B8] = 0x00000000
channel_jib_if_pkt_count[14]        [0x000008BC] = 0x00000000
channel_jib_if_pkt_count[15]        [0x000008C0] = 0x00000000
channel_jib_if_pkt_count[16]        [0x000008C4] = 0x00000000
channel_jib_if_pkt_count[17]        [0x000008C8] = 0x00000000
channel_jib_if_pkt_count[18]        [0x000008CC] = 0x00000000
channel_jib_if_pkt_count[19]        [0x000008D0] = 0x00000000

Remora Timestamp Registers (0xF8900900):
----------------------------------------
local_1024_ts_ctrl                  [0x00000900] = 0x00000039
local_1024_current_ts               [0x00000904] = 0xF5D27575
local_1024_tcc_ts_latch             [0x00000908] = 0x7291125F
doc_ts_offset_ch_0_1                [0x0000090C] = 0x04AF04AF
doc_ts_offset_ch_2_3                [0x00000910] = 0x04AF04AF
doc_ts_offset_ch_4_5                [0x00000914] = 0x04F704F7
doc_ts_offset_ch_6_7                [0x00000918] = 0x04F704F7
doc_ts_offset_ch_8_9                [0x0000091C] = 0x04F704F7
doc_ts_offset_ch_10_11              [0x00000920] = 0x04F704F7
doc_ts_offset_ch_12_13              [0x00000924] = 0x04F704F7
doc_ts_offset_ch_14_15              [0x00000928] = 0x04F704F7
doc_ts_offset_ch_16_17              [0x0000092C] = 0x04F704F7
doc_ts_offset_ch_18_19              [0x00000930] = 0x04F704F7

Remora PRATE/SRATE Registers (0xF8900A00):
------------------------------------------
port_prate_regs[0].prate_ctrl       [0x00000A00] = 0x00000003
port_prate_regs[0].prate_m_prime_lo [0x00000A04] = 0x0005971E
port_prate_regs[0].prate_n_prime_lo [0x00000A08] = 0x08AA5B88
port_prate_regs[0].prate_m_prime_hi [0x00000A0C] = 0x00000000
port_prate_regs[1].prate_ctrl       [0x00000A10] = 0x00000003
port_prate_regs[1].prate_m_prime_lo [0x00000A14] = 0x00000191
port_prate_regs[1].prate_n_prime_lo [0x00000A18] = 0x00037E78
port_prate_regs[1].prate_m_prime_hi [0x00000A1C] = 0x00000000
port_prate_regs[2].prate_ctrl       [0x00000A20] = 0x00000003
port_prate_regs[2].prate_m_prime_lo [0x00000A24] = 0x00000191
port_prate_regs[2].prate_n_prime_lo [0x00000A28] = 0x00037E78
port_prate_regs[2].prate_m_prime_hi [0x00000A2C] = 0x00000000
port_prate_regs[3].prate_ctrl       [0x00000A30] = 0x00000003
port_prate_regs[3].prate_m_prime_lo [0x00000A34] = 0x00000191
port_prate_regs[3].prate_n_prime_lo [0x00000A38] = 0x00037E78
port_prate_regs[3].prate_m_prime_hi [0x00000A3C] = 0x00000000
port_prate_regs[4].prate_ctrl       [0x00000A40] = 0x00000003
```

```
port_prate_regs[4].prate_m_prime_lo [0x00000A44] = 0x00000191
port_prate_regs[4].prate_n_prime_lo [0x00000A48] = 0x00037E78
port_prate_regs[4].prate_m_prime_hi [0x00000A4C] = 0x00000000
port_srate_regs[0].srate_ctrl       [0x00000A50] = 0x00000003
port_srate_regs[0].srate_mn         [0x00000A54] = 0x004E0095
port_srate_regs[1].srate_ctrl       [0x00000A58] = 0x00000003
port_srate_regs[1].srate_mn         [0x00000A5C] = 0x0191032C
port_srate_regs[2].srate_ctrl       [0x00000A60] = 0x00000003
port_srate_regs[2].srate_mn         [0x00000A64] = 0x0191032C
port_srate_regs[3].srate_ctrl       [0x00000A68] = 0x00000003
port_srate_regs[3].srate_mn         [0x00000A6C] = 0x0191032C
port_srate_regs[4].srate_ctrl       [0x00000A70] = 0x00000003
port_srate_regs[4].srate_mn         [0x00000A74] = 0x0191032C
TW_UBR10k_34.13#
```

The following example provides information about all controllers using the **show controller integrated-cable** command and the **status** keyword:

```
Router# show controllers integrated-Cable 6/0/0 status
Load for five secs: 9%/0%; one minute: 11%; five minutes: 13%
Time source is NTP, *15:07:31.309 EDT Sun Mar 21 2010

Jib3-DS Status:
---------------
   Rx SPI..............: OK
   Tx SPI..............: OK
   DCM Status..........: OK
   ERP Status..........: OK
   DOCSIS RLDRAM Status: OK
   QM RLDRAM Status....: OK


  DS PHY Device Information:
  --------------------
    Remora Version = 3.10
    UPX SW Version = 0x10D
    Upconverter Type:Unknown
    UPX Part Number =

  Device Status:
  --------------
    UPX Alarm Status = 0x3FF
    UPX Alarm Mask   = 0x19000
```

Table 160 describes the fields displayed in the **show controller integrated-cable** command output with various keywords (as described in preceding examples).

Table 160 show controller integrated-cable Field Descriptions

Field	Description
WB channel	Wideband channel number.
BG ID	Bonding group ID.
Bundle num	Bundle number.
NB channel	Narrowband channel number.
NB chan ID	Narrowband channel ID.
Reserved CIR	Reserved committed information rate (CIR) value.
Total CIR	Total committed information rate (CIR) value.

Table 160 show controller integrated-cable Field Descriptions (continued)

Field	Description
Controller Chan	Controller channel number.
RF Packets	RF packets.
MPEG bps	MPEG value in bps.
MPEG mbps	MPEG value in Mbps.
MPEG Packets	MPEG packets.
Sync Packets	Synchronization packets.
MAP/UCD	MAP/ UCD value
Tx Packets	Tx packets
Tx Octets	Tx octets
Offset	Memory offset
Register	Line card registers
Value	Register values.
BPI Index	Baseline Privacy Interface (BPI) index number.
Segment	Hardware segment being used by DOCSIS MAC.
Even Key	Current value of the Even Key in the BPI entry.
Odd Key	Current value of the Odd Key in the BPI entry.
Key Sequence Number	Key sequence number.
Security Association	Security association identifier.
Key Type	The type of key stored based on the encryption algorithm (Data Encryption Standard [DES] or Advanced Encryption Standard [AES]).

Related Commands

Command	Description
cable rf-bandwidth-percent	Enables static or dynamic bandwidth sharing for a modular cable (MC) interface.
cable upstream connector	Maps an upstream port to a physical port on the Cisco UBR-MC20X20V cable interface line card for use with a particular downstream.
show controller cable	Displays information about the interface controllers for a cable interface on the Cisco CMTS router.
show hw-module bay	Displays information about the wideband channels or RF channels on a Wideband SPA.
show interface cable	Displays the current configuration and status of a cable interface.

show controllers cable

To display information about the interface controllers on a cable interface on the Cisco CMTS router, use the **show controllers cable** command in user EXEC or privileged EXEC mode.

show controllers cable {*slot*/*port*| *slot*/*subslot*//*port*} [**downstream** | **upstream** [*port*] | [**ipc**] [**mem-stat**] [**memory**] [**proc-cpu**]

Cisco IOS Release 12.2(33)SCE and later

show controllers cable {*slot*/c*able-interface-index*| *slot*/*subslot*//*cable-interface-index*} [**downstream** | **upstream** [*upstream-index*] | [**ipc**] [**mem-stat**] [**memory**] [**proc-cpu**]

Syntax Description

slot	Slot where the line card resides. • Cisco uBR7246VXR router—The valid range is from 3 to 6. • Cisco uBR7225VXR router—The valid range is from 1 to 2. • Cisco uBR7100 series router—The valid value is 1.
subslot	(Cisco uBR10012 only) Secondary subslot of the cable interface line card. The valid slots 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).
c*able-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.
downstream	(Optional) Displays the downstream interface status.
upstream	(Optional) Displays the upstream interface status.
port	(Optional) Specifies the desired upstream port. Valid values start with 0 for the first upstream port on the cable interface line card.
upstream-index	(Optional) Specifies the desired index for the upstream port. Valid values for the Cisco uBR-MC20X20V and Cisco uBR-MC5X20 line cards range from 0 to 3.
ipc	(Optional) Displays the Inter-Process Communication (IPC) information between different line cards.
mem-stat	(Optional) Displays the output from the **show memory statistics** command that contains a summary of memory statistics for a Broadband Processing Engine (BPE) cable interface line card.

memory	(Optional) Displays the output from the **show memory** command that contains a summary of memory statistics, including the memory as it is allocated per process, for a BPE cable interface line card.
proc-cpu	(Optional) Displays the output from the **show processes cpu** command that contains the processor status for a BPE cable interface line card.

Command Modes

User EXEC, Privileged EXEC (#)

Command History

Release	Modification
11.3 NA	This command was introduced.
12.0(2)XC	This command was modified to show a number of additional fields.
12.1(5)EC1	Support was added for the Cisco uBR7100 series router, including information about the Cisco uBR7100 series integrated upconverter.
12.2(1)XF1	Support was added for the Cisco uBR10012 router.
12.0(16)SC2, 12.1(10)EC1, 12.2(4)BC1b	The algorithm for calculating the SNR value was enhanced for a more accurate value.
12.2(15)CX	Support was added for the Cisco uBR-MC28U/X cable interface line card, including the display of the number of packets dropped because they were for a Service Flow ID (SFID) of 0.
12.2(15)BC2b	The **mem-stat**, **memory**, and **proc-cpu** keywords were added to obtain processor information from the onboard processor on Broadband Processing Engine (BPE) cable interface line cards, such as the Cisco uBR-MC16U/X, Cisco uBR-MC28U/X, and Cisco uBR10-MC5X20S/U cards.
12.3(9a)BC	Added the optional **tech-support** keyword to optimize the collection of line card information without consuming the console session for a long period of time.
12.3(17a)BC	Added support for Dynamic Channel Change (DCC) for Load Balancing on the Cisco CMTS.
12.3(17a)BC2	Added support for the Cisco uBR10-MC5X20H interface line cards.
12.3(23)BC	The **downstream** keyword displays status and characteristics of modular cable interfaces associated with the Cisco uBR10-MC5X20 line card MAC domain host interface.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA. Support for the Cisco uBR7225VXR router was added.
12.2(33)SCC	The command output was modified to show logical channels information when multiple logical channels are configured.
12.2(33)SCE	The command syntax 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. The upstream *port* parameter was changed to *upstream-index*.

Usage Guidelines

The **mem-stat**, **memory**, and **proc-cpu** keywords are used to obtain the relevant information from the onboard processor on BPE cable interface line cards, such as the Cisco uBR-MC16U/X, Cisco uBR-MC28U/X, and Cisco uBR10-MC5X20S/U/H cards. This allows you to obtain information that is specific to a line card, as opposed to having to run these commands on the entire router.

The *logical-index* is shown only when multiple logical channels are configured using the **cable upstream max-logical-chans** command.

Note The **mem-stat**, **memory**, and **proc-cpu** options are not available for cable interface line cards that do not contain an onboard processor (for example, the Cisco uBR-MC16C card).

Dynamic Channel Change (DCC) Support for Load Balancing

The following commands and fields illustrate the **show controllers** command used with DCC:

```
Router# show controllers cable x/y upstream | i DCC

DCC: 0 REQs  n2 RSPs  0 ACKs
Router# show controllers cx/y downstream| i DCC
DCC: n1  REQs  0 RSPs  n3 ACKs
n4 Successful DCCs  n5 DCC Failures
DCC end of transaction counts:
DCC unknown cause(e1) offline(e2) if down(e3) no cm(e4)
DCC no resource(e5) no retries(e6) reject(e7) unknown state (e8)
DCC rebuild err (e9) T15 timeout(e10) reinit MAC (e11) dcc succeeds(e12)
```

The fields in this example are as follows:

- n1—The number of DCC REQ messages traversing an interface, nonzero on downstream.
- n2—The number of DCC RSP messages traversing an interface, nonzero on upstream.
- n3—The number of DCC ACK messages traversing an interface, nonzero on downstream.
- n4—The number of successful DCC transactions, nonzero on downstream direction.
- n5—The number of failed DCC transactions, nonzero only on downstream direction

The above counters are DOCSIS-specific DCC counters, which can also be collected via SNMP MIB.

The following summary illustrates classified DCC transaction end counts originated from the interface with the above **show controllers** command example:

- e1—The number of DCC transactions ended with unknown causes.
- e2—The number of DCC transactions ended due to modems going offline.
- e3—The number of DCC transactions ended due to interface down.
- e4—The number of DCC transactions ended due to a nonexistent cable modem.
- e5—The number of DCC transactions ended due to insufficient resources on target.
- e6—The number of DCC transactions ended due to exhausted DCC-REQ retries.
- e7—The number of DCC transactions ended due to rejected DCC-REQ.
- e8—The number of DCC transactions ended due to unknown DCC state.
- e9—The number of DCC transactions ended due to failure to assign a cable modem on the target.
- e10—The number of DCC transactions ended due to T15 time out.
- e11—The number of DCC transactions ended due to CM MAC reinitialization.
- e12—The number of DCC transactions ended successfully.

This command is subject to the restrictions and prerequisites described in the *Configuring Load Balancing and Dynamic Channel Change (DCC) on the Cisco CMTS* feature guide on Cisco.com.

Examples

The following abbreviated example illustrates the initial information for the **tech-support** keyword for the Cisco uBR10012 router on which Cisco IOS Release 12.3(9a)BC is installed:

```
Router# show controllers cable 8/1/0 tech-support

------------------ show version ------------------

Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (UBR10KCLC-LC-M), Experimental Version 12.3(20040708:1441
55) [bguckel-geo_cable-12 102]
Copyright (c) 1986-2004 by cisco Systems, Inc.
Compiled Mon 19-Oct-04 11:28 by bguckel
Image text-base: 0x60008EB8, data-base: 0x60CB0000

ROM: System Bootstrap, Version 12.2(20011031:221132) [maheshj-cr10k-rommon 15],
DEVELOPMENT SOFTWARE
BOOTLDR: 7200 Software (UBR10KCLC-LC-M), Experimental Version 12.2(20011107:2331
03) [janez-v122_2_xf_throttle.Nov5A 101]

clc_8_1 uptime is 1 week, 9 hours, 54 minutes
System returned to ROM by power-on
System restarted at 08:59:44 UTC Wed Jul 21 2004
Running default software

cisco uBR10K CLC (NPE-CLC) processor (revision A) with 196608K/65536K bytes of m
emory.
Processor board ID
R7000 CPU at 262MHz, Implementation 39, Rev 2.1, 256KB L2 Cache
6 slot midplane, Version 1.0
.
```

The following is a sample output of the **show controllers cable downstream** command for downstream connection at slot 3 on a Cisco CMTS router:

```
Router# show controllers cable 3/0 downstream

Cable 3/0 Downstream is up
Frequency not set, Channel Width 6 MHz, 64-QAM, Symbol Rate 5.056941 Msps
FEC ITU-T J.83 Annex A, R/S Interleave I=12, J=17
```

Table 161 describes the fields shown in the **show controllers cable downstream** command display.

Table 161 show controllers cable downstream Field Descriptions

Field	Description
Cable	Slot and port number indicating the location of the Cisco cable interface line card.
Downstream is up	RF downstream interface is enabled.
Frequency	Transmission frequency of the RF downstream. (This information may not match the current transmission frequency, which is external on Cisco CMTS platforms that use an external upconverter.)
Channel Width	Width of the RF downstream channel.
QAM	Modulation scheme.
Symbol Rate	Transmission rate (in number of symbols per second).
FEC ITU-T	Motion Picture Experts Group (MPEG) framing standard.
Annex	Annex for the RF downstream channel.
R/S Interleave I/J	Reed Solomon framing based on ITU S.83-B.

For cable interfaces that include an integrated upconverter, the **show controllers cable** command includes the frequency and power settings for the integrated upconverter. The following example shows a typical output for the **show controllers cable** command that includes the information for the integrated upconverter:

```
Router# show controllers cable 1/0

Interface Cable1/0
Hardware is IMC11
 BCM3210 revision=0x56B2
 Cable1/0 Upconverter is Enabled Output is Enabled
  Model: 74-2094-01 Serial Number: 0WAV04480010 CLEI Code:      CLEI#
  HW Rev:    PC2D0107 SW Rev: 007, NVRAM Rev: 006 ECI number 123456
  Downstream Frequency 525.0000 MHz
  IF Power 0.3 dBmv  RF Power 51.0 dBmv
...
```

The following example is a sample output of the **show controllers cable** command with the cable interface index 0. on the Cisco UBR-MC3XG60V line card. The downstream channel ID and RFID are also displayed in the output:

```
Router# show controller cable 5/0/0

Interface Cable5/0/0
Hardware is M3G60

HCCP HA FLAGS:
  linestate: TRUE hccp_if_inited: FALSE hccphopready: TRUE
  hccp_keepalive: FALSE hccp_critical: FALSE ha_critical: FALSE
  drop_mac_msgs: FALSE current_active_segment: 0

HCCP HA UPStream FLAGS:
  US 1 first_time_up: FALSE    US 2 first_time_up: TRUE
  US 3 first_time_up: TRUE    US 4 first_time_up: TRUE

JIB Base: 0x20000000, JIB Revision: 0x00000002,  Release: 0x00000033

Cable5/0/0 JIB hardware status:

  JIB Downstream port   Enabled

  JIB Upstream   port 0 Enabled
  JIB Upstream   port 1 Disabled
  JIB Upstream   port 2 Disabled
  JIB Upstream   port 3 Disabled

JIB CURRENT ACTIVE BPI/PHS Segment: DS: 0 US: 0
S/W CURRENT ACTIVE BPI/PHS Segment: 0

 H/W Spectrum Management Information:
   Sextant FPGA Revision: 0x1B
   FFT Transform Revision: 0x2
   IRQ status 0x0, IRQ mask 0x1F
   time_stamp_lsb 0x739D, time_stamp_msb 0xB8D3
   time_stamp_gen_csr 0x100
   FFT Engine State: 1, Busy Count: 0,  Wrong State Count: 0
   FFT Device Trigger Time Miss Count: 0
   FFT Device Sample Overflow: 0, Transform Overflow: 0
   FFT Device TSRM Parity: 0, TSRM/TSG Comparison Error: 0, TSG Reload: 1

  Upconverter:  vcom
 Cable5/0/0 Upconverter is Disabled Output is Disabled
  Model: 74-3153-05 Serial Number: 0WAV10250089
```

```
  HW Rev:    PC2D0109 SW Rev: 204, NVRAM Rev: 021 ECI number FFFFFF
  Downstream Frequency 537.0000 MHz
  RF Power Disabled

 idb 0x6565E520 MAC regs 0x20000000 SDRAM 0x28000000
 mac ring entries 32 bandwidth ring entries 128 tx ring entries 128 MAP tx ri
entries 128
 MAC ring 0xC7A7E00 shadow 0x65745D08 head 8 count 1136840 full 0
 Bandwidth ring 0xC7A7EC0 shadow 0x65745E08 head 61 count 189 full 0
 PCI low priority ring 0xC7A8100 shadow 0x65746088 head 19 count 19 full 0
 US CCF ring 0xC7A8340 shadow 0x65746308 head 0 count 0 full 0
 FIB ring 0xC7A87C0 shadow 0x65746808 head 0 count 0 full 0
 IPC packets received 0
 Drops: Par 0 CRC 0 Len 0
 Force Drops IPC 0 Lo/Hi 0/0, 0/0
 snfr_fibipc_dmastatus 0x0
 Sniffer ring 0xC7A8580 shadow 0x65746588 head 0 count 0 full 0
 High priority Tx ring 0xC7A7140 shadow 0x65744388 head 6 tail 8 count 2 full
 Low priority Tx ring 0xC7A6D00 shadow 0x65743B08 head 0 tail 0 count 0 full
 TIB Tx ring 0xC7A7580 shadow 0x65744C08 head 105 tail 105 count 0 full 0 stu
0
 PCCF Tx ring 0xC7A79C0 shadow 0x65745488 head 0 tail 0 count 0 full 0 stuck
 JIB SDRAM Correctable ECC Count: 0
     SDRAM_CECC_INFO_REG_0: 0x0, SDRAM_CECC_INFO_REG_1: 0x0
 JIB SSRAM Correctable ECC Count: 0
 JIB Timestamp Mismatch Count: 0
 JIB Timestamp Reload Count: 0
 Timestamp is from TCC card
 throttled 0 enabled 0 disabled 0
 Rx: spurious 0 framing_err 0 hcs_err 0 no_buffer 0 short_pkt 0
     no_enqueue 0 no_enp 0 miss_count 0 latency 0
     invalid_sid 0 invalid_mac 0 bad_ext_hdr_pdu 0 concat 0 bad-concat 0
 Tx:  full 0 drop 0 stuck 0 latency 0
 MTx: full 0 drop 0 stuck 0 latency 0
 Slots 0 NoUWCollNoEngy 0 FECorHCS 0 HCS 0
 Req 186 ReqColl 0 ReqNoise 0 ReqNoEnergy 2198449112
 ReqData 0 ReqDataColl 0 ReqDataNoise 0 ReqDataNoEnergy 0
 Rng 1136720 RngColl 0 RngNoise 0
 FECBlks 1137342 UnCorFECBlks 0 CorFECBlks 0
 MAP FIFO overflow 0, Rx FIFO overflow 0, No rx buf 0
 DS FIFO overflow 0, US FIFO overflow 0, US stuck 0
 Bandwidth Requests= 0xBA
 Piggyback Requests= 0x3
 Ranging Requests= 0x115852
 Timing Offset = 0x0
 Master Clock Timestamp = 0xB8D5DBCD
 Bad bandwidth Requests= 0x0
 Bad REG_ACK= 0x0
 No REG_RESP buffer= 0x0
 Cable5/0/0 Downstream is up
  Frequency 537.0000 MHz, Channel Width 6 MHz, 64-QAM, Symbol Rate 5.056941 M
  FEC ITU-T J.83 Annex B, R/S Interleave I=32, J=4
  Downstream channel ID: 255
  Dynamic Services Stats (All Downstreams):
  DSA: 0  REQs  0 RSPs  0 ACKs
  0 Successful DSAs  0 DSA Failures
  DSC: 0  REQs  0 RSPs  0 ACKs
  0 Successful DSCs  0 DSC Failures
  DSD:  0 REQs  0 RSPs
  0 Successful DSDs  0 DSD Failures
  DBC: 0 REQs  0 RSPs(Rcvd)  0 ACKs
  0 Successful DBCs  0 DBC Failures  0 DBC Partial
  0 DBC Protocol Violations
  DCC: 0  REQs  0 RSPs  0 ACKs
```

```
  0 Successful DCCs  0 DCC Failures
  0 DCC Departs 0 DCC Arrives
  DCC end of transaction counts:
  DCC unknown cause(0) offline(0) if down(0) no cm(0)
  DCC no resource(0) no retries(0) reject(0) unknown state (0)
  DCC rebuild err (0) T15 timeout(0) wrong channel(0) reinit MAC (0)
  DCC dcc succeeds(0)
  DCC wcm(0)
  CM STATUS Stats:
  0 invalid_event  0 tlv_error
  0 disabled_event  0 invalid_state
  0 invalid_chid  0 prim_chid
 Local total modems 0, modems active 0, total DS flows 2
  NB DS Mo1/1/0:0, STATE: UP
   Frequency 55.0000 MHz 256-QAM,  ANNEX B, R/S Interleave I=32, J=4
   Network Delay 550 (usec)
   Bandwidth (Kbps): 13800,  Load Percent: 0
   Channel ID: 193, US MAP: 0x0001
   Total modems: 2, modems active : 2, total DS flows: 3
  NB DS Cable5/0/0, STATE: DOWN
   Frequency 537.0000 MHz 64-QAM,  ANNEX B, R/S Interleave I=32, J=4
   Network Delay 0 (usec)
   Bandwidth (Kbps): 20800,  Load Percent: 0
   Channel ID: 255, US MAP: 0x000F

// Output displaying the DS_chan_id and RFID IDs//
  DS_chan_id  RFID  Interface
  ---------------------------------------
    193       24    Mo1/1/0:0
  ---------------------------------------

  MDDs            Primary          Non-Primary
  ------------------------------------------------
  1/1/0:0         582033           0
  1/1/0:1         0                582030
  ------------------------------------------------
..
...
```

The following is a sample output of the **show controllers cable downstream** command for a downstream on the Cisco uBR-MC28U cable interface line card or a cable interface line card with integrated upconverter:

```
Router# show controllers cable 6/0 downstream

Interface Cable6/0
Hardware is MC28U (F-connector) with Integrated Up-converter
Primary rommon version is: 11.4
Secondary rommon version is: 6553.5
Current rommon is Primary
Late input drops = 0
Output queue: 0/1000/64/0 (size/max total/threshold/drops)
JIB version 372
 H/W Spectrum Management Information:
   BCM3138 Chip State: 1 1 1 1, Serial Port State 1, Busy Count: 0 25 0 0
 Spectrum Management IPC Statistics:
   Tx Statistics
      Pkts: 48413, Lock Errs: 0, MB not Empty: 0, No Buffs: 0
   Rx Statistics
      Pkts: 46097, Timeout: 1, Unexpected: 0, No Buffs: 0, Lock Errs: 0
   Inuse band lower=0 upper=0 CNR=56
   candidate band lower=0 upper=0 Mod=0
   Inuse band lower=0 upper=0 CNR=52
   candidate band lower=0 upper=0 Mod=0
```

```
   Inuse band lower=0 upper=0 CNR=55
   candidate band lower=0 upper=0 Mod=0
   Inuse band lower=23000 upper=26200 CNR=55
   candidate band lower=23000 upper=26200 Mod=0
 Cable6/0 Upconverter is Enabled Output is Enabled
  Model: 74-2094-05 Serial Number: 0WAV06530029 CLEI Code: FFFFFFFFFF
  HW Rev:    PC2D0108 SW Rev: 010, NVRAM Rev: 006 ECI number FFFFFF
  Downstream Frequency 471.0000 MHz
  RF Power 54.9 dBmv
```

The following is a sample output of the **show controllers cable downstream** command for the cable interface line card on slot 8, subslot 0, and port 0 on a Cisco CMTS router:

```
Router# show controllers cable 8/0/0 downstream

 Cable8/0/0 Downstream is up
  Frequency 453.0000 MHz, Channel Width 6 MHz, 64-QAM, Symbol Rate 5.056941 Msps
  FEC ITU-T J.83 Annex B, R/S Interleave I=32, J=4
  Downstream channel ID: 191
  Dynamic Services Stats:
  DSA: 0  REQs  0 RSPs  0 ACKs
  0 Successful DSAs  0 DSA Failures
  DSC: 0  REQs  0 RSPs  0 ACKs
  0 Successful DSCs  0 DSC Failures
  DSD:  0 REQs  0 RSPs
  0 Successful DSDs  0 DSD Failures
  DCC: 0  REQs  0 RSPs  0 ACKs
  0 Successful DCCs  0 DCC Failures
  DCC end of transaction counts:
  DCC unknown cause(0) offline(0) if down(0) no cm(0)
  DCC no resource(0) no retries(0) reject(0) unknown state (0)
  DCC rebuild err (0) T15 timeout(0) wrong channel(0) reinit MAC (0)
  DCC dcc succeeds(0)
  DCC wcm(0)
 Local total modems 800, modems active 800, total DS flows 801
  NB DS Mo3/0/1:0, STATE: UP
   Frequency 555.0000 MHz 64-QAM,  ANNEX B, R/S Interleave I=32, J=4
   Network Delay 550 (usec)
   Bandwidth (Kbps): 4315,  Load Percent: 0
   Channel ID: 48, US MAP: 0x0037
   Total modems: 4, modems active : 4, total DS flows: 5
  NB DS Mo3/0/1:1, STATE: UP
   Frequency 561.0000 MHz 64-QAM,  ANNEX B, R/S Interleave I=32, J=4
   Network Delay 550 (usec)
   Bandwidth (Kbps): 4315,  Load Percent: 0
   Channel ID: 49, US MAP: 0x0037
   Total modems: 2, modems active : 2, total DS flows: 3
  NB DS Mo3/0/1:2, STATE: UP
   Frequency 567.0000 MHz 64-QAM,  ANNEX B, R/S Interleave I=32, J=4
   Network Delay 550 (usec)
   Bandwidth (Kbps): 4315,  Load Percent: 0
   Channel ID: 50, US MAP: 0x0037
   Total modems: 1, modems active : 1, total DS flows: 2
  NB DS Mo3/0/1:3, STATE: UP
   Frequency 573.0000 MHz 64-QAM,  ANNEX B, R/S Interleave I=32, J=4
   Network Delay 550 (usec)
   Bandwidth (Kbps): 13485,  Load Percent: 0
   Channel ID: 51, US MAP: 0x0037
   Total modems: 3, modems active : 3, total DS flows: 4
```

The following example is a sample output of the **show controllers cable downstream** command for the Cisco uBR-MC3GX60V line card sharing downstreams with the Cisco Wideband SPA, in Cisco IOS Release 12.2(33)SCG:

```
Router# show controllers cable 8/0/0 downstream

  Dynamic Services Stats (All Downstreams):
  DSA: 0  REQs  0 RSPs  0 ACKs
  0 Successful DSAs  0 DSA Failures
  DSC: 0  REQs  0 RSPs  0 ACKs
  0 Successful DSCs  0 DSC Failures
  DSD:  0 REQs  29 RSPs
  0 Successful DSDs  0 DSD Failures
  DBC:  0 REQs  96 RSPs(Rcvd)  0 ACKs
  0 Successful DBCs  0 DBC Failures  0 DBC Partial
  96 DBC Protocol Violations
  0 Total DBC Pending Q-Size
  DCC: 0  REQs  0 RSPs  0 ACKs
  0 Successful DCCs  0 DCC Failures
  0 DCC Departs 0 DCC Arrives
  DCC end of transaction counts:
  DCC unknown cause(0) offline(0) if down(0) no cm(0)
  DCC no resource(0) no retries(0) reject(0) unknown state (0)
  DCC rebuild err (0) T15 timeout(0) wrong channel(0) reinit MAC (0)
  DCC dcc succeeds(0)
  DCC wcm(0)
  CM STATUS Stats:
  0 invalid_event  4 tlv_error
  0 disabled_event  598985 invalid_state
  0 invalid_chid  0 prim_chid
 Local total modems 0, modems active 0, total DS flows 3
  NB DS Mo1/1/0:0, STATE: UP
   Frequency 699.0000 MHz 256-QAM,  ANNEX B, R/S Interleave I=32, J=4
   Network Delay 550 (usec)
   Bandwidth (Kbps): 6000,  Load Percent: 0
   Channel ID: 5, US MAP: 0x000F
   Total modems: 51, modems active : 37, total DS flows: 158



  DS_chan_id  RFID  Interface
  ------------------------------------
    5         24    Mo1/1/0:0
  ------------------------------------

  MDDs            Primary          Non-Primary
  ------------------------------------------------
  1/1/0:0         1148012          0
  1/1/0:1         0                1148011
  1/1/0:2         0                1148011
  1/1/0:3         0                1148011
  1/3/0:0         0                1148011
  1/3/0:1         0                1148011
  1/3/0:2         0                1148011
  1/3/0:3         0                1148011
  7/0/0:0         0                1148011
  7/0/0:1         0                1148011
  7/0/0:2         0                1148011
  7/0/0:3         0                1148011
  8/0/2:0         0                1148011
  8/0/2:1         0                1148011
  8/0/2:2         0                1148011
  8/0/2:3         0                1148011
  ------------------------------------------------
```

Table 162 describes the fields shown in the **show controllers cable downstream** command display.

Table 162 show controllers cable downstream Field Descriptions

Field	Description
Downstream Frequency	Center frequency (in MHz) for which the integrated upconverter is configured.
IF Power	Power level (in dBmV) of the signal that the integrated upconverter is receiving from the cable interface line card in the Cisco uBR7100 series router.
RF Power	Power level (in dBmV) of the RF output signal that the integrated upconverter is transmitting on the DS0 RF port.
Dynamic Services Stats	Dynamic downstream service statistics for a specific cable interface.
CM STATUS Stats	Cable modem status statistics for a specific cable interface.
DS_chan_id	Downstream channel ID for a specific cable interface.
RFID	RF ID associated to a specific cable interface.
MDDs	MAC Domain Descriptor (MDD).
Primary	Primary MDD.
Non-Primary	Non-primary MDD.

The following is sample output from the **show controllers cable upstream** command for a Cisco CMTS router with a cable interface line card located in slot 4, port 0:

```
Router# show controllers cable 4/0 upstream 2

Cable4/0 Upstream 2 is administratively down
  Frequency 5.008 MHz, Channel Width 0.200 MHz, QPSK Symbol Rate 0.160 Msps
  Spectrum Group 4
  SNR measurement - 27.2340 dB
  Nominal Input Power Level 5 dBmV, Tx Timing Offset 0
  Ranging Backoff Start 16, Ranging Backoff End 16, Tx Backoff Start 16
  Tx Backoff End 16, Modulation Profile Group 1
  part_id=0x3137, rev_id=0x01, rev2_id=0xFF
  nb_agc_thr=0x0000, nb_agc_nom=0x0000
  Range Load Reg Size=0x58
  Request Load Reg Size=0x0E
  Minislot Size in number of Timebase Ticks is = 8
  Minislot Size in Symbols =8
  Bandwidth Requests = 0x0
  Piggyback Requests = 0x0
  Invalid BW Requests= 0x0
  Minislots Requested= 0x0
  Minislots Granted  = 0x0
  Minislot Size in Bytes = 2
  UCD Count = 0
  DES Ctrl Reg#0 = C00C0C43, Reg#1 = 0
Router#
```

The following example shows a sample output of the **show controllers cable upstream** command for a cable interface line card with *upstream-index* 0:

```
Router# show controller cable 5/0/0 upstream 0

 Cable5/0/0 Upstream 0 is up
  Frequency 15.000 MHz, Channel Width 1.600 MHz, Symbol Rate 1.280 Msps
  Modulations (QPSK) - Short QPSK, Long QPSK
  Mapped to non-shared connector 0 and receiver 0 //Output displaying the connector and
receiver used by the upstream channel //
  Spectrum Group is overridden
  US phy MER(SNR)_estimate for good packets - 31.5968 dB
  Nominal Input Power Level 0 dBmV, Tx Timing Offset 2000
  Ranging Backoff Start 3, Ranging Backoff End 6
  US timing offset adjustment type 2, value 505
  Ranging Insertion Interval automatic (60 ms)
  US throttling off
  Tx Backoff Start 3, Tx Backoff End 5
  Modulation Profile Group 21
  Concatenation is enabled
  Fragmentation is enabled
  part_id=0x0952, rev_id=0x00, rev2_id=0x00
  nb_agc_thr=0x0000, nb_agc_nom=0x0000
  Range Load Reg Size=0x58
  Request Load Reg Size=0x0E
  Minislot Size in number of Timebase Ticks is = 4
  Minislot Size in Symbols = 32
  Bandwidth Requests = 0xBC
  Piggyback Requests = 0x3
  Invalid BW Requests= 0x0
```

The following example shows a typical output of the **show controllers cable upstream** command for a cable interface line card that includes onboard hardware-based spectrum management capabilities:

```
Router# show controllers cable 3/0 upstream 3
```

```
Cable6/0 Upstream 3 is up
  Frequency 24.600 MHz, Channel Width 3.200 MHz, 64-QAM Symbol Rate 2.560 Msps
  This upstream is mapped to physical port 3
  Spectrum Group 14, Last Frequency Hop Data Error: NO(0)
  MC28U CNR measurement - better than 50 db
  Nominal Input Power Level 0 dBmV, Tx Timing Offset 2815
  Ranging Backoff automatic (Start 0, End 3)
  Ranging Insertion Interval automatic (60 ms)
  Tx Backoff Start 0, Tx Backoff End 4
  Modulation Profile Group 241
  Concatenation is enabled
  Fragmentation is enabled
  part_id=0x3138, rev_id=0x02, rev2_id=0x00
  nb_agc_thr=0x0000, nb_agc_nom=0x0000
  Range Load Reg Size=0x58
  Request Load Reg Size=0x0E
  Minislot Size in number of Timebase Ticks is = 2
  Minislot Size in Symbols = 32
  Bandwidth Requests = 0x23C800
  Piggyback Requests = 0x489FB8
  Invalid BW Requests= 0x0
  Minislots Requested= 0x4499EBE
  Minislots Granted  = 0x6C67B7
  Minislot Size in Bytes = 24
  Map Advance (Dynamic) : 2454 usecs
  UCD Count = 429798
  ATDMA mode enabled
Multicast/Broadcast RateLimit Dropped Pkts : 0
```

The following example shows a typical output of the **show controllers cable upstream** command for the Cisco uBR10-MC5X20H cable interface line card that is configured with multiple logical channels:

```
Router# show controllers cable 7/1/0 upstream 0

 Cable7/1/0 Upstream 0 is up
  Frequency 30.000 MHz, Channel Width 1.600 MHz, Symbol Rate 1.280 Msps
  Modulations - Short QPSK, Long QPSK
  This upstream is mapped to physical port 0
  Spectrum Group is overridden
  US phy MER(SNR)_estimate for good packets - 30.2024 dB
  Nominal Input Power Level 3 dBmV, Tx Timing Offset 1419
  Ranging Backoff Start 0, Ranging Backoff End 1
  US timing offset adjustment type 0, value 0
  Ranging Insertion Interval automatic (60 ms)
  US throttling off
  Tx Backoff Start 3, Tx Backoff End 5
  Modulation Profile Group 21
  Concatenation is disabled
  Fragmentation is enabled
  part_id=0x3140, rev_id=0x03, rev2_id=0x00
  nb_agc_thr=0x0000, nb_agc_nom=0x0000
  Range Load Reg Size=0x58
  Request Load Reg Size=0x0E
  Minislot Size in number of Timebase Ticks is = 4
  Minislot Size in Symbols = 32
  Bandwidth Requests = 0x25
  Piggyback Requests = 0x3
  Invalid BW Requests= 0x0
  Minislots Requested= 0x5B4
  Minislots Granted  = 0x28
  Minislot Size in Bytes = 8
  Map Advance (Dynamic) : 2418 usecs
  Map Count = 11744156
  Remote Map Counts: (none)
```

```
  UCD Count = 12067
  Remote UCD Counts: (none)
  PHY: us errors 0  us recoveries 0
  MAC PHY TSS: tss error start 0  tss error end 0
  MAC PHY Status: bcm3140 status 0  lookout status 0
  MAP/UCD Replication Instructions:
 Cable7/1/0 Upstream 8 is administratively down
  Frequency 30.000 MHz, Channel Width 1.600 MHz, Symbol Rate 1.280 Msps
  Modulations - Short QPSK, Long QPSK
  This upstream is mapped to physical port 0
  Spectrum Group is overridden
  MER(SNR) - Unknown - no modems online.
  Nominal Input Power Level 3 dBmV, Tx Timing Offset 0
  Ranging Backoff Start 3, Ranging Backoff End 6
  US timing offset adjustment type 0, value 0
  Ranging Insertion Interval automatic (60 ms)
  US throttling off
  Tx Backoff Start 3, Tx Backoff End 5
  Modulation Profile Group 21
  Concatenation is disabled
  Fragmentation is enabled
  part_id=0x3140, rev_id=0x03, rev2_id=0x00
  nb_agc_thr=0x0000, nb_agc_nom=0x0000
  Range Load Reg Size=0x58
  Request Load Reg Size=0x0E
  Minislot Size in number of Timebase Ticks is = 4
  Minislot Size in Symbols = 32
  Bandwidth Requests = 0x0
  Piggyback Requests = 0x0
  Invalid BW Requests= 0x0
  Minislots Requested= 0x0
  Minislots Granted  = 0x0
  Minislot Size in Bytes = 8
  Map Advance (Dynamic) : 2280 usecs
  Map Count = 0
  Remote Map Counts: (none)
  UCD Count = 0
  Remote UCD Counts: (none)
  PHY: us errors 0  us recoveries 0
  MAC PHY TSS: tss error start 0  tss error end 0
  MAC PHY Status: bcm3140 status 0  lookout status 0
  MAP/UCD Replication Instructions:
```

For Broadband Processing Engine (BPE) cards and other cable interfaces that include onboard upconverters, the **show controllers cable** command also displays the upconverter status and configuration information. The following excerpt from the **show controllers cable** command output shows the information that is displayed for the Cisco uBR10-MC5X20S cable interface line card:

```
Router# show controllers cable 5/1/4

Interface Cable5/1/4
Hardware is MC520S
JIB version 66
 Cable5/1/4 Upconverter is Enabled Output is Enabled
  Model: 74-2094-04 Serial Number: 0WAV0649000L CLEI Code: FFFFFFFFFF
  HW Rev:    PC2D0108 SW Rev: 010, NVRAM Rev: 006 ECI number FFFFFF
  Downstream Frequency 255.0000 MHz
  RF Power 49.8 dBmv

...
```

The following example is a sample output of the **show controllers cable upstream** command for the Cisco uBR-MC3GX60V line card sharing downstreams with the Cisco Wideband SPA, in Cisco IOS Release 12.2(33)SCG:

```
Router# show controllers cable 8/0/0 upstream

 Cable8/0/0 Upstream 0 is up
  Frequency 15.000 MHz, Channel Width 0.800 MHz, Symbol Rate 0.640 Msps
  Modulations (16-QAM) - Short 16-QAM, Long 16-QAM
  Mapped to shared connector 0 and receiver 0
  Spectrum Group is overridden
  US phy MER(SNR)_estimate for good packets - 36.1280 dB
  Nominal Input Power Level -4 dBmV, Tx Timing Offset 5734
  Ranging Backoff Start 3, Ranging Backoff End 6
  US timing offset adjustment type 0, value 0
  Ranging Insertion Interval automatic (60 ms)
  US throttling off
  Tx Backoff Start 3, Tx Backoff End 5
  Modulation Profile Group 21
  Concatenation is enabled
  Fragmentation is enabled
  part_id=0x3142, rev_id=0xB1, rev2_id=0x00
  nb_agc_thr=0x0000, nb_agc_nom=0x0000
  Range Load Reg Size=0x58
  Request Load Reg Size=0x0E
  Minislot Size in number of Timebase Ticks is = 8
  Minislot Size in Symbols = 32
  Bandwidth Requests = 0xC7957
  Piggyback Requests = 0x19899
  Invalid BW Requests= 0x4BF
  Minislots Requested= 0xF2E365
  Minislots Granted  = 0xE240A
  Minislot Size in Bytes = 16
  Map Advance (Dynamic) : 3389 usecs
  Map Count Internal = 1134448325
  No MAP buffer= 0x0   No Remote MAP buffer= 0x0
  Map Counts: Controller 1/1/0 = 1134446105
  UCD Counts:
    Controller 1/1/0:0 = 1150386

  UCD procedures on lch 0
  UCD ucd-succeeds(2) ucd-shut(0) init-state-err(0)
  UCD init-tss-err(0) init-timeout(0) init-start-err(0)
  UCD ucd-ccc-time(0) ucd-timeout(0) ucd-tss-err(0)
  UCD ucd-state-err(0) ucd-process(0) ucd-retries(0)
  UCD stale-tss(0)
  PHY: us errors 0  us recoveries 0 (enp 0)
  MAC PHY TSS: tss error start 0  tss error end 0
  MAC PHY Status: bcm3140 status 0  lookout status 0
  PHY: TSS late 0  discontinuous 0
  PHY: TSS mis-match 0  not-aligned 0
  PHY: TSS missed snapshots from phy 0
  MAP/UCD Replication Instructions:
    Controller 1/1/0 index = 361, bitmap = 0x0001
 Cable8/0/0 Upstream 1 is up
  Frequency 16.000 MHz, Channel Width 0.800 MHz, Symbol Rate 0.640 Msps
  Modulations (16-QAM) - Short 16-QAM, Long 16-QAM
  Mapped to shared connector 0 and receiver 1
  Spectrum Group is overridden
  US phy MER(SNR)_estimate for good packets - 36.1280 dB
  Nominal Input Power Level -4 dBmV, Tx Timing Offset 2330
  Ranging Backoff Start 3, Ranging Backoff End 6
  US timing offset adjustment type 0, value 0
```

```
  Ranging Insertion Interval automatic (60 ms)
  US throttling off
  Tx Backoff Start 3, Tx Backoff End 5
  Modulation Profile Group 21
  Concatenation is enabled
  Fragmentation is enabled
  part_id=0x3142, rev_id=0xB1, rev2_id=0x00
  nb_agc_thr=0x0000, nb_agc_nom=0x0000
  Range Load Reg Size=0x58
  Request Load Reg Size=0x0E
  Minislot Size in number of Timebase Ticks is = 8
  Minislot Size in Symbols = 32
  Bandwidth Requests = 0xC0BFF
  Piggyback Requests = 0x18BFB
  Invalid BW Requests= 0x1B248
  Minislots Requested= 0xE50E2A
  Minislots Granted  = 0xDA909
  Minislot Size in Bytes = 16
  Map Advance (Dynamic) : 3057 usecs
  Map Count Internal = 1134268243
  No MAP buffer= 0x0   No Remote MAP buffer= 0x0
  Map Counts: Controller 1/1/0 = 1134266034
  UCD Counts:
    Controller 1/1/0:0 = 1150386

  UCD procedures on lch 0
  UCD ucd-succeeds(2) ucd-shut(0) init-state-err(0)
  UCD init-tss-err(0) init-timeout(0) init-start-err(0)
  UCD ucd-ccc-time(0) ucd-timeout(0) ucd-tss-err(0)
  UCD ucd-state-err(0) ucd-process(0) ucd-retries(0)
  UCD stale-tss(0)
  PHY: us errors 0  us recoveries 0 (enp 0)
  MAC PHY TSS: tss error start 0  tss error end 0
  MAC PHY Status: bcm3140 status 0  lookout status 0
  PHY: TSS late 0  discontinuous 0
  PHY: TSS mis-match 0  not-aligned 0
  PHY: TSS missed snapshots from phy 0
  MAP/UCD Replication Instructions:
    Controller 1/1/0 index = 362, bitmap = 0x0001
....
```

Table 163 describes the fields shown in the **show controllers cable upstream** command display.

Table 163 show controllers cable upstream Field Descriptions

Field	Description
Cable	Slot and port number indicating the location of the Cisco cable interface line card.
Upstream is up/administratively down	Administrative state of the upstream (whether it is shutdown or not).
Channel Width	Width of the RF upstream channel.
QPSK Symbol Rate	Modulation technique for upstream transmission.
Spectrum Group 4	Spectrum group associated with this slot and port.

Table 163 show controllers cable upstream Field Descriptions (continued)

Field	Description
Frequency	Transmission frequency of the RF upstream channel. **Note** Cisco cable interface line cards always program the upstream center frequency in 16 KHz increments. This is the frequency displayed in the router configuration and the **show controllers cable upstream** command. For example, if you use the **cable upstream frequency** command to specify a center frequency of 27 MHz, the actual center frequency will be 27.008 MHz, which is the next highest 16 KHz boundary.
Modulations	Spectrum group associated with this slot and port.
SNR measurement	Estimate for the overall signal-to-noise ratio (SNR) for cable interfaces that do not include onboard hardware-based spectrum management. For most cable interface line cards, this value reflects the modulation error rate (MER) value for the upstream (as calculated according to the IEEE 802.14 PHY layer specifications). The MER is sometimes incorrectly referred to as the carrier-to-noise ratio (CNR), and the SNR value is generally lower than the CNR value. **Note** In Cisco IOS Release 12.1(10)EC1 and Cisco IOS Release 12.2(4)BC1b, the algorithm for calculating the SNR estimate was refined for a more accurate value. Depending on the plant characteristics, the new SNR estimate could be up to 6 dB lower than the values shown in earlier software releases. This value is only an estimate—for the most accurate value, use a spectrum analyzer.
<card-name> CNR measurement	Estimate for the overall carrier-to-noise ratio (CNR) for the upstream on cable interfaces that include onboard hardware-based spectrum management. When the CNR measurement exceeds 40 dB, this line states “better than 40 dB.” As a general rule, the CNR is greater than the SNR value. **Note** This value is only an estimate—for the most accurate value, use a spectrum analyzer or use the **show controllers cable upstream spectrum** command. For individual cable modems, you can also use the **show cable modem cnr** command.
Nominal Input Power level	Desired power level coming into the receiver.
Tx Timing Offset	Largest ranging offset reported by CMs on the upstream.
Ranging Backoff Start/End	Ranging slots (expressed as an exponent of 2) to back off before resending the ranging bursts after an upstream collision. These values are configured using the **cable upstream range-backoff** *start end* command.

Table 163 show controllers cable upstream Field Descriptions (continued)

Field	Description
Ranging Backoff Automatic	Start and end ranging backoff exponents, which are set automatically, using the **cable upstream range-backoff automatic** command. **Note** These counters are not accurately updated on the Cisco uBR10-MC5X20S cable interface line card, which should manually configure the ranging backoff instead.
US timing offset	Upstream timing offset adjustment type and value.
Ranging Insertion Interval	Ranging insertion interval.
US throttling	Status of the upstream throttling.
Tx Backoff Start	Starting exponential backoff value for data collisions.
Tx Backoff End	Ending exponential backoff value for data collisions.
Modulation Profile Group	Set of burst profiles defining an upstream range.
part_id=	Part number of the PHY chip. FFFF means the PHY chip is turned off.
rev_id=	PHY chip revision number.
rev2_id=	PHY chip subrevision number.
nb_agc_thr=	Threshold used to control gain.
nb_agc_nom=	Accelerate convergence of input power level.
Range Load Reg Size=	Size in symbols for range request bursts.
Request Load Reg Size=	Size in symbols for request bursts.
Minislot Size in number of Timebase Ticks is	Size in tick units of upstream minislot. A tick is 6.25 microseconds.
Minislot Size in Symbols	Size in symbols of the upstream minislot.
Bandwidth Requests	Number of successful bandwidth requests received in the contention minislots.
Piggyback Requests	Number of successful bandwidth requests piggybacked with regular data transmissions.
Invalid BW Requests	Number of invalid bandwidth (BW) requests. An example of an invalid bandwidth request is a modem using a nonexistent service identifier (SID) to request bandwidth.
Minislots Requested	Total number of minislots requested.
Minislots Granted	Total number of minislots granted.
Minislot Size in Bytes	Size of the minislot in bytes.
Map Advance (Dynamic)	Dynamic map advance time.
Map Count	Total number of map counts.
Remote Map Counts	Total number of remote map counts.
UCD Count	Number of Upstream Channel Descriptors (UCDs) sent for this upstream.
Remote UCD Counts	Number of remote UCDs sent for this upstream.

Table 163 show controllers cable upstream Field Descriptions (continued)

Field	Description
PHY	Physical layer information for the following: • us errors—Number of upstream errors. • us recoveries—Number of upstream recoveries.
MAC PHY TSS	Statistics on the integrity of sync status of timestamp snapshot values between MAC and PHY.
MAC PHY Status	MAC physical status for the following: • bcm3140 status • lookout status
MAP/UCD Replication Instructions	MAP/UCD replication instructions.
DES Ctrl Reg # =	Interval data encryption standard (DES) controller register dump.
Null Modem RateLimit Dropped Pkts	(Cisco uBR-MC16U/X, Cisco uBR-MC28U/X only) Number of packets that were dropped because they had a Service Flow ID (SFID) of 0, which occurs when the packets are dropped due to rate-limiting on their original service flow.
Additional Information for Broadband Processing Engine (BPE) Cable Interface Line Cards	
JIB Version	Revision of the JIB circuitry, which is the custom processor onboard the BPE cards that handles the MAC-layer processing.
Upconverter is Enabled Output is Enabled	Status of the upconverter and the signal output. If this field shows that the output is disabled, use the **no cable downstream rf-shutdown** command to re-enable it.
Downstream Frequency	Configured frequency, in MHz, for the integrated upconverter (if present).
RF Power	Current RF power, in dBmV, as measured on the cable interface line card upconverter. The upconverter circuitry is accurate to a few tenths of a dBmV, but might vary +/- 1 dBmV depending on the transient noise that occurs when the power is measured.

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

Related Commands

Command	Description
cable downstream frequency	Configures the downstream center frequency on the integrated upconverter.
cable downstream rf-power	Configures the desired RF output power on the integrated upconverter.
cable spectrum-group (global configuration)	Creates spectrum groups, which contain one or more upstream frequencies.

Command	Description
cable upstream frequency	Specifies that the upstream should be set to either a specific center frequency or be set dynamically.
show controllers cable upstream spectrum	(Cisco uBR-MC16 line card only) Displays the noise levels for a particular CM or displays the background noise for an entire upstream .
show interface cable sid	Displays interface controller information for a specific cable access router card slot.

show controllers cable jib

To display the ASIC processor (JIB) register information on a cable interface on the Cisco CMTS router, use the **show controllers cable jib** command in user EXEC or privileged EXEC mode.

show controllers cable {*slot*/*cable-interface-index* | *slot*/*subslot*//*cable-interface-index*} **jib** **us-partial-reset**

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.
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.
jib	Displays JIB register information.
us-partial-reset	Displays JIB3 upstream partial reset data.

Command Modes

User EXEC (>) or

Privileged EXEC (#)

Command History

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

Usage Guidelines

The **show controllers cable jib** command displays the packet capture buffers retrieved during the partial reset. It displays all of the capture buffers associated with the last partial reset event and also other information useful for determining the Partial Reset state.

Examples

The following is a sample output of the **show controllers cable jib** command:

```
Router# show controllers cable 5/0/0 jib us-partial-reset

Jib3 Upstream Partial Reset Information

Jib3 Upstream Debug Partial Reset Data

Partial Reset S/W Counts
------------------------
TOTAL Partial Resets  : 3
  PHY Side Partial Resets : 1
  CCF Partial Resets      : 1
  FrameP Partial Resets   : 0
  FragP Partial Resets    : 0
  PktP Partial Resets     : 0
  C2C Partial Resets      : 1

Partial Reset States
--------------------
PHY Side          : PR_NORMAL
Fauna             : PR_NORMAL

Partial Reset H/W Counts & Status
---------------------------------
  PHY Side Partial Resets  : 0x80300001
  PHY Side Partial Status0 : 0x00000000
  PHY Side Partial Status1 : 0x00000000

  CCF Partial Resets       : 0x8C000001
  CCF Partial Status1      : 0x00000000
  CCF Partial Status2      : 0x00000000

  FrameP Partial Resets    : 0x0C000000
  FrameP Partial Status    : 0x00000000

  FragP Partial Resets     : 0x0C000000
  FragP Partial Status     : 0x00000000

  PktP Partial Resets      : 0x0C000000
  PktP Partial Status1     : 0x00000000
  PktP Partial Status2     : 0x00000000
  PktP Partial Status3     : 0x00000000
  PktP Partial Status4     : 0x00000000

  C2C Partial Resets       : 0x8C000001
  C2C Partial Status       : 0x00000000

Partial Reset Packet Capture Buffers
------------------------------------
PHY Side Buf Ptr1 : 0x1F3DC35C
PHY Side Buf Ptr2 : 0x1F3E4390
PHY Side Buf Cnt  : 4079
FA1 Buf Ptr1      : 0x1F3EC3C4
FA1 Buf Ptr2      : 0x1F3F43F8
FA1 Buf Cnt       : 2663
FA2 Buf Ptr1      : 0x1F3FC42C
FA2 Buf Ptr2      : 0x1F404460
FA2 Buf Cnt       : 1109
FA3 Buf Ptr1      : 0x1F40C494
FA3 Buf Ptr2      : 0x1F4144C8
FA3 Buf Cnt       : 1109
FA4 Buf Ptr1      : 0x1F41C4FC
FA4 Buf Ptr2      : 0x1F424530
```

```
FA4 Buf Cnt       : 1109

PHY Side Capture FIFO Data (0xFEF entries, format: eop, data[31:0]):
----
0, 0xB            0, 0x0            0, 0x20163        0, 0x5440900
1, 0x6000000      0, 0x805000C      0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x8000006      0, 0x1632F40      1, 0x20000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x4060002      1, 0x400002       0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x230F0009
0, 0x0            0, 0xB            0, 0x0            0, 0x20163
0, 0x1C20900      1, 0x6000000      0, 0x805000C      0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x8000006      0, 0x16345C2
1, 0x20000        0, 0x50050006     0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x4060002      1, 0x400002       0, 0x400F0004
0, 0x0            0, 0xB            0, 0xFFF0001      1, 0x0
0, 0x230F0009     0, 0x0            0, 0xB            0, 0x0
0, 0x20163        0, 0x8470900      1, 0x6000000      0, 0x805000C
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x8000006
0, 0x1637402      1, 0x20000        0, 0x50050006     0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x4060002      1, 0x400002
0, 0x400F0004     0, 0x0            0, 0xB            0, 0xFFF0001
1, 0x0            0, 0x230F0009     0, 0x0            0, 0xB
0, 0x0            0, 0x20163        0, 0x6840900      1, 0x6000000
0, 0x805000C      0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x8000006      0, 0x1639C03      1, 0x20000        0, 0x50050006
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x4060002
1, 0x400002       0, 0x400F0004     0, 0x0            0, 0xB
0, 0xFFF0001      1, 0x0            0, 0x230F0009     0, 0x0
0, 0xB            0, 0x0            0, 0x20163        0, 0xE850900
1, 0x6000000      0, 0x1C06002E     0, 0x0            0, 0x5
0, 0x10004        0, 0x1C           0, 0xA1D0005      0, 0xE4E8F7
0, 0x1E6BFB       0, 0x794000A      0, 0x830301       0, 0x4008001
0, 0x800F5C6      0, 0x3D30B06      0, 0x44080        0, 0xF8FFFFF
1, 0xFF2FFFF      0, 0x400F0004     0, 0x0            0, 0x5
0, 0x10004        1, 0x10000        0, 0x1C06002E     0, 0x0
0, 0x1            0, 0x10004        0, 0x1C           0, 0xA1D0005
0, 0xE4E8F6       0, 0x23BE85       0, 0x906000A      0, 0xA60301
0, 0x4000001      0, 0x100BDD7      0, 0xE90B06       0, 0x24300
0, 0x220000       1, 0x15A0000      0, 0x400F0004     0, 0x0
0, 0x1            0, 0x10004        1, 0x10000        0, 0x805000C
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x800001E
0, 0x1651CB2      1, 0x10000        0, 0x50050006     0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x41E0001      1, 0xC310001
0, 0x400F0004     0, 0x0            0, 0xB            0, 0xFFF0001
1, 0x0            0, 0x230F0009     0, 0x0            0, 0xB
0, 0x0            0, 0x10165        0, 0xE560A00      1, 0xE000000
0, 0x805000C      0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x800001E      0, 0x165229C      1, 0x10000        0, 0x50050006
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x41E0001
1, 0xC310001      0, 0x400F0004     0, 0x0            0, 0xB
0, 0xFFF0001      1, 0x0            0, 0x230F0009     0, 0x0
0, 0xB            0, 0x0            0, 0x10165        0, 0x4940A00
1, 0xE000000      0, 0x805000C      0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x800001E      0, 0x1652647      1, 0x10000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x41E0001      1, 0xC310001      0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x230F0009
0, 0x0            0, 0xB            0, 0x0            0, 0x10165
0, 0x2560A00      1, 0xE000000      0, 0x805000C      0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x800001E      0, 0x1653424
1, 0x10000        0, 0x50050006     0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x41E0001      1, 0xC310001      0, 0x400F0004
0, 0x0            0, 0xB            0, 0xFFF0001      1, 0x0
```

```
0, 0x230F0009     0, 0x0            0, 0xB            0, 0x0
0, 0x10165        0, 0x1D70A00      1, 0xE000000      0, 0x805000C
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x800001E
0, 0x1656396      1, 0x10000        0, 0x50050006     0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x41E0001      1, 0xC310001
0, 0x400F0004     0, 0x0            0, 0xB            0, 0xFFF0001
1, 0x0            0, 0x230F0009     0, 0x0            0, 0xB
0, 0x0            0, 0x10165        0, 0x1A0A00       1, 0xE000000
0, 0x805000C      0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x800001E      0, 0x16591E8      1, 0x10000        0, 0x50050006
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x41E0001
1, 0xC310001      0, 0x400F0004     0, 0x0            0, 0xB
0, 0xFFF0001      1, 0x0            0, 0x230F0009     0, 0x0
0, 0xB            0, 0x0            0, 0x10165        0, 0xDC0A00
1, 0xE000000      0, 0x805000C      0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x800001E      0, 0x165C292      1, 0x10000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x41E0001      1, 0xC310001      0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x230F0009
0, 0x0            0, 0xB            0, 0x0            0, 0x10165
0, 0xDDE0A00      1, 0xE000000      0, 0x805000C      0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x800001E      0, 0x165EFA0
1, 0x10000        0, 0x50050006     0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x41E0001      1, 0xC310001      0, 0x400F0004
0, 0x0            0, 0xB            0, 0xFFF0001      1, 0x0
0, 0x230F0009     0, 0x0            0, 0xB            0, 0x0
0, 0x10166        0, 0xD5F0A00      1, 0xE000000      0, 0x805000C
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x800001E
0, 0x1661F6C      1, 0x10000        0, 0x50050006     0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x41E0001      1, 0xC310001
0, 0x400F0004     0, 0x0            0, 0xB            0, 0xFFF0001
1, 0x0            0, 0x230F0009     0, 0x0            0, 0xB
0, 0x0            0, 0x10166        0, 0xE2F0A00      1, 0xE000000
0, 0x805000C      0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x800001E      0, 0x1665018      1, 0x10000        0, 0x50050006
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x41E0001
1, 0xC310001      0, 0x400F0004     0, 0x0            0, 0xB
0, 0xFFF0001      1, 0x0            0, 0x230F0009     0, 0x0
0, 0xB            0, 0x0            0, 0x10166        0, 0x9E40A00
1, 0xE000000      0, 0x805000C      0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x800001E      0, 0x1667BAC      1, 0x10000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x41E0001      1, 0xC310001      0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x1C06002E
0, 0x0            0, 0x6            0, 0x30004        0, 0x1C
0, 0xA1D0005      0, 0xE4E8F7       0, 0x1E6BFC       0, 0x222000A
0, 0x870301       0, 0x4008003      0, 0x800CE55      0, 0x19A0B06
0, 0x244C0        0, 0xF1F0000      1, 0x570000       0, 0x400F0004
0, 0x0            0, 0x6            0, 0x30004        1, 0x10000
0, 0x230F0009     0, 0x0            0, 0xB            0, 0x0
0, 0x10166        0, 0x9650A00      1, 0xE000000      0, 0x805000C
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x800001E
0, 0x166AB3F      1, 0x10000        0, 0x50050006     0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x41E0001      1, 0xC310001
0, 0x400F0004     0, 0x0            0, 0xB            0, 0xFFF0001
1, 0x0            0, 0x230F0009     0, 0x0            0, 0xB
0, 0x0            0, 0x10166        0, 0x8E60A00      1, 0xE000000
0, 0x805000C      0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x800001E      0, 0x166DAB7      1, 0x10000        0, 0x50050006
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x41E0001
1, 0xC310001      0, 0x400F0004     0, 0x0            0, 0xB
0, 0xFFF0001      1, 0x0            0, 0x230F0009     0, 0x0
0, 0xB            0, 0x0            0, 0x10167        0, 0x9B00A00
1, 0xE000000      0, 0x805000C      0, 0x0            0, 0xB
```

```
0, 0xFFF0001      0, 0x800001E      0, 0x1670B84      1, 0x10000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x41E0001      1, 0xC310001      0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x230F0009
0, 0x0            0, 0xB            0, 0x0            0, 0x10167
0, 0x5680A00      1, 0xE000000      0, 0x805000C      0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x800001E      0, 0x167375D
1, 0x10000        0, 0x50050006     0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x41E0001      1, 0xC310001      0, 0x400F0004
0, 0x0            0, 0xB            0, 0xFFF0001      1, 0x0
0, 0x230F0009     0, 0x0            0, 0xB            0, 0x0
0, 0x10167        0, 0x4EC0A00      1, 0xE000000      0, 0x805000C
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x800001E
0, 0x16766D2      1, 0x10000        0, 0x50050006     0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x41E0001      1, 0xC310001
0, 0x400F0004     0, 0x0            0, 0xB            0, 0xFFF0001
1, 0x0            0, 0x805000C      0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x8000006      0, 0x16781A8      1, 0x20000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x4060002      1, 0x400002       0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x230F0009
0, 0x0            0, 0xB            0, 0x0            0, 0x20167
0, 0x42D0900      1, 0x6000000      0, 0x805000C      0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x8000006      0, 0x1678A69
1, 0x20000        0, 0x50050006     0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x4060002      1, 0x400002       0, 0x400F0004
0, 0x0            0, 0xB            0, 0xFFF0001      1, 0x0
0, 0x230F0009     0, 0x0            0, 0xB            0, 0x0
0, 0x20167        0, 0xCEE0900      1, 0x6000000      0, 0x230F0009
0, 0x0            0, 0xB            0, 0x0            0, 0x10167
0, 0x32D0A00      1, 0xE000000      0, 0x805000C      0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x800001E      0, 0x16794F2
1, 0x10000        0, 0x50050006     0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x41E0001      1, 0xC310001      0, 0x400F0004
0, 0x0            0, 0xB            0, 0xFFF0001      1, 0x0
0, 0x805000C      0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x8000006      0, 0x1679969      1, 0x20000        0, 0x50050006
0, 0x0            0, 0xB            0, 0xFFF0001      0, 0x4060002
1, 0x400002       0, 0x400F0004     0, 0x0            0, 0xB
0, 0xFFF0001      1, 0x0            0, 0x230F0009     0, 0x0
0, 0xB            0, 0x0            0, 0x20167        0, 0xBEE0900
1, 0x6000000      0, 0x805000C      0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x8000006      0, 0x167BDAA      1, 0x20000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x4060002      1, 0x400002       0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x230F0009
0, 0x0            0, 0xB            0, 0x0            0, 0x20167
0, 0x2F0900       1, 0x6000000      0, 0x230F0009     0, 0x0
0, 0xB            0, 0x0            0, 0x10167        0, 0x52F0A00
1, 0xE000000      0, 0x805000C      0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x8000006      0, 0x167C7AB      1, 0x20000
0, 0x50050006     0, 0x0            0, 0xB            0, 0xFFF0001
0, 0x4060002      1, 0x400002       0, 0x400F0004     0, 0x0
0, 0xB            0, 0xFFF0001      1, 0x0            0, 0x230F0009

007095: SLOT 5/0: Apr 27 04:43:17.502 Eastern: %UBR10000-5-UNREGSIDTIMEOUT: CM
 deleted unregistered Cable Modem 001e.6bfc.da8e0, 0x0            0, 0xB
    0, 0x0            0, 0x20167
0, 0xA300900      1, 0x6000000      0, 0x805000C      0, 0x0
0, 0xB            0, 0xFFF0001      0, 0x8000006      0, 0x167E6EC
1, 0x20000        0, 0x50050006     0, 0x0            0, 0xB
0, 0xFFF0001      0, 0x4060002      1, 0x400002       0, 0x400F0004
0, 0x0            0, 0xB            0, 0xFFF0001      1, 0x0
0, 0x10040048     0, 0x8003         0, 0xB            0, 0x20009
```

```
0, 0x1020042      0, 0x1006F2A      0, 0xFFFFFFF      0, 0xFFF001E
.
.
.
```

Table 161 describes the fields shown in the **show controllers cable jib** command display.

Table 164 show controllers cable jib Field Descriptions

Field	Description
TOTAL Partial Resets	Total number of partial resets.
PHY Side Partial Resets	Number of partial resets that occurred on the PHY side of the network.
CCF Partial Resets	Number of partial resets that occurred on the Continuous Concatenation and Fragmentation (CCF) processor.
FrameP Partial Resets	Number of partial resets that occurred on the Frame Processor (FrameP).
FragP Partial Resets	Number of partial resets that occurred on the Fragmentation Processor (FragP).
PktP Partial Resets	Number of partial resets that occurred on the Packet Processor (PktP).
C2C Partial Resets	Number of partial resets that occurred on the Chip to Chip (also called FL2FA—Flora to Fauna) (C2C) processor.
PHY Side	Partial reset status on the PHY side.
Fauna	Partial reset status on the Fauna.
PHY Side Partial Resets	Number of partial resets that occurred on the PHY side processor.
PHY Side Partial Status	Partial reset status on the PHY side.
CCF Partial Resets	Number of partial resets that occurred on the CCF processor.
CCF Partial Status	Partial reset status on the CCF processor.
FrameP Partial Resets	Number of partial resets that occurred on the Frame processor.
FrameP Partial Status	Partial reset status on the Frame processor.
FragP Partial Resets	Number of partial resets that occurred on the Fragmentation processor.
FragP Partial Status	Partial reset status on the Fragmentation processor.
PktP Partial Resets	Number of partial resets that occurred on the Packet processor.
PktP Partial Status	Partial reset status on the Packet processor.
C2C Partial Resets	Number of partial resets that occurred on the C2C processor.
C2C Partial Status	Partial reset status on the C2C processor.
PHY Side Buf Ptr	PHY partial reset packet capture buffer pointer.
PHY Side Buf Cnt	PHY partial reset packet capture buffer count.
FA1 Buf Ptr	Partial reset packet capture buffer 1 pointer on the Fauna processor.
FA1 Buf Cnt	Number of packet capture buffer 1 counts associated with the partial reset on the Fauna processor.
FA2 Buf Ptr	Partial reset packet capture buffer 2 pointer on the Fauna processor.

Table 164 show controllers cable jib Field Descriptions (continued)

Field	Description
FA2 Buf Cnt	Number of packet capture buffer 2 counts associated with the partial reset on the Fauna processor.
FA3 Buf Ptr	Partial reset packet capture buffer 3 pointer on the Fauna processor.
FA3 Buf Cnt	Number of packet capture buffer 3 counts associated with the partial reset on the Fauna processor.
FA4 Buf Ptr	Partial reset packet capture buffer 4 pointer on the Fauna processor.
FA4 Buf Cnt	Number of packet capture buffer 4 counts associated with the partial reset on the Fauna processor.

Related Commands

Command	Description
show controllers cable	Displays information about the interface controllers on a cable interface on the Cisco CMTS router.

show controllers cable upstream spectrum

To display the noise levels for a particular CM or to display the background noise for an entire upstream on the Cisco uBR-MC16 line card, use the **show controllers cable upstream spectrum** command in user EXEC or privileged EXEC mode.

show controllers cable {*slot/port* | *slot/subslot/port*} **upstream** *n* **spectrum** [*ip-address* | *mac-address*] *start-freq end-freq res-freq*

Syntax Description

slot/port	Identifies the cable interface and downstream port on the Cisco uBR7100 series and Cisco uBR7200 series routers. On the Cisco uBR7100 series router, the only valid value is **1/0**. On the Cisco uBR7200 series router, *slot* can range from 3 to 6, and *port* can be 0 or 1, depending on the cable interface.
slot/subslot/port	Identifies the cable interface on the Cisco uBR10012 router. The following are the valid values: • *slot* = 5 to 8 • *subslot* = 0 or 1 • *port* = 0 to 4 (depending on the cable interface)
n	Port number for the desired upstream (0 to 5).
ip-address	(Optional) IP address, in dotted decimal notation, for a CM on the specified upstream.
mac-address	(Optional) MAC address, in dotted hexadecimal notation, for a CM on the specified upstream.
start-freq	Starting frequency for the frequency range that is being reported (5 to 42 MHz; can also be specified as 5000 to 42000 KHz or 5000000 to 42000000 Hz).
end-freq	Ending frequency for the frequency range that is being reported (5 to 42 MHz). **Note** The ending frequency must be greater than the starting frequency and must be specified using the same units as the starting frequency (MHz, KHz, Hz).
res-freq	Resolution frequency to determine the number of data points for the report (12 to 37000 KHz). **Note** The resolution frequency must be specified in the same units as the starting and ending frequency (MHz, KHz, Hz). To use a resolution value less than 1 MHz, you must specify the other parameters in either Hz or KHz.

Command Modes

User EXEC, Privileged EXEC

Command History

Release	Modification
12.1(7)CX1	This command was introduced for Cisco CMTS routers using the Cisco uBR-MC16S cable interface line card.
12.2(8)BC2	Support was added for the Cisco uBR10012 router and the Cisco uBR-LCP2-MC16S cable interface line card.
12.3(21)BC	This command is obsolete.

Usage Guidelines

Cisco IOS Release 12.3(9a)BC adds the **tech-support** keyword to the **show controllers cable** command. This change allows users with large numbers of online cable modems to collect the necessary line card information without consuming the console session for a long period of time.

Additional and related improvements are also available for the show cable tech-support command.

For all supported releases, the **show controllers cable upstream spectrum** command displays the power in dBmV for a given frequency range for the specified upstream. The frequency range can cover any portion of the DOCSIS upstream frequency range (5 to 42 MHz), and the frequency range can be divided into a resolution as small as 12 KHz.

If a CM is specified by its IP address or MAC address, the power information for that particular CM is given. If no IP or MAC address is given, the command displays the background noise for the entire upstream. All displays use historical averaging of data collected at the time the command is used; historical information is not saved.

Note Cisco cable interface line cards always program the upstream's center frequency in 16-KHz increments, and this is the frequency displayed by the **show controller cable upstream** command. For example, if you use the **cable upstream frequency** command to specify a center frequency of 27 MHz (**cable upstream *x* frequency 27000000**), the actual center frequency will be 27.008 MHz, which is the next-highest 16-KHz boundary.

Tip By default, the **show controller cable upstream** command displays its output to the router's console port. To display the command's output when logged in during a Telnet session over an Ethernet port, use the **terminal monitor** command before giving the **show controller cable upstream** command.

Examples

The following example shows the **show controllers cable upstream** command displaying the power information for a particular CM on upstream 5 of cable interface slot 3/0. The power information is displayed over the entire upstream (5–42 MHz), with a resolution of 5 MHz:

```
Router# show cable modem

MAC Address    IP Address      I/F     MAC         Prim  RxPwr Timing Num  BPI
                                       State       Sid   (db)  Offset CPEs Enbld
...
00d0.ba77.7595 10.20.114.34    C3/0/U5 online      1     0.25  2740   1    yes
00d0.ba77.7621 10.20.114.17    C3/0/U5 online      2     0.25  2740   2    yes
00d0.ba77.7533 10.20.114.55    C3/0/U5 online      3     0.25  2740   1    yes
...

Router# show controllers cable 3/0 upstream 5 spectrum 10.20.114.34 5 42 5

02:16:49: Spectrum DATA(@0x4B060004) for u5: 4995-41991KHz(resolution 4992KHz, sid 1):
```

```
02:16:49: Freq(KHz) dBmV Chart
02:16:49: 4995 :    -5   ************************
02:16:49: 9987 :    -7   ************************
02:16:49: 14979:    -24  ****************
02:16:49: 19971:    -35  **********
02:16:49: 24963:    -39  ********
02:16:49: 29955:    -35  **********
02:16:49: 34947:    -37  *********
02:16:49:
Router#
```

Note The output for each frequency range includes a time-stamp, the ending frequency for each range (in KHz), the historical average power level for that range (in dBmV), and a series of asterisks that provides a graphical representation of the noise floor level for the signal (a stronger signal is indicated by more asterisks).

The following example shows a partial display of the background noise data for upstream 4 of cable interface slot 6/0. The command covers the entire upstream spectrum (5–42 MHz) at the minimum resolution of 12 KHz.

```
Router# show controller cable 6/0 upstream 4 spectrum 5000 42000 12

02:15:54: Spectrum DATA(@0x4B060004) for u5: 4995-41991KHz(resolution 12KHz, sid 1):
02:15:54: Freq(KHz) dBmV Chart
02:15:54: 4995 :    -100
02:15:54: 5007 :    -67
02:15:54: 5019 :    -67
02:15:54: 5031 :    -67
02:15:54: 5043 :    -64
02:15:54: 5055 :    -64
02:15:54: 5067 :    -61
...
02:15:54: 8199 :    -67
02:15:54: 8211 :    -61
02:15:54: 8223 :    -64
02:15:54: 8235 :    -57
02:15:54: 8247 :    -49  ***
02:15:54: 8259 :    -52  **
02:15:54: 8271 :    -46  *****
02:15:54: 8283 :    -45  *****
02:15:54: 8295 :    -52  **
02:15:54: 8307 :    -48  ****
02:15:54: 8319 :    -45  *****
02:15:54: 8331 :    -41  *******
02:15:54: 8343 :    -39  ********
02:15:54: 8355 :    -39  ********
02:15:54: 8367 :    -40  ********
02:15:54: 8379 :    -43  ******
02:15:54: 8391 :    -44  ******
02:15:54: 8403 :    -33  ***********
02:15:54: 8415 :    -32  ************
02:15:54: 8427 :    -30  **************
02:15:54: 8439 :    -27  ***************
02:15:54: 8451 :    -28  ***************
02:15:54: 8463 :    -36  **********
02:15:54: 8475 :    -40  ********
02:15:54: 8487 :    -37  *********
02:15:54: 8499 :    -40  ********
02:15:54: 8511 :    -39  ********
02:15:54: 8523 :    -28  ***************
02:15:54: 8535 :    -29  *************
02:15:54: 8547 :    -27  ***************
```

```
02:15:54: 8559 :    -29  *************
02:15:54: 8571 :    -40  ********
02:15:54: 8583 :    -36  **********
02:15:54: 8595 :    -28  ***************
02:15:54: 8607 :    -30  *************
...
02:15:54: 11247:    -40  ********
02:15:54: 11259:    -44  ******
02:15:54: 11271:    -44  ******
02:15:54: 11283:    -46  *****
02:15:54: 11295:    -46  *****
02:15:54: 11307:    -42  *******
02:15:54: 11319:    -46  *****
02:15:54: 11331:    -48  ****
02:15:54: 11343:    -53  *
02:15:54: 11355:    -55
02:15:54: 11367:    -54  *
02:15:54: 11379:    -57
02:15:54: 11391:    -61
02:15:54: 11403:    -60
02:15:54: 11415:    -60
02:15:54: 11427:    -60
02:15:54: 11439:    -61
02:15:54: 11451:    -57
02:15:54: 11463:    -58
02:15:54: 11475:    -67
02:15:54: 11487:    -58
...
```

Tip In Cisco IOS Release 12.1(12)EC, Release 12.2(8)BC1, 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
cable modulation-profile	Creates a cable modulation profile.
cable upstream hop-priority	Determines the order of the corrective actions to be taken when ingress noise exceeds the allowable value for an upstream.
cable upstream modulation-profile	Configures an upstream for one modulation profile (static profile) or two modulation profiles (Dynamic Upstream Modulation).
show cable hop	Displays the current hop period and threshold for an upstream, along with other statistics.
show cable modem cnr	Displays information about the upstream carrier-to-noise ratio (CNR) for a particular cable modem.
show cable modulation-profile	Displays the cable modulation profiles that have been created.
show controllers cable	Displays detailed statistics for the cable interface.

show controllers cable-modem

To display high-level controller information for the router's cable interface, use the **show controllers cable-modem** command in privileged EXEC mode.

Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* [**all**]

Syntax Description

number	Identifies the cable interface (always **0**).
all	(Optional) Displays detailed, multi-page output, including chip-level settings, transmit and receive ring contents, and MAC-layer and PHY-layer registers and buffers.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.

Usage Guidelines

The **show controllers cable-modem** display begins with information from the first few registers of the Broadcom BCM3300 chip. Next is buffer information for the receive, receive MAC message, buffer descriptor, and packet descriptor rings. Then comes MIB statistics from the BCM3300 chip, DMA base registers to indicate where the rings start, global control and status information, and finally interrupts for the interrupt code.

When using this command, be sure to check the tx_count and the tx_head and tx_tail values for the buffer descriptor (TX BD) and packet descriptor (TX PD) rings. The tx_count should be greater than 0, and the tx_head and tx_tail values should not be equal. If these values do not change for several minutes, it could indicate that there are packets stuck on the ring. This condition is often caused by the CMTS not giving grants.

Examples

The following shows typical output for the **show controllers cable-modem** command:

```
Router# show controllers cable-modem 0
BCM Cable interface 0:
BCM3300 unit 0, idb 0x200EB4, ds 0x82D4748, regaddr = 0x800000, reset_mask 0x80
station address 0010.7b43.aa01  default station address 0010.7b43.aa01
PLD VERSION: 32

MAC State is ranging_2_state, Prev States = 7
MAC mcfilter 01E02F00  data mcfilter 01000000
```

```
DS: BCM 3116 Receiver: Chip id = 2
US: BCM 3037 Transmitter: Chip id = 30B4

Tuner: status=0x00
Rx: tuner_freq 699000000, symbol_rate 5055849, local_freq 11520000
    snr_estimate 33406, ber_estimate 0, lock_threshold 26000
    QAM in lock, FEC in lock, qam_mode QAM_64
Tx: tx_freq 20000000, power_level 0x3E, symbol_rate 1280000

DHCP: TFTP server = 4.0.0.32, TOD server = 4.0.0.188
      Security server = 0.0.0.0, Timezone Offset = 0.0.4.32
      Config filename =

buffer size 1600

RX data PDU ring with 32 entries at 0x201D40
  rx_head = 0x201D78 (7), rx_p = 0x831BE04 (7)
    00 pak=0x8326318 buf=0x225626 status=0x80 pak_size=0
    01 pak=0x83241A0 buf=0x21DE5A status=0x80 pak_size=0
    02 pak=0x83239C0 buf=0x21C22A status=0x80 pak_size=0
    03 pak=0x8328C70 buf=0x22EA22 status=0x80 pak_size=0
    04 pak=0x8325F28 buf=0x22480E status=0x80 pak_size=0
    05 pak=0x8327CB0 buf=0x22B1C2 status=0x80 pak_size=0
    06 pak=0x8323BB8 buf=0x21C936 status=0x80 pak_size=0

RX MAC message ring with 8 entries at 0x201E80
  rx_head_mac = 0x201E88 (1), rx_p_mac = 0x831BE80 (1)
    00 pak=0x8326120 buf=0x224F1A status=0x80 pak_size=0
    01 pak=0x8324590 buf=0x21EC72 status=0x80 pak_size=0
    02 pak=0x8323FA8 buf=0x21D74E status=0x80 pak_size=0
    03 pak=0x8326EE8 buf=0x22806E status=0x80 pak_size=0
    04 pak=0x8328E68 buf=0x22F12E status=0x80 pak_size=0
    05 pak=0x8327AB8 buf=0x22AAB6 status=0x80 pak_size=0
    06 pak=0x8328880 buf=0x22DC0A status=0x80 pak_size=0
    07 pak=0x8326CF0 buf=0x227962 status=0xA0 pak_size=0

TX BD ring with 8 entries at 0x201FB8, tx_count = 0
  tx_head = 0x201FD8 (4), head_txp = 0x831BF20 (4)
  tx_tail = 0x201FD8 (4), tail_txp = 0x831BF20 (4)
    00 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    01 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    02 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    03 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    04 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    05 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    06 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    07 pak=0x000000 buf=0x200000 status=0x20 pak_size=0

TX PD ring with 8 entries at 0x202038, tx_count = 0
  tx_head_pd = 0x202838 (4)
  tx_tail_pd = 0x202838 (4)
    00 status=0x00 bd_index=0x0000 len=0x0000 hdr_len=0x0000
    ehdr: 01 06 02 74 34 11
    01 status=0x00 bd_index=0x0001 len=0x0000 hdr_len=0x0000
    ehdr: 01 06 02 74 34 11
    02 status=0x00 bd_index=0x0002 len=0x0000 hdr_len=0x0000
    ehdr: 01 06 02 74 34 11
    03 status=0x00 bd_index=0x0003 len=0x0000 hdr_len=0x0000
    ehdr: 01 06 02 74 34 11
    04 status=0x00 bd_index=0x0004 len=0x0000 hdr_len=0x0000
    ehdr: 01 06 02 74 34 11
    05 status=0x00 bd_index=0x0005 len=0x0000 hdr_len=0x0000
    ehdr: 01 06 02 74 34 11
    06 status=0x00 bd_index=0x0006 len=0x0000 hdr_len=0x0000
```

```
    ehdr: 01 06 02 74 34 11
    07 status=0x20 bd_index=0x0007 len=0x0000 hdr_len=0x0000
    ehdr: 01 06 02 74 34 11

MIB Statistics
  DS fifo full = 0, Rerequests = 0
  DS mac msg overruns = 0, DS data overruns = 0
  Qualified maps = 348, Qualified syncs = 73
  CRC fails = 0, HDR chk fails = 0
  Data pdus = 0, Mac msgs = 423
  Valid hdrs = 423

BCM3300 Registers:
downstream dma:
  ds_data_bd_base=0x001D40, ds_mac_bd_base=0x001E80
  ds_data_dma_ctrl=0x98, ds_mac_dma_ctrl=0xD8
  ds_dma_data_index=0x0007, ds_dma_msg_index=0x0000
upstream dma:
  us_bd_base=0x001FB8, us_pd_base=0x002038
  us_dma_ctrl=0x80, us_dma_tx_start=0x00
Global control and status:
  global_ctrl_status=0x00
interrupts:
  irq_pend=0x0008, irq_mask=0x00F7
Router#
```

The following shows an excerpt from the display for the **all** option:

```
Router# show controllers cable-modem 0 all
BCM MAC/PHY: Chip id = BCM3300 Revision A (1)

BCM3220 unit 0, idb 0x81068880, ds 0x8106B8A0, regaddr = 0x10100000, reset_mask 0x80
station address 0006.53b6.57bd  default station address 0006.53b6.57bd
MAC mcfilter 01E02F00  data mcfilter 00000000

buffer size 1856
RX data PDU ring with 32 entries at 0x10030F00
  rx_head = 0x10030F78 (15), rx_p = 0x8106B8F8 (15)
    00 pak=0x810798C0 buf=0x10044F56 status=0x80 pak_size=0
    01 pak=0x81079BB4 buf=0x1004575E status=0x80 pak_size=0

...

Tuner: status=0x00
Rx: tuner_freq 645000000, symbol_rate 5056000, local_freq 11520000
    snr_estimate 345(TenthdB), ber_estimate 0, lock_threshold 23000
    QAM in lock, FEC in lock, qam_mode QAM_64   (Annex B)
Tx: tx_freq 27984000, symbol rate 16 (2560000 sym/sec)
     power_level: 29.75 dBmV (current)
                  30  (gain in US AMP units)
                  5   (BCM3300 attenuation in .4 dB units)
IF AGC=0x2010 (8208)  RF AGC=0x3753 (14163)
Combined AGC = 22371 (band = 1)

Estimated Downstream Power: 7.9 dBmV

Platform check 8400000

Router#
```

Note The **show controllers cable-modem 0 all** command displays extensive information about the current state of the modem and its MAC-layer and PHY-layer registers and buffers. You need to open a capture buffer on your terminal or Telnet software to log this information before you give this command.

Table 165 describes the significant fields shown by the **show controllers cable-modem** command. For more information, see the Broadcom documentation for the BCM3300 chip.

Table 165 show controllers cable-modem Field Descriptions

Field	Description
BCM3300 unit	Unit number of this BCM3300 chip.
idb	Interface description block number.
ds	Downstream channel.
regaddr	Indicates the start of the BCM3300 registers.
reset_mask	Indicates the bit to hit when resetting the chip.
station address	MAC address of this router's cable interface.
default station address	Default MAC address assigned by the factory for this router.
PLD VERSION	PLD version of the BCM3300 chip.
MAC State	Current MAC state of the router.
Prev States	Number of states that have previously existed since initialization.
MAC mcfilter	MAC control filter for MAC messages.
data mcfilter	MAC control filter for data.
DS	Downstream Broadcom receiver chip number and ID.
US	Upstream Broadcom transmitter chip number and ID.
Tuner: status	Current status of the tuner.
Rx: tuner_freq	Downstream frequency (in Hz) that the router searched for and found.
symbol_rate	Downstream frequency in symbols per second.
local_freq	Frequency on which the transmitter and the tuner communicate.
snr_estimate	Estimate of signal-to-noise ratio (SNR) in dB multiplied by 1000.
ber_estimate	Estimate of bit error rate (always 0).
lock_threshold	Minimum signal-to-noise ratio (SNR) that the router will accept as a valid lock.
qam_mode	The modulation scheme used in the downstream direction.
Tx: tx_freq	Upstream frequency sent to the router by the CMTS in the UCD message.
power_level	Transmit power level as set in the hardware, expressed as a hexadecimal value. The units are unique to the hardware used. Use the **show controllers cable-modem mac state** command to see the power level in dBmV.
symbol_rate	Upstream frequency in symbols per second.
TFTP server	IP address of the TFTP server at the CMTS.
TOD server	IP address of the time-of-day server at the CMTS.
Security server	IP address of the security server at the CMTS.

Table 165 show controllers cable-modem Field Descriptions

Field	Description
Timezone Offset	Correction received from the DHCP server to synchronize the router time clock with the CMTS.
Config filename	Name of the file stored on the cable company's TFTP server that contains operational parameters for the router.
buffer size	Size in bytes of the BCM3300 message buffers.
RX data PDU ring:	Indicates the memory location of the beginning of buffer information for the receive data ring.
rx_head	Indicates current head buffer descriptor.
rx_p	Indicates current head packet descriptor.
RX MAC message ring:	Indicates the memory location of the beginning of buffer information for the receive MAC message ring.
rx_head_mac	Indicates current head buffer descriptor.
rx_p_mac	Indicates current head packet descriptor.
TX BD ring:	Indicates the memory location of the beginning of buffer information for the transmit buffer descriptor ring.
tx_count	If tx_count is 0, or if tx_head and tx_tail are equal and there is no change for a period of time, it means there are packets stuck on the ring. This condition may be caused by the CMTS not giving grants.
tx_head	Indicates current head transmit packet descriptor.
head_txp	The next packet descriptor to get used, along with its index.When head_txp and tail_txp are the same, the transmit queue is empty.
tx_tail	Indicates current tail transmit packet descriptor.
tail_txp	The next packet descriptor to get sent, along with its index. When head_txp and tail_txp are the same, the transmit queue is empty.
TX PD ring:	Indicates the memory location of the beginning of buffer information for the transmit packet descriptor ring.
tx_head_pd	Indicates current head packet descriptor.
tx_tail_pd	Indicates current tail packet descriptor.
ehdr	Extended MCNS header.
MIB Statistics	
DS fifo full	Number of times the downstream input first-in first-out (FIFO) buffer became full on the router.
rerequests	Number of times a bandwidth request generated by the router was not responded to by the CMTS.
DS mac msg overruns	Number of times the router's DMA controller had a downstream MAC message and there were no free MAC message buffer descriptors to accept the message.
DS data overruns	Number of times the router's DMA controller had downstream data and there were no free data PDU buffer descriptors to accept the data.
Qualified maps	Number of times a MAP message passed all filtering requirements and was received by the router.

Table 165 show controllers cable-modem Field Descriptions

Field	Description
Qualified syncs	Number of times a timestamp message was received by the router.
CRC fails	Number of times a MAC message failed a cyclic redundancy check (CRC).
HDR chk fails	Number of times a MAC header failed its 16-bit CRC check. The MAC header CRC is a 16-bit Header Check Sequence (HCS) field that ensures the integrity of the MAC header even in a collision environment.
Data pdus	Total number of data protocol data units (PDUs) of all types received by the router.
Mac msgs	Number of MAC messages received by the router.
Valid hdrs	Number of valid headers received by the router, including PDU headers, MAC headers, and headers only.
Global control and status:	Used to reset the BCM3300 chip.
interrupts:	Hexadecimal values of the pending IRQ interrupt and IRQ mask.

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 controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the router and the CMTS.
show controllers cable-modem crypto des	Displays information about the DES engine registers.
show controllers cable-modem filters	Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem lookup-table	Displays the mini-slot lookup table for the cable interface.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware for the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem bpkm

To display information about the Baseline Privacy Interface (BPI) or BPI Plus (BPI+) key management (BPKM) exchange between the router and the CMTS, use the **show controllers cable-modem bpkm** command in privileged EXEC mode.

Cisco uBR904, Cisco uBR905, Cisco uBR924, and Cisco uBR925 cable access routers, and Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **bpkm**

Syntax Description

number	Identifies the cable interface (always **0**).

Defaults

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.
12.2(15)CZ	Support for DOCSIS 1.1 and BPI+ operation was added for the Cisco uBR905 and Cisco uBR925 cable access routers, and the Cisco CVA122 Cable Voice Adapter.

Usage Guidelines

Baseline privacy key management exchanges take place only when both the router and the CMTS are running code images that support Baseline Privacy Interface (BPI) or BPI Plus (BPI+) encryption, and the privacy class of service is enabled via the configuration file that is downloaded to the router. Baseline privacy code images for the router contain k1, k8, or k9 in the code image name.

Examples

The following shows typical output for the **show controllers cable-modem bpkm** command for DOCSIS 1.0 BPI operation when the CMTS does not have baseline privacy enabled:

```
Router# show controllers cable-modem 0 bpkm

CM Baseline Privacy Key Management
  configuration (in seconds):
      authorization wait time:    10
      reauthorization wait time:  10
      authorization grace time:   600
      operational wait time:      1
      rekey wait time:            1
```

```
    tek grace time:             600
    authorization rej wait time: 60
  kek state:    STATE_B_AUTH_WAIT
  sid 4:
    tek state: No resources assigned
```

Table 0-166 describes the fields shown in the display.

Table 0-166 show controllers cable-modem bpkm Field Descriptions

Field	Description
authorization wait time	The number of seconds the router waits for a reply after sending the Authorization Request message to the CMTS.
reauthorization wait time	The number of seconds the router waits for a reply after it has sent an Authorization Request message to the CMTS in response to a reauthorization request or an Authorization Invalid message from the CMTS.
authorization grace time	The number of seconds before the current authorization is set to expire that the grace timer begins, signaling the router to begin the reauthorization process.
operational wait time	The number of seconds the Traffic Exchange Key (TEK) state machine waits for a reply from the CMTS after sending its initial Key Request for its SID's keying material.
rekey wait time	The number of seconds the TEK state machine waits for a replacement key for this Service ID (SID) after the TEK grace timer has expired and the request for a replacement key has been made.
tek grace time	The number of seconds before the current TEK is set to expire that the TEK grace timer begins, signaling the TEK state machine to request a replacement key.
authorization rej wait time	Number of seconds the router waits before sending another Authorization Request message to the CMTS after it has received an Authorization Reject message.
kek state	The current state of the key encryption key that the CMTS uses to encrypt the traffic encryption keys it sends to the router. See Table 0-168 on page 81 for the possible values.
tek state	The current state of the traffic encryption key state machine for the specified SID. See Table 0-168 on page 81 for the possible values.

The following shows typical output for the **show controllers cable-modem bpkm** command for DOCSIS 1.1 BPI+ operation when baseline privacy is enabled:

```
Router# show controllers cable-modem 0 bpkm

CM Baseline Privacy Key Management
Privacy Version:            BPI+ (PLUS)
  public key:
      30819F30 0D06092A 864886F7 0D010101 05000381 8D003081 89028181 00E560B2
      4F6777A1 731AF856 CE936615 BF513F15 44CE2D02 95167EAD 139FE25C C1E7D4E5
      99B34020 D96608B2 A87C0AA1 C171B265 3E87FF7F F70FD3B1 AE96F0EE B2E75172
      6B06F661 EA631817 0D317D6F 22FC733B F150E65F 44AE535A 5FB0532F 14519F3B
      80A9D442 05D7B7EF 58A5993C 49BB5028 9A3A980A 36AEDC53 E762FA4D 63020301 01
  keks:   even 4184D17A0C0AEDA3 odd C07A8454DBAA7F1B
  hmac upstream key even:
      4E0A5108 A8451B24 BAC3A8CA D8DF459F 6D37448D
```

```
  hmac upstream key odd:
      5D04EEDD 43129682 F7A474EA 4E9F888B 5EC18478
  hmac downstream key even:
      7B6595D6 75B435FB 2FA7204D 2F203CB1 FBA80950
  hmac downstream key odd:
      E15FC10B 7F1BAFE8 6295315F E91FE97C F0DE3A73
  configuration (in seconds):
      authorization wait time:    5
      reauthorization wait time:  30
      authorization grace time:   60
      operational wait time:      2
      rekey wait time:            2
      tek grace time:             60
      authorization rej wait time: 60
      sa map wait time:       1
      sa map retries:         4
  kek state:     STATE_C_AUTHORIZED
  kek life:      86450 sec
  sid 2:
      tek state: STATE_D_OPERATIONAL
      tek life:  21654 sec
      keys:      even 1730E9E1F0B1C4C, odd 23021AE604610E38
      ivectors:  even 16FB0175256819FD, odd B802057107302F8
      sequence:  12
 DSA map List

Router#
```

Table 0-167 describes the fields shown in the display for BPI+ operation.

Table 0-167 show controllers cable-modem bpkm Field Descriptions (BPI+)

Field	Description
Privacy Version	Whether BPI or BPI+ is being run.
public key	The Diffie-Hellman public key that the router uses to establish a BPI+ session with the CMTS.
keks	The odd and even values for the key encryption key (KEK).
hmac upstream keys	The odd and even values for the hash message authentication code (HMAC) key used in upstream key requests.
hmac downstream keys	The odd and even values for the HMAC message authentication key used in downstream key replies, key rejects, and invalid TEK messages.
authorization wait time	The number of seconds the router waits for a reply after sending the Authorization Request message to the CMTS.
reauthorization wait time	The number of seconds the router waits for a reply after it has sent an Authorization Request message to the CMTS in response to a reauthorization request or an Authorization Invalid message from the CMTS.
authorization grace time	The number of seconds before the current authorization is set to expire that the grace timer begins, signaling the router to begin the reauthorization process.
operational wait time	The number of seconds the TEK state machine waits for a reply from the CMTS after sending its initial Key Request for its SID's keying material.
rekey wait time	The number of seconds the TEK state machine waits for a replacement key for this SID after the TEK grace timer has expired and the request for a replacement key has been made.

Table 0-167 show controllers cable-modem bpkm Field Descriptions (BPI+) (continued)

Field	Description
tek grace time	The number of seconds before the current TEK is set to expire that the TEK grace timer begins, signaling the TEK state machine to request a replacement key.
authorization rej wait time	Number of seconds the router waits before sending another Authorization Request message to the CMTS after it has received an Authorization Reject message.
sa map wait time	Number of seconds the router waits for a response after sending a Security Association (SA) map request before timing out and resending the request.
sa map retries	Number of times the router attempts an SA map request before it rejects the attempt to create a new downstream service flow.
kek state	The current state of the key encryption key that the CMTS uses to encrypt the traffic encryption keys it sends to the router. See Table 0-168 for the possible values.
tek state	The current state of the traffic encryption key state machine for the specified SID. See Table 0-168 for the possible values.

Table 0-168 describes the valid values for the kek state and tek state fields:

Table 0-168 State Values for KEK and TEK State Fields

State	Description
Key Encryption Key (KEK) States	
STATE_A_START	The router is still completing the DOCSIS provisioning process. If this state persists, it indicates that BPI/BPI+ encryption was not enabled for the router in its DOCSIS configuration file.
STATE_B_AUTH_WAIT	DOCSIS provisioning has been completed, and the router has sent an authorization request to the CMTS and is waiting for a reply. If this state persists, it indicates that the CMTS has not enabled BPI/BPI+ operations.
STATE_C_AUTHORIZED	The router has received a valid authorized reply from the CMTS, completing the KEK exchange, and allowing the TEK exchange to begin.
STATE_D_REAUTH_WAIT	The router sent a reauthorization request and is waiting for the reply from the CMTS. A reauthorization request can be sent if the initial request is rejected, or when existing keys have expired and must be reacquired.
STATE_E_AUTH_REJ_WAIT	The router has received a nonpermanent authorization reject response from the CMTS and is waiting for the timeout period before sending another request.
STATE_F_SILENT	The router has received a permanent authorization reject response from the CMTS and has been placed in silent mode, in which it does not pass traffic but does accept SNMP management requests. (Valid only for BPI+ operations.)

Table 0-168 State Values for KEK and TEK State Fields (continued)

State	Description
Traffic Encryption Key (TEK) States	
STATE_A_START	The router is still completing the DOCSIS provisioning process, or is still performing the KEK key exchange. If this state persists, it indicates that KEK authorization failed, or that BPI/BPI+ encryption was not enabled for the router in its DOCSIS configuration file.
STATE_B_OP_WAIT	The router has successfully completed the KEK key exchange, has sent a key request to the CMTS, and is waiting for a reply.
STATE_C_OP_REAUTH_WAIT	The router has sent a reauthorization request and is waiting for a reply, or the TEK key has been declared invalid. BPI/BPI+ encryption has not yet begun. If this state persists, it indicates that the TEK key exchange has failed.
STATE_D_OPERATIONAL	The router has completed the TEK key exchange, and BPI or BPI+ encryption is operational between the router and the CMTS.
STATE_E_REKEY_WAIT	The existing TEK keys have expired, and the router has requested a key update from the CMTS.
STATE_F_REKEY_REAUTH_WAIT	The router has requested a key update from the CMTS and is waiting for a reply. BPI/BPI+ encryption can continue using the existing keys until they expire.

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem crypto des	Displays information about the DES engine registers.
show controllers cable-modem filters	Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem lookup-table	Displays the mini-slot lookup table inside the cable interface.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware for the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem classifiers

To display the DOCSIS 1.1 classifiers currently in use on the router, use the **show controllers cable-modem classifiers** command in privileged EXEC mode.

Cisco uBR905 and uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **classifiers** [*classifier-id* | **summary**]

Syntax Description

number	Identifies the cable interface (always **0**).
classifier-id	(Optional) Displays information for a specific classifier. The valid range is 1 to 65535.
summary	(Optional) Displays a brief summary of all classifiers.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(15)CZ	This command was introduced for the Cisco uBR905 and Cisco uBR925 cable access routers, and the Cisco CVA122 Cable Voice Adapter.

Usage Guidelines

This command displays the classifiers that are currently defined for both the upstream and downstream. The information shown corresponds to the Quality of Service classifier parameters that are listed in Appendix C of the DOCSIS 1.1 specification.

Examples

The following example shows typical output for both upstream and downstream classifiers on the **show controllers cable-modem classifiers** command:

```
Router# show controllers cable-modem 0 classifiers

Upstream Packet Classifiers parameters
  Classifier Reference:    1
  Classifier ID:            2
  Service Flow Reference:  1
  Service Flow ID:         101
  Rule Priority:           0
  Activation State:        1
  Dynsrv Change Action:    0
  SID:                     90
IP classifiers:
  ToS:                     0x1 0x3 0xFF
  Protocol:                258
  Source Address:          0.0.0.0
  Source Mask:             255.255.255.255
  Destination Address:     0.0.0.0
  Destination Mask:        255.255.255.255
  Source Port Start:       65
  Source Port End:         65
  Destination Port Start:  0
```

```
  Destination Port End:    65535
LLC Classifiers:
  Destination MAC address: 0:0:0:0:0:0:0:0:0:0:0:0
Source MAC address:      0:0:0:0:0:0
  Ether Type:              0x0 0x0 0x0

Downstream Packet Classifiers parameters
  Classifier Reference:    1
  Classifier ID:           1
  Service Flow Reference:  6
  Service Flow id:         5
  Rule Priority:           22
  Activation State:        1
  Dynsrv Change Action:    0
  SID:                     0

IP classifiers
  Tos:                     0x1 0x3 0xFF
  Protocol:                258
  Source Address:          0.0.0.0
  Source Mask:          255.255.255.255
  Destination Address:     0.0.0.0
  Destination Mask:     255.255.255.255
  Source Port Start:       0
  Source Port End:         65535
  Destination Port Start:  0
  Destination Port End:    65535
LLC Classifiers
 Source MAC address:      0:0:0:0:0:0
  Ether Type:              0x0 0x0 0x0

Downstream Packet Classifiers parameters
  Classifier Reference:    2
  Classifier ID:           2
  Service Flow Reference:  7
  Service Flow id:         6
  Rule Priority:           23
  Activation State:        1
  Dynsrv Change Action:    0
  SID:                     0

IP classifiers
  Tos:                     0x5 0x5 0xD
  Protocol:                258
  Source Address:          0.0.0.0
  Source Mask:          255.255.255.255
  Destination Address:     0.0.0.0
  Destination Mask:     255.255.255.255
  Source Port Start:       0
  Source Port End:         65535
LLC Classifiers
  Destination MAC address: 0:0:0:0:0:0:0:0:0:0:0:0
  Source MAC address:      0:0:0:0:0:0
  Ether Type:              0x0 0x0 0x0

Downstream Packet Classifiers parameters
  Classifier Reference:    3
  Classifier ID:           3
  Service Flow Reference:  8
  Service Flow id:         7
  Rule Priority:           24
  Activation State:        1
  Dynsrv Change Action:    0
  SID:                     0
```

```
IP classifiers
  Tos:                      0x8 0xFF 0xF8
  Protocol:                 258
  Source Address:           0.0.0.0
  Source Mask:          255.255.255.255
  Destination Address:      0.0.0.0
Destination Mask:      255.255.255.255
  Source Port Start:        0
  Source Port End:          65535
  Destination Port Start:   0
  Destination Port End:     65535
LLC Classifiers
  Destination MAC address: 0:0:0:0:0:0:0:0:0:0:0:0
  Source MAC address:       0:0:0:0:0:0
  Ether Type:               0x0 0x0 0x0
Router#
```

The following shows the typical display for the **summary** option:

```
Router# show controllers cable-modem 0 classifiers summary

SFID  SF    Classifier  Classifier  Rule      State
      Ref   ID          Ref         priority
675   1     4           10          0         active
676   2     8           11          0         active
1911  3     3           12          0         active
1914  4     7           13          0         active
1912  5     2           14          0         active
1915  6     6           15          0         active
1913  7     1           16          0         active
1916  8     5           17          0         active

Router#
```

The following shows the detailed information that is displayed for a specific classifier:

```
Router# show controllers cable-modem 0 classifiers 4

Upstream Packet Classifiers parameters
  Classifier Reference:    10
  Classfier ID:            4
  Service Flow Reference:  1
  Service Flow ID:         675
  Rule Priority:           0
  Activation State:        1
  Dynsrv Change Action:    0
  SID:                     565
IP classifiers:
  ToS:                     0x0 0x0 0x0
  Protocol:                258
  Source Address:          12.0.0.1
  Source Mask:             255.255.255.255
  Destination Address:     6.0.0.1
  Destination Mask:        255.255.255.255
  Source Port Start:       0
  Source Port End:         65535
  Destination Port Start:  0
  Destination Port End:    65535
LLC Classifiers:
  Destination MAC address: 0:0:0:0:0:0:0:0:0:0:0:0
  Source MAC address:      0:0:0:0:0:0
  Ether Type:              0x0 0x0 0x0
```

Table 0-169 describes the fields shown in the display.

Table 0-169 show controllers cable-modem classifiers Field Descriptions

Field	Description
Classifier Reference, Classifier Ref	The reference ID to uniquely identify the classifier in the DOCSIS configuration file and MAC management messages.
Classfier ID	The ID used to uniquely identify the classifier in each service flow.
Service Flow Reference, SF Ref	The reference ID that uniquely identifies the service flow.
Service Flow ID, SFID	The ID that uniquely identifies the service flow.
Rule Priority	The priority assigned to the classifier, 0 to 255, with a higher value indicating a higher priority.
Activation State, State	Whether the classifier is activate (1) or inactive (0).
Dynsrv Change Action	The action taken for this classifier in dynamic service change messages: • 0 = Add the classifier. • 1 = Replace the classifier. • 2 = Delete the classifier.
SID	The service ID (SID) associated with this classifier.
IP Classifiers	
ToS	The matching Type of Service (Tos) low byte, high byte, and masking value.
Protocol	The matching IP protocol type, as given in RFC 1700. A value of 256 matches any IP protocol, and a value of 257 matches TCP and UDP traffic.
Source Address and Source Mask	The matching IP source address, where the source address is ANDed with the source mask to specify the valid range of source addresses.
Destination Address and Destination Mask	The matching IP destination address, where the destination address is ANDed with the destination mask to specify the valid range of destination addresses.
Source Port Start and Source Port End	The low end and high end matching source TCP/UDP port values.
Destination Port Start and Destination Port End	The low end and high end matching destination TCP/UDP port values.
LLC Classifiers	
Destination MAC address	The six-byte matching MAC destination address and six-byte mask. The first six bytes (address) are ANDed with the last six bytes (mask) to specify the valid range of MAC destination addresses.

Table 0-169 show controllers cable-modem classifiers Field Descriptions

Field	Description
Source MAC address	The six-byte matching MAC source address.
Ether Type	The one-byte Ethernet protocol type and two-byte matching layer 3 protocol ID in the Ether frame. The first byte can have the following values, which control the meaning of the following two bytes: • 0x00 = no matching Ethernet protocol is required. • 0x01 = Ethertype DIX or SNAP frames that match the two-byte packet type. • 0x02 = non-SNAP IEEE 802.2 encapsulation frames that match the eight-bit packet type. • 0x03 = MAC Management Messages with a type field between the two bytes, except that RNG_RSP, REG_REQ, REG_RSP, and REG_ACK frames are always matched. • 0x04 = matches all data PDU packets, regardless of the two-byte protocol ID.

Related Commands

Command	Description
show controllers cable-modem phs	Displays the currently defined parameters for Payload Header Suppression (PHS) for the router.
show controllers cable-modem reg-rsp	Displays the information contained in the registration response (REG-RSP) message that the CMTS sent the router.
show controllers cable-modem service-flows	Displays the parameters for each of the service flows defined on the router's upstream and downstream.

show controllers cable-modem cmcert

To display the router's public key X.509 certificate, use the **show controllers cable-modem cmcert** command in privileged EXEC mode.

Cisco uBR905 and Cisco uBR925 cable access routers, and Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **cmcert**

Syntax Description

number	Identifies the cable interface (always 0).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(15)CZ	This command was introduced on the Cisco uBR905 and Cisco uBR925 cable access routers, and the Cisco CVA122 Cable Voice Adapter.

Usage Guidelines

This command displays the router's X.509 DOCSIS cable-modem certificate, which uniquely identifies the router during the BPI+ negotiation process. This command shows the individual X.509 components of the certificate, starting with the DOCSIS restricted X.501 Distinguished Name and ending with the 1024-bit public key.

Tip This command displays the certificate that is burned into the router at the factory and is not normally changed. The **show controllers cable-modem manuf-cert** command displays the manufacturer's certificate that is incorporated into the Cisco IOS image that the router is currently running. Upgrading the Cisco IOS image could also update the manufacturer's certificate.

Examples

The following example shows the starting lines and ending lines of typical output for the **show controllers cable-modem cmcert** command:

```
Router# show controllers cable-modem 0 cmcert

Cable Modem Certificate:
SEQ(878)
    SEQ(727)
        Context-specific [A0](3)
            INT(1):2
            END
        INT(10): 62 E0 07 47 00 00 00 00 FA 62
1w3d:          SEQ(13)
            OID(9):SHA Signature 1.2.840.113549.1.1.5
1w3d:               NULL
            END
        SEQ(114)
            SET(11)
                SEQ(9)
```

```
                    OID(3):Country 2.5.4.6
1w3d:                     PRT(2):US
                    END
                END
            SET(22)
                SEQ(20)
                    OID(3):Organization 2.5.4.10
1w3d:                     PRT(13):Cisco Systems
                    END
                END
            SET(15)
                SEQ(13)
                    OID(3):Organization Unit 2.5.4.11
1w3d:                     PRT(6):DOCSIS
                    END
                END
            SET(58)
                SEQ(56)
                    OID(3):Common Name 2.5.4.3
1w3d:                     PRT(49):Cisco Cable Modem Root Certificate Authority R
                    END
                END

...

1w3d:          C7 9A A8 5C BD F3 30 5A E5 B6 66 1F 1E 3A C9 2E
1w3d:          04 5D B5 57 3E 75 ED A3 0A AB B6 5D 73 87 E9 BE
1w3d:          ED 1A 68 7B B3 08 DA 0F E9 AA 05 28 E2 61 1B 3D
1w3d:     END

Router#
```

Note You must manually enter a return to redisplay the router prompt after the certificate has been displayed.

Related Commands

Command	Description
show controllers cable-modem manuf-cert	Displays the manufacturer's X.509 certificate for the router.

show controllers cable-modem crypto des

To display information about the Data Encryption Standard (DES) engine registers, use the **show controllers cable-modem des** command in privileged EXEC mode.

Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **crypto des**

Syntax Description

number	Identifies the cable interface (always **0**).

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced, as **show controllers cable-modem des**, for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.
12.2(X)BC	This command was renamed to **show controllers cable-modem crypto des**.

Examples

The following shows typical output for the **show controllers cable-modem crypto des** command.

```
Router# show controllers cable-modem 0 crypto des
downstream des:
  ds_des_key_table:
    key 0: even 0, odd 0
    key 1: even 0, odd 0
    key 2: even 0, odd 0
    key 3: even 0, odd 0
  ds_des_cbc_iv_table:
    iv  0: even 0, odd 0
    iv  1: even 0, odd 0
    iv  2: even 0, odd 0
    iv  3: even 0, odd 0
  ds_des_sid_table:
    sid_1=0x0000, sid_2=0x0000, sid_3=0x0000, sid_4=0x0000
  ds_des_sid_enable=0x80, ds_des_ctrl=0x2E
  ds_des_sv=0x0F00
  ds_unencrypted_length=0x0C
upstream des:
  us_des_key_table:
    key 0: even 0, odd 0
    key 1: even 0, odd 0
    key 2: even 0, odd 0
    key 3: even 0, odd 0
  us_des_cbc_iv_table:
    iv  0: even 0, odd 0
```

```
    iv  1: even 0, odd 0
    iv  2: even 0, odd 0
    iv  3: even 0, odd 0
  pb_req_bytes_to_minislots=0x10
  us_des_ctrl=0x00, us_des_sid_1= 0x1234
  ds_unencrypted_length=0x0C

Router#
```

Table 0-170 describes the significant fields shown in the display. For more information, see the Broadcom documentation for the BCM3300 chip.

Table 0-170 show controllers cable-modem crypto des Field Descriptions

Field	Description
ds_des_key_table	Displays a table showing the downstream DES keys.
ds_des_cbc_iv_table	Displays a table showing the downstream DES Cipher Block Chaining (CBC) mode information.
ds_des_sid_table	Displays a table showing the SID values to be enabled for DES encryption.
ds_des_sid_enable	Identifies which SID entries in the SID table are enabled for encryption. In the above example, none of the entries are enabled for encryption.
ds_des_ctrl	Control register that identifies the operating mode of the downstream DES engine.
ds_des_sv	Displays the DES security version register; the range of the version field in the Baseline Privacy Interface (BPI) extended headers that will be accepted by the hardware. High byte is upper limit, low byte is lower limit. The router will accept versions 0 to 15.
ds_unencrypted_length	Specifies the number of bytes that will be unencrypted at the beginning of the MAC frame. 0x0C means the first 12 bytes are not encrypted, which is what the DOCSIS Baseline Privacy specification calls for.
us_des_key_table	Displays a table showing upstream DES keys.
us_des_cbc_iv_table	Displays a table of upstream DES CBC mode information.
us_des_ctrl	Control register that controls the operating mode of the upstream DES engine. The value 0x24 means that the upstream is configured to enable decryption and to use CBC mode.

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem filters	Displays the registers in the MAC hardware that are used for filtering received frames.

show controllers cable-modem lookup-table	Displays the mini-slot lookup table for the cable interface.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware for the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem filters

To display the registers in the MAC hardware that are used for filtering received frames, use the **show controllers cable-modem filters** command in privileged EXEC mode.

Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **filters**

Syntax Description

number	Identifies the cable interface (always **0**).

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.

Usage Guidelines

Some of the filtering parameters are MAC hardware addresses, Service IDs (SIDs), and upstream channel IDs.

Examples

The following shows typical MAC and SID filter information displayed by the **show controllers cable-modem filters** command:

```
Router# show controllers cable-modem 0 filters

downstream mac message processing:
  ds_mac_da_filters:
    filter_1=0010.7b43.aa01, filter_2=0000.0000.0000
    filter_3=0000.0000.0000, filter_4=0000.0000.0000
  ds_mac_da_filter_ctrl=0x71, ds_mac_msg_sof=0x0000
  ds_mac_da_mc=01E02F00
  map_parser_sids:
    sid_1=0x0000, sid_2=0x0000, sid_3=0x0000, sid_4=0x0000
  ds_mac_filter_ctrl=0x00, us_channel_id=0x0000
  ds_pid=0x0000, mac_msg_proto_ver=FF 00
  reg_rang_req_sid=0x0000
downstream data processing:
  ds_data_da_filter_table:
    filter_1 0010.7b43.aa01, filter_2 0000.0000.0000
    filter_3 0000.0000.0000, filter_4 0000.0000.0000
  ds_data_da_filter_ctrl=0x61, ds_pdu_sof=0xDEAD
  ds_data_da_mc=01000000
upstream processing:
  us_ctrl_status=0x04, Minislots per request=0x01
```

```
  burst_maps:
    map[0]=0 map[1]=0 map[2]=0 map[3]=0
  bytes_per_minislot_exp=0x04
  us_map_parser_minislot_adv=0x03, ticks_per_minislot=0x08, maint_xmit=0x0001
  us_sid_table:
    sid_1=0x0000, sid_2=0x0000, sid_3=0x0000, sid_4=0x0000
  max_re_req=0x0010, rang_fifo=0x00
Router#
```

Table 0-171 describes the fields shown in the display. For more information, see the Broadcom documentation for the BCM3300 chip.

Table 0-171 show controllers cable-modem filters Field Descriptions

Field	Description
ds_mac_da_filters	MAC address of the cable interface and the MAC address of any Ethernet MAC it is bridging.
ds_mac_da_filter_ctrl	Downstream MAC filter control for data.
ds_mac_msg_sof	Downstream MAC message start of frame.
ds_mac_da_mc	Downstream MAC control filter for data.
map_parser_sids	Service IDs used for upstream bandwidth allocation.
ds_mac_filter_ctrl	Downstream MAC filter control for MAC messages.
us_channel_id	Upstream channel ID.
ds_pid	Downstream packet ID.
mac_msg_proto_ver	Version of the MAC management protocol in use.
reg_rang_req_sid	Service ID (SID) field of the ranging request message.
ds_data_da_filter_table	Downstream data processing filter table.
ds_data_da_filter_ctrl	Downstream data processing filter control.
ds_pdu_sof	Downstream PDU start of frame.
ds_data_da_mc	Downstream data processing MAC control.
us_ctrl_status	Upstream control status.
Minislots per request	Length of each registration request in mini-slots.
burst_maps	Maps the burst profiles saved in the BCM3037 registers to interval usage codes (IUCs).
bytes_per_minislot_exp	Number of bytes per expansion mini-slot.
ticks_per_minislot	Number of time ticks (6.25-microsecond intervals) in each upstream mini-slot.
maint_xmit	Number of initial maintenance transmit opportunities.
us_sid_table	Upstream service ID table.
max_re_req	Maximum number of registration re-requests allowed.
rang_fifo	Number of ranging requests that can be held in the first-in-first-out (FIFO) buffer.

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem crypto des	Displays information about the Data Encryption Standard (DES) engine registers.
show controllers cable-modem lookup-table	Displays the mini-slot lookup table for the cable interface.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware for the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used for the cable interface.

show controllers cable-modem lookup-table

To display the mini-slot lookup table for the router's cable interface, use the **show controllers cable-modem lookup-table** command in privileged EXEC mode.

Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **lookup-table**

Syntax Description

number	Identifies the cable interface (always **0**).

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.

Usage Guidelines

This command displays the details of the lookup table. The driver uses this table to convert the size of the packets that the router wants to transmit into a bandwidth request to the CMTS in mini-slots. The contents of this table are affected by the upstream symbol rate that is negotiated between the CMTS and the cable access router.

Use this table to look up the packet size and determine how many mini-slots will be needed.

Examples

The following shows a typical mini-slot lookup table as displayed by the **show controllers cable-modem lookup-table** command:

```
Router# show controllers cable-modem 0 lookup-table

Max Burst Size (minislots) = 0x6
Max Burst Length (bytes) = 0x4B

PHY Overhead Lookup Table:

000:    01 06 06 06 06 06 06 06 06 06 06 06 06 06 06 06
010:    06 06 06 06 06 06 06 06 06 06 06 06 06 06 06 06
020:    06 06 06 06 06 06 06 06 06 06 06 06 06 06 06 06
030:    06 06 06 06 06 06 06 06 06 06 06 06 06 06 06 06
040:    06 06 06 06 06 06 06 06 06 06 06 06 10 10 10 10
050:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
060:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
070:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
080:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
090:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
```

```
0A0:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
0B0:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
0C0:    10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10
0D0:    10 10 10 10 10 10 10 10 10 10 10 10 10 1F 1F 1F
0E0:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
0F0:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
100:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
110:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
120:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
130:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
140:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
150:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
160:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
170:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
180:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
190:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
1A0:    1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F 1F
1B0:    1F 1F 1F 1F 1F 1F 1F 1F 1F 2D 2D 2D 2D 2D 2D 2D
1C0:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
1D0:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
1E0:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
1F0:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
200:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
210:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
220:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
230:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
240:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
250:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
260:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
270:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
280:    2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D 2D
290:    2D 2D 2D 2D 2D 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
2A0:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
2B0:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
2C0:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
2D0:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
2E0:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
2F0:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
300:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
310:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
320:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
330:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
340:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
350:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
360:    3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C 3C
370:    3C 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
380:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
390:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
3A0:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
3B0:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
3C0:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
3D0:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
3E0:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
3F0:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
400:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
410:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
420:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
430:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B
440:    4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 4B 5A 5A 5A
450:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
460:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
470:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
480:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
490:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
```

```
4A0:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
4B0:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
4C0:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
4D0:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
4E0:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
4F0:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
500:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
510:    5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A 5A
520:    5A 5A 5A 5A 5A 5A 5A 5A 5A 68 68 68 68 68 68 68
530:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
540:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
550:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
560:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
570:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
580:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
590:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
5A0:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
5B0:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
5C0:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
5D0:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
5E0:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
5F0:    68 68 68 68 68 68 68 68 68 68 68 68 68 68 68 68
600:    68 68 68 68 68 77 77 77 77 77 77 77 77 77 77 77
610:    77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77
620:    77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77
630:    77 77 77 77 77 77 77 77 77 77 77 77 77 77 77 77

PHY Reverse Lookup Table:

00:    0000 0000 0000 0000 0000 0000 004B 0000
08:    0000 0000 0000 0000 0000 0000 0000 0000
10:    00DC 00DC 00DC 00DC 00DC 00DC 00DC 00DC
18:    00DC 00DC 00DC 00DC 00DC 00DC 00DC 01B8
20:    01B8 01B8 01B8 01B8 01B8 01B8 01B8 01B8
28:    01B8 01B8 01B8 01B8 01B8 0294 0294 0294
30:    0294 0294 0294 0294 0294 0294 0294 0294
38:    0294 0294 0294 0294 0370 0370 0370 0370
40:    0370 0370 0370 0370 0370 0370 0370 0370
48:    0370 0370 0370 044C 044C 044C 044C 044C
50:    044C 044C 044C 044C 044C 044C 044C 044C
58:    044C 044C 0528 0528 0528 0528 0528 0528
60:    0528 0528 0528 0528 0528 0528 0528 0528
68:    0604 0604 0604 0604 0604 0604 0604 0604
70:    0604 0604 0604 0604 0604 0604 0604 06E0
78:    06E0 06E0 06E0 06E0 06E0 06E0 06E0 06E0
80:    06E0 06E0 06E0 06E0 06E0 06E0 07BC 07BC
88:    07BC 07BC 07BC 07BC 07BC 07BC 07BC 07BC
90:    07BC 07BC 07BC 07BC 07BC 0898 0898 0898
98:    0898 0898 0898 0898 0898 0898 0898 0898
A0:    0898 0898 0898 0974 0974 0974 0974 0974
A8:    0974 0974 0974 0974 0974 0974 0974 0974
B0:    0974 0974 0A50 0A50 0A50 0A50 0A50 0A50
B8:    0A50 0A50 0A50 0A50 0A50 0A50 0A50 0A50
C0:    0A50 0B2C 0B2C 0B2C 0B2C 0B2C 0B2C 0B2C
C8:    0B2C 0B2C 0B2C 0B2C 0B2C 0B2C 0B2C 0B2C
D0:    0C08 0C08 0C08 0C08 0C08 0C08 0C08 0C08
D8:    0C08 0C08 0C08 0C08 0C08 0C08 0CE4 0CE4
E0:    0CE4 0CE4 0CE4 0CE4 0CE4 0CE4 0CE4 0CE4
E8:    0CE4 0CE4 0CE4 0CE4 0CE4 0DC0 0DC0 0DC0
F0:    0DC0 0DC0 0DC0 0DC0 0DC0 0DC0 0DC0 0DC0
F8:    0DC0 0DC0 0DC0 0DC0 0E9C 0E9C 0E9C 0E9C
Router#
```

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem crypto des	Displays information about the Data Encryption Standard (DES) engine registers.
show controllers cable-modem filters	.Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware of the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem mac

To display detailed MAC-layer information for the router's cable interface, use the **show controllers cable-modem mac** command in privileged EXEC mode.

Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **mac** {**errors** | **hardware** | **log** | **resets** | **state**}

Syntax Description

number	Identifies the cable interface (always **0**).
errors	Displays a log of the error events that are reported to SNMP. This keyword enables you to look at the error events without accessing a MIB.
hardware	Displays all MAC hardware registers.
log	Displays a history of MAC log messages, up to 1023 entries. This is the same output that is displayed when using the **debug cable-modem mac log** command.
resets	Extracts all of the reset causes out of the MAC log file and summarizes them in a mini report.
state	Displays a summary of the MAC state.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.
12.2(15)CZ	Support for DOCSIS 1.1 and BPI+ operation was added to the **state** option for the Cisco uBR905 and Cisco uBR925 cable access routers, and the Cisco CVA122 Cable Voice Adapter.

Usage Guidelines

MAC log messages are written to a circular log file even when debugging is not turned on. These messages include timestamps, events, and information pertinent to these events. Use the **show controllers cable-modem mac log** command to view MAC log messages.

If the router interface fails to come up or resets periodically, the MAC log will capture what happened. For example, if an address is not obtained from the DHCP server, an error is logged, initialization starts over, and the router scans for a downstream frequency.

The most useful keywords for troubleshooting a router are **log**, **errors**, and **resets**. See the following examples for typical outputs for these options.

Examples

The following shows a typical display of the MAC log file for a cable interface that has successfully registered with the CMTS:

```
Router# show controllers cable-modem 0 mac log

00:14:24:    864.124 CMAC_LOG_DRIVER_INIT_IDB_RESET              0x080B7430
00:14:24:    864.128 CMAC_LOG_LINK_DOWN
00:14:24:    864.132 CMAC_LOG_RESET_FROM_DRIVER
00:14:24:    864.134 CMAC_LOG_STATE_CHANGE                       wait_for_link_up_state
00:14:24:    864.138 CMAC_LOG_LINK_UP
00:14:24:    864.142 CMAC_LOG_STATE_CHANGE                      ds_channel_scanning_state
00:14:24:    864.270 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
81/453000000/855000000/6000000
00:14:24:    864.276 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
82/93000000/105000000/6000000
00:14:24:    864.280 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
83/111025000/117025000/6000000
00:14:24:    864.286 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
84/231012500/327012500/6000000
00:14:24:    864.290 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
85/333025000/333025000/6000000
00:14:24:    864.294 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
86/339012500/399012500/6000000
00:14:24:    864.300 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
87/405000000/447000000/6000000
00:14:24:    864.304 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
88/123012500/129012500/6000000
00:14:24:    864.310 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
89/135012500/135012500/6000000
00:14:24:    864.314 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
90/141000000/171000000/6000000
00:14:24:    864.320 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
91/219000000/225000000/6000000
00:14:24:    864.324 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
92/177000000/213000000/6000000
00:14:24:    864.330 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
93/55752700/67753300/6000300
00:14:24:    864.334 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
94/79753900/85754200/6000300
00:14:24:    864.340 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
95/175758700/211760500/6000300
00:14:24:    864.344 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
96/121756000/169758400/6000300
00:14:24:    864.348 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
97/217760800/397769800/6000300
00:14:24:    864.354 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
98/73753600/115755700/6000300
00:14:24:    864.358 CMAC_LOG_WILL_SEARCH_DS_FREQUENCY_BAND
99/403770100/997799800/6000300
00:14:24:    864.364 CMAC_LOG_WILL_SEARCH_SAVED_DS_FREQUENCY     213000000
00:14:25:    865.450 CMAC_LOG_UCD_MSG_RCVD                       1
00:14:25: %LINK-3-UPDOWN: Interface cable-modem0, changed state to up
00:14:26:    866.200 CMAC_LOG_DS_64QAM_LOCK_ACQUIRED             213000000
00:14:26:    866.204 CMAC_LOG_DS_CHANNEL_SCAN_COMPLETED
00:14:26:    866.206 CMAC_LOG_STATE_CHANGE                       wait_ucd_state
00:14:26: %LINEPROTO-5-UPDOWN: Line protocol on Interface cable-modem0, changed state to
down
00:14:27:    867.456 CMAC_LOG_UCD_MSG_RCVD                       1
00:14:29:    869.470 CMAC_LOG_UCD_MSG_RCVD                       1
00:14:29:    869.472 CMAC_LOG_ALL_UCDS_FOUND
00:14:29:    869.476 CMAC_LOG_STATE_CHANGE                       wait_map_state
00:14:29:    869.480 CMAC_LOG_UCD_NEW_US_FREQUENCY               20000000
00:14:29:    869.484 CMAC_LOG_SLOT_SIZE_CHANGED                  8
```

```
00:14:29:    869.564 CMAC_LOG_FOUND_US_CHANNEL                   1
00:14:31:    871.484 CMAC_LOG_UCD_MSG_RCVD                       1
00:14:31:    871.692 CMAC_LOG_MAP_MSG_RCVD
00:14:31:    871.694 CMAC_LOG_INITIAL_RANGING_MINISLOTS          40
00:14:31:    871.696 CMAC_LOG_STATE_CHANGE                       ranging_1_state
00:14:31:    871.700 CMAC_LOG_RANGING_OFFSET_SET_TO              9610
00:14:31:    871.704 CMAC_LOG_POWER_LEVEL_IS                     32.0  dBmV (commanded)
00:14:31:    871.708 CMAC_LOG_STARTING_RANGING
00:14:31:    871.710 CMAC_LOG_RANGING_BACKOFF_SET                0
00:14:31:    871.714 CMAC_LOG_RNG_REQ_QUEUED                     0
00:14:32:    872.208 CMAC_LOG_RNG_REQ_TRANSMITTED
00:14:32:    872.216 CMAC_LOG_RNG_RSP_MSG_RCVD
00:14:32:    872.218 CMAC_LOG_RNG_RSP_SID_ASSIGNED               16
00:14:32:    872.222 CMAC_LOG_ADJUST_RANGING_OFFSET              2853
00:14:32:    872.224 CMAC_LOG_RANGING_OFFSET_SET_TO              12463
00:14:32:    872.228 CMAC_LOG_ADJUST_TX_POWER                    8
00:14:32:    872.230 CMAC_LOG_POWER_LEVEL_IS                     34.0  dBmV (commanded)
00:14:32:    872.234 CMAC_LOG_STATE_CHANGE                       ranging_2_state
00:14:32:    872.238 CMAC_LOG_RNG_REQ_QUEUED                     16
00:14:32:    872.848 CMAC_LOG_RNG_REQ_TRANSMITTED
00:14:32:    872.852 CMAC_LOG_RNG_RSP_MSG_RCVD
00:14:32:    872.856 CMAC_LOG_RANGING_SUCCESS
00:14:32:    872.874 CMAC_LOG_STATE_CHANGE                       dhcp_state
00:14:33:    873.386 CMAC_LOG_DHCP_ASSIGNED_IP_ADDRESS           188.188.1.62
00:14:33:    873.388 CMAC_LOG_DHCP_TFTP_SERVER_ADDRESS           4.0.0.32
00:14:33:    873.392 CMAC_LOG_DHCP_TOD_SERVER_ADDRESS            4.0.0.32
00:14:33:    873.396 CMAC_LOG_DHCP_SET_GATEWAY_ADDRESS
00:14:33:    873.398 CMAC_LOG_DHCP_TZ_OFFSET                     60
00:14:33:    873.402 CMAC_LOG_DHCP_CONFIG_FILE_NAME              platinum.cm
00:14:33:    873.406 CMAC_LOG_DHCP_ERROR_ACQUIRING_SEC_SVR_ADDR
00:14:33:    873.410 CMAC_LOG_DHCP_COMPLETE
00:14:33:    873.536 CMAC_LOG_STATE_CHANGE                       establish_tod_state
00:14:33:    873.546 CMAC_LOG_TOD_REQUEST_SENT
00:14:33:    873.572 CMAC_LOG_TOD_REPLY_RECEIVED                 3140961992
00:14:33:    873.578 CMAC_LOG_TOD_COMPLETE
00:14:33:    873.582 CMAC_LOG_STATE_CHANGE
security_association_state
00:14:33:    873.584 CMAC_LOG_SECURITY_BYPASSED
00:14:33:    873.588 CMAC_LOG_STATE_CHANGE                       configuration_file_state
00:14:33:    873.592 CMAC_LOG_LOADING_CONFIG_FILE                platinum.cm
00:14:34: %LINEPROTO-5-UPDOWN: Line protocol on Interface cable-modem0, changed state to
up
00:14:34:    874.728 CMAC_LOG_CONFIG_FILE_PROCESS_COMPLETE
00:14:34:    874.730 CMAC_LOG_STATE_CHANGE                       registration_state
00:14:34:    874.734 CMAC_LOG_REG_REQ_MSG_QUEUED
00:14:34:    874.744 CMAC_LOG_REG_REQ_TRANSMITTED
00:14:34:    874.754 CMAC_LOG_REG_RSP_MSG_RCVD
00:14:34:    874.756 CMAC_LOG_COS_ASSIGNED_SID                   1/16
00:14:34:    874.760 CMAC_LOG_RNG_REQ_QUEUED                     16
00:14:34:    874.768 CMAC_LOG_REGISTRATION_OK
00
:14:34:    874.770 CMAC_LOG_REG_RSP_ACK_MSG_QUEUED             0
00:14:34:    874.774 CMAC_LOG_STATE_CHANGE                       establish_privacy_state
00:14:34:    874.778 CMAC_LOG_PRIVACY_NOT_CONFIGURED
00:14:34:    874.780 CMAC_LOG_STATE_CHANGE                       maintenance_state
00:14:34:    874.784 CMAC_LOG_REG_RSP_ACK_MESSAGE_EVENT
00:14:34:    874.788 CMAC_LOG_REG_RSP_ACK_MSG_SENT
```

The following example gives the typical error messages that appear in the MAC log when the DHCP server cannot not be reached:

```
Router# show controllers cable-modem 0 mac log

00:14:32:    872.874 CMAC_LOG_STATE_CHANGE                       dhcp_state
```

```
00:14:33:    873.386 CMAC_LOG_RNG_REQ_TRANSMITTED
00:14:33:    873.388 CMAC_LOG_RNG_RSP_MSG_RCVD
00:14:33:    873.386 CMAC_LOG_RNG_REQ_TRANSMITTED
00:14:33:    873.392 CMAC_LOG_RNG_RSP_MSG_RCVD
00:14:33:    873.396 CMAC_LOG_WATCHDOG_TIMER
00:14:33:    873.398 CMAC_LOG_RESET_DHCP_WATCHDOG_EXPIRED
00:14:33:    873.402 CMAC_LOG_STATE_CHANGE                        reset_interface_state
00:14:33:    873.406 CMAC_LOG_DHCP_PROCESS_KILLED

Router#
```

In this situation, use the MAC error display also contains information indicating that the DHCP server could not be reached:

```
Router# show controllers cable-modem 0 mac errors

497989.804 D01.0  Discover sent no Offer received.  No available DHCP Server.
498024.046 D01.0  Discover sent no Offer received.  No available DHCP Server.
498058.284 D01.0  Discover sent no Offer received.  No available DHCP Server.
Router#
```

The following is a typical display of the MAC error log information, which is the same information that is also available using SNMP:

```
Router# show controllers cable-modem 0 mac errors

 74373.574 R02.0  No Ranging Response received.  T3 time-out.
 74374.660 R02.0  No Ranging Response received.  T3 time-out.
 74375.508 R02.0  No Ranging Response received.  T3 time-out.
 74375.748 R02.0  No Ranging Response received.  T3 time-out.
 74375.748 R03.0  Ranging Request Retries exhausted.
 74376.112 R02.0  No Ranging Response received.  T3 time-out.
 74376.354 R02.0  No Ranging Response received.  T3 time-out.
 74376.778 R02.0  No Ranging Response received.  T3 time-out.
 74377.442 R02.0  No Ranging Response received.  T3 time-out.
Router#
```

This output indicates that the router acquired a downstream lock, successfully read a UCD, and successfully read a MAP. However, it was unable to communicate with the CMTS after ranging through all upstream transmit power levels. The router will try to communicate with the CMTS 16 times, and if cannot receive a response from the CMTS, it will reset the cable interface to try to find a better downstream frequency.

The **show controllers cable-modem 0 mac resets** command shows only the entries in the MAC log that begin with the field `CMAC_LOG_RESET`. These fields provide you with a summary of the most recent reasons why the cable interface was reset.

Reset messages and brief explanations are included in the following examples. However, the reset messages do not commonly occur.

The following example shows the errors that are logged when the configuration file downloaded from the TFTP server could not be read, typically because the file might not exist, or because the file might have incorrect permissions.

```
Router# show controllers cable-modem 0 mac resets

 62526.114 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 62564.368 CMAC_LOG_RESET_T4_EXPIRED
 62677.178 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 62717.462 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 62757.746 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 62796.000 CMAC_LOG_RESET_T4_EXPIRED
 62908.808 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
```

```
 62949.092 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 62989.380 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 63029.662 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 63069.944 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 63110.228 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
 63148.484 CMAC_LOG_RESET_T4_EXPIRED
 63261.296 CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED
Router#
```

The following example shows that the DHCP server could not be reached, or that it took too long to respond.

```
Router# show controllers cable-modem 0 mac resets

497989.804 CMAC_LOG_RESET_DHCP_WATCHDOG_EXPIRED
498024.046 CMAC_LOG_RESET_DHCP_WATCHDOG_EXPIRED
498058.284 CMAC_LOG_RESET_DHCP_WATCHDOG_EXPIRED
Router#
```

The following example indicates that an event in the cable interface driver caused the interface to reset. This often occurs because a **shutdown** command was just issued on the interface.

```
Router# show controllers cable-modem 0 mac resets

527986.444 CMAC_LOG_RESET_FROM_DRIVER
528302.042 CMAC_LOG_RESET_FROM_DRIVER
528346.600 CMAC_LOG_RESET_FROM_DRIVER
528444.494 CMAC_LOG_RESET_FROM_DRIVER
Router#
```

Table 0-172 describes the status messages that can appear in the **show controllers cable-modem mac resets** command.

Table 0-172 show controllers cable-modem mac resets Field Descriptions

Message	Description
CMAC_LOG_RESET_CONFIG_FILE_PARSE_FAILED	The format of the DOCSIS configuration file acquired from the TFTP server is not acceptable.
CMAC_LOG_RESET_LOSS_OF_SYNC	Synchronization with the CMTS has been lost (SYNC messages are not being received).
CMAC_LOG_RESET_T4_EXPIRED	The maintenance ranging opportunities for this router are not being received from the CMTS.
CMAC_LOG_RESET_DHCP_WATCHDOG_EXPIRED	The DHCP server took too long to respond.
CMAC_LOG_RESET_TOD_WATCHDOG_EXPIRED	The Time-of-Day (ToD) server took too long to respond.
CMAC_LOG_RESET_PRIVACY_WATCHDOG_EXPIRED	The baseline privacy exchange with the CMTS took too long.
CMAC_LOG_RESET_CHANGE_US_WATCHDOG_EXPIRED	The router was unable to transmit a response to a UCC-REQ message.
CMAC_LOG_RESET_SECURITY_WATCHDOG_EXPIRED	A “full security” exchange with the CMTS took too long.
CMAC_LOG_RESET_CONFIG_FILE_WATCHDOG_EXPIRED	The TFTP server took too long to respond.
CMAC_LOG_RESET_ALL_FREQUENCIES_SEARCHED	All downstream frequencies to be searched have been searched. **Note** This message indicates that downstream frequencies were found, but the router failed to acquire a downstream lock.
CMAC_LOG_RESET_T2_EXPIRED	Initial ranging opportunities are not being received.

Table 0-172 show controllers cable-modem mac resets Field Descriptions (continued)

Message	Description
CMAC_LOG_RESET_T3_RETRIES_EXHAUSTED	The CMTS failed too many times to respond to a RNG-REQ message. **Note** After 16 T3 timeouts, the router will reset the cable interface.
CMAC_LOG_RESET_RANGING_ABORTED	The CMTS commanded the router to abort the ranging process.
CMAC_LOG_RESET_NO_MEMORY	The router has run out of memory.
CMAC_LOG_RESET_CANT_START_PROCESS	The router was unable to start an internal process necessary to complete ranging and registration.
CMAC_LOG_RESET_CONFIG_FILE_READ_FAILED	The reading of the configuration file from the TFTP server failed. **Note** The file might not exist, or it might have incorrect permissions.
CMAC_LOG_RESET_AUTHENTICATION_FAILURE	The router failed authentication as indicated in a REG-RSP message from the CMTS.
CMAC_LOG_RESET_SERVICE_NOT_AVAILABLE	The CMTS has failed the router's registration because a required or requested class of service is not available.
CMAC_LOG_RESET_T6_RETRIES_EXHAUSTED	The CMTS failed too many times to respond to a REG-REQ message.
CMAC_LOG_RESET_MAINTENANCE_WATCHDOG_DRIVER	The router MAC layer failed to detect a change in the interface driver.
CMAC_LOG_RESET_NET_ACCESS_MISSING	The Network Access parameter is missing from the DOCSIS configuration file.
CMAC_LOG_RESET_FAILED_WRITE_ACCESS_CONTROL	The router was unable to set the Write Access Control for an SNMP parameter as specified by the DOCSIS configuration file.
CMAC_LOG_RESET_DHCP_FAILED	The DHCP server did not respond with all the required values. The required values are: IP address, network mask, TFTP server IP address, TOD server IP address, DOCSIS configuration file name, and time zone offset.
CMAC_LOG_RESET_CANT_START_DS_TUNER_PRCESS	The router was unable to start the internal process used to manage the downstream tuner.
CMAC_LOG_RESET_TOO_MANY_DS_LOCKS_LOST	Downstream QAM/FEC lock has been lost too many times.
CMAC_LOG_RESET_NO_SEND_TO_DS_TUNER_PROCESS	The router MAC-layer process was unable to communicate with the downstream tuner management process.
CMAC_LOG_RESET_DS_TUNER_WATCHDOG	The downstream tuner process failed to report its continuing operation for a long period of time.
CMAC_LOG_RESET_UNABLE_TO_SET_MIB_OBJECT	The router was unable to set an SNMP parameter as specified by the DOCSIS configuration file.
CMAC_LOG_RESET_MIB_OBJECT_PROCESS_WATCHDOG	The internal MIB object took too long to process the entries in the DOCSIS configuration file.

The following example is a typical display for the **show controllers cable-modem 0 mac hardware** command. The most interesting bit is the station address (hardware address). The MIB statistics reflect the MAC hardware counters for various events, but these counters are typically reset every few seconds, so their contents are not accurate in this display.

```
Router# show controllers cable-modem 0 mac hardware

PLD VERSION: 32

BCM3300 unit 0, idb 0x200EB4, ds 0x82D4748, regaddr = 0x800000, reset_mask
0x80
station address 0010.7b43.aa01  default station address 0010.7b43.aa01
MAC mcfilter 01E02F00  data mcfilter 01000000

buffer size 1600
RX data PDU ring with 32 entries at 0x201D40
  rx_head = 0x201D40 (0), rx_p = 0x82D4760 (0)
    00 pak=0x82DF844 buf=0x227F1A status=0x80 pak_size=0
    01 pak=0x82E0BF4 buf=0x22C56A status=0x80 pak_size=0
    02 pak=0x82DF454 buf=0x22710A status=0x80 pak_size=0
    03 pak=0x82DF64C buf=0x227812 status=0x80 pak_size=0
    04 pak=0x82E0024 buf=0x229B3A status=0x80 pak_size=0
    05 pak=0x82DBF2C buf=0x21B332 status=0x80 pak_size=0
    06 pak=0x82DFE2C buf=0x229432 status=0x80 pak_size=0
    07 pak=0x82E0FE4 buf=0x22D37A status=0x80 pak_size=0
    08 pak=0x82DF064 buf=0x2262FA status=0x80 pak_size=0
    09 pak=0x82DEC74 buf=0x2254EA status=0x80 pak_size=0
    10 pak=0x82DEA7C buf=0x224DE2 status=0x80 pak_size=0
    11 pak=0x82DE884 buf=0x2246DA status=0x80 pak_size=0
    12 pak=0x82DE68C buf=0x223FD2 status=0x80 pak_size=0
    13 pak=0x82DE494 buf=0x2238CA status=0x80 pak_size=0
    14 pak=0x82DE29C buf=0x2231C2 status=0x80 pak_size=0
    15 pak=0x82DE0A4 buf=0x222ABA status=0x80 pak_size=0
    16 pak=0x82DDEAC buf=0x2223B2 status=0x80 pak_size=0
    17 pak=0x82DDCB4 buf=0x221CAA status=0x80 pak_size=0
    18 pak=0x82DDABC buf=0x2215A2 status=0x80 pak_size=0
    19 pak=0x82DD8C4 buf=0x220E9A status=0x80 pak_size=0
    20 pak=0x82DD6CC buf=0x220792 status=0x80 pak_size=0
    21 pak=0x82DD4D4 buf=0x22008A status=0x80 pak_size=0
    22 pak=0x82DD2DC buf=0x21F982 status=0x80 pak_size=0
    23 pak=0x82DD0E4 buf=0x21F27A status=0x80 pak_size=0
    24 pak=0x82DCEEC buf=0x21EB72 status=0x80 pak_size=0
    25 pak=0x82DCCF4 buf=0x21E46A status=0x80 pak_size=0
    26 pak=0x82DCAFC buf=0x21DD62 status=0x80 pak_size=0
    27 pak=0x82DC904 buf=0x21D65A status=0x80 pak_size=0
    28 pak=0x82DC70C buf=0x21CF52 status=0x80 pak_size=0
    29 pak=0x82DC514 buf=0x21C84A status=0x80 pak_size=0
    30 pak=0x82DC31C buf=0x21C142 status=0x80 pak_size=0
    31 pak=0x82DC124 buf=0x21BA3A status=0xA0 pak_size=0
RX MAC message ring with 8 entries at 0x201E80
  rx_head_mac = 0x201EB0 (6), rx_p_mac = 0x82D480C (6)
    00 pak=0x82E0DEC buf=0x22CC72 status=0x80 pak_size=0
    01 pak=0x82E021C buf=0x22A242 status=0x80 pak_size=0
    02 pak=0x82E060C buf=0x22B052 status=0x80 pak_size=0
    03 pak=0x82E11DC buf=0x22DA82 status=0x80 pak_size=0
    04 pak=0x82DFC34 buf=0x228D2A status=0x80 pak_size=0
    05 pak=0x82E09FC buf=0x22BE62 status=0x80 pak_size=0
    06 pak=0x82DEE6C buf=0x225BF2 status=0x80 pak_size=0
    07 pak=0x82DFA3C buf=0x228622 status=0xA0 pak_size=0
TX BD ring with 8 entries at 0x201FB8, tx_count = 0
  tx_head = 0x201FB8 (0), head_txp = 0x82D4888 (0)
  tx_tail = 0x201FB8 (0), tail_txp = 0x82D4888 (0)
    00 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
```

```
    01 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    02 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    03 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    04 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    05 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    06 pak=0x000000 buf=0x200000 status=0x00 pak_size=0
    07 pak=0x000000 buf=0x200000 status=0x20 pak_size=0
TX PD ring with 8 entries at 0x202038, tx_count = 0
  tx_head_pd = 0x202038 (0)
  tx_tail_pd = 0x202038 (0)
    00 status=0x00 bd_index=0x0000 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 2E FF FF
    01 status=0x00 bd_index=0x0001 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 2E FF FF
    02 status=0x00 bd_index=0x0002 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 2E FF FF
    03 status=0x00 bd_index=0x0003 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 2E FF FF
    04 status=0x00 bd_index=0x0004 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 2E 00 00
    05 status=0x00 bd_index=0x0005 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 2E 00 00
    06 status=0x00 bd_index=0x0006 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 00 00 00
    07 status=0x20 bd_index=0x0007 len=0x0000 hdr_len=0x0000
    ehdr:  00 00 00 00 00 00

MIB Statistics
  DS fifo full = 0, Rerequests = 0
  DS mac msg overruns = 0, DS data overruns = 0
  Qualified maps = 0, Qualified syncs = 0
  CRC fails = 0, HDR chk fails = 0
  Data pdus = 0, Mac msgs = 0
  Valid hdrs = 0
BCM3300 Registers:
downstream dma:
  ds_data_bd_base=0x001D40, ds_mac_bd_base=0x001E80
  ds_data_dma_ctrl=0x98, ds_mac_dma_ctrl=0x98
  ds_dma_data_index=0x0000, ds_dma_msg_index=0x0000
upstream dma:
  us_bd_base=0x001FB8, us_pd_base=0x002038
  us_dma_ctrl=0x00, us_dma_tx_start=0x00
global control and status:
  global_ctrl_status=0x00
interrupts:
  irq_pend=0x0018, irq_mask=0x00E7
timing recovery circuit:
  loop_enable=0x00, minislot_divisor=0x00
  K0_ctrl=0x06, K1_ctrl=0x07, acq_threshhold=0x01
  err_threshhold=0x04, timeout_threshold=0xFF
  nco_bias=0x4F7004F7, ranging_offset=0x00000000
  ts_err=0x00, sync_valid=0x00, delta_F=0x00
  timeout_err=0x00
spi:
  dynamic_ctrl=0x09, static_ctr=0x9F, autonomous=0x01
  irq_ack=0x00, spi_cmd=0x51, spi_addr=0x11
  spi_data= FF/00/00/00/00/00
burst profiles:
  profile 0:
             01 19 1D 00 00 00 00 00 00 00 00 00 00 00 00 00
             00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
             00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
             00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  profile 1:
```

```
            01 19 1D 03 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  profile 2:
            01 19 1D 04 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
  profile 3:
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
            00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Router#
```

Table 0-173 describes the MIB statistics shown in the display for this command.

Table 0-173 MIB Statistics Field Descriptions

Field	Description
DS fifo full	Number of times the downstream receive buffer on the router has become full.
Rerequests	Number of registration requests sent by the router to the CMTS.
DS mac msg overruns	Number of times the DMA controller has had a downstream MAC message and there were no free MAC message buffer descriptors to accept the message.
DS data overruns	Number of times the DMA controller has had downstream data and there were no free data PDU buffer descriptors to accept the data.
Qualified maps	Number of valid MAP messages received by the router.
Qualified syncs	Number of times the router has received synchronization with the downstream channel.
CRC fails	Number of cyclic redundancy checks (CRCs) generated by the far-end device that did not match the checksums calculated from the message portions of the packets received.
HDR check fails	Number of cyclic redundancy checks (CRCs) generated by the far-end device that did not match the checksums calculated from the MAC headers of the packets received. The MAC header CRC is a 16-bit Header Check Sequence (HCS) field that ensures the integrity of the MAC header even in a collision environment.
Data pdus	Total number of data PDUs (protocol data units) of all types received by the cable interface.
Mac msgs	Number of MAC messages received by the cable interface.
Valid hdrs	Number of valid MAC headers received by the cable interface.

Below the MIB statistics in the **show controllers cable-modem 0 mac hardware** display, the BCM3300 registers section shows the DMA locations of the indicated processing routines of the Broadcom 3220 MAC chip within the router.

The following is typical output from the **show controllers cable-modem mac state** command that summarizes the state of the cable MAC layer and provides a list of downstream search frequency bands and the order in which they are searched. The normal operational state of the interface is the `maintenance_state`. If the cable MAC layer is in the `wait_for_link_up_state`, the information shown in the display corresponds to the last time the interface was up.

```
Router# show controller cable-modem 0 mac state

MAC State:                  maintenance_state
Ranging SID:                5
Registered:                 TRUE
Privacy Established:        TRUE
Privacy Version:            BPI+ (PLUS)
DOCSIS Operating Mode:      DOCSIS 1.1

Snmp Operating Mode:        Co-existence Mode

MIB Values:
  Mac Resets:       0
  Sync lost:        0
  Invalid Maps:     0
  Invalid UCDs:     0
  Invalid Rng Rsp:  0
  Invalid Reg Rsp:  0
  T1 Timeouts:      0
  T2 Timeouts:      0
  T3 Timeouts:      4
  T4 Timeouts:      0
  Range Aborts:     0

DS ID:                      1
DS Frequency:               663000000
DS Symbol Rate:             5056941
DS QAM Mode                 64QAM
DS Search:
  88 453000000 855000000 6000000
  89  93000000 105000000 6000000
  90 111250000 117250000 6000000
  91 231012500 327012500 6000000
  92 333015000 333015000 6000000
  93 339012500 399012500 6000000
  94 405000000 447000000 6000000
  95 123015000 129015000 6000000
  96 135012500 135012500 6000000
  97 141000000 171000000 6000000
  98 219000000 225000000 6000000
  99 177000000 213000000 6000000
US ID:                      1
US Frequency:               20000000
US Power Level:             34.0 (dBmV)
US Symbol Rate:             1280000
Ranging Offset:             12460
Mini-Slot Size:             8
Change Count:               4
Preamble Pattern:           CC CC CC CC CC CC CC CC  CC CC CC CC CC CC 0D 0D
                               A9 17 D9 C3 52 2F B3 86  A4 5F 67 0D 48 BE CE 1A
                               91 7D 9C 35 22 FB 38 6A  45 F6 70 D4 8B EC E1 A9
                               17 D9 C3 52 2F B3 86 A4  5F 67 0D 48 BE CE 1A 91
                               F3 F3 F3 F3 F3 F3 F3 F3  F3 F3 F3 F3 F3 F3 F3 F3
                               F3 F3 F3 F3 F3 F3 F3 F3  F3 F3 F3 F3 33 F7 33 F7
                               88 84 04 4C C4 84 C0 0C  44 08 08 CC 8C 0C 80 48
                               88 40 44 CC 48 4C 00 C4  40 80 8C C8 C0 C8 04 88
Burst Descriptor  0:
```

```
  Interval Usage Code:      1
  Modulation Type:          1
  Differential Encoding:    2
  Preamble Length:          64
  Preamble Value Offset:    56
  FEC Error Correction:     0
  FEC Codeword Info Bytes:  16
  Scrambler Seed:           338
  Maximum Burst Size:       1
  Guard Time Size:          8
  Last Codeword Length:     1
  Scrambler on/off:         1
Burst Descriptor  1:
  Interval Usage Code:      3
  Modulation Type:          1
  Differential Encoding:    2
  Preamble Length:          128
  Preamble Value Offset:    0
  FEC Error Correction:     5
  FEC Codeword Info Bytes:  34
  Scrambler Seed:           338
  Maximum Burst Size:       0
  Guard Time Size:          48
  Last Codeword Length:     1
  Scrambler on/off:         1
Burst Descriptor  2:
  Interval Usage Code:      4
  Modulation Type:          1
  Differential Encoding:    2
  Preamble Length:          128
  Preamble Value Offset:    0
  FEC Error Correction:     5
  FEC Codeword Info Bytes:  34
  Scrambler Seed:           338
  Maximum Burst Size:       0
  Guard Time Size:          48
  Last Codeword Length:     1
  Scrambler on/off:         1
Burst Descriptor  3:
  Interval Usage Code:      5
  Modulation Type:          1
  Differential Encoding:    2
  Preamble Length:          72
  Preamble Value Offset:    48
  FEC Error Correction:     5
  FEC Codeword Info Bytes:  75
  Scrambler Seed:           338
  Maximum Burst Size:       0
  Guard Time Size:          8
  Last Codeword Length:     1
  Scrambler on/off:         1
Config File:
  Network Access:           TRUE
  Concatenation:            Disabled
  Maximum CPEs:             8
  SNMP MIB Object:          0000000000000000000000000000000000000000000000000000000000
  Vendor ID:                0.240.30
    Baseline Privacy:
    Auth. Wait Timeout:     10
    Reauth. Wait Timeout:   10
    Auth. Grace Time:       600
    Op. Wait Timeout:       1
    Retry Wait Timeout:     1
    TEK Grace Time:         600
```

```
    Auth. Reject Wait Time: 60
  COS  1:
    Assigned SID:           5
    Max Downstream Rate:    4000000
    Max Upstream Rate:      2000000
    Upstream Priority:      7
    Min Upstream Rate:      100000
    Max Upstream Burst:     12
    Privacy Enable:         TRUE
Ranging Backoff Start:      0 (at initial ranging)
Ranging Backoff End:        4 (at initial ranging)
Data Backoff Start:         0 (at initial ranging)
Data Backoff End:           4 (at initial ranging)
IP Address:                 0.0.0.0
Net Mask:                   0.0.0.0

TFTP Server IP Address:     223.255.254.254
Time Server IP Address:     188.188.1.5
Config File Name:           muck/ebuell/tftp/cm_conf
Time Zone Offset:           -28800
Log Server IP Address:      0.0.0.0

Drop Ack Enabled:           TRUE
Piggyback when Ccat On:     Disabled

Mac Sid Status
Max Sids: 4  Sids In Use: 1
 SFid      Sid      State   Type     rxtx Parm State    Idb

   5         2        2       2       F4      7       811C24B0

Router#
```

Table 0-174 describes the fields shown in the display.

Table 0-174 show controller cable-modem mac state Field Descriptions

Field	Description
MAC State	Current operational state of the MAC layer of the router.
Ranging SID	Service ID used for ranging requests.
Registered	Indicates whether or not the router is currently registered with the CMTS.
Privacy Established	Indicates whether or not keys for baseline privacy have been exchanged between the router and the CMTS, establishing privacy.
Privacy Version	Indicates whether the router is using BPI or BPI+ baseline privacy.
DOCSIS Operating Mode	Indicates the DOCSIS revision that the router has been provisioned for (DOCSIS 1.0 or DOCSIS 1.1).
Snmp Operating Mode	Indicates the current SNMP operating mode: • Co-existence Mode—SNMPv3 co-existence model • NmAccess Mode—SNMPv2 model
Mac Resets	Number of times the router reset or initialized this interface.
Sync lost	Number of times the router lost synchronization with the downstream channel.
Invalid Maps	Number of times the router received invalid MAP messages.

Table 0-174 show controller cable-modem mac state Field Descriptions (continued)

Field	Description
Invalid UCDs	Number of times the router received invalid upstream channel descriptor (UCD) messages.
Invalid Rng Rsp	Number of times the router received invalid ranging response messages.
Invalid Reg Rsp	Number of times the router received invalid registration response messages.
T1 Timeouts	Number of timeouts caused by the router not receiving a valid UCD from the CMTS within the specified time.
T2 Timeouts	Number of timeouts caused by the router not receiving a maintenance broadcast for ranging opportunities from the CMTS within a specified time.
T3 Timeouts	Number of timeouts caused by the router not receiving a response within a specified time from the CMTS to a RNG-REQ message during initial maintenance.
T4 Timeouts	Number of timeouts caused by the router not receiving a response within a specified time from the CMTS to a periodic maintenance request.
Range Aborts	Number of times the ranging process was aborted by the CMTS.
DS ID	Identifier of the downstream channel on which this MAC management message has been transmitted. This identifier is arbitrarily chosen by the CMTS and is only unique within the MAC-sublayer domain.
DS Frequency	Downstream frequency acquired by the router during its last initialization sequence.
DS Symbol Rate	Downstream frequency in symbols per second.
DS QAM Mode	Downstream modulation scheme being used by the router.
DS Search	Frequency bands scanned by the router when searching for a downstream channel. The router's default frequency bands correspond to the North American EIA CATV channel plan for 6 MHz channel slots between 90 MHz and 858 MHz.
US ID	Identifier of the upstream channel to which this MAC management message refers. This identifier is arbitrarily chosen by the CMTS and is only unique within the MAC-sublayer domain.
US Frequency	Transmission frequency used by the router in the upstream direction.
US Power Level	Transmit power level of the router in the upstream direction.
US Symbol Rate	Upstream frequency in symbols per second.
Ranging Offset	Delay correction (in increments of 6.25 microseconds/64) applied by the router to the CMTS upstream frame time derived at the router. Used to synchronize the upstream transmissions in the time division multiple access (TDMA) scheme, this value is roughly equal to the round-trip delay of the router from the CMTS.
Mini-Slot Size	Size T of the mini-slot for this upstream channel in units of the timebase tick of 6.25 microseconds. Allowable values are 2, 4, 8, 16, 32, 64, or 128.

Table 0-174 show controller cable-modem mac state Field Descriptions (continued)

Field	Description
Change Count	Incremented by 1 by the CMTS whenever any of the values of this channel descriptor change. If the value of this count in a subsequent upstream channel descriptor (UCD) remains the same, the router can quickly decide that the remaining fields have not changed, and may be able to disregard the remainder of the message.
Preamble Pattern	Byte pattern used for the preamble.
Burst Descriptor:	A compound type/length/value (TLV) encoding that defines, for each type of upstream usage interval, the physical-layer characteristics that are to be used during that interval. Each burst descriptor is given an identifying number.
Interval Usage Code	Each upstream transmit burst belongs to a class which is given a number called the interval usage code (IUC). Bandwidth MAP messages are used by IUC codes to allocate upstream time slots. The following types are currently defined: 1. Request: bandwidth request slot 2. Request/Data: bandwidth request or data slot 3. Initial Maintenance: initial link registration contention slot 4. Station Maintenance: link keep-alive slot 5. Short Data Grant: short data burst slot 6. Long Data Grant: long data burst slot
Modulation Type	Upstream modulation format. (1 = QPSK; 2 = 16-QAM)
Differential Encoding	Indicates whether or not differential encoding is used. (1 = yes; 2 = no)
Preamble Length	Length of the preamble in bits. This value must be an integral number of symbols—a multiple of 2 for QPSK; a multiple of 4 for 16-QAM.
FEC Error Correction	Length of the forward error correction in bytes. The range is 0 to 10 bytes; a value of 0 implies no forward error correction.
FEC Codeword Info Bytes	Number of information bytes in the FEC codeword.
Scrambler Seed	15-bit seed value loaded at the beginning of each burst after the register has been cleared. Not used if scrambler is off.
Maximum Burst Size	Maximum number of mini-slots that can be transmitted during this burst type. When the interval type is Short Data Grant, this value must be greater than 0. If this value is 0, the burst size is limited elsewhere.
Guard Time Size	Amount of time in symbols between the center of the last symbol of a burst and the center of the first symbol of the preamble of an immediately following burst in an upstream transmission from the router to the CMTS.
Last Codeword Length	Indicates whether or not the length of the last codeword is fixed or shortened. (1 = fixed; 2 = shortened)
Scrambler on/off	Indicates whether or not a scrambler is enabled in the upstream modulator. (1 = on; 2 = off)
Network Access	Indicates whether or not the router has access to the HFC network.

Table 0-174 show controller cable-modem mac state Field Descriptions (continued)

Field	Description
Concatenation	Indicates whether DOCSIS 1.1 concatenation is enabled or disabled.
Maximum CPEs	Maximum number of CPEs supported for this cable modem.
Vendor ID	Unique identifier specifying the CM manufacturer.
Auth. Wait Timeout	Number of seconds the router waits for a reply after sending the Authorization Request message to the CMTS.
Reauth. Wait Timeout	Number of seconds the router waits for a reply after it has sent an Authorization Request message to the CMTS in response to a reauthorization request or an Authorization Invalid message from the CMTS.
Auth. Grace Time	Number of seconds before the current authorization is set to expire that the grace timer begins, signaling the router to begin the reauthorization process.
Op. Wait Timeout	Number of seconds the TEK state machine waits for a reply from the CMTS after sending its initial Key Request for its SID's keying material.
Retry Wait Timeout	Number of seconds the TEK state machine waits for a replacement key for this SID after the TEK grace timer has expired and the request for a replacement key has been made.
TEK Grace Time	Number of seconds before the current TEK is set to expire that the TEK grace timer begins, signaling the TEK state machine to request a replacement key.
Auth. Reject Wait Time	Number of seconds the router waits before sending another Authorization Request message to the CMTS after it has received an Authorization Reject message.
Assigned SID	Service ID assigned by the CMTS for the corresponding service class.
Max Downstream Rate	Maximum downstream rate in bits per second that the CMTS is permitted to forward to CPE unicast MAC addresses learned or configured as mapping to this router. This rate does not include MAC packets addressed to broadcast or multicast MAC addresses.
Max Upstream Rate	Maximum upstream rate in bits per second that the router is permitted to forward to the RF network. This rate includes packet PDU data packets addressed to broadcast or multicast addresses.
Upstream Priority	Relative priority assigned to this service class for data transmission in the upstream channel. Higher numbers indicate higher priority.
Min Upstream Rate	Date rate in bits per second that will be guaranteed to this service class on the upstream channel.
Max Upstream Burst	Maximum transmit burst in bytes allowed for this service class on the upstream channel.
Privacy Enable	Indicates whether or not Baseline Privacy is enabled for this service class.
Ranging Backoff Start	Initial back-off window for initial ranging contention, expressed as a power of 2. Valid values are from 0 to 15.
Ranging Backoff End	Final back-off window for initial ranging contention, expressed as a power of 2. Valid values are from 0 to 15.

Table 0-174 show controller cable-modem mac state Field Descriptions (continued)

Field	Description
Data Backoff Start	Initial back-off window for contention data and requests, expressed as a power of 2. Valid values are from 0 to 15.
Data Backoff End	Final back-off window for contention data and requests, expressed as a power of 2. Valid values are from 0 to 15.
IP Address	IP address of the cable interface.
Net Mask	Subnet mask of the cable interface.
TFTP Server IP Address	IP address of the CMTS TFTP server.
Time Server IP Address	IP address of the CMTS Time-of-Day (TOD) server.
Config File Name	Name of the configuration file that is downloaded from the TFTP server to provide the router with operational parameters.
Time Zone Offset	Correction received from the DHCP server to synchronize the router time clock with the CMTS.
Log Server IP Address	Displays the IP address for a syslog server, if any has been defined.
Drop Ack Enabled	Indicates whether the TCP drop acknowledge feature is enabled or disabled.
Piggyback when Ccat On	Indicates whether the piggybacking of data onto request packets is enabled when concatenation is also enabled.
Mac Sid Status	Displays the service IDs currently in use.

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem crypto des	Displays information about the Data Encryption Standard (DES) engine registers.
show controllers cable-modem filters	Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem lookup-table	Displays the mini-slot lookup table for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware for the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem manuf-cert

To display the manufacturer's X.509 certificate for the router, use the **show controllers cable-modem manuf-cert** command in privileged EXEC mode.

Cisco uBR905 and Cisco uBR925 cable access routers, and Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **manuf-cert**

Syntax Description

number	Identifies the cable interface (always 0).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(15)CZ	This command was introduced on the Cisco uBR905 and Cisco uBR925 cable access routers, and the Cisco CVA122 Cable Voice Adapter.

Usage Guidelines

This command displays the manufacturing certificate for Cisco Systems, which the Secure Software Download procedure uses to authenticate the software that the router downloads. This command shows the individual X.509 components of the certificate, starting with the DOCSIS restricted X.501 Distinguished Name and ending with the 1024-bit public key.

Tip This command displays the certificate that is incorporated into the Cisco IOS image that the router is currently running. Upgrading the Cisco IOS image could also update the manufacturer's certificate. The **show controllers cable-modem cmcert** command displays the cable-modem certificate that is that is burned into the router at the factory and is not normally changed.

Examples

The following example shows the starting lines and ending lines of typical output for the **show controllers cable-modem manuf-cert** command:

```
Router# show controllers cable-modem 0 manuf-cert

Cisco Manufacturing Certificate:
SEQ(819)
    SEQ(539)
        Context-specific [A0](3)
            INT(1):2
            END
        INT(16): 0B F5 94 FD 7B 4E E0 79 90 83 5C A9 A4 BE A0 3E
1w3d:          SEQ(13)
            OID(9):SHA Signature 1.2.840.113549.1.1.5
1w3d:               NULL
            END
        SEQ(151)
            SET(11)
                SEQ(9)
```

```
                    OID(3):Country 2.5.4.6
1w3d:                     PRT(2):US
                    END
                END
            SET(57)
                SEQ(55)
                    OID(3):Organization 2.5.4.10
1w3d:                     PRT(48):Data Over Cable Service Interface Specification
                    END
                END
            SET(21)
                SEQ(19)
                    OID(3):Organization Unit 2.5.4.11
1w3d:                     PRT(12):Cable Modems
                    END
                END

...

1w3d:          E1 13 05 10 3C F1 F1 A0 CE 43 74 30 9C 59 F5 70
1w3d:          4B C2 71 8E 79 AC 19 3D AB 94 1E B0 BE BC 15 D8
1w3d:          AD A4 79 F5 58 CA 04 25 62 A9 F8 3F E7 40 64 E2
1w3d:          65 B0 D0 53 65 FF F1 12 FF 1B CD DE 1D 47 A2 6E
1w3d:     END

Router#
```

Note You must manually enter a return to redisplay the router prompt after the certificate has been displayed.

Related Commands

Command	Description
show controllers cable-modem cmcert	Displays the router's public key X.509 certificate.

show controllers cable-modem phs

To display the payload header suppression (PHS) configuration on the router's cable interface, use the **show controllers cable-modem phs** command in privileged EXEC mode.

Cisco uBR905, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **phs** [*rule-index*]

Syntax Description

number	Identifies the cable interface (always **0**).
rule-index	(Optional) Displays information for a specific PHS rule index. The valid range is 1 to 255.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(15)CZ	This command was introduced for the Cisco uBR905 and Cisco uBR924 cable access routers, and the Cisco CVA122 Cable Voice Adapter.

Usage Guidelines

This command displays the PHS parameters that are currently in use for both the upstream and downstream. The information shown corresponds to the PHS parameters that are listed in Appendix C of the DOCSIS 1.1 specification.

Examples

The following shows an excerpt from typical output from the **show controllers cable-modem phs** command:

```
Router# show controllers cable-modem 0 phs

Upstream PHS Parameters

PHS Parameters
  PHS Classifier Refer:           2
  PHS Classifier ID:              1
  PHS Service Flow Reference:     1
  PHS Service Flow ID:            3
  PHS Dynsrv Change Action:       0
  PHS Fields:
  PHS Index:                      1
  PHS Mask:                       0x00 0x00 0x00 0x03 0xC0
  PHS Size:                       0
  PHS Verification:               0

Upstream PHS Parameters

PHS Parameters
  PHS Classifier Refer:           2
  PHS Classifier ID:              1
  PHS Service Flow Reference:     1
```

```
  PHS Service Flow ID:            3
  PHS Dynsrv Change Action:       0
  PHS Fields:
  PHS Index:                      1
  PHS Mask:                       0x00 0x00 0x00 0x03 0xC0
  PHS Size:                       0
  PHS Verification:               0

Upstream PHS Parameters

PHS Parameters
  PHS Classifier Refer:           2
  PHS Classifier ID:              1
  PHS Service Flow Reference:     1
  PHS Service Flow ID:            3
  PHS Dynsrv Change Action:       0
  PHS Fields:
  PHS Index:                      1
  PHS Mask:                       0x00 0x00 0x00 0x03 0xC0
  PHS Size:                       0
  PHS Verification:               0

...

Downstream PHS Parameters

PHS Parameters
  PHS Classifier Refer:           1
  PHS Classifier ID:              2
  PHS Service Flow Reference:     2
  PHS Service Flow ID:            4
  PHS Dynsrv Change Action:       0
  PHS Fields:                     0x08 0x00 0x45 0x00 0x00 0x56 0x00 0x00 0x00 0x00 0x3B
0x00 0x6D 0xA7 0x01 0x0A 0x28 0x03 0x00 0x00 0x00 0x00
  PHS Index:                      1
  PHS Mask:                       0x00 0x03 0xC0
  PHS Size:                       22
  PHS Verification:               0

Downstream PHS Parameters

PHS Parameters
  PHS Classifier Refer:           3
  PHS Classifier ID:              3
  PHS Service Flow Reference:     4
  PHS Service Flow ID:            10
  PHS Dynsrv Change Action:       0
  PHS Fields:                     0x08 0x00 0x45 0x00 0x00 0x56 0x00 0x00 0x00 0x00 0x3B
0x00 0x6D 0xA7 0x00 0x00 0x00 0x00 0x01 0x0A 0x28 0x42
  PHS Index:                      2
  PHS Mask:                       0x00 0x00 0x3C
  PHS Size:                       0
  PHS Verification:               0

Router#
```

The following shows a typical display for a specific PHS rule:

```
Router# show controllers cable-modem 0 phs 3

Downstream PHS Parameters

PHS Parameters
  PHS Classifier Refer:           15
```

```
  PHS Classifier ID:              6
  PHS Service Flow Reference:     6
  PHS Service Flow ID:            1915
  PHS Dynsrv Change Action:       0
  PHS Fields:                   0x08 0x00 0x45 0x00 0x00 0x56 0x00 0x00 0x00 0x00 0x3B
0x00 0x6D 0xA7 0x08 0x00 0x00 0x01 0x0C 0x00 0x00 0x01 0xAB 0xAB 0xAB 0xAB 0xAB 0xAB 0xAB
0xAB 0xAB 0xAB 0xAB 0xAB
  PHS Index:                      3
  PHS Mask:                       0xF0 0x00 0x01 0xFF 0xAB
  PHS Size:                       34
  PHS Verification:               0

Router#
```

Table 0-175 describes the fields shown in the display.

Table 0-175 show controllers cable-modem phs Field Descriptions

Field	Description
PHS Classifier Refer	The reference ID for the classifier using this PHS rule.
PHS Classifier ID	The ID for the classifier using this PHS rule.
PHS Service Flow Reference	The reference ID for the service flow using this PHS rule.
PHS Service Flow ID	The ID for the service flow using this PHS rule.
PHS Dynsrv Change Action	The action taken in a dynamic service change request for this PHS rule: • 0 = Add the PHS rule. • 1 = Set the PHS rule. • 2 = Delete the PHS rule. • 3 = Delete all PHS rules.
PHS Fields	The bytes of the headers that must be suppressed and restored during PHS operation. For the upstream, this includes the PDU bytes starting with the first byte after the MAC header checksum. For the downstream, this includes the PDU bytes starting with the 13th byte after the MAC header checksum.
PHS Index	The index that references the suppressed byte string in the PHS Fields. The index is unique per service flow in the upstream direction and unique per the cable modem in the downstream direction.
PHS Mask	The mask used to interpret the bytes in the PHS Fields, where each bit indicates whether the corresponding byte in the PHS Fields should be suppressed (0 = do not suppress, 1 = suppress).
PHS Classifier Size	The total number of bytes in the header to be suppressed.
PHS Classifier Verification	Indicates whether the header bytes are to be verified before suppression (0 = verify, 1 = do not verify).

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem crypto des	Displays information about the Data Encryption Standard (DES) engine registers.
show controllers cable-modem filters	.Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware of the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem phy

To display the contents of the registers used in the downstream physical hardware of the router's cable interface, use the **show controllers cable-modem phy** command in privileged EXEC mode.

Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **phy** {**receive** | **transmit**}

Syntax Description

number	Identifies the cable interface (always **0**).
receive	Displays all receiver registers in the downstream physical hardware.
transmit	Displays all transmitter registers in the upstream physical hardware.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.

Usage Guidelines

To understand the output from this command, consult the Broadcom specifications for the BCM3116 and BCM3037 chips.

Examples

The following is typical output from the **show controllers cable-modem phy** command:

```
Router# show controllers cable-modem 0 phy receive

BCM3116 Receiver Registers: Chip ID = C2C1

  rstctl=    frzctl=20  qamctl=1B  lmsctl=0B  tpctl=00  fmtctl=24
  ffectl=3F  irqsts=09  irqmask=00 stoscm=9E  rstctr=00  frzctl2=46
  dvctl=30   idepth=55  eqlctl=00  tstctl=02  berctl=00  clkset=00
  tunset=00  tunctl=03

FFC coefficient registers:
  F0=0067FFBC  F1=FF880080  F2=00C1FEFB  F3=FF75019D
  F4=00C5FD89  F5=FF6D0485  F6=FC95F690  F7=2D280000

DFE coefficient registers:
  D00=0636031E  D01=FBDD0314  D02=0077FD39  D03=001B00C6
  D04=0024FF74  D05=0015007E  D06=000CFFC4  D07=FFC0004B
  D08=0044FFF6  D09=FFE00019  D10=00190005  D11=FFD3FFAD
  D12=FFD3FFE0  D13=001A000A  D14=FFF3FFED  D15=0008FFFD
  D16=FFFC0024  D17=0023FFDF  D18=0029FFFF  D19=000D001E
  D20=00020017  D21=00250001  D22=0007FFF4  D23=FFF60014
```

```
ldsft=B0EE      ldsnre=0098AF  ldif=0D004E   ldbbi=00000000
ldbbq=00000000  ldali=032E00   ldaii=E62AF2  ldbrfo=705A05
ldbri=F9CDC200  lddrfo=007E7D  lddri=007EF0

FEC correctable error count:   0
FEC uncorrectable error count: 0
Bit Error Rate Count: 0
Router#
```

The following example shows typical output for the physical transmit registers:

```
Router# show controllers cable-modem 0 phy transmit

BCM3037 Transmitter Registers:
part_id     = 3037       rev_id      = 01
test_mode   = 00         test_input  = 00
test_misc   = 2009       rst         = 00
power       = 0000       power_2     = 00
port        = 6F         pll         = F7
map         = 66         mod         = 28
tx_oen_bdly = 14         tx_oen_edly = C8
prbs_cfg    = 00C000     baud        = 1A36E3
burst       = 0000       if_freq     = 200000
dac         = 37         tx_config   = 00

burst config 0 : prbs_init    = FFFFFF   rs      = 343E
                 fec          = 00       qam     = 01
                 pream_len    = 0018     offset  = 0000
burst config 1 : prbs_init    = FFFFFE   rs      = 033B
                 fec          = 1C       qam     = 65
                 pream_len    = 0000     offset  = 0000
burst config 2 : prbs_init    = FFFFFE   rs      = 033B
                 fec          = 1D       qam     = 65
                 pream_len    = 0000     offset  = 0000
burst config 3 : prbs_init    = FFFFFE   rs      = 033B
                 fec          = 1E       qam     = 65
burst config 4 : prbs_init    = FFFFFE   rs      = 033B
                 fec          = 1F       qam     = 65
                 pream_len    = 0000     offset  = 0000
burst config 5 : prbs_init    = FFFFFE   rs      = 033B
                 fec          = 0F       qam     = 66
                 pream_len    = 0000     offset  = 0000
Eq Coeff:
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Preamble values:
CC CC CC CC CC 0D 0D CC CC CC CC CC CC CC CC 0D
04 25 01 01 01 01 02 01 02 03 02 00 40 04 02 00
40 05 01 00 06 01 10 07 02 01 52 08 01 01 09 01
08 0A 01 01 0B 01 02 04 25 03 01 01 01 02 01 02
03 02 00 50 04 02 00 30 05 01 00 06 01 22 07 02
01 52 08 01 00 09 01 30 0A 01 01 0B 01 02 04 25
04 01 01 01 02 01 02 03 02 00 40 04 02 00 40 05
01 00 06 01 22 07 02 01 52 08 01 00 09 01 30 0A

Router#
```

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem crypto des	Displays information about the Data Encryption Standard (DES) engine registers.
show controllers cable-modem filters	Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem lookup-table	Displays the mini-slot lookup table inside the cable interface.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem qos

To display detailed information about the Quality of Service (QoS) configuration for the router, use the **show controllers cable-modem qos** command in privileged EXEC mode.

Cisco uBR905, Cisco uBR924, and Cisco uBR925 cable access routers, and Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **qos** [details]

Syntax Description

number	Identifies the cable interface (always **0**).
details	(Optional) Displays detailed information, including classifier information.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(7)XR and 12.1(1)T	This command was introduced for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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.
12.2(15)CZ	Support for DOCSIS 1.1 and BPI+ operation was added for the Cisco uBR905 and Cisco uBR925 cable access routers, and the Cisco CVA122 Cable Voice Adapter. The **details** option was also added.

Usage Guidelines

When the cable modem is operating in DOCSIS 1.0 or DOCSIS 1.0+ mode, this command displays the four possible stream queues, the Service ID (SID) associated with each queue (if the queue is currently in use), and whether the SID is the primary SID, a secondary (static) SID, or a dynamic (on demand) SID. The display also shows the packets and bytes that have been transmitted and received on each stream.

When the cable modem is operating in DOCSIS 1.1 mode, this command also displays the modem's capabilities and packet classifiers.

Examples

The following example shows typical output for a DOCSIS 1.0 or DOCSIS 1.0+ cable modem for the QoS statistics for each of the router's four queues:

```
Router# show controllers cable-modem 0 qos

Queue   SID     SID      SFID    TX      TX             RX      RX
                Type             Pkts    Bytes          Pkts    Bytes

0       2       Primary 0       11377   2721985        12320   983969
1       52      Dynamic 52      116     13608          105     14300
2       0       NA      0       0       0              0       0
3       0       NA      0       0       0              0       0

Router#
```

In Cisco IOS Release 12.2(15)CZ and later releases, the QoS statistics include information about the DOCSIS 1.1 operations, including the type of service flow and packet classifiers being used for each queue. The following is a typical default display:

```
Router# show controllers cable-modem 0 qos

Queue   SID     SF      SF      SFID    TX      TX      RX      RX
                Type    Name            Pkts    Bytes   Pkts    Bytes

0       565     Primary  BE     675     200     34606   518     120321
1       1443    Dynamic  UGS    1911    0       0       0       0
2       1444    Dynamic  UGS_AD 1912    0       0       0       0
3       1445    Dynamic  RTP    1913    0       0       0       0

Queue   Concat  Capabilities
        packets cbr cc fr nbr

0       2       F  T  T  F

1       0       T  T  T  T

2       0       T  T  T  T

3       0       F  T  T  T

Router#
```

The following shows a typical display with the **details** option:

```
Router# show controllers cable-modem 0 qos details

Queue   SID     SF      SF      SFID    TX      TX      RX      RX
                Type    Name            Pkts    Bytes   Pkts    Bytes

0       565     Primary  BE     675     200     34606   529     123351
1       1443    Dynamic  UGS    1911    0       0       0       0
2       1444    Dynamic  UGS_AD 1912    0       0       0       0
3       1445    Dynamic  RTP    1913    0       0       0       0

Queue   Concat  Capabilities
        packets cbr cc fr nbr

0       2       F  T  T  F

1       0       T  T  T  T

2       0       T  T  T  T

3       0       F  T  T  T

Packet Classifiers

Class id   SFID   Pri     valid    Match     SIDT
   1       1913    0        14       0      811EDDE8
   2       1912    0        14       0      811EDBB8
   3       1911    0        14       0      811ED988
   4       675    0        14       0      811ED758
PHS: Inactive
PHS: Active   Index: 1  Size: 34  Suppressed Size: 13
SFID: 1912   Classifier Id: 2
     Verify: TRUE  Packets: 0  Bytes Suppressed: 0
PHS: Active   Index: 1  Size: 34  Suppressed Size: 13
SFID: 1911   Classifier Id: 3
```

```
     Verify: TRUE  Packets: 0  Bytes Suppressed: 0
PHS: Active   Index: 1  Size: 34  Suppressed Size: 13
SFID: 675   Classifier Id: 4
     Verify: TRUE  Packets: 0  Bytes Suppressed: 0

Downstream Payload Header Suppression
PHS: Active   Index: 1  Size: 34  Suppressed Size: 14 (index = 1)
SFID: 676   Classifier Id: 8
     Verify: TRUE  Packets: 0  Bytes Suppressed: 0
PHS: Active   Index: 2  Size: 34  Suppressed Size: 14 (index = 2)
SFID: 1914   Classifier Id: 7
     Verify: TRUE  Packets: 0  Bytes Suppressed: 0
PHS: Active   Index: 3  Size: 34  Suppressed Size: 14 (index = 3)
SFID: 1915   Classifier Id: 6
     Verify: TRUE  Packets: 0  Bytes Suppressed: 0

Router#
```

Table 0-176 describes the significant fields shown in the display for a DOCSIS 1.0 or DOCSIS 1.0+ cable modem:

Table 0-176 show controllers cable-modem qos Field Descriptions

Field	Description
Queue	One of the four possible service flow queues that exist in the router.
SID	Service identifier, a 14-bit integer assigned by the CMTS to each active upstream service flow.
SID Type	The type of SID: • Primary—The service flow used for best-effort data traffic and MAC maintenance messages. • Secondary—Secondary static service flows that are created at power-on provisioning for voice calls when dynamic SIDs are not active. • Dynamic—Secondary service flows that are created for on-demand voice calls when using dynamic SIDs.
SFID	Service flow identifier, a 32-bit integer assigned by the CMTS to each service flow on the router.
TX Pkts	Number of packets the router has transmitted on this service flow.
TX Bytes	Number of bytes the router has transmitted on this service flow.
RX Pkts	Number of packets the router has received on this service flow.
RX Bytes	Number of bytes the router has received on this service flow.
Queue/SF Type	Identifies the type of service flow being used for each queue.

In Cisco IOS Release 12.2(15)CZ and later releases, the QoS statistics include information about the DOCSIS 1.1 operations, including the type of service flow and packet classifiers being used for each queue:

```
Router# show controllers cable-modem 0 qos

Queue   SID     SID     SFID    TX      TX      RX      RX      Capabilities
                Type            Pkts    Bytes   Pkts    Bytes   cbr cc fr nbr
```

```
0       1       Primary 3       40      5740    2780    209346   F  T  T  F
1       56      Dynamic 91      1782    160140  0       0        T  T  T  T
2       58      Dynamic 93      690     61946   0       0        T  T  T  T
3       0       NA      0       0       0       0       0        F  F  F  F


Queue    SF Type
0        BE
1        BE
2        UGS_AD
3        NA


Packet Classifiers

Class id   SFID   Pri     valid    Match     SIDT
   1       91     0       D6       1782      80D2754C
   2       93     0       D6       691       80D275C0

Packet Classifier Details

Classifier id = 1    SFID =  91
IP source: 10.188.1.88
IP dest: 10.188.1.66
UDP/TCP source range: 18416   to  18416
UDP/TCP dest range: 16740   to  16740
IP Protocol: 17
PHS: Inactive

Classifier id = 2    SFID =  93
IP source: 10.188.1.88
IP dest: 10.188.1.66
UDP/TCP source range: 16796   to  16796
UDP/TCP dest range: 19138   to  19138
IP Protocol: 17
PHS: Inactive

Downstream Payload Header Suppression
```

Table 0-177 describes the fields shown in the display for a DOCSIS 1.1 cable modem.

Table 0-177 show controllers cable-modem qos Field Descriptions (DOCSIS 1.1)

Field	Description
Queue	One of the four possible service flow queues that exist in the router.
SID	Service Identifier, a 14-bit integer assigned by the CMTS to each active upstream service flow.
SID Type	The type of SID: • Primary—The service flow used for best-effort data traffic and MAC maintenance messages. • Secondary—Secondary static service flows that are created at power-on provisioning for voice calls when dynamic SIDs are not active. • Dynamic—Secondary service flows that are created for on-demand voice calls when using dynamic SIDs.
SFID	Service Flow Identifier, a 32-bit integer assigned by the CMTS to each service flow on the router.

Table 0-177 show controllers cable-modem qos Field Descriptions (DOCSIS 1.1) (continued)

Field	Description
TX Pkts	Number of packets the router has transmitted on this service flow.
TX Bytes	Number of bytes the router has transmitted on this service flow.
RX Pkts	Number of packets the router has received on this service flow.
RX Bytes	Number of bytes the router has received on this service flow.
Capabilities	These four fields describe whether the following features are enabled.
cbr	Indicates whether committed bit rate traffic (CBR) is supported (T) or not (F). This could indicate either UGS or UGS-AD service flows.
cc	Indicates whether concatenation is supported (T) or not (F).
fr	Indicates whether DOCSIS fragmentation is supported (T) or not (F).
nbr	Indicates the Not Broadcast status, depending on whether the classifier supports broadcasts (F) or not (T).
Queue/SF Type	Identifies the type of service flow being used for each queue.
Packet Classifiers	Describes the classifiers defined on the router.
Class id	ID used to uniquely identify the classifier in each service flow.
SFID	ID that uniquely identifies the service flow.
Pri	Traffic Priority parameter that was assigned to this classifier. If no value was set, the priority defaults to 0 (lowest priority).

Table 0-177 show controllers cable-modem qos Field Descriptions (DOCSIS 1.1) (continued)

Field	Description
valid	A 13-bit bitmask showing which Type/Length/Value (TLV) fields were set on the classifier. The following shows the meaning of each bit, with the least significant bit on the far right. The bit is set to 1 if the corresponding TLV was set for the classifier: • 0x0001—IP Type of Service Range and Mask • 0x0002—IP Protocol • 0x0004—IP Source Address • 0x0008—IP Source Mask • 0x0010—IP Destination Address • 0x0020—IP Destination Mask • 0x0040—TCP/UDP Source Port Start and TCP/UDP Source Port End • 0x0080—TCP/UDP Destination Port Start and TCP/UDP Destination Port End • 0x0100—Destination MAC Address • 0x0200—Source MAC Address • 0x0400—Ethertype/DSAP/MacType • 0x0800—IEEE 802.1P User_Priority • 0x1000—IEEE 802.1Q VLAN_ID For example, a value of D6 translates to the bit-mask “1101 0110”, which indicates that the following fields were set for the classifier: IP Protocol, IP Source Address, IP Destination Address, and the TCP/UDP Source and Destination Port values.
Match	Number of packets matching the classifier.
SIDT	Address for the classifier in the internal SID table (SIDT).
Packet Classifier Details	Describes each packet classifier in detail.
Classifier ID	ID used to uniquely identify the classifier in each service flow.
SFID	ID that uniquely identifies the service flow.
IP source	The matching IP source address.
IP dest	The matching IP destination address.
UDP/TCP source range	The low-end and high-end matching source TCP/UDP port values.
UDP/TCP dest range	The low-end and high-end matching destination TCP/UDP port values.
IP Protocol	The matching IP protocol type, as given in RFC 1700. A value of 256 matches any IP protocol, and a value of 257 matches TCP and UDP traffic.
PHS	Indicates whether Payload Header Suppression (PHS) is active or inactive.
Downstream Payload Header Suppression	Indicates that PHS is being used on the downstream.

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 controllers cable-modem mac	Displays detailed MAC-layer information for the router's cable interface.

show controllers cable-modem service-flows

To display the service flows that are configured on the router, use the **show controllers cable-modem service-flows** command in privileged EXEC mode.

Cisco uBR905, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **service-flows** [*sfid* | **summary**]

Syntax Description

number	Identifies the cable interface (always **0**).
sfid	(Optional) Displays detailed information for a specific service flow, as identified by its service flow ID (SFID). The valid range for *sfid* is 1 to 2147483647.
summary	(Optional) Displays a summary report of all service flows.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(15)CZ	This command was introduced for the Cisco uBR905 and Cisco uBR924 cable access routers, and the Cisco CVA122 Cable Voice Adapter.

Usage Guidelines

This command displays the Quality of Service (QoS) parameters that make up each of the service flows that are defined on the router for the upstream and downstream. The information shown corresponds to the QoS parameters that are listed in Appendix C of the DOCSIS 1.1 specification.

Examples

The following example shows typical output for the default form of the **show controllers cable-modem service-flows** command.

```
Router# show controllers cable-modem 0 service-flows

Upstream Flow Scheduler Parameters
Flow Type: Primary
  Flow Reference:                 1
  Service Flow ID:                3
  Service ID:                     2
  QoS Set Type:                   7
  QoS Traffic Priority:           0
  QoS Max Sustained Traffic Rate: 0
  QoS Max Traffic Burst:          1522
  QoS Min Reserved Traffic Rate:  0
  QoS Min Reserved Rate Pkt Size: 0
  QoS Timeout For Active Param:   0
  Qos Timeout For Admitted Param: 200
  Max Concatenated Burst:         0
  Scheduling Type:                0x2
  Request/Transmission Policy:    0x0
  Nominal Polling Interval:       0
  Tolerated Poll Jitter:          0
```

```
  Unsolicited Grant Size:         0
  Nominal Grant Interval:         0
  Tolerated Grant Jitter:         0
  Grants Per Interval:            0
  IP TOS Overwrite:               0xFF 0x0

Downstream Flow Scheduler Parameters
Flow Type: Primary
  Flow Reference:                 5
  Service Flow ID:                4
  Service ID:                     0
  QoS Set Type:                   7
  QoS Traffic Priority:           0
  QoS Max Sustained Traffic Rate: 0
  QoS Max Traffic Burst:          1522
  QoS Min Reserved Traffic Rate:  64000
  QoS Min Reserved Rate Pkt Size: 0
  QoS Timeout For Active Param:   0
  Qos Timeout For Admitted Param: 200
  Max DS Latency:                 0

Downstream Flow Scheduler Parameters
Flow Type: Static
  Flow Reference:                 6
  Service Flow ID:                5
  Service ID:                     0
  QoS Set Type:                   7
  QoS Max Sustained Traffic Rate: 10000
  QoS Max Traffic Burst:          1522
  QoS Min Reserved Traffic Rate:  8000
  QoS Min Reserved Rate Pkt Size: 0
  QoS Timeout For Active Param:   0
  Qos Timeout For Admitted Param: 200
  Max DS Latency:                 0

Downstream Flow Scheduler Parameters
Flow Type: Static
  Flow Reference:                 8
  Service Flow ID:                7
  Service ID:                     0
  QoS Set Type:                   7
  QoS Traffic Priority:           0
  QoS Max Sustained Traffic Rate: 30000
  QoS Max Traffic Burst:          1522
  QoS Min Reserved Traffic Rate:  28000
  QoS Min Reserved Rate Pkt Size: 0
  QoS Timeout For Active Param:   0
  Qos Timeout For Admitted Param: 200
  Max DS Latency:                 0

Router#
```

The following example shows typical output for the **summary** option of the **show controllers cable-modem service-flows** command.

```
Router# show controllers cable-modem 0 service-flows summary

Sfid   Sid   Sf        Sf    Service             Direction
             type      Ref   Class name
13     6     Primary   2     -                   upstream
14     N/A   Primary   1     -                   downstream

Router#
```

The following example shows typical output for the **show controllers cable-modem service-flows** command, when displaying information for individual service flows:

```
Router# show controllers cable-modem 0 service-flows 3

Upstream Flow Scheduler Parameters
Flow Type: Primary
  Flow Reference:                 1
  Service Flow ID:                3
  Service ID:                     2
  QoS Set Type:                   7
  QoS Traffic Priority:           0
  QoS Max Sustained Traffic Rate: 0
  QoS Max Traffic Burst:          1522
  QoS Min Reserved Traffic Rate:  0
  QoS Min Reserved Rate Pkt Size: 0
  QoS Timeout For Active Param:   0
  Qos Timeout For Admitted Param: 200
  Max Concatenated Burst:         0
  Scheduling Type:                0x2
  Request/Transmission Policy:    0x0
  Nominal Polling Interval:       0
  Tolerated Poll Jitter:          0
  Unsolicited Grant Size:         0
  Nominal Grant Interval:         0
  Tolerated Grant Jitter:         0
  Grants Per Interval:            0
  IP TOS Overwrite:               0xFF 0x0

Router# show controllers cable-modem 0 service-flows 4

Downstream Flow Scheduler Parameters
Flow Type: Primary
  Flow Reference:                 5
  Service Flow ID:                4
  Service ID:                     0
  QoS Set Type:                   7
  QoS Traffic Priority:           0
  QoS Max Sustained Traffic Rate: 0
  QoS Max Traffic Burst:          1522
  QoS Min Reserved Traffic Rate:  64000
  QoS Min Reserved Rate Pkt Size: 0
  QoS Timeout For Active Param:   0
  Qos Timeout For Admitted Param: 200
  Max DS Latency:                 0

Router#
```

Table 178 describes the significant fields shown by this command. The information shown corresponds to the QoS parameters that are listed in Appendix C of the DOCSIS 1.1 specification.

Table 178 show controllers cable-modem service-flows Field Descriptions

Field	Description
Flow Type, Sf type	Identifies whether the type of service-flow: • Primary—The primary service-flow for the upstream or downstream. • Static—A permanent secondary service-flow. • Dynamic—A dynamically created secondary service-flow.
Flow Reference, Sf Ref	The service flow reference ID that is used to establish the Service Flow ID.

Table 178 show controllers cable-modem service-flows Field Descriptions

Field	Description
Service Flow ID, Sfid	The ID that unique identifies this service flow on the upstream or downstream.
Service ID, Sid	The service identifier (SID) that the CMTS assigns to the service flow.
QoS Set Type	The QoS parameter set type for the service flow. This is a three-bit value, where bit 0 is set for the Provisioned Set, bit 1 is set for the Admitted Set, and bit 2 is set for the Active Set. Multiple bits can be set to produce the following possible values: • 0 = Set Active and Admitted Sets to null. • 1 = Apply to Provisioned Set only. • 2 = Perform admission control and apply to Admitted Set only. • 3 = Perform admission control and apply to Provisioned and Admitted Sets. • 4 = Check against Admitted set in separate Service Flow encoding, perform admission control if needed, activate this service flow, and apply to Active Set. • 5 = Perform admission control, apply to Provisioned and Active Sets, and activate this service flow. • 6 = Perform admission control, activate this service flow, and apply to Admitted and Active Sets. • 7 = Perform admission control, activate this service flow, and apply to Provisioned, Admitted, and Active Sets.
QoS Traffic Priority	The priority assigned to the service flow (0 to 7, where 7 is the highest priority).
QoS Max Sustained Traffic Rate	The maximum traffic rate, in bits, for a token-bucket rate limit for packets.
QoS Max Traffic Burst	The maximum size of a single packet on this service flow.
QoS Min Reserved Traffic Rate	The minimum rate, in bits per second, for traffic on this service flow.
QoS Min Reserved Rate Pkt Size	The minimum packet size, in bytes, for which the minimum rate can be sustained on this service flow.
QoS Timeout For Active Param	The maximum time, in seconds, that resources on a service flow can remain unused before the CMTS sets the flow's Admitted and Active Sets to null. A value of 0 indicates no timeout period.
Qos Timeout For Admitted Param	The maximum time, in seconds, that Admitted resources on a service flow can remain without being activated. After this timeout period, the CMTS will release Admitted resources on a service flow and retain only the activated ones.
Max Concatenated Burst	The maximum burst size, in bytes, for concatenated traffic on the service flow. A value of 0 indicates no limit.

Table 178 show controllers cable-modem service-flows Field Descriptions

Field	Description
Scheduling Type	The type of service used on the upstream for grant requests: • 1 = Undefined • 2 = Best effort • 3 = Non-real-time polling service (NRTPS) • 4 = Real-time polling service (RTPS) • 5 = Unsolicited grant service with activity detection (UGS-AD) • 6 = Unsolicited grant service (UGS)
Request/Transmission Policy	The allowable means of grant request and transmission on the upstream. This value is a 9-bit mask where the bits have the following meanings when set to 1: • Bit 0 = Do not use broadcast request opportunities. • Bit 1 = Do not use priority request multicast request opportunities. • Bit 2 = Do not use Request/Data grants for requests. • Bit 3 = Do not use Request/Data grants for data. • Bit 4 = Do not piggyback data on grant requests. • Bit 5 = Do not use concatenation. • Bit 6 = Do not use DOCSIS fragmentation. • Bit 7 = Do not use payload header suppression (PHS). • Bit 8 = UGS service flows must drop packets that do not fit. See Table 179 for the possible values of each bit for each of the supported flow types.
Nominal Polling Interval	The interval, in microseconds, between successive unicast grant requests for the service flow on the upstream.
Tolerated Poll Jitter	The maximum amount of time, in microseconds, that a unicast request interval may be delayed from the typical polling schedule.
Unsolicited Grant Size	The size of unsolicited grants, in bytes.
Nominal Grant Interval	The interval, in microseconds, between successive data grant opportunities for the service flow on the upstream.
Tolerated Grant Jitter	The maximum amount of time, in microseconds, that transmission opportunities may be delayed from the typical polling schedule.
Grants Per Interval	The actual number of grants per Nominal Grant Interval for UGS service flows, and the maximum number of active grants per Nominal Grant Interval for UGS-AD service flows.
Max DS Latency	The maximum latency, in microseconds, between the reception of a packet by the CMTS on its network interface and the transmission of the packet on its downstream cable interface.

Table 179 Request/Transmission Policy Values

	Drop if Not Fit In UGS Size	Do Not Use...							
		PHS	Frag	Concat	Piggyback Requests	Req/Data for Data	Req/Data for Requests	Priority Multicast Requests	Broadcast Requests
	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Best-Effort	X	X	X	X	X	X	X	X	X
Non-Real Time Polling	X	X	X	X	X	X	X	0 or 1	0 or 1
Real-Time Polling	X	X	X	X	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1
Unsolicited Grant Service	X	X	X	X	1	1	1	1	1
Unsolicited Grant Service with Activity Detection	X	X	X	X	1	1	1	1	1

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem crypto des	Displays information about the Data Encryption Standard (DES) engine registers.
show controllers cable-modem filters	.Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware of the cable interface.
show controllers cable-modem tuner	Displays the settings for the upstream and downstream tuners used by the cable interface.

show controllers cable-modem tuner

To display the settings for the upstream and downstream tuners used by a router, use the **show controllers cable-modem tuner** command in privileged EXEC mode.

Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter

show controllers cable-modem *number* **tuner**

Syntax Description

number	Identifies the cable interface (always **0**).

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 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 tuner settings. Table 0-180 describes the output field possibilities and descriptions.

```
Router# show controllers cable-modem 0 tuner

Tuner: status=0x00
Rx: tuner_freq 507000000, symbol_rate 5360736, local_freq 11520000
    snr_estimate 17488, ber_estimate 0, lock_threshold 26000
    QAM not in lock, FEC not in lock, qam_mode QAM_64
Tx: tx_freq 20000000, power_level 0x3E, symbol_rate 1280000
Router#
```

Table 0-180 show controllers cable-modem tuner Field Descriptions

Field	Description
tuner_freq	Indicates the current downstream frequency.
symbol_rate	Indicates the downstream symbol rate in symbols per second.
local_freq	Frequency on which the transmitter and tuner communicate.
snr_estimate	Signal-to-noise ratio (SNR) estimate in dB multiplied by 1000.
ber_estimate	Bit error rate estimate (always 0).
lock_threshold	Minimum SNR that the router will accept as a valid lock.
QAM status	Indicates if QAM/FEC lock has been acquired and the modulation mode in use.
tx_freq	Upstream frequency sent to the router by the CMTS in the UCD message.

Table 0-180 show controllers cable-modem tuner Field Descriptions (continued)

Field	Description
power_level	Transmit power level as set in the hardware, given as a hexadecimal value. The units are unique to the hardware used. Use the **show controllers cable-modem mac state** command to see the power level in dBmV.
symbol_rate	Indicates the upstream symbol rate in symbols per second that is negotiated between the CMTS and the cable access router.

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 controllers cable-modem	Displays high-level controller information about the cable interface.
show controllers cable-modem bpkm	Displays information about the baseline privacy key management exchange between the cable interface and the CMTS.
show controllers cable-modem crypto des	Displays information about the Data Encryption Standard (DES) engine registers.
show controllers cable-modem filters	Displays the registers in the MAC hardware that are used for filtering received frames.
show controllers cable-modem lookup-table	Displays the mini-slot lookup table inside the cable interface.
show controllers cable-modem mac	Displays detailed MAC-layer information for the cable interface.
show controllers cable-modem phy	Displays the contents of the registers used in the downstream physical hardware of the cable interface.

show controllers clock-reference

To display hardware information, register values, and current counters for the TCC+ card or the Cisco cable clock card, use the **show controllers clock-reference** command in privileged EXEC mode.

show controllers clock-reference

Syntax Description

This command has no keywords or arguments.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(1a)T1	This command was introduced.
12.1(2)EC1	This command was supported on the EC train.
12.2(2)XF	This command was supported for the TCC+ card on Cisco uBR10012 routers.
12.2(4)BC1	Support was added to the Release 12.2 BC train.

Usage Guidelines

To reset the counters that are displayed with the **show controllers clock-reference** command, use the **cable clock clear-counters** command.

Note This command is not applicable on the SC train.

This command supports the Cisco CMTS clock feature set, which provides a synchronized clock for improved Voice-over-IP (VoIP) operations. The clock feature set requires one of the following configurations:

- A Cisco uBR10012 router with one or two TCC+ cards that are connected to an external national clock source.
- A Cisco uBR7246 VXR router using a Cisco uBR-MC16S, Cisco uBR-MC16E, Cisco uBR-MC28C, or Cisco uBR-MC28C-BNC cable interface line card. The router must also be equipped with a Cisco cable clock card and be running Cisco IOS 12.1(1a)T1, 12.1(2)EC1, or a later release. The Cisco cable clock card should be connected to an external national clock source.

Only these cable interface cards support the external clock card reference from a clock card to distribute that signal to CMs or set-top boxes (STBs) attached to the specific network segments. You can use other cable interface cards, such as the Cisco uBR-MC16C, with the clock card, but these other cable interfaces will not synchronize their downstream SYNC messages with the external clock source.

Each CM or STB must also support VoIP applications and the clock feature set. For example, the Cisco uBR924, running Cisco IOS Release 12.0(7)T or later, supports clock card feature automatically.

Examples

The following is sample output from the **show controllers clock-reference** command for a Cisco uBR7246 VXR router with a national clock card:

```
Router# show controllers clock-reference

National clock card with T1 controller
Control register     :0x4
Status register      :0x54
LIU Config Register 0:0x0
LIU Config Register 1:0x0
1 events reported in 266636 seconds
Primary active :1, LOS :0
Secondary active :0, LOS :1
Holdovers :0, HW faults :0
Router#
```

The following is sample output from the **show controllers clock-reference** command for a Cisco uBR10012 router with two TCC+ cards.

Note Each TCC+ card—Active and Backup—has its own separate set of registers.

```
Router# show controllers clock-reference

Controllers for Card in Slot: 1
Interrupt Status Reg                : 0x0
Interrupt Mask Reg                  : 0x0
UCPC Bus Control Status Reg         : 0x4035
Push Button Status Reg              : 0x0
Line Card Presence Status Reg       : 0x21
TSRG Control Reg                    : 0xB800
LC Power off Control Reg            : 0x0
PEMA Voltage Monitor High Time Reg  : 0x0
PEMA Voltage Monitor Total Time Reg : 0x0
PEMA Current Monitor High Time Reg  : 0x0
PEMA Current Monitor Total Time Reg : 0x0
PEMB Voltage Monitor High Time Reg  : 0x66
PEMB Voltage Monitor Total Time Reg : 0xCD
PEMB Current Monitor High Time Reg  : 0x1C
PEMB Current Monitor Total Time Reg : 0x34
LIU0 Read Write Reg                 : 0x11
LIU1 Read Write Reg                 : 0x11
LCD Control Reg RS0                 : 0x39
LCD Control Reg RS1                 : 0x39
General Purpose Control Reg 0       : 0x2
General Purpose Control Reg 1       : 0x2
General Purpose Control Reg 2       : 0x40
LC Power off Status Reg             : 0x0
Sec Clock Control Reg               : 0x81
Sec Clock Status Reg                : 0x1
Push Button Input Reg               : 0x0
LC Presence Input Reg               : 0x21

Compare Errors rcvd from 1/1: 0
Parity Errors rcvd from 1/1 : 0


Controllers for Card in Slot: 2
Interrupt Status Reg                : 0x0
Interrupt Mask Reg                  : 0x0
UCPC Bus Control Status Reg         : 0x4053
Push Button Status Reg              : 0x0
Line Card Presence Status Reg       : 0x21
TSRG Control Reg                    : 0xB800
LC Power off Control Reg            : 0x0
```

```
PEMA Voltage Monitor High Time Reg   : 0x0
PEMA Voltage Monitor Total Time Reg  : 0x0
PEMA Current Monitor High Time Reg   : 0x0
PEMA Current Monitor Total Time Reg  : 0x0
PEMB Voltage Monitor High Time Reg   : 0x66
PEMB Voltage Monitor Total Time Reg  : 0xCD
PEMB Current Monitor High Time Reg   : 0x1C
PEMB Current Monitor Total Time Reg  : 0x34
LIU0 Read Write Reg                  : 0x30
LIU1 Read Write Reg                  : 0x11
LCD Control Reg RS0                  : 0x66
LCD Control Reg RS1                  : 0x20
General Purpose Control Reg 0        : 0x0
General Purpose Control Reg 1        : 0x1
General Purpose Control Reg 2        : 0x43
LC Power off Status Reg              : 0x0
Sec Clock Control Reg                : 0x80
Sec Clock Status Reg                 : 0x1
Push Button Input Reg                : 0x0
LC Presence Input Reg                : 0x21

Compare Errors rcvd from 2/1: 0
Parity Errors rcvd from 2/1 : 0


PEM A Power = 0w, PEM B Power = 343w

Router#
```

Note The **show controllers clock-reference** command might display compare errors on the Cisco uBR10012 router because there could be a slight delay at system startup before the TCC+ cards synchronize with each other. These initial compare errors can be ignored and cleared with the **cable clock clear-counters** command.

Most of the information shown by the **show controllers clock-reference** command is in the form of a hexadecimal bitfield that is not meaningful for normal operations, but the following fields can be useful in troubleshooting problems with the TCC+ and cable interface line cards:

- UCPC Bus Control Status Reg—Displays the status of both TCC+ cards and whether the LCD Display Panel is present.
- Line Card Presence Status Reg—Provides a software view of whether a cable interface line card is physically present in the Cisco uBR10012 chassis.
- LC Presence Input Reg—Provides a hardware view of whether a cable interface line card is physically present in the Cisco uBR10012 chassis.
- LC Power off Status Reg—Indicates whether a cable interface line card slot has been powered off using the **cable power** command.

Table 0-181 shows how to interpret these fields.

Table 0-181 show controllers clock-reference Field Descriptions

Field	Description
UCPC Bus Control Status Reg	Displays the status of both TCC+ cards and of the LCD Display Panel. Each TCC+ card displays this field from its own point of view, where "this card" refers to itself and "the other card" refers to the other TCC+ card slot. • Bits 2–0 display the status of the other TCC+ card: – 0x00=No card. – 0x03=The other card is the backup card. – 0x05=The other card is the active card. • Bit 3 is set to 1 upon a state change for the other TCC+ card. • Bits 6–4 display the status of this TCC+ card: – 0x00=No card. – 0x03=This card is the backup card. – 0x05=This card is the active card. – 0x06=This card has assumed the active card role, because the other card had been active but is now unresponsive. • Bit 7 is set to 1 upon a state change for this TCC+ card. • Bits 13–8 are unused. • Bit 14 is set to 1 if the LCD Display Panel is present. • Bit 15 is set to 1 if the presence of the LCD Display Panel has changed since the counters were last cleared.

The most common bit patterns for the UCPC Bus Control Status Reg field are:

- 0x4003—This TCC+ card is not present, the other card is the active card, and an LCD Display is present.
- 0x4030—This TCC+ card is the active card, the other card is not present, and an LCD Display is present.
- 0x4035—This TCC+ card is the backup card, the other card is the active card, and an LCD Display is present.
- 0x4053—This TCC+ card is the active card, the other card is the backup card, and an LCD Display is present.
- 0x4065—This TCC+ card has assumed the active card role, because the other card had been active but is now unresponsive. The LCD Display is present.

Table 0-181 show controllers clock-reference Field Descriptions (continued)

Field	Description
Line Card Presence Status Reg	The first eight bits indicate whether the line card is physically present, and the high eight bits indicate whether the card's physical state has changed since the counters were last cleared using the **cable clock clear-counters** command. 0x0001=slot 5/0 contains a cable interface card 0x0002=slot 5/1 contains a cable interface card 0x0004=slot 6/0 contains a cable interface card 0x0008=slot 6/1 contains a cable interface card 0x0010=slot 7/0 contains a cable interface card 0x0020=slot 7/1 contains a cable interface card 0x0040=slot 8/0 contains a cable interface card 0x0080=slot 8/1 contains a cable interface card 0x0100=slot 5/0 has changed physical state 0x0200=slot 5/1 has changed physical state 0x0400=slot 6/0 has changed physical state 0x0800=slot 6/1 has changed physical state 0x1000=slot 7/0 has changed physical state 0x2000=slot 7/1 has changed physical state 0x4000=slot 8/0 has changed physical state 0x8000=slot 8/1 has changed physical state
LC Presence Input Reg	The lower eight bits of this register indicate whether a cable interface line card is physically present in the chassis slot. The bit meanings are the same as the lower eight bits the Line Card Presence Status Reg. The upper eight bits of this register are unused.
Note The Line Card Presence Status Reg displays the line card state as determined by the Cisco IOS software, while the LC Presence Input Reg displays the state as determined by the chassis hardware.	
LC Power off Status Reg	0x01=slot 5/0 is powered off 0x02=slot 5/1 is powered off 0x04=slot 6/0 is powered off 0x08=slot 6/1 is powered off 0x10=slot 7/0 is powered off 0x20=slot 7/1 is powered off 0x40=slot 8/0 is powered off 0x80=slot 8/1 is powered off

Tip In Cisco IOS Release 12.1(12)EC, Release 12.2(8)BC1, 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
cable clock clear-counters	Clears the counters displayed with the **show controllers clock-reference** command.
cable power	On the Cisco uBR10012 routers, turns a cable interface line card on or off, which updates the LC Power off Status registers displayed with the **show controllers clock-reference** command.
show cable clock	Displays the status of the Cisco cable clock card and the TCC+ card.

show controllers jacket

To display Wideband SIP register values, use the **show controllers jacket** command in privileged EXEC mode.

show controllers jacket *slot/subslot* [**all** | **cpld** | **processor** | **vanadium** | **spi_fpga**]

Syntax Description

slot	The slot where the Wideband SIP resides. On the Cisco uBR10012 router, slots 1 and 3 can be used for the Wideband SIP.
subslot	The subslot where the Wideband SIP resides. On the Cisco uBR10012 router, subslot 0 is always specified.
all	(Optional) Displays values for all registers.
cpld	(Optional) Displays values for the CPLD registers.
processor	(Optional) Displays values for the processor registers.
vanadium	(Optional) Displays values for the Vanadium registers.
spi_fpga	(Optional) Displays values for the SPI FPGA registers.

Command Default

If you do not specify **all** or the keyword for a specific register, **show controllers jacket** displays values for all registers.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(21)BC	This command was introduced for the Cisco uBR10012 router.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.

Usage Guidelines

Use the **show controllers jacket** command to display Wideband SIP register values. Values for the following Wideband SIP components can be displayed:

- CPLD—A Complex Programmable Logic Device (CPLD) that contains logic to control resets, the I/O bus, and SPA OIR.
- Processor—The Wideband SIP on-board processor that is responsible for configuring the chips on the SIP, communication to the PRE module, and communication with the SPA.
- Vanadium—A Cisco-designed ASIC that provides a link between the Wideband SIP and the PRE module.
- SPI FPGA—A bus converter that supports up to eight channels on a POS-PHY Level 3 (PL3) interface and up to eight channels shared between the two System Packet Interface Level 4 Phase 2 (SPI 4.2) interfaces. The SPI FPGA also interfaces the on-board processor complex to the Wideband SIP bus.

Examples

The following examples display **show controllers jacket** command output for the **cpld** and **processor** keywords:

```
Router# show controllers jacket 1/0 cpld

CPLD registers

[A4000000] Version:4
[A4000004] Clock frequency:32
[A4000008] Reset status and control:1
[A400000C] Software reset reason:0
[A4000010] Datapath reset: 19
[A4000014] SPA 0 OIR register: FF
[A4000018] SPA 1 OIR register: FF
[A400001C] SPA OIR interrupt status: (would clear on read)
[A4000020] SPA OIR interrupt mask: FF

Router# show controllers jacket 1/0 processor

Processor Registers

 Port A:
  Pin Assignment      C00000
  Data Direction      FF437C3A
  Open-Drain          1800F
  Data                A88005
  Special Options     0000
 Port B:
  Pin Assignment      0008
  Data Direction      FFFFBEF
  Open-Drain          0000
  Data                BF0FEFC
  Special Options     0008
 Port C:
  Pin Assignment      3580C
  Data Direction      FF7CA7F3
  Open-Drain          0000
  Data                84D004
  Special Options     0000
 Port D:
  Pin Assignment      30005
  Data Direction      FFCFFFE
  Open-Drain          30000
  Data                30000
  Special Options     30000
```

Related Commands

Command	Description
show controllers modular-cable	Displays Wideband SPA information.

show controllers modular-cable

To display information about the Cisco uBR-MC3GX60V cable line card and Wideband SPA, use the **show controllers modular-cable** command in privileged EXEC mode.

show controllers modular-cable *slot/subslot/bay* {**brief** | **fpga_registers** | {**all** | **sfp** [**port** *port_num*] | **ge_phy** [**port** *port_num*]}}

Cisco IOS Releases 12.3(23)BC5, 12.2(33)SCB and later releases

show controllers modular-cable *slot/bay/port* | *slot/subslot/controller* {**all** | **association** | **bpi-entry** *bpi-index* | **brief** | **config** | **crashinfo** | **dsid-log search** *min max* | **dsid-ref-log dsid** *n* | **errors** | **fpga_version** | **fpga_registers** | **ge_phy** [**port** *port_num*] | **iofpga** | **mapping** [*rf-channel* | *wb-channel*] | **registers** | **rf-channel** *channel_number* | **sfp** [**port** *port_num*] | **spa-log-all** | **stat-index-log search** *min max* | **status** | **wideband-channel** *channel_number*}

Note The options mentioned in the syntax above are indicative and may vary with the cable interface line card used in the Cisco uBR10012 universal broadband router.

Syntax Description

slot/subslot/bay or slot/bay/port	Wideband SPA slot, subslot, bay, and port. • *slot*—Slot where the Wideband SIP resides. The valid values are 1 and 3. • *subslot*—Subslot where the Wideband SIP resides. The valid value is 0. • *bay*—Wideband SIP bay where the SPA resides. The valid range is from 0 to 3.
slot/subslot/controller	Modular-cable line card slot, subslot, and controller. • *slot*—Modular-cable line card slot. The valid value range is from 5 to 8. • *subslot*—Modular-cable line card subslot. The valid value is 0 or 1. • *controller*—Modular-cable line card controller. The valid range is from 0 to 2.
port	Specifies the interface number on the SPA.
all	(Optional) Displays all information about the modular-cable controller.
association	Displays associations between the MAC domains and wideband interfaces.
bpi-entry *bpi-index*	Displays information about Baseline Privacy Interface (BPI). • *bpi-index*—BPI index. The valid range is from 0 to 24575.
brief	(Optional) Displays a brief summary of the controller information.
config	Displays information about the configuration of the downstream field-programmable gate array (FPGA).
counters	Displays information about channel counters.
crashinfo	Displays crash information for the Wideband SPA.

dsid-log search *min max*	Searches for downstream IDs (DSID) in the Wideband SPA logs. • *min*—Minimum search value. The valid range is from 1 to 65535. • *max*—Maximum search value. The valid range is from 1 to 65535. **Note** This keyword is used to collect data only when requested by Cisco TAC.
dsid-ref-log dsid *n*	Retrieves last statistical index and ref count for DSID. • *n*—DSID search value. The valid range is from 1 to 65535. **Note** This keyword is used to collect data only when requested by Cisco TAC.
errors	Displays errors.
fpga_registers	(Optional) Displays information on the Wideband SPA Field-Programmable Gate Array (FPGA) (Blaze) registers.
fpga_version	Displays the FPGA version of the cable interface line cards.
ge_phy	(Optional) Displays physical layer (PHY) information on the Gigabit Ethernet ports.
iofpga	Displays information about I/O FPGA.
mapping	Displays information about the mapping of the configured RF channel and wideband channels. • *rf-channel*—RF channel counters. • *wb-channel*—Wideband channel counters.
registers	Displays registers for the downstream FPGAs.
rf-channel *channel-number*	Displays information for the RF channel indicated by *channel-number*. • *channel-number*—RF channel number. The valid values are from 0 to 23.
sfp	(Optional) Displays information about the small form-factor pluggable (SFP) modules.
stat-index-log search *min max*	Searches for downstream statistical indexes in SPA logs. • *min*—Minimum search value. The valid range is from 1 to 65535. • *max*—Maximum search value. The valid range is from 1 to 65535. **Note** This keyword is used to collect data only when requested by Cisco TAC.
spa-log-all	Displays SPA debug logs. **Note** This keyword is used to collect data only when requested by Cisco TAC.
port *port_num*	(Optional) When used with **sfp** or **ge_phy** keywords, the information displayed is for the specified Gigabit Ethernet port. If the **port** *port_num* argument is not used, the information displayed is for both Gigabit Ethernet ports.
status	Displays status of the downstream FPGAs.
wideband-channel *channel-number*	Displays information about the wideband channel indicated by *channel-number*. • *channel-number*—Wideband channel number. The valid values are from 0 to 31.

Command Default

If you specify no keyword or argument, all categories of information for both Gigabit Ethernet ports are displayed.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(21)BC	This command was introduced for the Cisco uBR10012 router.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.
12.3(23)BC5	The command output was modified.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB. This command was modified to change the addressing format for a modular cable interface from *slot/subslot/bay* to *slot/bay/port.*
12.3(23)BC6	The command output was modified to capture the SPA environment monitoring information.
12.2(33)SCC	The command output was modified to capture the toggle information.
12.2(33)SCE	This command was modified to include multiple keywords for the Cisco uBR-MC3GX60V cable line card.
12.2(33)SCG	This command was modified to include **dsid-log**, **dsid-ref-log**, **stat-index-log**, and **spa-log-all** keywords.

Usage Guidelines

If you specify **all** instead of **sfp** or **ge_phy**, information for the SFP module and PHY is displayed.

Note This command will not provide crash dump information for the Cisco 10000 series SIP-600. Use the **show diag 1/0 crashdump** command to obtain this information for the Cisco 10000 Series SIP-600.

Examples

Example of the show controllers modular-cable Command that displays BPI key information stored on the Cisco uBR-MC3GX60V line card.

The following is a sample output of the **show controller integrated-cable** command with the **bpi-entry** keyword:

```
Router# show controllers modular-Cable card 8/1 bpi-entry 1

BPI Index: 1 Segment: 0
 Even Key: Invalid, Odd Key: Invalid
 Key Sequence Number: 0 Security Association: 0x0
 Key Type: DES
 Even Key: 0000-0000-0000-00  IV: 0000-0000-0000-0000
  Odd Key: 0000-0000-0000-00  IV: 0000-0000-0000-0000
```

Table 160 describes the significant fields shown in the display.

Table 182 show controller modular-cable Field Descriptions

Field	Description
BPI Index	BPI index number.
Segment	Hardware segment used by the DOCSIS MAC address.
Even Key	Current value of the Even Key in the BPI entry.
Odd Key	Current value of the Odd Key in the BPI entry.
Key Sequence Number	Key sequence number.
Security Association	Security association identifier.
Key Type	Type of key stored based on the encryption algorithm (Data Encryption Standard [DES] or Advanced Encryption Standard [AES]).

The following is a sample output of the **show controllers modular-cable** command with **fpga_registers**, **sfp**, and **ge_phy** keywords. In some cases, only part of the output is shown.

```
Router# show controllers modular-cable 1/0/0 fpga_registers

REG blz_sw_rev_id offset 0x00000000 = 0x00000000
REG blz_hw_rev_id offset 0x00000004 = 0x04030422
REG rst_ctrl_reg_0 offset 0x00000008 = 0x00000000
REG led_ctrl_reg_0 offset 0x00000010 = 0x00000001
REG gp_config_reg_0 offset 0x00000030 = 0x80000000
REG test_reg offset 0x000000B0 = 0xDEADBEAF
REG adr_trap_reg offset 0x000000B4 = 0x00000040
REG spa_timeout_reg offset 0x000000B8 = 0x000003E8
REG spa_error_reg offset 0x000000BC = 0x0000000A
REG bm_int_stat_reg offset 0x00000100 = 0x00000000
REG sfp_all_int_stat_reg offset 0x00000104 = 0x00000000
REG spa_brd_int_stat_reg offset 0x00000108 = 0x00000203
REG spa_brd_int_en_reg offset 0x00000120 = 0x000000CC
REG spa_brd_int_ovrd_reg offset 0x00000130 = 0x00000000
REG sfp_int_stat_reg_0 offset 0x00000200 = 0x00000000
REG sfp_cfg_stat_reg_0 offset 0x00000204 = 0x00010007
REG sfp_int_stat_reg_1 offset 0x00000208 = 0x00000000
REG sfp_cfg_stat_reg_1 offset 0x0000020C = 0x00010007
REG blz_ctrl_stat_reg offset 0x00000300 = 0x0007FF01
REG dcm_status_reg offset 0x00000304 = 0x00000009
REG blz_sp_int_stat_reg_0 offset 0x00000310 = 0x00000008
...
Router# show controllers modular-cable 1/0/0 sfp port 1

SFP in port 1
SFP is present
SFP LOS is not detected
SFP TX FAULT is not detected
SFP TX is enabled

ID: SFP
        Extended ID: 4
        Connector: LC
        SONET compliance:  not specified
        Gigabit Ethernet compliance: 1000BASE-SX
        Fibre Channel link length:  not specified
        Fibre Channel transmitter technology:  not specified
        Fibre Channel transmission media:  not specified
```

```
        Fibre Channel speed:  not specified
        Encoding: 8B10B
        Bit Rate: 1300 Mbps
        50 micron-multimode fiber supported length: 550 m
        62.5 micron-multimode fiber supported length: 270 m
        Upper bit rate limit: not specified
        Lower bit rate limit: not specified
        Date code (yy/mm/dd): 05/02/23
        Vendor name: CISCO-AGILENT
        Vendor OUI: 12499
        Vendor Part Number (PN): QFBR-5766LP           Vendor Rev:
        Vendor SN (SN): AGS090855CE
        Options implemented:
                LOS Signal
                TX Fault Signal
                TX Disable Signal
        Enhanced options implemented: none
        Diagnostic monitoring implemented: none
        Idprom contents (hex):
        0x00:   03 04 07 00 00 00 01 00 00 00 00 01 0D 00 00 00
        0x10:   37 1B 00 00 43 49 53 43 4F 2D 41 47 49 4C 45 4E
        0x20:   54 20 20 20 00 00 30 D3 51 46 42 52 2D 35 37 36
        0x30:   36 4C 50 20 20 20 20 20 20 20 20 20 03 52 00 B5
        0x40:   00 1A 00 00 41 47 53 30 39 30 38 35 35 43 45 20
        0x50:   20 20 20 20 30 35 30 32 32 33 20 20 00 00 00 C4
        0x60:   00 00 06 C9 F0 FA 7C 01 B3 C8 41 6B 39 04 FC 85
        0x70:   BB 20 9E 00 00 00 00 00 00 00 00 00 B4 94 52 CC
        0x80:   FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
        0x90:   FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
        State: Initalized
Phased Initialization
        Phase Reached: 4
        Phase Exit Code: 0
        Phase Read Offset: 0

Socket Verification

Router# show controllers modular-cable 1/0/0 ge_phy port 0

Gigabit PHY information for port 0:
  PHY Status:
  status (reg 1) = 0x16D
    link is up, auto-negotiation is complete
    remote fault not detected, jabber not detected
  Extended status register (reg 15) = 0xC000
    1000BaseX full duplex capable    1000BaseX half duplex capable
  phy specific status (reg 17) = 0xAC14
    link is up (real-time), speed/duplex resolved
    speed: 1000 Mbps, duplex: full
    page not received, cable length is < 50m
    MDI cross-over status: MDI, downshift status: no
    energy detect status: sleep
    transmit pause: disabled, receive pause: enabled
    polarity: normal, jabber: no
  phy specific extended status (reg 27) = 0xB487
    Fiber/ copper auto selection disabled, fiber link
    Serial interface auto-negotiation bypass enabled
    Serial interface auto-negotiation bypass status:
      Link came up because regular fiber autoneg completed
    Interrupt polarity is active low
  receive error count: 0x0


  Auto-negotiation configuration and status:
```

```
    Auto-negotiation is enabled and is completed
    Speed/duplex is resolved to 1000 Mbps, full duplex
    Advertised capabilities: 1000BaseX/HD 1000BaseX/FD Pause capable (Asymmetric)
    Partner capabilities: 1000BaseX/FD
...
```

Note The above command output was modified to capture the SPA sensor temperature readings and error packet information.

The error information contains details about the:

- Timestamp of the capture.
- Interrupt state when packet is captured, which indicates the error type.
- Packet length.
- Blaze header part of the packet.

The following is a sample output of the **show controllers modular-cable** command with NO error packets.

```
Router# show controllers modular-Cable 1/0/1 | b reading

WBCMTS DOCSIS SPA temperature sensor 0, reading: 25C/77F
WBCMTS DOCSIS SPA temperature sensor 1, reading: 25C/77F


Error Packets Captured on Blaze SPI Interface:
Timestamp IntStat Len BlazeHeader

Detail Packet Content: (first 80 bytes, hex format)
```

The following is a sample output of the **show controllers modular-cable** command with captured error packets.

```
Router# show controllers modular-Cable 1/0/0

SPA 0 is present
status LED: [green]
Host 12V is enabled and is okay.
Power has been enabled to the SPA.
SPA reports power enabled and okay.
SPA reports it is okay and is NOT held in reset.

.................. <<< text omitted

WBCMTS DOCSIS SPA temperature sensor 0, reading: 26C/78F
WBCMTS DOCSIS SPA temperature sensor 1, reading: 25C/77F


Error Packets Captured on Blaze SPI Interface:
Timestamp IntStat Len BlazeHeader
000:00:12:49.190 C0000808 1510 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
000:00:13:04.948 C0000808 796 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
000:00:13:09.468 C0000808 60 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
000:00:13:14.320 C0000808 26 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
000:00:13:18.088 C0000808 496 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00

Detail Packet Content: (first 80 bytes, hex format)
[Entry 00]
0x00: 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
0x10: 00 1C 9C 24 01 E0 2F 00 00 01 00 00 00 00 00 00
```

```
0x20: 00 0A 00 00 03 04 FD 00 00 48 03 FC 00 00 00 00
0x30: 00 00 00 00 00 00 00 05 00 00 00 00 80 06 12 78
0x40: 00 00 00 00 00 00 00 00 00 00 00 05 00 00 00 00
[Entry 01]
0x00: 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
0x10: 00 1C 9C 24 01 E0 2F 00 00 01 00 00 00 00 00 00
0x20: 00 0A 00 00 03 04 FD 00 00 48 03 FC 00 00 00 00
0x30: 00 00 00 00 00 00 00 05 00 00 00 00 80 06 12 78
0x40: 00 00 00 00 00 00 00 00 00 00 00 05 00 00 00 00
[Entry 02]
0x00: 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
0x10: 00 1C 9C 24 01 E0 2F 00 00 01 00 00 00 00 00 00
0x20: 00 0A 00 00 03 04 FD 00 00 48 03 FC 00 00 00 00
0x30: 00 00 00 00 00 00 00 05 00 00 00 00
[Entry 03]
0x00: 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
0x10: 00 1C 9C 24 01 E0 2F 00 00 01
[Entry 04]
0x00: 00 00 00 00 01 00 00 00 00 00 00 00 00 0F C2 00
0x10: 00 1C 9C 24 01 E0 2F 00 00 01 00 00 00 00 00 00
0x20: 00 0A 00 00 03 04 FD 00 00 48 03 FC 00 00 00 00
0x30: 00 00 00 00 00 00 00 05 00 00 00 00 80 06 12 78
0x40: 00 00 00 00 00 00 00 00 00 00 00 05 00 00 00 00
```

Note The temperature sensor readings in the command output shown above is specific to the Cisco IOS Release 12.3(23)BC and will not appear in the Cisco IOS Release 12.2(33)SCB and later releases.

Beginning in Cisco IOS Release 12.3(23)BC6, the command output was modified to capture the SPA environment monitoring information. The environment monitoring information includes:

Temperature sensor information:

- Sensor number
- Current sensor reading
- Low threshold
- Warning threshold
- Critical threshold
- Shutdown threshold

Voltage sensor information:

- Nominal value of the rail
- Current voltage reading
- Low shutdown threshold
- Low warning threshold
- High warning threshold
- High shutdown threshold

The following is a sample output of the **show controllers modular-cable** command that displays the SPA environment monitoring information.

```
Router# show controllers modular-cable 1/0/0 | b SPA Env
```

```
SPA Environment Monitoring Information:
Temperature sensors for SPA-24XDS-SFP[1/0]:
Sensor   Reading  Low      Warning  Critical Shutdown
0        26C      0C       58C      68C      85C
1        27C      0C       58C      68C      85C
Voltage sensors for SPA-24XDS-SFP[1/0]:
Nominal  Reading  LowShut  LowWarn  HighWarn HighShut
3.300V   3.276V   3.069V   3.135V   3.465V   3.531V
2.500V   2.485V   2.325V   2.375V   2.625V   2.675V
1.200V   1.186V   1.116V   1.140V   1.260V   1.284V
1.800V   1.801V   1.674V   1.710V   1.890V   1.926V
```

Note The SPAs are shut down automatically when the sensor readings go beyond the threshold shutdown value.

In Cisco IOS Release 12.2(33)SCC, when the primary link on the SPA toggles more than five times within 30 seconds, and the backup link is UP, the backup link is selected for traffic. The link switches back to the primary link during the next primary link transition after 30 seconds or when the backup link fails. The **show controllers modular-cable** command output was modified to capture the toggle information.

The following is a sample output of the **show controllers modular-cable** command that displays the toggle information.

```
Router# show controllers modular-cable 1/1/0

SPA 1 is present
status LED: [green]
Host 12V is enabled and is okay.
Power has been enabled to the SPA.
SPA reports power enabled and okay.
SPA reports it is okay and is NOT held in reset.

Gigabit Ethernet Port Selected : Port 0
Receive Interface              : Out of Reset
Receive Interface              : Enabled
Transmit Interface             : Out of Reset
Transmit Interface             : Enabled
Primary Receive Clock          : Enabled
Backup Receive Clock           : Enabled
SFP [Port 0] : 1000BASE-SX Present
 Tx Enabled , LOS Not Detected , TxFault Not Detected
 Link Status [Port 0] : UP

Primary port Link Up   Events : 2
Primary port Link Down Events : 0
Backup  port Link Up   Events : 2
Backup  port Link Down Events : 0
Current Link Toggle Count     : 0
Link Toggle Suppressed        : TRUE
Link Toggle Suppress Events   : 0

SFP [Port 1] : 1000BASE-SX Present
 Tx Enabled , LOS Not Detected , TxFault Not Detected
 Link Status [Port 1] : UP


Wideband Channel information
Channel    RF bitmap   Police Info: Bytes      Interval
0          0x7                     0            0 ms
1          0xC                     0            0 ms
```

```
2           0x0                     0             0 ms
3           0x0                     0             0 ms
4           0x0                     0             0 ms
5           0x0                     0             0 ms
6           0x0                     0             0 ms
7           0x0                     0             0 ms
8           0x0                     0             0 ms
9           0x0                     0             0 ms
10          0x0                     0             0 ms
11          0x0                     0             0 ms
```

The following is a sample output for the **rf-channel** keyword:

```
Router# show controllers Modular-Cable 8/1/0 rf-channel

Ctrl Chan Frequency  Mod Annex IP Address      MAC Address    DEPI Remote ID
0    0    453000000  256 B     10.31.136.100   0022.9084.4e3f 101231
0    1    459000000  256 B     10.31.136.100   0022.9084.4e3f 101232
0    2    465000000  256 B     10.31.136.100   0022.9084.4e3f 101233
0    3    471000000  256 B     10.31.136.100   0022.9084.4e3f 101234
0    4    477000000  256 B     10.31.136.100   0022.9084.4e3f 101241
0    5    483000000  256 B     10.31.136.100   0022.9084.4e3f 101242
0    6    489000000  256 B     10.31.136.100   0022.9084.4e3f 101243
0    7    495000000  256 B     10.31.136.100   0022.9084.4e3f 101244
0    8    0          64  B     0.0.0.0         0000.0000.0000 0
0    9    0          64  B     0.0.0.0         0000.0000.0000 0
0    10   0          64  B     0.0.0.0         0000.0000.0000 0
0    11   0          64  B     0.0.0.0         0000.0000.0000 0
0    12   0          64  B     0.0.0.0         0000.0000.0000 0
0    13   0          64  B     0.0.0.0         0000.0000.0000 0
0    14   0          64  B     0.0.0.0         0000.0000.0000 0
0    15   0          64  B     0.0.0.0         0000.0000.0000 0
0    16   0          64  B     0.0.0.0         0000.0000.0000 0
0    17   0          64  B     0.0.0.0         0000.0000.0000 0
0    18   0          64  B     0.0.0.0         0000.0000.0000 0
0    19   0          64  B     0.0.0.0         0000.0000.0000 0
0    20   0          64  B     0.0.0.0         0000.0000.0000 0
0    21   0          64  B     0.0.0.0         0000.0000.0000 0
0    22   0          64  B     0.0.0.0         0000.0000.0000 0
0    23   0          64  B     0.0.0.0         0000.0000.0000 0

Router# show controllers Modular-Cable 8/1/0 rf-channel 7

Ctrl Chan Frequency  Mod Annex IP Address      MAC Address    DEPI Remote ID
0    7    495000000  256 B     10.31.136.100   0022.9084.4e3f 101244
```

The following is a sample output for the **wideband-channel** keyword:

```
Router# show controllers Modular-Cable 8/1/0 wideband-channel

WB                      BG    Primary
channel                 ID    BG
Wideband-Cable8/1/0:0   1377  Yes
Wideband-Cable8/1/0:1   1378  Yes
Wideband-Cable8/1/0:2   1379  Yes
Wideband-Cable8/1/0:3   1380  Yes
Wideband-Cable8/1/0:4   1381  Yes
Wideband-Cable8/1/0:5   1382  Yes
Wideband-Cable8/1/0:6   1383  Yes
Wideband-Cable8/1/0:7   1384  Yes
Wideband-Cable8/1/0:8   1385  Yes
Wideband-Cable8/1/0:9   1386  Yes
Wideband-Cable8/1/0:10  1387  Yes
Wideband-Cable8/1/0:11  1388  Yes
```

```
Wideband-Cable8/1/0:12  1389  Yes
Wideband-Cable8/1/0:13  1390  Yes
Wideband-Cable8/1/0:14  1391  Yes
Wideband-Cable8/1/0:15  1392  Yes
Wideband-Cable8/1/0:16  1393  Yes
Wideband-Cable8/1/0:17  1394  Yes
Wideband-Cable8/1/0:18  1395  Yes
Wideband-Cable8/1/0:19  1396  Yes
Wideband-Cable8/1/0:20  1397  Yes
Wideband-Cable8/1/0:21  1398  Yes
Wideband-Cable8/1/0:22  1399  Yes
Wideband-Cable8/1/0:23  1400  Yes
Wideband-Cable8/1/0:24  1401  Yes
Wideband-Cable8/1/0:25  1402  Yes
Wideband-Cable8/1/0:26  1403  Yes
Wideband-Cable8/1/0:27  1404  Yes
Wideband-Cable8/1/0:28  1405  Yes
Wideband-Cable8/1/0:29  1406  Yes
Wideband-Cable8/1/0:30  1407  Yes
Wideband-Cable8/1/0:31  1408  Yes

Router# show controllers Modular-Cable 8/1/0 wideband-channel 0

WB                      BG    Primary
channel                 ID    BG
Wideband-Cable8/1/0:0   1377  Yes
```

The following is a sample output of the **show controllers modular-cable mapping** command:

```
router# show controllers modular-cable mapping

Ctrlr    RF       MC         MC Rem.    WB         WB         WB Rem.
         channel  BW %       Ratio      channel    BW %       Ratio
5/1/0    2        0          0
```

The following is a sample output of the **show controllers modular-cable registers** command:

```
router# show controllers modular-Cable 5/1/0 registers

JIB3_DS BPI registers (base address 0xF8880000)

bpi_int_isr_0                       [0x00000000] = 0x00000000
bpi_int_ier_0                       [0x00000004] = 0x0000000F
glb_int_isr_0                       [0x00000010] = 0x00000000
glb_int_ier_0                       [0x00000014] = 0x00001EFF
glb_int_isr_1                       [0x00000020] = 0x00000000
glb_int_ier_1                       [0x00000024] = 0x00001EFF
col_chip_mode_reg                   [0x00000030] = 0x00000001
bpi_int_fesr_0                      [0x00000040] = 0x00000000
bpi_tst_tp_sel_reg                  [0x00000050] = 0x00000000
bpi_tst_tp_reg                      [0x00000054] = 0x00000000
bpi_cnt_good_packet_in_cnt          [0x00000064] = 0x00013418
bpi_cnt_bad_packet_in_cnt           [0x00000068] = 0x00000000
bpi_cnt_good_packet_out_cnt         [0x0000006C] = 0x00013418
bpi_cnt_bad_packet_out_cnt          [0x00000070] = 0x00000000
bpi_ecc_sbit_err_cnt                [0x00000074] = 0x00000000
glb_sw_rev_id                       [0x00000078] = 0x00020002
glb_hw_rev_id                       [0x0000007C] = 0x0001000D
frz_reg                             [0x00000080] = 0x00000000
frz_en                              [0x00000084] = 0x00000001
glb_dcm_status                      [0x00000088] = 0x00000007
glb_sw_rst                          [0x0000008C] = 0x00000000
```

The following is a sample output for the **dsid-log** keyword:

```
Router# show controllers modular-Cable 1/0/0 dsid-log search 1 1000

SPA 0 DSID Info Log Count 17
Entry 5
00y:000d:00h:03m:11.908 ds_stat_index=00022 dsid=0x001A8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00009 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 6
00y:000d:00h:03m:11.972 ds_stat_index=00021 dsid=0x001A0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00010 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 7
00y:000d:00h:03m:12.208 ds_stat_index=00024 dsid=0x001B8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00011 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 8
00y:000d:00h:03m:12.632 ds_stat_index=00023 dsid=0x001B0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00012 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 9
00y:000d:00h:27m:13.024 ds_stat_index=00021 dsid=0x00000 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00010 WbIdx=000000 old_dsid=0x001A0 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 10
00y:000d:00h:27m:13.090 ds_stat_index=00022 dsid=0x00000 seq_num_b4=0x00001
1st_seq_num=0x00001
slotIdx=10 5/0 sid=00009 WbIdx=000000 old_dsid=0x001A8 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 11
00y:000d:00h:27m:13.156 ds_stat_index=00023 dsid=0x00000 seq_num_b4=0x00001
1st_seq_num=0x00001
slotIdx=10 5/0 sid=00012 WbIdx=000000 old_dsid=0x001B0 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 12
00y:000d:00h:27m:13.220 ds_stat_index=00024 dsid=0x00000 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00011 WbIdx=000000 old_dsid=0x001B8 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 13
00y:000d:00h:29m:30.388 ds_stat_index=00025 dsid=0x001C0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00013 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 14
00y:000d:00h:29m:32.544 ds_stat_index=00026 dsid=0x001C8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00014 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
```

```
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 15
00y:000d:00h:29m:36.446 ds_stat_index=00028 dsid=0x001D8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00016 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 16
00y:000d:00h:29m:36.970 ds_stat_index=00027 dsid=0x001D0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00015 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
SPA 0 DSID Suspect Count 0
No entries in the DSID Suspect List Log for SPA 0
```

The following is a sample output with the **stat-index-log** keyword:

```
Router# show controllers modular-Cable 1/0/0 stat-index-log search 1 1000
SPA 0 DSID Info Log Count 17
Entry 5
00y:000d:00h:03m:11.908 ds_stat_index=00022 dsid=0x001A8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00009 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 6
00y:000d:00h:03m:11.972 ds_stat_index=00021 dsid=0x001A0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00010 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 7
00y:000d:00h:03m:12.208 ds_stat_index=00024 dsid=0x001B8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00011 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 8
00y:000d:00h:03m:12.632 ds_stat_index=00023 dsid=0x001B0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00012 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 9
00y:000d:00h:27m:13.024 ds_stat_index=00021 dsid=0x00000 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00010 WbIdx=000000 old_dsid=0x001A0 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 10
00y:000d:00h:27m:13.090 ds_stat_index=00022 dsid=0x00000 seq_num_b4=0x00001
1st_seq_num=0x00001
slotIdx=10 5/0 sid=00009 WbIdx=000000 old_dsid=0x001A8 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 11
00y:000d:00h:27m:13.156 ds_stat_index=00023 dsid=0x00000 seq_num_b4=0x00001
1st_seq_num=0x00001
slotIdx=10 5/0 sid=00012 WbIdx=000000 old_dsid=0x001B0 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 12
```

```
00y:000d:00h:27m:13.220 ds_stat_index=00024 dsid=0x00000 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00011 WbIdx=000000 old_dsid=0x001B8 MD=01 (5/0/1) IPC_Port=0x000C0000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_CLEAR_CLEANUP
Entry 13
00y:000d:00h:29m:30.388 ds_stat_index=00025 dsid=0x001C0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00013 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 14
00y:000d:00h:29m:32.544 ds_stat_index=00026 dsid=0x001C8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00014 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 15
00y:000d:00h:29m:36.446 ds_stat_index=00028 dsid=0x001D8 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00016 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
Entry 16
00y:000d:00h:29m:36.970 ds_stat_index=00027 dsid=0x001D0 seq_num_b4=0x00000
1st_seq_num=0x00000
slotIdx=10 5/0 sid=00015 WbIdx=000000 old_dsid=0x00000 MD=01 (5/0/1) IPC_Port=0x00010000
this_bay=0
GblIdx=000000 slot=0 bay=0 src_thread=DSID_UPDATE
SPA 0 DSID Suspect Count 0
No entries in the DSID Suspect List Log for SPA 0
```

The following is a sample output with the **dsid-ref-log** keyword:

```
Router# show controllers modular-Cable 1/0/0 dsid-ref-log dsid 0xf000

dsid = 61440(0xF000) last_stat_index = 64936 ref_count = 1
```

Related Commands

Command	Description
show controllers jacket	Displays Wideband SIP register values.

show controllers usb

To display the current state information for the USB interface and its controller, use the **show controllers usb** command in privileged EXEC mode.

Cisco uBR925 cable access router, Cisco CVA122 Cable Voice Adapter

show controllers usb *number*

Syntax Description

number	Identifies the USB interface (always **0**).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1(5)XU1	This command was introduced 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 sample output from the **show controllers usb** command:

```
Router# show controllers usb 0

PQUICC Ethernet unit 0 using SCC2, Microcode ver 3392
Current station address 0001.64f9.22fc, default address 0001.64f9.22fc
idb at 0x80B478EC, driver data structure at 0x80B4966C
SCC Registers:
General [GSMR]=0x0:0x1088003C, Protocol-specific [PSMR]=0x80A
Events [SCCE]=0x0000, Mask [SCCM]=0x001F, Status [SCCS]=0x0002
Transmit on Demand [TODR]=0x0, Data Sync [DSR]=0xD555
Interrupt Registers:
Config [CICR]=0x001B9F80, Pending [CIPR]=0x00000C00
Mask   [CIMR]=0x60020010, In-srv  [CISR]=0x00000000
Command register [CR]=0x640
Port A [PADIR]=0x00C0, [PAPAR]=0x0F0F
       [PAODR]=0x00F3, [PADAT]=0x004F
Port B [PBDIR]=0x00F32F, [PBPAR]=0x0020D0
       [PBODR]=0x008000, [PBDAT]=0x0053EF
Port C [PCDIR]=0x030C, [PCPAR]=0x0300
       [PCSO]=0x00F0,  [PCDAT]=0x050C, [PCINT]=0x0000
Port D [PDDIR]=0x001EF7, [PDPAR]=0x000000
       [PDDAT]=0x000FBA
SI     [SIMODE]=0x00001000,  [SIGMR]=0x00, [SISTR]=0x00
       [SICR]=0x00002628
BRGC   [BRGC1]=0x00018008,  [BRGC2]=0x000101FA
       [BRGC3]=0x00000000,  [BRGC4]=0x00000000

SCC GENERAL PARAMETER RAM (at 0x10783D00)
Rx BD Base [RBASE]=0x2800, Fn Code [RFCR]=0x18
Tx BD Base [TBASE]=0x2880, Fn Code [TFCR]=0x18
Max Rx Buff Len [MRBLR]=1520
Rx State [RSTATE]=0x0, BD Ptr [RBPTR]=0x2800
```

```
Tx State [TSTATE]=0x18000AE3, BD Ptr [TBPTR]=0x2890

SCC ETHERNET PARAMETER RAM (at 0x10783D30)
CRC Preset [C_PRES]=0xFFFFFFFF, Mask [C_MASK]=0xDEBB20E3
Errors:CRC [CRCEC]=0, Alignment [ALEC]=0, Discards [DISFC]=0
PAD Char [PADS]=0x0
Retry Limit [RET_LIM]=15, Count [RET_CNT]=15
Frame Lengths:[MAXFLR]=1518, [MINFLR]=64
Max DMA Lengths:[MAXD1]=1518, [MAXD2]=1518
Group Address Filter [GADDRn]=0420:0000:0420:0100
Indiv Address Filter [IADDRn]=0000:0000:0000:0000
Physical Address [PADDR1]=FFFFFC22.FFFFF964.0100
Last Address Set in Filter [TADDR]=FFFFCDCC.FFFFCC0C.0001
Persistence [P_Per]=0, Backoff Cnt [BOFF_CNT]=0
BD Pointers:
First Rx [RFBD]=0x0, First Tx [TFBD]=0x2890, Last Tx [TLBD]=0x2888

RX ring with 16 entries at 0x10782800, Buffer size 1524
Rxhead = 0x10782800 (0), Rxp = 0x80B49688 (0)
00 pak=0x80B4D9EC buf=0x10032A9C status=9000 pak_size=0
01 pak=0x80B4D728 buf=0x100323E0 status=9000 pak_size=0
02 pak=0x80B4D464 buf=0x10031D24 status=9000 pak_size=0
03 pak=0x80B4D1A0 buf=0x10031668 status=9000 pak_size=0
04 pak=0x80B4CEDC buf=0x10030FAC status=9000 pak_size=0
05 pak=0x80B4CC18 buf=0x100308F0 status=9000 pak_size=0
06 pak=0x80B4C954 buf=0x10030234 status=9000 pak_size=0
07 pak=0x80B4C690 buf=0x1002FB78 status=9000 pak_size=0
08 pak=0x80B4C3CC buf=0x1002F4BC status=9000 pak_size=0
09 pak=0x80B4C108 buf=0x1002EE00 status=9000 pak_size=0
10 pak=0x80B4BE44 buf=0x1002E744 status=9000 pak_size=0
11 pak=0x80B4BB80 buf=0x1002E088 status=9000 pak_size=0
12 pak=0x80B4B8BC buf=0x1002D9CC status=9000 pak_size=0
13 pak=0x80B4B5F8 buf=0x1002D310 status=9000 pak_size=0
14 pak=0x80B4B334 buf=0x1002CC54 status=9000 pak_size=0
15 pak=0x80B4B070 buf=0x1002C598 status=B000 pak_size=0

TX ring with 4 entries at 0x10782880, tx_count = 0
tx_head = 0x10782890 (2), head_txp = 0x80B496EC (2)
tx_tail = 0x10782890 (2), tail_txp = 0x80B496EC (2)
00 pak=0x0000000 buf=0x0000000 status=0000 pak_size=0
01 pak=0x0000000 buf=0x0000000 status=0000 pak_size=0
02 pak=0x0000000 buf=0x0000000 status=0000 pak_size=0
03 pak=0x0000000 buf=0x0000000 status=2000 pak_size=0
32 missed datagrams, 0 overruns
0 transmitter underruns, 0 excessive collisions
0 single collisions, 0 multiple collisions
0 dma memory errors, 0 CRC errors

0 alignment errors, 0 runts, 0 giants
PQUICC SCC specific errors:
32 buffer errors, 0 overflow errors
0 input aborts on late collisions
0 heartbeat failures, 0 cumulative deferred
0 throttles, 0 enables
Router#
```

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
interface usb	Enters interface configuration mode for the USB interface.
show interfaces usb	Displays configuration information about the USB interface.

show cpd

To display the CPD functionality state, use the **show cpd** command in privileged EXEC mode.

show cpd

Command Default

Information for the CPD 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 cpd
CPD enabled
CR ID :12345
```

Related Commands

Command	Description
cpd	Enables CPD.

show cr10k-rp cable

Note This command is meant for engineering debugging, and not for general customer use.

To display packet processing information for a particular service ID (SID) on a cable interface, use the **show cr10k-rp cable** command in user EXEC or privileged EXEC mode.

show cr10k-rp cable *slot/subslot/port sid* {**classifier** | **mac-rw-index** | **queue** | **service-flow** {**ds** | **us**}}

Syntax Description

cable *slot/subslot/port*	Identifies the cable interface on the Cisco uBR10012 router for which information should be displayed, where: • *slot*—0 to 8 • *subslot*—0 or 1 • *port*—0 to 4 (depending on the cable interface)
sid	(Optional) Identifies the service ID (SID) for which information should be displayed.
classifier	Displays classifier information for the SID.
mac-rw-index	Displays the MAC rewrite index for the SID.
queue	Displays information about the output packet queues for the modem identified by the SID.
service-flow ds	Displays the information of the downstream service-flows for the modem identified by the SID.
service-flow us	Displays the information of the upstream service-flows for the modem identified by the SID.

Defaults

No default behavior or values.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.2(15)BC1	This command was introduced for the Cisco uBR10012 router.
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.

Usage Guidelines

The **show cr10k-rp cable** command displays information that the PRE routing processor (RP) module has about a particular SID. This information includes configuration information about the SID, as well as internal status information that is useful only to Cisco engineers in troubleshooting problems.

Examples

The following example shows typical output for the **show cr10k-rp cable** command for a SID that identifies a cable modem:

```
Router# show cr10k-rp c6/1/0 2 classifier
Mac Rw Index: 5CCB Index: 7
CM Classifiers:
id=4, sfid=14 CFR Index 16396 RP sfindex 16396,
  prio=10, 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=A0,E0
  sport = 0,750, dport = 1024,10000 matches = 0

id=2, sfid=13 CFR Index 16395 RP sfindex 16395,
  prio=9, 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=A0,E0
  sport = 0,65535, dport = 0,65535 matches = 0

id=3, sfid=12 CFR Index 16394 RP sfindex 16394,
  prio=8, sip=9.0.0.0, sip mask=255.255.0.0
  dip=1.11.22.0, dip mask=255.255.255.0, prot=256, tos=0,FF
  sport = 0,65535, dport = 0,65535 matches = 0

id=1, sfid=11 CFR Index 16393 RP sfindex 16393,
  prio=7, sip=0.0.0.0, sip mask=0.0.0.0
  dip=1.11.22.0, dip mask=255.255.255.0, prot=256, tos=0,FF
  sport = 0,65535, dport = 0,65535 matches = 0
```

The following example shows typical output for the **show cr10k-rp classifier** command for a SID that identifies a customer premises equipment (CPE) device:

```
Router# show cr10k-rp c6/0/0 70 classifier

CPE Classifiers:
Mac Rw Index: 390       CCB Index: 97
id=7, sfid=205 CFR Index 16484 RP sfindex 16484,
  prio=255, sip=0.0.0.0, sip mask=0.0.0.0
  dip=15.0.0.1, dip mask=255.255.255.255, prot=257, tos=0,FF
  sport = 0,65535, dport = 1001,1001 matches = 0

id=1, sfid=199 CFR Index 16478 RP sfindex 16478,
  prio=25, sip=0.0.0.0, sip mask=0.0.0.0
  dip=0.0.0.0, dip mask=0.0.0.0, prot=257, tos=0,FF
  sport = 0,65535, dport = 1000,1000 matches = 0

id=5, sfid=203 CFR Index 16482 RP sfindex 16482,
  prio=0, sip=0.0.0.0, sip mask=0.0.0.0
  dip=15.0.0.1, 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
-----------------------------------------------------------

CPE Classifiers:
Mac Rw Index: 387       CCB Index: 93
id=4, sfid=202 CFR Index 16481 RP sfindex 16481,
  prio=255, sip=0.0.0.0, sip mask=0.0.0.0
  dip=14.0.0.1, dip mask=255.255.255.255, prot=17, tos=0,FF
  sport = 0,65535, dport = 0,65535 matches = 0

id=1, sfid=199 CFR Index 16478 RP sfindex 16478,
  prio=25, sip=0.0.0.0, sip mask=0.0.0.0
  dip=0.0.0.0, dip mask=0.0.0.0, prot=257, tos=0,FF
  sport = 0,65535, dport = 1000,1000 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
-----------------------------------------------------------
```

The following example shows typical output for the **mac-rw-index** option:

```
Router# show cr10k-rp c8/0/0 1 mac-rw-index

CPE Information for Interface Cable8/0/0 SID 1:
        Link Table Slot: 17  Mac-rw-index: 17

Router# show cr10k-rp c8/0/0 2 mac-rw-index

CPE Information for Interface Cable8/0/0 SID 2:
        Link Table Slot: 18  Mac-rw-index: 18

Router#
```

Tip To display more information about the max-rw-index, use the **show pxf cpu cef** command to display information for a specific IP address. The output of this command shows the max-rw-index value in the "rw_index" field.

The following example shows typical output for the **show cr10k-rp queue** command:

```
Router# show cr10k-rp c6/1/0 1 queue

RP SFID 16384 LC SFID 4
Queue Index: 293        QID 293 VCCI 6162       ClassID 5       Refcount 1
        Priority: Lo    Rates:(Act/Conf) CIR 0/0 MIR 6067/6067 EIR 1260/1260
        Statsitics: Length 0 Pkts 1 Octets 52 TailDrops 0 BufferDrops 0

RP SFID 16385 LC SFID 7
Queue Index: 294        QID 294 VCCI 6162       ClassID 6       Refcount 1
        Priority: Lo    Rates:(Act/Conf) CIR 0/0 MIR 0/1820 EIR 0/1260
        Statsitics: Length 0 Pkts 0 Octets 0 TailDrops 0 BufferDrops 0

RP SFID 16386 LC SFID 8
Queue Index: 295        QID 295 VCCI 6162       ClassID 7       Refcount 1
        Priority: Lo    Rates:(Act/Conf) CIR 0/0 MIR 0/2427 EIR 0/1260
        Statsitics: Length 0 Pkts 0 Octets 0 TailDrops 0 BufferDrops 0

ubr-45#show cr10k-rp mod 1/2/0:0 queue

BE Queues:
Queue Index: 131241, GlobalQID 71, CBLT ID 131241
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32881, lc_sfid 29, min_rate(bps) 0, max_rate(bps) 0

CIR Queues:
Queue Index: 2049, GlobalQID 70, CBLT ID 2049
        MinRate(Kbps) 100, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32880, lc_sfid 8, min_rate(bps) 100000, max_rate(bps) 0

LL Queues:
```

The following example shows typical output for the **show cr10k-rp service-flow** command for both the downstream and upstream directions:

```
Router# show cr10k-rp c8/0/0 1 service-flow ds

RP DS SFID     LC SFID        Bytes          Packets        QID

16385          4              0              0              261

Router# show cr10k-rp c8/0/0 1 service-flow us

SFID           SID

3              1
```

Related Commands

Command	Description
show cr10k-rp queue	Displays information about the packet queues for a cable interface.

show cr10k-rp controller

Note This command is meant only for engineering debugging, and not for general customer use.

To display packet processing information for a particular service ID (SID) on a cable interface, use the **show cr10k-rp controller** command in user EXEC or privileged EXEC mode.

Cisco IOS Releases 12.3(21)BC, 12.3(23)BC, and 12.2(33)SCA

show cr10k-rp controller modular-cable *slot/subslot/port* {**lblt** | **pblt**}

Cisco IOS Release 12.2(33)SCB

show cr10k-rp controller modular-cable *slot/bay/port* {**lblt** | **pblt**}

Cisco IOS Release 12.2(33)SCF

show cr10k-rp controller modular-cable *slot/subslot/unit* {**acfe** [**cluster** *cluster-index*] | **lblt** | **pblt**}

Syntax Description

modular-cable *slot/bay/port*	Identifies the cable interface on the Cisco uBR10012 router for which information should be displayed, where: • *slot*—0 to 8 • *bay*—0 or 1 • *subslot*—0 to 3 • *port*—0 • *unit*—0
acfe	Identifies the Logical Bandwidth Limiting Traffic (LBLT) associated with the RF Physical Logical Bandwidth Limiting Traffic (PBLT). • *cluster-index*—Cluster index. The valid values range from 0 to 31.
lblt	Identifies the LBLT associated with the RF PBLT.
pblt	Identifies the PBLTs associated with the RF Channels.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.2(15)BC1	This command was introduced for the Cisco uBR10012 router.
12.3BC	This command was integrated into Cisco IOS release 12.3BC. The **modular-cable** keyword was introduced.
12.2(33)SCA	This command was integrated into Cisco IOS release 12.2(33)SCA.

Release	Modification
12.2(33)SCB	This command was modified. The addressing format for the modular-cable interface and wideband-cable interface changed from *slot/subslot/bay* to *slot/bay/port.*
12.2(33)SCF	This command was modified. The **acfe** keyword was added.

Usage Guidelines

The **show cr10k-rp controller** command displays information that the PRE route processor (RP) module has for a particular SID. This information includes configuration information about the SID, as well as internal status information that is useful only to Cisco engineers during troubleshooting.

Examples

The following examples show sample outputs for the **show cr10k-rp controller** command for a SID that identifies a cable modem:

```
Router# show cr10k-rp controller modular-cable 1/1/0 lblt

LBLTs on each RF Channel's PBLT

RFChnl WBChnl/LBLTGrp LBLTId Weight/Quantum
0         -/36        37          1/5520
         12/16        179         1/4478
1         -/37        39          1/0
         12/16        180         1/10000
2         -/38        41          1/0
         12/16        181         1/4473
         31/35        182         1/5526
3         -/39        43          1/0
         31/35        183         1/10000
4         -/40        45          1/0
5         -/41        47          1/0
6         -/42        49          1/0
7         -/43        51          1/0
8         -/44        53          1/0
9         -/45        55          1/0
10        -/46        57          1/0
11        -/47        59          1/0
12        -/48        61          1/0
13        -/49        63          1/0
14        -/50        65          1/0
15        -/51        67          1/0

Router# show cr10k-rp controller modular-cable 1/1/0 pblt

RF Channel PBLTs on Modular-Cable 1/0/0

Channel PBLTIndex BW(Kbps) Flowbit(prd/ofst) Rsrc/FlowRsrc
0       3         36000         512/0             3/3
1       4         37500         512/4             3/3
2       5         35625         512/8             3/3
3       6         37500         512/12            3/3
4       7         26000         512/16            3/3
5       8         26000         512/20            3/3
6       9         26000         512/24            3/3
7       10        26000         512/28            3/3
8       11        26000         512/32            3/3
9       12        26000         512/36            3/3
10      13        26000         512/40            3/3
11      14        26000         512/44            3/3
```

```
12      15        26000         512/48           3/3
13      16        26000         512/52           3/3
14      17        26000         512/56           3/3
15      18        26000         512/60           3/3
```

The following example shows a sample output for the **show cr10k-rp controller** command with the **acfe** keyword:

```
Router# show cr10k-rp controller modular-cable 1/1/0 acfe

Modular-Cable 1/0/0 status:
Topology changed: No

========Cluster 0========
Number of RF:   2
RF      FlexBW  WB      GuarBW  Quanta
0       28687   0       6028    2101
                -       22659   7898
1       28687   0       15030   5239
                -       13657   4760

Number of BG:   3
!
!
!
```

The following example shows a sample output for the **show cr10k-rp controller** command with the **acfe** keyword for a particular cluster:

```
Router# show cr10k-rp controller modular-cable 1/1/0 acfe cluster 1

Modular-Cable 1/0/0 status:
Topology changed: No

========Cluster 1========
Number of RF:   2
RF      FlexBW  WB      GuarBW  Quanta
2       28687   1       11695   4076
                -       16992   5923
3       28687   1       11696   4077
                -       16991   5922

Number of BG:   3
!
!
!
```

Related Commands

Command	Description
show cr10k-rp queue	Displays information about the packet queues for a cable interface.

show cr10k-rp queue

Note This command is meant for engineering debugging, and not for general customer use.

To display information about the packet queues for a cable interface, use the **show cr10k-rp queue** command in user EXEC or privileged EXEC mode.

Cisco IOS Releases 12.3(21)BC, 12.3(23)BC, and 12.2(33)SCA

show cr10k-rp {**cable** *slot/subslot/port* | **modular-cable** *slot/subslot/port:channel* | **wideband-cable** *slot/subslot/port:channel* } **queue** {**be** | **cir** | **llq**}

Cisco IOS Release 12.2(33)SCB

show cr10k-rp {**cable** *slot/subslot/port* | **modular-cable** *slot/bay/port:channel* | **wideband-cable** *slot/bay/port:channel* } **queue**

Syntax Description

cable *slot/subslot/port*	Identifies the cable interface on the Cisco uBR10012 router for which information should be displayed, where: • *slot*—0 to 8 • *subslot*—0 or 1 • *port*—0 to 4
modular-cable *slot/bay/port:channel*	Identifies the cable interface on the Cisco uBR10012 router for which information should be displayed, where: • *slot*—0 to 8 • *bay*—0 or 1 • *port*—0 • *channel*—0 **Note** Support for **modular-cable** keyword was introduced in Cisco IOS Release 12.3(23)BC.
wideband-cable *slot/bay/port:channel*	Identifies the wideband-cable interface on the Cisco uBR10012 router for which information should be displayed, where: • *slot*—0 to 8 • *bay*—0 or 1 • *port*—0 • *channel*—0 **Note** Support for **wideband-cable** keyword was introduced in Cisco IOS Release 12.3(21)BC.
queue	Displays information about the packet queues for the SID. **Note** Options for the keyword **queue** were removed from Cisco IOS Release 12.3(21)BC.

Defaults

No default behavior or values.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.2(15)BC1	This command was introduced for the Cisco uBR10012 router.
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 addressing format for the modular-cable interface and wideband-cable interface changed from *slot*/*subslot*/*bay* to *slot*/*bay*/*port* from Cisco IOS Release 12.2(33)SCB.

Usage Guidelines

The **show cr10k-rp queue** command displays information about the queues on the Cisco uBR10012 router.

Examples

The following examples show typical displays for each form of the **show cr10k-rp queue** command:

```
Router# show cr10k-rp cable 7/0/0 queue

Docsis queues on the interface: 1
Total DOCSIS Queues Allocated: 19
Available/Maximal reservable rate(kbps): 26000/26000

HQF BLT Info (LBLT Group 125):
LBLT 173: wt/qntm 1/10000; PBLT 1325: BW 26000Kbps, flowbit prd/ofst 32/3, rsrc

BE Queues:
Queue Index: 131345, GlobalQID 125, CBLT ID 131345
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 10000000, QLimit 255
Service Flow(s): rp_sf_index 32925, lc_sfid 7, min_rate(bps) 0, max_rate(bps) 10


CIR Queues:

LL Queues:

Router# show cr10k-rp modular-cable1/0/0:0 queue

Docsis queues on the interface: 9
Total DOCSIS Queues Allocated: 19
Available/Maximal reservable rate(kbps): 18750/18750

HQF BLT Info (LBLT Group 36):
LBLT 37: wt/qntm 1/5520; PBLT 3: BW 36000Kbps, flowbit prd/ofst 512/0, rsrc/flr

BE Queues:
Queue Index: 131346, GlobalQID 126, CBLT ID 131346
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 10000000, QLimit 255
Service Flow(s): rp_sf_index 32927, lc_sfid 8, min_rate(bps) 0, max_rate(bps) 10
```

```
Queue Index: 131349, GlobalQID 127, CBLT ID 131349
        MinRate(Kbps) 0, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32930, lc_sfid 10, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131350, GlobalQID 128, CBLT ID 131350
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32931, lc_sfid 13, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131351, GlobalQID 129, CBLT ID 131351
        MinRate(Kbps) 0, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32932, lc_sfid 12, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131352, GlobalQID 130, CBLT ID 131352
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32933, lc_sfid 14, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131359, GlobalQID 137, CBLT ID 131359
        MinRate(Kbps) 0, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32940, lc_sfid 16, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131360, GlobalQID 138, CBLT ID 131360
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32941, lc_sfid 28, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131361, GlobalQID 139, CBLT ID 131361
        MinRate(Kbps) 0, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32942, lc_sfid 22, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131362, GlobalQID 140, CBLT ID 131362
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32943, lc_sfid 29, min_rate(bps) 0, max_rate(bps) 0


CIR Queues:

LL Queues:


Router# show cr10k-rp wideband-cable1/0/0:12 queue

Docsis queues on the interface: 7
Total DOCSIS Queues Allocated: 19
Available/Maximal reservable rate(kbps): 67503/67503

HQF BLT Info (LBLT Group 16):
LBLT 179: wt/qntm 1/4478; PBLT 3: BW 36000Kbps, flowbit prd/ofst 512/0, rsrc/fl
LBLT 180: wt/qntm 1/10000; PBLT 4: BW 37500Kbps, flowbit prd/ofst 512/4, rsrc/f
LBLT 181: wt/qntm 1/4473; PBLT 5: BW 35625Kbps, flowbit prd/ofst 512/8, rsrc/fl

BE Queues:
Queue Index: 131347, GlobalQID 123, CBLT ID 131347
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 10000000, QLimit 255
Service Flow(s): rp_sf_index 32928, lc_sfid 8, min_rate(bps) 0, max_rate(bps) 10

Queue Index: 131353, GlobalQID 131, CBLT ID 131353
        MinRate(Kbps) 0, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32934, lc_sfid 18, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131354, GlobalQID 132, CBLT ID 131354
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32935, lc_sfid 23, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131355, GlobalQID 133, CBLT ID 131355
        MinRate(Kbps) 0, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
```

```
Service Flow(s): rp_sf_index 32936, lc_sfid 20, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131356, GlobalQID 134, CBLT ID 131356
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32937, lc_sfid 24, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131357, GlobalQID 135, CBLT ID 131357
        MinRate(Kbps) 0, ExcessRatio 32, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32938, lc_sfid 26, min_rate(bps) 0, max_rate(bps) 0

Queue Index: 131358, GlobalQID 136, CBLT ID 131358
        MinRate(Kbps) 0, ExcessRatio 4, ShapeRate(bps) 0, QLimit 255
Service Flow(s): rp_sf_index 32939, lc_sfid 27, min_rate(bps) 0, max_rate(bps) 0


CIR Queues:

LL Queues:
```

Related Commands

Command	Description
show cr10k-rp	Displays packet processing information for a particular service ID (SID) on a cable interface.

show cr10k-rp slots

Note This command is meant for engineering debugging, and not for general customer use.

To display slot information for a particular service ID (SID) on a cable interface, use the **show cr10k-rp slots** command in user EXEC or privileged EXEC mode.

show cr10k-rp slots

Syntax Description

This command has no keywords or arguments.

Defaults

No default behavior or values.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.2(15)BC1	This command was introduced for the Cisco uBR10012 router.
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.

Usage Guidelines

The **show cr10k-rp slots** command displays information that the PRE remote processor (RP) module has about a particular SID. This information includes configuration information about the SID, as well as internal status information that is useful only to Cisco engineers in troubleshooting problems.

Examples

The following example shows typical output for the **show cr10k-rp slots** command for a SID that identifies a cable modem:

```
Router# show cr10k-rp slots
------------------------------------------------------------
Slot/Sub        Flags           (Address)
------------------------------------------------------------
1/0             0x0804          (0x6494E168)
1/1             0x0804          (0x6494E250)
2/0             0x0002          (0x6494E338)
2/1             0x0002          (0x6494E420)
3/0             0x0002          (0x6494E508)
3/1             0x0002          (0x6494E5F0)
4/0             0x0804          (0x6494E6D8)
4/1             0x0804          (0x6494E7C0)
5/0             0x0804          (0x6494E8A8)
5/1             0x0002          (0x6494E990)
6/0             0x0002          (0x6494EA78)
6/1             0x0002          (0x6494EB60)
```

```
7/0             0x0804          (0x6494EC48)
7/1             0x0002          (0x6494ED30)
8/0             0x0002          (0x6494EE18)
8/1             0x0002          (0x6494EF00)

OIR TABLE:
  slot: 0 type: 00000001 bays: 0 analyzed: 1
  slot: 1 type: 00000001 bays: 0 analyzed: 1
  slot: 2 type: 00000415 bays: 4 analyzed: 1
        bay: 0 type: 000004AE
        bay: 1 type: 000004AE
        bay: 2 type: 00000000
        bay: 3 type: 00000000
  slot: 3 type: 000005B0 bays: 0 analyzed: 1
  slot: 4 type: 00000000 bays: 0 analyzed: 0
  slot: 5 type: 000002AF bays: 0 analyzed: 1
  slot: 6 type: 00000000 bays: 0 analyzed: 0
  slot: 7 type: 00000000 bays: 0 analyzed: 0
  slot: 8 type: 00000390 bays: 0 analyzed: 1
  slot: 9 type: 00000390 bays: 0 analyzed: 1
  slot: 10 type: 00000487 bays: 0 analyzed: 1
  slot: 11 type: 00000000 bays: 0 analyzed: 0
  slot: 12 type: 00000000 bays: 0 analyzed: 0
  slot: 13 type: 00000000 bays: 0 analyzed: 0
  slot: 14 type: 000003D5 bays: 0 analyzed: 1
  slot: 15 type: 00000000 bays: 0 analyzed: 0
  slot: 16 type: 00000000 bays: 0 analyzed: 0
  slot: 17 type: 00000000 bays: 0 analyzed: 0
SLOT INFO:
  slot: 0 subslot: 0 index: 0 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 7178D9A0  ironbus i0
  slot: 0 subslot: 1 index: 1 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F000  ironbus i0
  slot: 1 subslot: 0 index: 2 num_bays: 4
  double wide: 1 type: 00000415 util type: FFFFFFFF plugin: 72CB529C  ironbus i1
        slot: 1 subslot: 0 index: 2 type: 000004AE
        slot: 1 subslot: 256 index: 2 type: 000004AE
        slot: 1 subslot: 512 index: 2 type: 00000000
        slot: 1 subslot: 768 index: 2 type: 00000000
  slot: 1 subslot: 1 index: 3 num_bays: 0
  double wide: 0 type: 000005B0 util type: FFFFFFFF plugin: 22900974  ironbus i1
  slot: 2 subslot: 0 index: 4 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F120  ironbus i0
  slot: 2 subslot: 1 index: 5 num_bays: 0
  double wide: 0 type: 000002AF util type: FFFFFFFF plugin: 26362104  ironbus i0
  slot: 3 subslot: 0 index: 6 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F1E0  ironbus i0
  slot: 3 subslot: 1 index: 7 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F240  ironbus i0
  slot: 4 subslot: 0 index: 8 num_bays: 0
  double wide: 0 type: 00000390 util type: FFFFFFFF plugin: 263621A4  ironbus i0
  slot: 4 subslot: 1 index: 9 num_bays: 0
  double wide: 0 type: 00000390 util type: FFFFFFFF plugin: 761EF050  ironbus i1
  slot: 5 subslot: 0 index: 10 num_bays: 0
  double wide: 0 type: 00000487 util type: FFFFFFFF plugin: 76200EFC  ironbus i0
  slot: 5 subslot: 1 index: 11 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F3C0  ironbus i0
  slot: 6 subslot: 0 index: 12 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F420  ironbus i0
  slot: 6 subslot: 1 index: 13 num_bays: 0
  double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F480  ironbus i0
  slot: 7 subslot: 0 index: 14 num_bays: 0
  double wide: 0 type: 000003D5 util type: FFFFFFFF plugin: 22900FA0  ironbus i0
  slot: 7 subslot: 1 index: 15 num_bays: 0
```

```
double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F540  ironbus i0
slot: 8 subslot: 0 index: 16 num_bays: 0
double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F5A0  ironbus i0
slot: 8 subslot: 1 index: 17 num_bays: 0
double wide: 0 type: FFFFFFFF util type: FFFFFFFF plugin: 6494F600  ironbus i0
```

Related Commands

Command	Description
show cr10k-rp queue	Displays information about the packet queues for a cable interface.

show crypto ca certificates

To display all certificates (Root, Manufacturers, cable modem) that the CMTS has learned, use the **show crypto ca certificates** command in privileged EXEC mode.

show crypto ca certificates

Syntax Description

No default behaviors or values

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(9a)BC	This command was introduced.

Usage Guidelines

Note You can use the unsupported command **test cable generate** in privileged EXEC mode to force the Cisco CMTS to register the root certificate.

For additional information about using the **show crypto** commands on the Cisco CMTS, refer to the "Configuring DOCSIS 1.1 on the Cisco CMTS" chapter of the *Cisco CMTS Feature Guide*:

Examples

The following example illustrates the use of the show crypto ca certificates command:

```
Router# show crypto ca certificates
```

Related Commands

Command	Description
show crypto ca trustpoints	Displays the Root certificate that the Cisco CMTS has learned after the first cable modem has registered with BPI+ encryption.

show crypto ca trustpoints

To display the Root certificate that the Cisco CMTS has learned after the first cable modem has registered with BPI+ encryption, use the **show crypto ca trustpoints** command in privileged EXEC mode.

show crypto ca trustpoints

Syntax Description

No default behaviors or values

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(9a)BC	This command was introduced.

Usage Guidelines

Note The **show crypto ca trustpoints** command does not display the root certificate until after at least one cable modem has registered with the Cisco CMTS using BPI+ encryption. Alternatively, you can use the unsupported command **test cable generate** in privileged EXEC mode to force the Cisco CMTS to register the root certificate.

Tip To display all certificates (Root, Manufacturers, CM) that the CMTS has learned, use the **show crypto ca certificates** command.

For additional information about using the **show crypto** commands on the Cisco CMTS, refer to the "Configuring DOCSIS 1.1 on the Cisco CMTS" chapter of the *Cisco CMTS Feature Guide*:

Examples

The following example illustrates the **show crypto ca trustpoints** command with Cisco IOS Release 12.3(9a)BC:

```
Router# show crypto ca trustpoints

Root certificate
Status: Available
Certificate Serial Number: D54BB68FE934324F6B8FD0E41A65D867
Key Usage: General Purpose
Issuer:
CN = DOCSIS Cable Modem Root Certificate Authority
OU = Cable Modems
O = Data Over Cable Service Interface Specifications
C = US
Subject Name:
CN = "BPI Cable Modem Root Certificate Authority "
OU = DOCSIS
O = BPI
C = US
Validity Date:
start date: 07:00:00 UTC Mar 27 2001
end   date: 06:59:59 UTC Jan 1 2007
```

Related Commands

Command	Description
show crypto ca certificates	Displays all certificates (Root, Manufacturers, cable modem) that the Cisco CMTS has learned.