CHAPTER 8

Troubleshooting the System

This chapter contains troubleshooting information for various functions of your Cisco uBR7200 series Cable Modem Termination System (CMTS) and includes the following sections:

Section	Purpose
"Understanding show Command Responses" section on page 8-2	Provides **show** command options for deriving system information.
"Using a Headend Cable Modem to Verify Downstream Signals" section on page 8-6	Uses a Cisco uBR924 cable access modem to verify the downstream signal originating from a Cisco uBR7200 series router.
"Performing Amplitude Averaging" section on page 8-7	The system uses an averaging algorithm to determine the optimum power level for a CM with low carrier-to-noise ratio that is making excessive power adjustments—known as flapping. This section shows how you can interpret these power adjustments as indicating unstable return path connections.
"Setting Downstream Test Signals" section on page 8-9	Provides configuration commands that allow you to create downstream test signals.
"Pinging Unresponsive Cable Modems" section on page 8-10	Allows a cable system administrator to quickly diagnose the health of a channel between the Cisco uBR7200 series cable interface and the CM.
"Using Cable Interface debug Commands" section on page 8-11	Provides instructions for troubleshooting cable interface line cards.

Note For detailed information about troubleshooting your CMTS platform using cable flap lists, refer to the chapter "Flap List Troubleshooting for the Cisco CMTS" in the *Cisco Cable Modem Termination System Feature Guide* on Cisco.com.

Understanding show Command Responses

This section summarizes cable-related **show** commands. For additional command information about these and other CMTS commands, refer to these additional resources on Cisco.com:

- *Cisco IOS CMTS Cable Command Reference Guide*
- *Cisco Cable Modem Termination System Feature Guide*

Command	Purpose
show cable flap-list [*sort-interface* | *sort-flap* | *sort-time*]	To display the cable flap-list on a Cisco uBR7200 series router, use the **show cable flap-list** command in privileged EXEC mode. For the Cisco uBR7200 series, the **sort** option applies to one line card at a time, then the list is merged together. For example, the flap list is sorted for cable7/0, appears on the console, and then is sorted for cable 7/1, which then appears on the console, and so on. The **show cable flap-list** and **show cable modem** commands indicate when the Cisco uBR7200 series CMTS has detected an unstable return path for a particular modem and has compensated with a power adjustment. An asterisk (*) appears in the power-adjustment field for a modem when a power adjustment has been made; an exclamation point appears when the modem has reached its maximum power transmit level and cannot increase its power level any further. For additional information about using cable flap lists, refer to the chapter "Flap List Troubleshooting for the Cisco CMTS" in the *Cisco Cable Modem Termination System Feature Guide* on Cisco.com..

Command	Purpose
show cable modem	To display all Data-over-Cable Service Interface Specification (DOCSIS) states, and other useful troubleshooting information, such as last received upstream radio frequency (RF) power level and maximum number of provisioned customer premises equipment (CPE), use the **show cable modem** command in privileged EXEC mode. **Note** DOCSIS CMs are required to pass through successive states during registration and provisioning. Using this information, you can isolate why a CM is offline or unavailable. The **show cable flap-list** and **show cable modem** commands indicate when the Cisco uBR7200 series CMTS has detected an unstable return path for a particular modem and has compensated with a power adjustment. An asterisk (*) appears in the power-adjustment field for a modem when a power adjustment has been made; an exclamation point appears when the modem has reached its maximum power transmit level and cannot increase its power level any further. The **show cable modem** command displays a list of options for a single modem to be specified by entering either the RF CPE device IP address or MAC address: • Signal-to-noise ratio (SNR) information for each CM on each interface • Summary display of the total number of modems connected for each upstream channel • Total number of registered and unregistered modems for the specified interface or upstream • Total number of offline modems for the specified interface or upstream, and status for each offline modem before it went offline
show cable modem maintenance	To display station maintenance error statistics, use the **show cable modem maintenance** command in privileged EXEC mode. When a CM is detected to be offline by the CMTS—no reply after 16 retries of station maintenance requests—the CM is marked offline. Besides marking the CM and service identifier (SID) state offline, the SID is removed immediately from the CMTS ranging list, and an aging timer is started to clean up the SID completely if the CM does not attempt to come online within the next 24 hours. Output fields are described below: • The *SM Exhausted Count* value refers to the number of times a CM was dropped because it did not reply to station maintenance requests. A CM is removed from the station maintenance list after 16 times of periodic ranging opportunity without seeing the RNG_REQ from the modem. • The *SM Aborted Count* value refers to the number of times the CM was dropped because its operational parameters were unacceptable. This includes such reasons as the power level is outside the acceptable range, or the timing offset keeps changing. The respective times in the command output indicate when this happened.

Command	Purpose
show cable qos profile	To display type of service (ToS) specifications, use the **show cable qos profile** command in privileged EXEC mode. Information includes upstream packet discards, errors, error-free packets, correctable and uncorrectable errors, noise, and micro-reflection statistics. Following is a response to the **show cable qos profile** command. The display shows ToS specifications: `Router# show cable qos profile` `Service Prio Max Guarantee Max Max tx TOS TOS Create B` `class upstream upstream downstream burst mask value by priv` `> bandwidth bandwidth bandwidth enab` `1 0 0 0 0 0 0x0 0x0 cmts(r) no` `2 0 64000 0 1000000 0 0x0 0x0 cmts(r) no` `3 0 1000 0 1000 0 0x0 0x0 cmts no` `4 3 256000 0 512000 0 0x0 0x0 cm no` `5 5 1000000 0 10000000 0 0x0 0x0 cm no` `6 3 256000 0 512000 0 0x0 0x0 cm yes` **Note** The "r" in the "Create by" column means that the first two classes of service the CMTS creates are reserved for CMs that are not online. The optional argument *n* can be used to display a specific profile.

Command	Purpose
show interface cable	To display cable interface information, use the **show interface cable** command in privileged EXEC mode: **show interface cable** *slot/port* [*downstream* | *upstream*] The following example displays **show interface cable** command output for a CM located in slot 1/port 0: `Router# show interface cable 5/0` `Cable5/0 is up, line protocol is up` `  Hardware is BCM3210 FPGA, address is 00e0.1e5f.7a60 (bia 00e0.1e5f.7a60)` `  Internet address is 1.1.1.3/24` `  MTU 1500 bytes, BW 27000 Kbit, DLY 1000 usec, rely 255/255, load 1/255` `  Encapsulation, loopback not set, keepalive not set` `  ARP type: ARPA, ARP Timeout 04:00:00` `  Last input 4d07h, output 00:00:00, output hang never` `  Last clearing of "show interface" counters never` `  Queuing strategy: fifo` `  Output queue 0/40, 0 drops; input queue 0/75, 0 drops` `  5 minute input rate 0 bits/sec, 0 packets/sec` `  5 minute output rate 0 bits/sec, 0 packets/sec` `  10908 packets input, 855000 bytes, 0 no buffer` `  Received 3699 broadcasts, 0 runts, 0 giants, 0 throttles` `  3 input errors, 3 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort` `  5412 packets output, 646488 bytes, 0 underruns` `  0 output errors, 0 collisions, 13082 interface resets` `  0 output buffer failures, 0 output buffers swapped out` The **show interface cable upstream** command is enhanced to display details on the MAC scheduler state for an upstream port. New items in the display include: • Detailed slot queue statistics—Queue [CIR Grants] 0/20, fair queuing, 0 drops in the previous example, meaning that the queue for CIR-service grants has a current depth of 0, and a maximum depth of 20. Weighted fair queuing shows grants in this queue. • Constant bit rate (CBR) slot scheduling table state—The reserved slot table in the previous example has two CBR entries. This shows that at the time the command was issued, the MAC scheduler had admitted two CBR slots in the reserved slot table. • Counters for each type of upstream slot scheduled in the MAPs for this upstream channel—The "Init Mtn IEs 800" means that the MAC scheduler has added 800 initial maintenance information elements (slots) at the time the **show** command was issued. • MAC scheduling statistics—Displays the percentage of the upstream bandwidth that is used for each type of slot on an average.

Command	Purpose
show interface cable sid	To display the service identifier (SID) for a CM, use the **show interface cable sid** command in privileged EXEC mode. The following sample output from the **show interface cable sid** command shows the one form of the command: `Router# show int c4/0 sid` `Sid Prim MAC Address IP Address Type Age Admin Sched Sfid State Type` `5 0010.7b6b.58c1 10.20.114.34 stat 2d1h36menable BE 1` `6 0010.7bed.9dc9 10.20.114.37 stat 2d1h36menable BE 13` `7 0010.7bed.9dbb 10.20.114.38 stat 2d1h36menable BE 15` `8 0010.7b6b.58bb 10.20.114.112 stat 2d1h34menable BE 17` `9 0010.7b6b.58bb 10.20.114.112 dyna 2d1h34menable BE 19`
show cable modulation-profile	To display modulation profile group information for a Cisco CMTS, use the **show cable modulation-profile** command in privileged EXEC mode. The **show cable modulation-profile** command now includes an added option number that displays the modulation profile number. The **show cable modulation-profile** command completely replaces the former **show cable burst-profile** command.

Using a Headend Cable Modem to Verify Downstream Signals

You can use a Cisco uBR924 cable access modem to verify the downstream signal originating from a Cisco uBR7200 series router. Be sure that you configure the Cisco uBR924 according to DOCSIS CM practices.

To verify the downstream signal from a Cisco uBR7200 series router using a Cisco uBR924, follow the procedure below:

Step 1 After the Cisco uBR924 is operational and you have an input signal between 0 and +5 dBmV, use the **show controller c0 tuner** command.

Step 2 Scan the output for the value corresponding to the signal-to-noise (SNR) estimate variable. If this value is at least 35 dB, you have an optimized signal. If the value is less than 34 dB, adjust the upconverter at the cable headend.

Tip The SNR estimate for a CM installed at a headend should be between 35 and 39 dB. Although the exact value displayed varies from CM to CM, values collected on the same CM from measurement to measurement will be consistent. Maximizing SNR optimizes CM reliability and service quality.

Performing Amplitude Averaging

The Cisco uBR7200 series CMTS uses an averaging algorithm to determine the optimum power level for a CM with low carrier-to-noise ratio that is making excessive power adjustments—known as flapping. To avoid dropping flapping CMs, the Cisco uBR7200 series CMTS averages a configurable number of RNG-REQ messages before it makes power adjustments. By compensating for a potentially unstable return path, the Cisco uBR7200 series CMTS maintains connectivity with affected CMs. You can interpret these power adjustments, however, as indicating unstable return path connections.

The **show cable flap-list** and **show cable modem** commands are expanded to indicate the paths on which the Cisco uBR7200 series CMTS is making power adjustments and the modems that have reached maximum transmit power settings. These conditions indicate unstable paths that should be serviced.

The following example shows the output of the **show cable flap-list** command:

```
Router# show cable flap-list
MAC Address     Upstream     Ins   Hit   Miss  CRC   P-Adj Flap  Time
 0010.7bb3.fd19  Cable5/0/U1  0     2792  281   0     *45    58    Jul 27 16:54:50
 0010.7bb3.fcfc  Cable5/0/U1  0     19    4     0     !43    43    Jul 27 16:55:01
 0010.7bb3.fcdd  Cable5/0/U1  0     19    4     0     *3     3     Jul 27 16:55:01
```

The asterisk (*) indicates that the CMTS is using the power-adjustment method on this modem. An exclamation point (!) indicates that the modem has reached maximum transmit power.

Output of the **show cable modem** command appears below:

```
Router# show cable modem
MAC Address    IP Address      I/F       MAC         Prim RxPwr Timing Num  BPI
                                         State       Sid  (db)  Offset CPEs Enbld
0050.04f9.edf6 10.44.51.49     C7/1/U0 online      1   -0.50  3757   0    no
0050.04f9.efa0 10.44.51.48     C7/1/U0 online      2   -0.50  3757   0    no
0030.d002.41f5 10.44.51.147    C7/1/U0 online      3   -0.25  3829   0    no
0030.d002.4177 10.44.51.106    C7/1/U0 online      4   -0.50  3798   0    no
0030.d002.3f03 10.44.51.145    C7/1/U0 online      5   0.25   3827   0    no
0050.04f9.ee24 10.44.51.45     C7/1/U0 online      6   -1.00  3757   0    no
0030.d002.3efd 10.44.51.143    C7/1/U0 online      7   -0.25  3827   0    no
0030.d002.41f7 10.44.51.140    C7/1/U0 online      8   0.00   3814   0    no
0050.04f9.eb82 10.44.51.53     C7/1/U0 online      9   -0.50  3756   0    no
0050.f112.3327 10.44.51.154    C7/1/U0 online      10  0.25   3792   0    no
0030.d002.3f8f 10.44.51.141    C7/1/U0 online      11  0.00   3806   0    no
0001.64f9.1fb9 10.44.51.55     C7/1/U0 online      12  0.00   4483   0    no
0030.d002.417b 10.44.51.146    C7/1/U0 online      13  0.50   3812   0    no
0090.9600.6f7d 10.44.51.73     C7/1/U0 online      14  0.00   4071   0    no
0010.9501.ccbb 10.44.51.123    C7/1/U0 online      15  0.25   3691   0    no
```

The asterisk (*) in the **show cable modem** command output indicates that the CMTS is using the power adjustment method on this CM. The ! symbol indicates that the CM has reached maximum transmit power.

This section documents the commands pertaining to amplitude averaging:

- **cable upstream power-adjust noise**
- **cable upstream frequency-adjust averaging**

Enabling or Disabling Power Adjustment

To enable the power-adjustment capability, use the **cable upstream power-adjust** command in interface configuration mode:

cable upstream *n* **power-adjust** {**threshold** [*threshold #*] | **continue** [*tolerable value*] | **noise** [*% of power adjustment*]}

To disable the power-adjustment capability, use the **no** form of this command:

no cable upstream power-adjust

Syntax Description

Syntax	Description
n	Specifies the upstream port number.
threshold #	Specifies the power-adjustment threshold. The threshold range is from 0 to 10 dB. The default is 1 dB.
tolerable value	Determines if the status of the RNG-RSP should be set to CONTINUE or SUCCESS. The range is from 2 to 15 dB. The default is 2 dB.
% of power adjustment	Specifies the percentage of power-adjustment packets required to switch from the regular power-adjustment method to the noise power-adjustment method. Range is from 10 to 100 percent. The default is 30 percent.

Note The threshold default is 1 dB. The tolerable value default is 2 dB. The power adjustment is 30 percent.

Caution Default settings are adequate for system operation. Amplitude averaging is an automatic procedure. In general, Cisco does not recommend that you adjust values. Cisco does recommend, however, that you clean up your cable plant should you encounter flapping CMs.

Note In some instances, you might adjust certain values:

If CMs cannot complete ranging because they have reached maximum power levels, you might try to set the *tolerable value* CONTINUE field to a larger value than the default of 2 dB. Values larger than 10 dB on "C" versions of cable interface line cards, or 5 dB on FPGA versions, are not recommended.

If the flap list shows CMs with a large number of power adjustments, but the CMs are not detected as noisy, you might try to decrease the percentage for noisy. If you think that too many CMs are unnecessarily detected as noisy, you might try to increase the percentage.

Setting Frequency Threshold to Affect Power Adjustment

To control power adjustment methods by setting the frequency threshold, use the **cable upstream freq-adj averaging in** interface configuration mode. To disable power adjustments, use the **no** form of this command.

cable upstream *n* **freq-adj averaging** *% of frequency adjustment*

no cable upstream freq-adj averaging

Syntax Description

Syntax	Description
n	Specifies the upstream port number.
averaging	Specifies that a percentage of frequency adjustment packets is required to change the adjustment method from the regular power adjustment method to the noise power-adjustment method.
% of frequency adjustment	Specifies the percentage of frequency-adjustment packets required to switch from the regular power-adjustment method to the noise power-adjustment method. Valid range is from 10 to 100 percent.

The following example shows how to change the power-adjustment method when the frequency adjustment packet count reaches 50 percent:

```
Router(config-if)# cable upstream 0 freq-adj averaging 50
```

Setting Downstream Test Signals

This feature provides configuration commands that allow you to create downstream test signals. Both pseudo random bit stream (PRBS) and unmodulated carrier test signals are now supported.

A PRBS test signal is a random data pattern that has been modulated to look like a real data stream. An unmodulated test signal is a continuous sine wave that looks like a carrier wave on the downstream transmission.

See the following sections for the required tasks to create PRBS and unmodulated carrier test signals:

- "Configuring Unmodulated Test Signals" section on page 8-9
- "Configuring PRBS Test Signals" section on page 8-10
- "Verifying Test Signal Output" section on page 8-10

Configuring Unmodulated Test Signals

	Command	Purpose
Step 1	`Router(config-if)# cable downstream if-output continuous-wave`	Generates an unmodulated continuous wave signal on the downstream channel. The interface is shut down.
Step 2	`Router(config-if)# no cable downstream if-output`	Stops sending test signals. **Note** Remember to reenable the interface to resume normal operations.

Configuring PRBS Test Signals

	Command	Purpose
Step 1	`Router(config-if)# cable downstream if-output prbs`	Generates a PRBS test signal on the downstream channel. The interface is shut down.
Step 2	`Router(config-if)# no cable downstream if-output`	Stops sending test signals. **Note** Remember to reenable the interface to resume normal operations.

Verifying Test Signal Output

To verify the output of a continuous wave test signal or the output of a PRBS test signal, use a spectrum analyzer on the downstream channel. The downstream carrier is enabled as a default.

The standard mode of operation is modulated signal output and the interface is active. For PRBS and continuous wave output, the selected interface is shut down.

The functioning of the **no cable downstream if-output** command has not changed. The interface is shut down.

Pinging Unresponsive Cable Modems

Pinging a Cable Modem

Ping DOCSIS is a Cisco patent-pending feature that allows a cable system administrator to quickly diagnose the health of a channel between the Cisco uBR7200 series routers and the cable interface. The technology uses 1/64—the bandwidth of IP ping—and works with CMs that do not have an IP address. This allows cable operators to ping CMs that are unable to complete registration, that have internal bugs, or that are unresponsive due to a crash.

The Ping DOCSIS feature includes a real-time view and plot of requested power adjustments, and a measure of optimal headend reception power. This gives the cable operator the ability to solicit a configurable number of periodic ranging requests from a cable interface.

To ping a specific cable interface to determine if it is online, use the following command in EXEC mode.

	Command	Purpose
Step 1	`Router# ping docsis addr`	Pings the CM with a specific MAC address or IP address to see if it is online.

Verifying the Ping

The **ping docsis** command returns a verification from a CM that is pinged:

```
Queuing 5 MAC-layer station maintenance intervals, timeout is 25 msec:
!!!!!
Success rate is 100 percent (5/5)
```

Tip If you are having trouble, make sure that you are using a valid MAC or IP address for the cable interface you want to ping.

Using Cable Interface debug Commands

To troubleshoot cable interfaces, use the following **debug** commands in enable (privileged EXEC) mode.

	Command	Purpose
Step 1	`debug cable ?`	Displays all debug cable commands that are available.
Step 2	`undebug all`	Turns off all debugging information to the console and chooses a more selective **debug** command. **Note** Refer to the **debug** commands that follow.

Caution The following commands can generate large amounts of output as the number of cable modems grows. On heavily loaded systems with thousands of CMs, these commands can dramatically affect router performance.

debug cable arp

To activate the debugging of Address Resolution Protocol (ARP) requests on the cable interfaces, use the **debug cable arp** command in privileged EXEC mode. To deactivate debugging of ARP requests, use the **no** form of this command.

debug cable arp

When this command is activated, all cable ARP request messages are displayed on the Cisco uBR10000 series router console.

debug cable error (for MAC Protocol Errors)

To display errors that occur in the cable MAC protocols, use the **debug cable error** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug cable error

no debug cable error

When this command is activated, all cable ARP request messages are displayed on the Cisco uBR10000 series router console. When this command is activated, any errors that occur in the cable MAC protocol are displayed on the Cisco uBR10000 series router console.

debug cable keyman (for Baseline Privacy Activity)

To activate the debugging of key encryption key (KEK) and traffic encryption key (TEK) BPI key management, use the **debug cable keyman** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug cable keyman

no debug cable keyman

When this command is activated, all activity related to KEK and TEK keys appears on the Cisco uBR10000 series router console.

debug cable mac-messages

To activate the debugging of messages generated in the cable MAC that frames and encrypts downstream RF signals, use the **debug cable mac-messages** command in privileged EXEC mode. To deactivate the debugging of cable MAC messages, use the **no** form of this command.

debug cable mac-messages

no debug cable mac-messages

When this command is activated, messages generated by the cable MAC are displayed on the Cisco Cisco uBR7200 series console.

debug cable map

To display map debugging messages, use the **debug cable map** command in privileged EXEC mode. Use the **no** form of this command to disable debugging output.

debug cable map sid [sid-num]

no debug cable map

debug cable phy

To activate the debugging of messages generated in the cable PHY, use the **debug cable phy** command in privileged EXEC mode. To deactivate the debugging of the cable PHY, use the **no** form of this command.

debug cable phy

no debug cable phy

Cable PHY is the physical layer where upstream and downstream activity between the Cisco uBR10000 series router and the HFC network is controlled. When this command is activated, messages generated in the cable PHY are displayed on the Cisco uBR10000 series router console.

debug cable privacy (for Baseline Privacy)

To activate the debugging of baseline privacy, use the **debug cable privacy** command in privileged EXEC mode. To disable debugging output, use the **no** form of this command.

debug cable privacy

no debug cable privacy

debug cable qos

To activate the debugging of QoS, use the **debug cable qos** command in privileged EXEC mode. To deactivate debugging of QoS, use the **no** form of this command.

debug cable qos

no debug cable qos

When this command is activated, messages related to QoS parameters are displayed on the Cisco uBR10000 series router console.

debug cable range (for Ranging Messages)

To activate the debugging of ranging messages from cable interfaces on the HFC network, use the **debug cable range** command in privileged EXEC mode. To deactivate debugging of cable interface ranging, use the **no** form of this command.

debug cable range

no debug cable range

When this command is activated, ranging messages generated when cable interfaces request or change their upstream frequencies are displayed on the Cisco uBR10000 series router console.

debug cable receive (for Upstream Messages)

To activate the debugging of upstream messages from cable interfaces, use the **debug cable receive** command in privileged EXEC mode. To deactivate debugging of upstream messages, use the **no** form of this command.

debug cable receive

no debug cable receive

When this command is activated, any messages generated by cable interfaces and sent to the Cisco uBR7200 series router are displayed on the router console.

debug cable reg (for Modem Registration Requests)

To activate the debugging of registration requests from cable interfaces on the HFC network, use the **debug cable reg** command in privileged EXEC mode. To deactivate debugging of cable registration, use the **no** form of this command.

debug cable reg

no debug cable reg

When this command is activated, messages generated by cable interfaces as they make requests to connect to the network are displayed on the Cisco uBR10000 series router console.

debug cable reset (for Reset Messages)

To activate the debugging of reset messages from cable interfaces on the HFC network, use the **debug cable reset** command in privileged EXEC mode. To deactivate debugging of cable reset messages, use the **no** form of this command.

debug cable reset

no debug cable reset

When this command is activated, reset messages generated by cable interfaces are displayed on the Cisco uBR10000 series router console.

debug cable specmgmt (for Spectrum Management)

To activate the debugging of spectrum management (frequency agility) on the HFC network, use the **debug cable specmgmt** command in privileged EXEC mode. To deactivate debugging of cable spectrum management, use the **no** form of this command.

debug cable specmgmt

no debug cable specmgmt

When this command is activated, messages generated because of spectrum group activity are displayed on the Cisco uBR10000 series router console. Spectrum group activity can be additions or changes to spectrum groups, or frequency and power level changes controlled by spectrum groups.

debug cable startalloc (for Channel Allocations)

To activate the debugging of channel allocations on the HFC network, use the **debug cable startalloc** command in privileged EXEC mode. To deactivate debugging of cable channel allocations, use the **no** form of this command.

debug cable startalloc

no debug cable startalloc

When this command is activated, messages generated when channels are allocated to cable interfaces on the HFC network are displayed on the Cisco uBR10000 series router console.

debug cable transmit (for CMTS Transmissions)

To activate the debugging of transmissions from the Cisco uBR10000 series router across the HFC network, use the **debug cable transmit** command in privileged EXEC mode. To deactivate debugging of cable transmissions, use the **no** form of this command.

debug cable transmit

no debug cable transmit

```
When this command is activated, messages generated at the headend are displayed on the
Cisco uBR10000 series router console.
```

debug cable ucc (for Upstream Channel Change Messages)

To activate the debugging of upstream channel change (UCC) messages generated when cable interfaces request or are assigned a new channel, use the **debug cable ucc** command in privileged EXEC mode. To deactivate debugging of cable upstream channel changes, use the **no** form of this command.

debug cable ucc

no debug cable ucc

When this command is activated, messages related to upstream channel changes are displayed on the Cisco uBR10000 series router console.

debug cable ucd (for Upstream Channel Description Messages)

To activate the debugging of upstream channel descriptor (UCD) messages, use the **debug cable ucd** command in privileged EXEC mode. To deactivate debugging of cable upstream channel descriptor, use the **no** form of this command:

debug cable ucd

no debug cable ucd

UCD messages contain information about upstream channel characteristics and are sent to the cable modems on the HFC network. CMs that are configured to use enhanced upstream channels use these UCD messages to identify and select an enhanced upstream channel to use. When this command is activated, messages related to upstream channel descriptors are displayed on the Cisco uBR10000 series router console.