



Cable Commands: snmp through w

Revised: November 13, 2009, OL-15510-10

New Commands

Command	Cisco IOS Software Release
test cable voice	12.3(23)BC
tos (multicast qos)	12.2(33)SCA
vrf (multicast qos)	12.2(33)SCA
weekend duration	12.3(23)BC2
weekend off	12.3(23)BC2
weekend peak-time1	12.3(23)BC2
tag	12.2(33)SCC
threshold	12.2(33)SCC
tos	12.2(33)SCC
upstream	12.2(33)SCC
upstream(config-lb-group)	12.2(33)SCC

Modified Commands

Command	Cisco IOS Software Release
upstream cable connector	12.2(33)SCB
upgrade hw-module subslot fpd file	12.2(33)SCB
weekend duration	12.2(33)SCB
weekend off	12.2(33)SCB
weekend peak-time1	12.2(33)SCB

snmp manager

To create a DOCSIS configuration file that specifies the IP address for the Simple Network Management Protocol (SNMP) manager, use the **snmp manager** command in cable config-file configuration mode. To disable this function, use the **no** form of this command.

snmp manager *ip-address*

no snmp manager

Syntax Description

ip-address Specifies an IP address for the SNMP manager.

Defaults

No SNMP manager is defined.

Command Modes

Cable config-file configuration (config-file)

Command History

Release	Modification
12.1(2)EC1	This command was introduced.
12.2(4)BC1	Support was added to the Release 12.2 BC train.

Usage Guidelines

For SNMP commands that affect the operation of the CMTS, see the *Cisco IOS Configuration Fundamentals Command Reference Guide*.

Examples

The following example shows how to specify the IP address of the SNMP manager in a DOCSIS configuration file:

```
router(config)# cable config-file snmp.cm
router(config-file)# snmp manager 10.10.1.1
router(config-file)# exit
router(config)#
```

Related Commands

Command	Description
cable config-file	Creates a DOCSIS configuration file and enters configuration file mode.
access-denied	Disables access to the network.
channel-id	Specifies upstream channel ID.
cpe max	Specifies CPE information.
download	Specifies download information for the configuration file.
frequency	Specifies downstream frequency.
option	Provides config-file options.

Command	Description
privacy	Specifies privacy options for baseline privacy images.
service-class	Specifies service class definitions for the configuration file.
timestamp	Enables time-stamp generation.

snmp-server enable traps cable

To enable the sending of Simple Network Management Protocol (SNMP) traps for cable-related events, use the **snmp-server enable traps cable** command in global configuration mode. To disable the sending of traps, use the **no** form of this command.

```
snmp-server enable traps cable [cm-chover] [cm-onoff] [cm-remote-query] [dmic-lock]
[enfrule-violation] [hccp-failover] [hopping] [usage]
```

```
no snmp-server enable traps cable [cm-chover] [cm-onoff] [cm-remote-query] [dmic-lock]
[enfrule-violation] [hccp-failover] [hopping] [usage]
```

Syntax Description	Parameter	Description
	cm-chover	Enables traps that are sent upon completion of CMTS channel override operations, as defined in CISCO-DOCS-EXT-MIB .
	cm-onoff	Enables traps for CM online/offline status changes, as defined in CISCO-DOCS-EXT-MIB .
	cm-remote-query	Enables traps that are sent when the remote polling of CMs has been completed, as defined in CISCO-DOCS-REMOTE-QUERY-MIB .
	dmic-lock	Enables traps that are sent when a cable modem fails the dynamic shared-secret security checks, as defined in CISCO-DOCS-EXT-MIB .
	enfrule-violation	Enables traps that are sent when a user violates their quality of service (QoS) profile, as defined in the CISCO-CABLE-QOS-MONITOR-MIB .
	hccp-failover	Enables traps for Hot Standby Connection-to-Connection Protocol (HCCP) redundancy switchover events, as defined in CISCO-CABLE-AVAILABILITY-MIB .
	hopping	Enables traps for spectrum hopping events, as defined in CISCO-CABLE-SPECTRUM-MIB .
	usage	Enables traps for usage-based billing, as configured with the cable usage commands and defined in CISCO-CABLE-BILLING-MIB .

Defaults No SNMP traps for cable-related events are enabled. You can specify one type of trap or any combination of traps. When the **snmp-server enable traps cable** command is given without any options, all cable-related traps are enabled.

Command Modes Global configuration (config)

Command History	Release	Modification
	12.0(5)T	This command, with the cm-chover and cm-onoff options, was added.
	12.0(7)XR2, 12.1(1)T	The cm-remote-query option, along with the CISCO-DOCS-REMOTE-QUERY-MIB MIB, was introduced.
	12.1(2)EC1	This command was supported on the 12.1 EC train.
	12.1(7)CX1	The hopping and cmts-event options were introduced.

Release	Modification
12.2(4)BC1	This command was supported on the Cisco uBR10012 universal broadband router. The cmsts-event option was also removed as redundant.
12.2(8)BC1	The hccp-failover option was supported on the Cisco uBR10012 router.
12.2(11)BC1	The hccp-failover option was supported on the Cisco uBR7200 series router.
12.2(15)BC1	The enforce-rule option was added to generate traps for subscribers who violate their enforce-rule QoS profile.
12.2(15)BC21	The dmic-lock and usage options were added.

Usage Guidelines

For other SNMP commands that affect the operation of the CMTS, see the *Cisco IOS Configuration Fundamentals Command Reference Guide*.

Examples

The following example shows how to enable all traps for cable-related events except HCCP switchovers on the CMTS:

```
Router# configure terminal
Router(config)# snmp-server enable traps cable cm-chover cm-onoff cm-remote-query hopping
Router(config)#
```

The following example shows how to enable traps for any HCCP switchovers that occur on the CMTS:

```
Router# configure terminal
Router(config)# snmp-server enable traps cable hccp-failover
Router(config)#
```

The following example shows how to enable traps for when a user violates the maximum bandwidth for the quality of service (QoS) profile specified by their enforce-rule.

```
Router# configure terminal
Router(config)# snmp-server enable traps cable enforce-rule
Router(config)#
```

Related Commands

Command	Description
cable modem remote-query	Enables and configures the remote-query feature to gather CM performance statistics on the CMTS.
debug cable remote-query	Turns on debugging to gather information from remote CMs.
show cable modem remote-query	Displays the statistics accumulated by the remote-query feature.

snmp-server enable traps docsis-cm

To enable one or more Simple Network Management Protocol (SNMP) traps for DOCSIS 1.1 events, use the **snmp-server enable traps docsis-cm** command in global configuration mode. To disable the SNMP traps, use the **no** form of this command.

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

snmp-server enable traps docsis-cm [bpi | bpkm | dccack | dccreq | dccrsp | dhcp | dsack | dsreq | dsrsp | dynsa | swupevc | swupfail | swupinit | swupsucc | tlv]

no snmp-server enable traps docsis-cm [bpi | bpkm | dccack | dccreq | dccrsp | dhcp | dsack | dsreq | dsrsp | dynsa | swupevc | swupfail | swupinit | swupsucc | tlv]

Syntax Description

bpi	(Optional) Enables Baseline Privacy Interface (BPI) initialization failure traps.
bpkm	(Optional) Enables Baseline Privacy Key Management (BPKM) initialization failure traps.
dccack	(Optional) Enables dynamic channel change acknowledgement failure traps.
dccreq	(Optional) Enables dynamic channel change request failure traps.
dccrsp	(Optional) Enables dynamic channel change response failure traps.
dhcp	(Optional) Enables DHCP failure traps.
dsack	(Optional) Enables dynamic service acknowledgement failure traps.
dsreq	(Optional) Enables dynamic service request failure traps.
dsrsp	(Optional) Enables dynamic service response failure traps.
dynsa	(Optional) Enables dynamic SA failure traps.
swupevc	(Optional) Enables secure software upgrade code verification certificate (CVC) failure traps.
swupfail	(Optional) Enables secure software upgrade failure traps.
swupinit	(Optional) Enables secure software upgrade initialization failure traps.
swupsucc	(Optional) Enables secure software upgrade success traps.
tlv	(Optional) Enables unknown Type/Length/Value (TLV) traps.

Defaults

No traps are enabled. If no options are specified, all DOCSIS-related traps are enabled.

Command Modes

Global configuration

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 enables the sending of SNMP traps when DOCSIS-related events occur. Multiple traps can be enabled at the same time.

**Note**

The traps are described in the DOCS-CABLE-DEVICE-TRAP-MIB MIB, which is an extension of the CABLE DEVICE MIB that is defined in RFC 2669.

Examples

The following example shows the BPI+ and secure software download traps being enabled:

```
Router# config terminal
Router(config)# snmp-server enable traps docsis-cm bpi bpkm swupcvc swupfail swupinit swupsucc
Router(config)#
```

Related Commands

Command	Description
show snmp	Checks the status of SNMP communications.
snmp-server manager	Starts the SNMP manager process.

snmp-server enable traps docsis-cmts

To enable the sending of Simple Network Management Protocol (SNMP) traps for DOCSIS-related events, use the **snmp-server enable traps docsis-cmts** command in global configuration mode. To disable the sending of traps, use the **no** form of this command.

snmp-server enable traps docsis-cmts [*docsis-events*]

no snmp-server enable traps docsis-cmts [*docsis-events*]

Syntax Description

docsis-events

Specifies one or more of the following DOCSIS event types:

- **bpi**—Enables traps for BPI initialization failure events.
 - **bpkm**—Enables traps for BPKM failure events.
 - **dccack**—Enables traps for the failure of Dynamic Channel Change Acknowledgement (DCC-ACK) requests.
 - **dccreq**—Enables traps for the failure of Dynamic Channel Change Request (DCC-REQ) requests.
 - **dccrsp**—Enables traps for the failure of Dynamic Channel Change Response (DCC-RSP) requests.
 - **dsac**—Enables traps for the failure of Dynamic Service Acknowledgement (DSx-ACK) requests.
 - **dsreq**—Enables traps for the failure of Dynamic Service Request (DSx-REQ) requests.
 - **dsrsp**—Enables traps for the failure of Dynamic Service Response (DSx-RSP) requests.
 - **dynsa**—Enables traps for the failure of Dynamic Service Addition (DSA-ACK) requests.
 - **regack**—Enables traps for the failure of Registration Acknowledgement (REG-ACK) requests.
 - **regreq**—Enables traps for the failure of Registration Request (REG-REQ) requests.
 - **regrsp**—Enables traps for the failure of Registration Response (REG-RSP) requests.
-

Defaults

No SNMP traps for DOCSIS-related events are enabled. When the **snmp-server enable traps docsis-cmts** command is given without any options, all DOCSIS-related traps are enabled.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.1(7)CX1, 12.2(4)BC1	This command, along with the DOCS-CABLE-DEVICE-TRAP-MIB MIB, was introduced.

Usage Guidelines

This command enables traps that are defined in the [DOCS-CABLE-DEVICE-TRAP-MIB](#) MIB. For other SNMP commands that affect the operation of the CMTS, see the *Cisco IOS Configuration Fundamentals Command Reference Guide*.

Examples

The following example shows how to enable traps for the failure of DOCSIS registration-related events on the CMTS:

```
router(config)# snmp-server enable traps docsis-cmts reqack reqreq regrsp
router(config)#
```

Related Commands

Command	Description
snmp-server enable traps cable	Enables traps for cable-related events.

switchover pxf restart

To configure the maximum number of PXF crashes that are allowed within a specified time period, use the **switchover pxf restart** command in redundancy configuration (main-cpu) mode. To reset the router to its default values, use the **no** form of this command.

switchover pxf restart *number-of-crashes time-period*

no switchover pxf restart

Syntax Description

<i>number-of-crashes</i>	Maximum number of PXF crashes that are allowed within the specified time period. If the PXF processors crash this many times within the given time period, the router switches over to the redundant PRE1 module. The valid range is 1 to 25, with a default of 2.
<i>time-period</i>	Time period, in hours, that PXF crashes are monitored. The valid range is 0 to 120 hours, with a default of 5.

Defaults

2 PXF crashes within 5 hours are allowed (**switchover pxf restart 2 5**)

Command Modes

Redundancy configuration, main-cpu mode (config-r-mc)

Command History

Release	Modification
12.2(15)BC2	This command was introduced for the Cisco uBR10012 router.

Usage Guidelines

The PXF processors that are onboard the PRE1 module automatically restart themselves if a crash occurs. Occasional crashes could be expected, but repeated crashes could indicate a hardware problem.

The **switchover pxf restart** command specifies the maximum number of times that a PXF processor can crash during a specified time period before the router switches over to the redundant PRE1 module. If the PXF processors crash this number of times, the router assumes a hardware problem and initiates a switchover to the redundant PRE1 module.



Note

When a switchover occurs because of repeated PXF crashes, the router displays the following system message: C10KEVENTMGR-3-PXF_FAIL_SWITCHOVER: Multiple PXF failures, switchover to redundant PRE initiated.

Examples

The following example shows how to configure the router so that if five PXF crashes occur within a one-hour period, the router should initiate a switchover to the redundant PRE1 module.

```
Router# config t
Router(config)# redundancy
Router(config-r)# main-cpu
Router(config-r-mc)# switchover pxf restart 5 1
Router(config-r-mc)# exit
```

```
Router(config-f)# exit  
Router(config)#
```

Related Commands

Command	Description
main-cpu	Enters main-CPU redundancy configuration mode, so that you can configure the synchronization of the active and standby Performance Routing Engine (PRE1) modules.
redundancy	Configures the synchronization of system files between the active and standby PRE1 modules.
redundancy force-failover main-cpu	Forces a manual switchover between the active and standby PRE1 modules.

switchover timeout

To configure the switchover timeout period of the PRE1 module, use the **switchover timeout** command in redundancy configuration (main-cpu) mode. To reset the timeout period to its default value, use the **no** form of this command.

switchover timeout *timeout-period*

no switchover timeout

Syntax Description

<i>timeout-period</i>	Specifies the timeout, in milliseconds. The valid range is 0 to 25000 milliseconds (25 seconds), where 0 specifies no timeout period.
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Defaults

The default is 0.

Command Modes

Redundancy configuration, main-cpu mode

Command History

Release	Modification
12.2(11)BC3	This command was introduced for the Cisco uBR10012 router.

Usage Guidelines

The **switchover timeout** command specifies how long the standby PRE module should wait when it does not detect a heartbeat from the active PRE module before initiating a switchover and assuming responsibility as the active PRE module. If set to 0, the standby PRE module initiates a switchover immediately when the active PRE module misses a scheduled heartbeat.

Examples

The following example shows how to set the timeout period to 60 milliseconds:

```
Router# config t
Router(config)# redundancy
Router(config-r)# main-cpu
Router(config-r-mc)# switchover timeout 60
Router(config-r-mc)# exit
Router(config-f)# exit
Router(config)#
```

Related Commands

Command	Description
main-cpu	Enters main-CPU redundancy configuration mode, so that you can configure the synchronization of the active and standby Performance Routing Engine (PRE1) modules.

Command	Description
redundancy	Configures the synchronization of system files between the active and standby PRE1 modules.
redundancy force-failover main-cpu	Forces a manual switchover between the active and standby PRE1 modules.

tag

To add a tag to a restricted load balancing group (RLBG), use the **tag** command in the config-lb-group configuration mode. To remove the tag, use the **no** form of this command.

tag *tag-name*

no tag *tag-name*

Syntax Description

<i>tag-name</i>	The name of the tag that has been created and configured for the load balancing group.
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Command Default

No default behavior or values.

Command Modes

DOCSIS load balancing group mode (config-lb-group)

Command History

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

Usage Guidelines

You can use the **tag** command to add a tag to a RLBG, only if the tag is already created using the **cable tag** command for the DOCSIS load balancing group on the CMTS.

Examples

The following example shows how to add a tag to a RLBG using the **tag** command.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# cable load-balance docsis-group 1
Router(config-lb-group)# restricted
Router(config-lb-group)# tag CSCO
Router(config-lb-group)#
```

Related Commands

Command	Description
cable load-balance docsis-group	Configures a DOCSIS load balancing group on the CMTS.
show cable load-balance docsis-group	Displays real-time configuration, statistical, and operational information for load balancing operations on the router.
cable tag	Configures a tag for a DOCSIS load balancing group on the CMTS.

test cable dcc (Supporting Dynamic Channel Change)

To test Dynamic Channel Change for Load Balancing on the Cisco CMTS, use the following command in global configuration mode.

```
test cable dcc [<mac-addr>|<ip-addr> | <cable-if-src> <sid>] <cable-if-target> <uschan>
{ranging-tech}
```

Syntax Description

<i>mac-addr</i>	The MAC address of the cable modem to be moved for DCC test.
<i>ip-addr</i>	The IP address of the cable modem to be moved for DCC test.
<i>cable-if-src</i>	The name of the source downstream interface for the DCC transaction.
<i>Sid</i>	Primary Service ID (sid) value.
<i>cable-if-target</i>	The name of the target downstream interface for the DCC transaction.
<i>uschan</i>	The upstream channel ID of the target upstream for the DCC transaction.
<i>ranging-tech</i>	The initialization technique to be used for the DCC transaction, 0 is the default if not specified. Valid range is 0-4.

Command Default

Test functions are disabled by default.

Command Modes

Global configuration (config)

Command History

Release	Modification
12.3(17a)BC	This command was introduced on the Cisco uBR10012 router and the Cisco uBR7246VXR router, with supporting broadband processing engines (BPEs) or cable interface line cards on the respective routers.

Examples

The following examples illustrate DCC verification, using the **test cable dcc** command.

The following example moves a target cable modem, specified by MAC address, IP address or the primary sid value on the source interface to a target downstream with the specified frequency using DCC initialization technique 0:

```
Router# test cable dcc [<mac-addr>|<ip-addr>|<cable-if-src><sid>] frequency <freq-value>
Frequency-value: <55000000-858000000> New Downstream Frequency in HZ.
```

The following example moves a target cable modem, specified by MAC address, IP address or the primary sid value on the source interface to a upstream channel on a target downstream with the DCC-REQ TLV given in the specified HEX data.

```
Router# test cable dcc [<mac-addr>|<ip-addr>|<cable-if-src><sid>] TLV <Hex-data>
```

The following example moves all cable modems on a source interface to a target downstream with the specified frequency using DCC initialization technique 0.

```
Router# test cable dcc <cable-if-src> frequency <frequency-value>
Frequency-value: <55000000-858000000> New Downstream Frequency in HZ.
```

Usage Guidelines

This command is subject to the restrictions and prerequisites described in [Configuring Load Balancing and Dynamic Channel Change \(DCC\) on the Cisco CMTS](#).

Related Commands

Command	Description
cable load-balance group (Supporting Dynamic Channel Change)	Sets multiple parameters for Load Balancing with DCC.
cable load-balance group dcc-init-technique (Supporting Dynamic Channel Change)	Sets the initialization technique for Dynamic Channel Change (DCC) for Load Balancing.
cable load-balance group policy (Supporting Dynamic Channel Change)	Sets the type of service flow for use with Load Balancing and DCC, whether PacketCable MultiMedia (PCMM) or Unsolicited Grant Service (UGS).
cable load-balance group threshold (Supporting Dynamic Channel Change)	Sets the threshold levels for corresponding service flow types for the specified Load Balancing group, supporting Dynamic Channel Change (DCC)
show controllers cable	Displays statistics for Dynamic Channel Change (DCC) for load balancing.

test cable voice

To manually set voice tag of a cable modem, use the test cable voice command in privileged EXEC mode.

```
test cable voice {mac-addr | ip-addr}
```

Syntax Description	
<i>mac-addr</i>	Specifies the MAC address of an individual CM, or of any CPE devices or hosts behind that CM.
<i>ip-addr</i>	Specifies the IP address of an individual CM, or of any CPE devices or hosts behind that CM.

Command Default No voice tags are enabled

Command Modes Privileged EXEC (#)

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

Usage Guidelines The **test cable voice** command is intended for use by Cisco Systems technical support personnel.

Examples The following example shows how to enable the voice tag of a cable modem:

```
Router# test cable voice 209.165.200.225
```

Related Commands	Commands	Description
	show cable modem voice	Displays the detected voice-enabled modems.
	clear cable modem voice	Clears the voice tag that is set for a cable modem.

test packetcable gate create

To create a test PacketCable or PCMM gate, use the **test packetcable gate create** command in privileged EXEC mode. The number of requested gates is created with the subscriber address, which must be specified. The gates created with this command are used by other test commands, such as gate-info or gate-delete, to test functionality.

```
test packetcable gate create subscriber addr [dqos | multimedia] [ # of gates ]
```

Syntax Description

<i>subscriber addr</i>	IP address of the subscriber for whom to create test packets.
dqos	Specifies a PacketCable Dynamic Quality of Service (DQoS) CMS.
multimedia	Specifies a PCMM CMS.
<i># of gates</i>	Designates the number of test gates to create for the specified IP address.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(13a)BC	This command was enhanced to support PCMM on the Cisco uBR10012 router and the Cisco uBR7246VXR router.

Usage Guidelines

This command is supported for PC or PCMM on the Cisco CMTS.

Related Commands

Command	Description
test packetcable gc client-accept	Sends a client-accept request to a Packetcable or PCMM Call Management Server (CMS).
test packetcable gc gate-alloc	Sends a gate allocation message to the Packetcable DQoS processor
test packetcable gc gate-delete	Sends a gate-delete request to either the Packetcable Multimedia or PC DQoS message processor.
test packetcable gc gate-info	Sends a gate information request to the Packetcable Multimedia message processor
test packetcable gc gate-set multimedia	Send a test gate-set request to the Packetcable Multimedia message processor.
test packetcable gc initiate	Adds a test Call Management Server (CMS) for either PacketCable (DQoS) or PCMM.

test packetcable gc client-accept

To send a client-accept request to a Packetcable or PCMM Call Management Server (CMS), and to initiate a session with that server, use the **test packetcable gc client-accept** command in Privileged EXEC mode.

test packetcable gc client-accept

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	12.3(13a)BC	This command was enhanced to support PCMM on the Cisco uBR10012 router and the Cisco uBR7246VXR router.

Usage Guidelines This command is supported for PC or PCMM on the Cisco CMTS. The CMS-to-client session that starts as a result of using this command can be viewed with multiple **show**, **debug** and **test** commands.

Examples The following example illustrates a test client-accept request:

```
Router# test packetcable gc client-accept
```

Related Commands	Command	Description
	test packetcable gc gate-alloc	Sends a gate allocation message to the Packetcable DQoS processor
	test packetcable gc gate-delete	Sends a gate-delete request to either the Packetcable Multimedia or PC DQoS message processor.
	test packetcable gc gate-info	Sends a gate information request to the Packetcable Multimedia message processor
	test packetcable gc gate-set multimedia	Send a test gate-set request to the Packetcable Multimedia message processor.
	test packetcable gc initiate	Adds a test Call Management Server (CMS) for either PacketCable (DQoS) or PCMM.
	test packetcable gate create	Creates a test PacketCable or PCMM gate.

test packetcable gc gate-alloc

To send a gate allocation message to the Packetcable DQoS processor, use the **test packetcable gc gate-alloc** command in privileged EXEC mode. This test message generates from the gate controller that is specified by the GC address value. The gate is allocated for the subscriber address specified in the command.

```
test packetcable gc gate-alloc gc-addr subscriber-addr
```

Syntax Description

<i>gc-addr</i>	IP address for the gate controller to test.
<i>subscriber-addr</i>	IP address for the subscriber to test.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(13a)BC	This command was enhanced to support PCMM on the Cisco uBR10012 router and the Cisco uBR7246VXR router.

Usage Guidelines

This command is supported for PC or PCMM on the Cisco CMTS.

Related Commands

Command	Description
test packetcable gc client-accept	Sends a client-accept request to a Packetcable or PCMM Call Management Server (CMS).
test packetcable gc gate-delete	Sends a gate-delete request to either the Packetcable Multimedia or PC DQoS message processor.
test packetcable gc gate-info	Sends a gate information request to the Packetcable Multimedia message processor
test packetcable gc gate-set multimedia	Send a test gate-set request to the Packetcable Multimedia message processor.
test packetcable gc initiate	Adds a test Call Management Server (CMS) for either PacketCable (DQoS) or PCMM.
test packetcable gate create	Creates a test PacketCable or PCMM gate.

test packetcable gc gate-delete

To send a gate-delete request to either the Packetcable Multimedia or PC DQoS message processor, use the **test packetcable gc gate-delete** command in privileged EXEC mode. The request includes the subscriber ID and gate ID specified in the command. The message is sent to either the DQoS or PCMM processor depending on the type of server that was used when the GC address was added.

```
test packetcable gc gate-delete gc-addr subscriber-id gate-id
```

Syntax Description		
<i>gc addr</i>		IP address of the gate controller.
<i>subscriber-id</i>		The subscriber identifier to be inserted into the gate-set message.
<i>gate-id</i>		Gate identifier for the gate that generates the test message.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	12.3(13a)BC	This command was enhanced to support PCMM on the Cisco uBR10012 router and the Cisco uBR7246VXR router.

Usage Guidelines This command is supported for PC or PCMM on the Cisco CMTS.

Related Commands	Command	Description
	test packetcable gc client-accept	Sends a client-accept request to a Packetcable or PCMM Call Management Server (CMS).
	test packetcable gc gate-alloc	Sends a gate allocation message to the Packetcable DQoS processor
	test packetcable gc gate-info	Sends a gate information request to the Packetcable Multimedia message processor
	test packetcable gc gate-set multimedia	Send a test gate-set request to the Packetcable Multimedia message processor.
	test packetcable gc initiate	Adds a test Call Management Server (CMS) for either PacketCable (DQoS) or PCMM.
	test packetcable gate create	Creates a test PacketCable or PCMM gate.

test packetcable gc gate-info

To send a gate information request to the Packetcable Multimedia message processor, as if originating from the gate controller address specified, use the **test packetcable gc gate-info** command in privileged EXEC mode. The gate ID must be specified when using this command.

```
test packetcable gc gate-info gc-addr gate-id
```

Syntax Description

<i>gc addr</i>	IP address of the gate controller.
<i>gate-id</i>	Gate identifier for the gate that generates the test message.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(13a)BC	This command was enhanced to support PCMM on the Cisco uBR10012 router and the Cisco uBR7246VXR router.

Usage Guidelines

This command is supported for PC or PCMM on the Cisco CMTS.

Related Commands

Command	Description
test packetcable gc client-accept	Sends a client-accept request to a Packetcable or PCMM Call Management Server (CMS).
test packetcable gc gate-alloc	Sends a gate allocation message to the Packetcable DQoS processor
test packetcable gc gate-delete	Sends a gate-delete request to either the Packetcable Multimedia or PC DQoS message processor.
test packetcable gc gate-set multimedia	Send a test gate-set request to the Packetcable Multimedia message processor.
test packetcable gc initiate	Adds a test Call Management Server (CMS) for either PacketCable (DQoS) or PCMM.
test packetcable gate create	Creates a test PacketCable or PCMM gate.

test packetcable gc gate-set multimedia

To send a test gate-set request to the Packetcable Multimedia message processor, as if it comes from the gate controller, use the **test packetcable gc gate-set multimedia** command in privileged EXEC mode.

The gate ID, subscriber ID, gate state and traffic profile information are included in the test gate-set message. Other traffic profile information, like traffic profile details, display static values by default.

```
test packetcable gc gate-set gc-addr multimedia subscriber-id state gate-id traffic-type
service-class-name
```

Syntax Description

<i>gc addr</i>	IP address of the gate controller.
dqos	Specifies a PacketCable Dynamic Quality of Service (DQoS) Call Management Server (CMS).
multimedia	Specifies a PCMM Call Management Server (CMS).
<i>subscriber-id</i>	The subscriber identifier to be inserted into the gate-set message.
<i>state</i>	State for the test gate, either Committed, Authorized, or Reserved.
<i>gate-id</i>	The gate identifier to be inserted into the gate-set message.
<i>traffic-type</i>	Traffic profile information to be inserted into the gate-set message.
<i>service-class-name</i>	Service class information for the gate-set message.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(13a)BC	This command was introduced to support PCMM on the Cisco uBR10012 router and the Cisco uBR7246VXR router.

Usage Guidelines

This command is supported for PCMM on the Cisco CMTS.

Related Commands

Command	Description
test packetcable gc client-accept	Sends a client-accept request to a Packetcable or PCMM Call Management Server (CMS).
test packetcable gc gate-alloc	Sends a gate allocation message to the Packetcable DQoS processor
test packetcable gc gate-delete	Sends a gate-delete request to either the Packetcable Multimedia or PC DQoS message processor.
test packetcable gc gate-info	Sends a gate information request to the Packetcable Multimedia message processor
test packetcable gc initiate	Adds a test Call Management Server (CMS) for either PacketCable (DQoS) or PCMM.
test packetcable gate create	Creates a test PacketCable or PCMM gate.

test packetcable gc initiate

To add a test Call Management Server (CMS) for either PacketCable (DQoS) or PCMM, use the **test packetcable gc initiate** command in privileged EXEC mode.

```
test packetcable gc initiate [dqos | multimedia] GC-IP
```

Syntax Description

dqos	(Optional) Specifies a PacketCable Dynamic Quality of Service (DQoS) CMS.
multimedia	(Optional) Specifies a PCMM CMS.
<i>GC-IP</i>	IP address of the gate controller.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(13a)BC	This command was enhanced to support PCMM on the Cisco uBR10012 router and the Cisco uBR7246VXR router.

Usage Guidelines

This command is supported for PC or PCMM on the Cisco CMTS. The type of CMS added determines the type of gate that is created. This gate type is used in all future PacketCable **test** commands that use the gate controller address specified.

Related Commands

Command	Description
test packetcable gc client-accept	Sends a client-accept request to a Packetcable or PCMM Call Management Server (CMS).
test packetcable gc gate-alloc	Sends a gate allocation message to the Packetcable DQoS processor
test packetcable gc gate-delete	Sends a gate-delete request to either the Packetcable Multimedia or PC DQoS message processor.
test packetcable gc gate-info	Sends a gate information request to the Packetcable Multimedia message processor
test packetcable gc gate-set multimedia	Send a test gate-set request to the Packetcable Multimedia message processor.
test packetcable gate create	Creates a test PacketCable or PCMM gate.

threshold

To specify the load limit beyond which load balancing occurs, use the **threshold** command in the config-lb-group configuration mode. To remove the specified load limit, use the **no** form of this command.

```
threshold {load {minimum 1-100 | 1-100} | pcmm 1-100 | stability 0-100 | ugs 1-100}
```

```
no threshold {load {minimum | 1-100} | pcmm 1-100 | stability 0-100 | ugs 1-100}
```

Syntax Description

load {minimum}	Specifies interface load threshold settings as a percentage value. You can also set minimum number of modems/flows difference ranging from 1 to 100 before load balancing starts.
pcmm	Specifies PCMM service flow threshold as a percentage value.
stability	Specifies stability condition detection threshold as a percentage value.
ugs	Specifies stability detection threshold as a percentage value.

Command Default

No default behavior or values.

Command Modes

DOCSIS load balancing group mode (config-lb-group)

Command History

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

Examples

The following example shows how to configure the threshold of the DOCSIS LBG using the **threshold** command.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# cable load-balance docsis-group 1
Router(config-lb-group)# threshold load minimum 10
Router(config-lb-group)#
```

Related Commands

Command	Description
cable load-balance docsis-group	Configures a DOCSIS load balancing group on the CMTS.
show cable load-balance docsis-group	Displays real-time configuration, statistical, and operational information for load balancing operations on the router.

timestamp

To create a DOCSIS configuration file that enables timestamp generation, use the **timestamp** command in cable config-file configuration mode. To disable this function, use the **no** form of this command.

timestamp

no timestamp

Syntax Description This command has no arguments or keywords.

Command Default No default behaviors or values

Command Modes Cable config-file configuration (config-file)

Command History	Release	Modification
	12.1(2)EC1	This command was introduced.
	12.2(4)BC1	Support was added to the Release 12.2 BC train.

Usage Guidelines The DOCSIS specification supports the optional time-stamping of DOCSIS configuration files by adding a field to the file that shows the time that the file was sent to the CM. This prevents someone from trying to subvert DOCSIS security by replaying a valid DOCSIS configuration file to another CM. The timestamp is expressed as the number of seconds since midnight on January 1, 1900.

Examples The following example shows how to enable timestamp generation for the DOCSIS configuration file.

```
router(config)# cable config-file upgrade.cm
router(config-file)# timestamp
router(config-file)# exit
router(config)#
```

Related Commands	Command	Description
	cable config-file	Creates a DOCSIS configuration file and enters configuration file mode.
	access-denied	Disables access to the network.
	channel-id	Specifies upstream channel ID.
	cpe max	Specifies CPE information.
	download	Specifies download information for the configuration file.
	frequency	Specifies downstream frequency.
	option	Provides config-file options.

Command	Description
privacy	Specifies privacy options for baseline privacy images.
service-class	Specifies service class definitions for the configuration file.
snmp manager	Specifies Simple Network Management Protocol (SNMP) options.

tos

To configure the Type of Service (ToS) byte in the header of Layer 2 tunneled packets, use the **tos** command in DEPI tunnel configuration mode. To disable a configured ToS value, use the **no** form of this command.

tos *value*

no tos *value*

Syntax Description	<i>value</i>	Value of the ToS byte for IP packets in a Layer 2 Tunnel Protocol version 3 (L2TPv3) data session. The valid values range from 0 to 255. The default value is 0.
Command Default	None	
Command Modes	DEPI tunnel configuration	
Command History	Release	Modification
	12.2(33)SCC	This command was introduced.
Usage Guidelines	The tos command allows you to manually configure the value of the ToS byte used in the headers of Layer 2 tunneled packets.	
Examples	The following example shows how to assign a ToS value of 100: <pre>Router# configure terminal Router(config)# depi-tunnel rf6 Router(config-depi-tunnel)# tos 100</pre>	
Related Commands	Command	Description
	depi-tunnel	Specifies the name of the depi-tunnel and enters the DEPI tunnel configuration mode.

tos (multicast qos)

To set type of service (ToS) low byte, high byte, and mask values within a multicast QoS group, use the **tos** command in multicast QoS configuration mode. To disable the type of service, use the **no** form of this command.

tos *low-byte high-byte mask*

no tos *low-byte high-byte mask*

Syntax Description

<i>low-byte</i>	Specifies the minimum ToS data bytes for a multicast QoS group. The valid range is 0–255.
<i>high-byte</i>	Specifies the maximum ToS data bytes for a multicast QoS group. The valid range is 0–255.
<i>mask</i>	Specifies the ToS mask for a multicast QoS group. The valid range is 0–255.

Command Default

ToS parameters are not defined for a specific multicast QoS group.

Command Modes

Multicast QoS configuration (config-mqos)

Command History

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

Usage Guidelines

The three precedence bits in the ToS byte in the IP header specifies a class of service assignment for each packet. Those packets with the precedence bit set in the ToS field are given higher priority.

Examples

The following example defines the low and high ToS rates and the mask value using the **tos** command:

```
Router(config)# cable multicast qos group 20 priority 55 global
Router(config-mqos)# tos 1 6 15
```

Related Commands

Command	Description
cable multicast qos group	Specifies and configures a cable multicast QoS group.
show interface bundle multicast-sessions	Displays multicast session information for a specific virtual cable bundle.
show interface cable multicast-sessions	Displays multicast session information for a specific cable interface.

upgrade hw-module subslot fpd file

To manually upgrade the current FPD image package on a SPA, use the **upgrade hw-module subslot fpd file** command in privileged EXEC mode.

Cisco 7304 and Cisco uBR10012 Universal Broadband Router

upgrade hw-module subslot *slot/subslot* **fpd file** *file-url* [**reload**]

Cisco 7600 Series

upgrade hw-module subslot *slot/subslot* **fpd file** *file-url* [**force**]

Syntax Description		
<i>slot</i>	Chassis slot number.	Refer to the appropriate hardware manual for slot information. For SIPs, refer to the platform-specific SPA hardware installation guide or the corresponding “Identifying Slots and Subslots for SIPs and SPAs” topic in the platform-specific SPA software configuration guide.
<i>subslot</i>	Secondary slot number on a SPA interface processor (SIP) where a SPA is installed.	Refer to the platform-specific SPA hardware installation guide and the corresponding “Specifying the Interface Address on a SPA” topic in the platform-specific SPA software configuration guide for subslot information.
<i>file-url</i>	Specifies the location of the FPD image package file, beginning with the location or type of storage device (examples include disk0 , slot0 , tftp , or ftp) and followed by the path to the FPD image package file.	
reload	(Optional) Reloads the SPA to complete the FPD upgrade.	
force	(Optional) Forces the update of all compatible FPD images in the indicated FPD image package on the SPA that meet the minimal version requirements. Without this option, the manual upgrade will only upgrade incompatible FPD images.	

Defaults

No default behavior or values, although it is important to note that the router containing the SPA is configured, by default, to upgrade the FPD images when it detects a version incompatibility between a the FPD image on the SPA and the FPD image required to run the SPA with the running Cisco IOS image. Manual upgrade of FPD images is recommended only when the automatic upgrade default configuration fails to find a compatible FPD image for one of the SPAs, or when the automatic upgrade default configuration has been manually disabled. The **no upgrade fpd auto** command can be entered to disable automatic FPD upgrades.

Cisco 7304

By default the SPA is not reloaded to complete the FPD upgrade unless the **reload** option is entered. Reloading the SPA drops all traffic traversing that SPA’s interfaces. If you want to reload the SPA later to complete the upgrade, do not enter the **reload** option and perform OIR of the SPA later to complete the FPD upgrade.

Cisco 7600 Series

If no FPD incompatibility is detected, this command will not upgrade SPA FPD images unless the **force** option is entered.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(33)SRB	This command was introduced. This command replaces the upgrade hw-module subslot command.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB.

Usage Guidelines

This command is used to manually upgrade the FPD images on a SPA. In most cases, the easiest and recommended method of upgrading FPD images is the automatic FPD upgrade, which is enabled by default. The automatic FPD upgrade will detect and automatically upgrade all FPD images when an FPD incompatibility is detected.

A manual FPD upgrade is usually used in the following situations:

- The target SPA was disabled by the system because of an incompatible FPD image (the system could not find the required FPD image package file).
- A recovery upgrade must be performed.
- A special bug fix to an FPD image is provided in the FPD image package file.

The FPD image upgrade process places the SPA offline. The time required to complete an FPD image upgrade can be lengthy. The **show upgrade progress** command can be used to gather more information about estimated FPD download times for a particular SPA.

For more information about FPD upgrades on SPA interface processors (SIPs) and shared port adapters (SPAs), see the *Cisco 7304 Router Modular Services Card and Shared Port Adapter Software Configuration Guide* or the *Cisco 7600 Series Router SIP, SSC, and SPA Software Configuration Guide*.

Examples

The following example shows a sample manual FPD upgrade:

```
Router# upgrade hw-module subslot 2/0 fpd file disk0:spa_fpd.122-20.S2.pkg
% Uncompressing the bundle ... [OK]
% The following FPD(s) will be upgraded for card in subslot 2/0 :

=====
Field Programmable   Current   Upgrade   Estimated
Device:"ID-Name"     Version   Version   Upgrade Time
=====
1-Data & I/O FPGA    4.12     4.13     00:06:00
=====

% Are you sure that you want to perform this operation? [no]:y
% Restarting the target card (subslot 2/0) for FPD image upgrade. Please wait ...

Router#
```

upgrade hw-module subslot fpd file

```
*Jan 14 00:37:17:%FPD_MGMT-6-FPD_UPGRADE_TIME:Estimated total FPD image upgrade time for
SPA-4FE-7304 card in subslot 2/0 = 00:06:00.
*Jan 14 00:37:17:%FPD_MGMT-6-FPD_UPGRADE_START:4FE/2GE FPGA (FPD ID=1) image upgrade in
progress for SPA-4FE-7304 card in subslot 2/0. Updating to version 4.13. PLEASE DO NOT
INTERRUPT DURING THE UPGRADE PROCESS (estimated upgrade completion time = 00:06:00)
...[.....(part of the output has been removed for brevity)....
.....]
SUCCESS - Completed XSVF execution.

*Jan 14 00:42:59:%FPD_MGMT-6-FPD_UPGRADE_PASSED:4FE/2GE FPGA (FPD ID=1) image upgrade for
SPA-4FE-7304 card in subslot 2/0 has PASSED. Upgrading time = 00:05:42.596
*Jan 14 00:42:59:%FPD_MGMT-6-OVERALL_FPD_UPGRADE:All the attempts to upgrade the required
FPD images have been completed for SPA-4FE-7304 card in subslot 2/0. Number of
successful/failure upgrade(s):1/0.
*Jan 14 00:42:59:%FPD_MGMT-5-CARD_POWER_CYCLE:SPA-4FE-7304 card in subslot 2/0 is being
power cycled for the FPD image upgrade to take effect.
```

Related Commands

Command	Description
show hw-module slot fpd	Displays the current versions of FPD image files for all of the active SIPs on a router.
show hw-module subslot fpd	Displays the FPD version on each SPA in the router.
show upgrade fpd file	Displays the contents of an FPD image package file.
show upgrade fpd package default	Displays which FPD image package is needed for the router to properly support the SPAs.
show upgrade fpd progress	Displays the progress of the FPD upgrade while an FPD upgrade is taking place.
show upgrade fpd table	Displays various information used by the Cisco IOS software to manage the FPD image package file.
upgrade fpd auto	Configures the router to automatically upgrade the FPD image when an FPD version incompatibility is detected.
upgrade fpd path	Specifies the location from where the FPD image package should be loaded when an automatic FPD upgrade is initiated by the router.
upgrade hw-module slot fpd file	Manually upgrades the current FPD image on the specified SPA.

upstream

To add upstream channels to an upstream bonding group, use the **upstream** command in upstream bonding configuration submode. To disable this configuration, use the **no** form of this command.

upstream *number*

no upstream *number*

Syntax Description	<i>number</i>	Upstream channel number. The valid range is from 0 to 7.
--------------------	---------------	--

Command Default	None
-----------------	------

Command Modes	Upstream bonding configuration submode (config-upstream-bonding)
---------------	--

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

Usage Guidelines	DOCSIS 3.0-certified cable modems can support only four upstream channels on an upstream bonding group. These cable modems cannot accept additional upstream channels that you have added to an upstream bonding group.
------------------	---

Examples	The following example shows how to add upstream channels to an upstream bonding group on a cable interface line card on a Cisco uBR10012 router:
----------	--

```
Router# configure terminal
Router(config)# interface cable7/1/0
Router(config-if)# cable upstream bonding-group 20
Router(config-upstream-bonding)# upstream 0
Router(config-upstream-bonding)# upstream 1
Router(config-upstream-bonding)# upstream 2
Router(config-upstream-bonding)# upstream 3
```

Related Commands	Command	Description
	cable upstream bonding-group	Creates an upstream bonding group on a cable interface.
	cable fiber-node	Creates a fiber node and enters cable fiber-node configuration mode.

upstream (config-lb-group)

To set upstream channels in a DOCSIS load balancing group, use the **upstream** command in the config-lb-group configuration mode. To disable the upstream channel configuration, use the **no** form of this command.

upstream cable *slot/subslot/port upstream-list*

no upstream cable *slot/subslot/port upstream-list*

Syntax Description

cable <i>slot/subslot/port</i>	Configures the CMTS interface with the slot, subslot, and port numbers.
<i>upstream-list</i>	Upstream channel list ranging from 0 to 7.

Command Default

No default behavior or values.

Command Modes

DOCSIS load balancing group mode (config-lb-group)

Command History

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

Examples

The following example shows how to set upstream channels in a DOCSIS LBG using the upstream command.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# cable load-balance docsis-group 1
Router(config-lb-group)# upstream cable 1/0/1 2
Router(config-lb-group)#
```

Related Commands

Command	Description
cable load-balance docsis-group	Configures a DOCSIS load balancing group on the CMTS.
show cable load-balance docsis-group	Displays real-time configuration, statistical, and operational information for load balancing operations on the router.

upstream cable connector

To specify the upstream channel ports for a fiber node, use the **upstream cable connector** command in cable fiber-node configuration mode. To remove the upstream channel ports for a fiber node, use the **no** form of this command.

upstream cable *slot/subslot* **connector** *list-of-ports*

no upstream cable *slot/subslot* **connector** *list-of-ports*

Syntax Description		
	<i>slot/subslot</i>	The location of the cable interface line card containing the upstream port.
	<i>list-of-ports</i>	A range of physical port numbers on the cable interface line card. The <i>list-of-ports</i> can be one or more port numbers or a range of port numbers separated by a hyphen or combinations of both.
		The valid range for port numbers on Cisco uBR10-MC5X20 line cards is 0 to 19.

Command Default No upstream channel is configured for the fiber node.

Command Modes Cable fiber-node configuration (config-fiber-node)

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 This command specifies upstream ports on the cable interface line card (for example, the Cisco uBR10-MC5X20S-D line card) that are connected to a fiber node and that are available as upstream channels.



Note If the upstream ports are physically wired using dense connector configuration, the **upstream cable connector** command *is required* as part of the configuration of a fiber node.

Upstream channels on the same fiber node must have unique frequencies assigned. The upstream ports must be ports that are associated with the downstream port specified in the **downstream cable** command. On a Cisco uBR10-MC5X20 line card, each downstream port is associated with one or more upstream ports.

The **no** version of this command makes the upstream port no longer available as an upstream channel for the fiber node. If wideband modems on the fiber node are using an upstream channel and that channel is made no longer available with the **no upstream cable connector** command, the modems will go offline and attempt to re-register.

An upstream channel can be associated with not more than one fiber node. Configuring an upstream channel to a second fiber node causes the upstream channel to be removed from the previous fiber node. It also causes an upstream frequency change if the upstream has a spectrum group configured.

Each time the **upstream cable connector** command is issued for a fiber node, the set of upstream channels that are available for the fiber node is *added to in a cumulative manner*. For example, if the following **upstream cable connector** commands were issued, the set of upstream channels available for fiber node 1 is upstream channels 0 to 2.

```
Router# configure terminal
Router(config)# cable fiber-node 1
Router(config-fiber-node)# upstream cable 5/0 connector 0
Router(config-fiber-node)# upstream cable 5/0 connector 1-2
```

Examples

The following example shows how to configure upstream channels for fiber node 1. Notice that the list of port numbers (connectors) can be a single port number, a range of port numbers, or some combination of the two.

```
Router(config)# cable fiber-node 1
Router(config-fiber-node)# upstream cable 5/0 connector 0
Router(config-fiber-node)# upstream cable 5/0 connector 1-2
Router(config-fiber-node)# upstream cable 6/0 connector 0 1-2 3
```

Related Commands

Command	Description
cable fiber-node	Enters cable fiber-node configuration mode to configure a fiber node.
description (cable fiber-node)	Specifies a description for a fiber node.
downstream cable	Assigns a primary downstream channel for a fiber node.
downstream modular-cable rf-channel	Specifies the RF channels that are available for wideband channels on a fiber node.

upstream freq-range

To configure the Cisco CMTS router for the range of frequencies that are acceptable on upstreams, use the **upstream freq-range** command in global configuration mode. To restore the default value of North American ranges, use the **no** form of this command.

upstream freq-range [european | japanese | north american]

no upstream freq-range

Syntax Description

european	Configures the Cisco CMTS router to accept upstream frequency ranges that conform with the EuroDOCSIS specifications (5 MHz to 65 MHz).
japanese	Configures the Cisco CMTS router to accept upstream frequency ranges that conform to the expanded range used in Japan (5 MHz to 55 MHz).
north american	Configures the Cisco CMTS router to accept upstream frequency ranges that conform to the DOCSIS specifications (5 MHz to 42 MHz).

Defaults

North American (DOCSIS, 5 MHz to 42 MHz)

Command Modes

Global configuration

Command History

Release	Modification
12.2(15)BC2	This command was introduced for the Cisco uBR7246VXR and Cisco uBR10012 universal broadband routers.

Usage Guidelines

In Cisco IOS Release 12.2(15)BC2 and later, the Cisco CMTS router supports three different modes of operation, depending on the cable interface line cards being used. The range of frequencies that are allowed in each mode are as follows:

- North American DOCSIS (Annex B)—Upstreams use frequencies between 5 MHz and 42 MHz.
- European EuroDOCSIS (Annex A)—Upstreams use frequencies between 5 MHz and 65 MHz.
- Japanese Expanded Range (Annex B)—Upstreams use frequencies between 5 MHz and 55 MHz.

To configure the router so that it supports the proper range of upstream frequencies, use the **upstream freq-range** command. After you have configured the router with the **upstream freq-range** command, the **cable upstream frequency** command then accepts only frequencies that are in the configured range.



Note

This command configures only the range of frequencies that can be configured on an upstream. It does not configure the upstreams for the DOCSIS (Annex B) or EuroDOCSIS (Annex A) modes of operation, which is done using the **cable downstream annex** interface command. (Annex C mode is not supported.)

The allowable range for the upstream channel frequency depends on the cable interface line card and Cisco IOS software release being used. See **Table 2-12 on page 2-367** for the currently supported values.

Examples

The following example shows how to configure the Cisco CMTS router to support the EuroDOCSIS upstream frequency range of 5 MHz to 65 MHz:

```
Router# configure terminal
Router(config)# upstream freq-range european
Router(config)#
```

The following example shows how to configure the Cisco CMTS router to support the expanded Japanese upstream frequency range of 5 MHz to 55 MHz:

```
Router# configure terminal
Router(config)# upstream freq-range japanese
Router(config)#
```

The following example shows how to configure the Cisco CMTS router for its default configuration (DOCSIS upstream frequency range of 5 MHz to 42 MHz):

```
Router# configure terminal
Router(config)# upstream freq-range north american
Router(config)#
```

The following example shows all of the commands that are needed to configure the cable interface and upstream on a Cisco uBR-MC28U/X cable interface line card to support a frequency in the EuroDOCSIS upstream frequency range of 5 MHz to 65 MHz:

```
Router# configure terminal
Router(config)# upstream freq-range european
Router(config)# interface 3/0
Router(config-if)# cable downstream annex a
Router(config-if)# cable upstream 0 frequency 62500000
Router(config-if)#
```

Related Commands

Command	Description
cable spectrum-group (global configuration)	Creates spectrum groups, which contain one or more upstream frequencies.
cable upstream frequency	Configures a fixed frequency of the upstream radio frequency (RF) carrier for an upstream port.
show controllers cable	Displays information about the cable interface, including the upstream center frequency.

voice-port

To enter voice-port configuration mode, use the **voice-port** command in global configuration mode.

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

voice-port *number*

Syntax Description:	<i>number</i>	Identifies the voice port. Valid entries are 0 (which corresponds to the RJ-11 connector labeled V1) and 1 (which corresponds to the RJ-11 connector labeled V2).
----------------------------	---------------	---

Defaults	No default behavior or values.
-----------------	--------------------------------

Command Modes	Global configuration
----------------------	----------------------

Command History	Release	Modification
	12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
	12.1(5)XU1	Support was added for the Cisco CVA122 Cable Voice Adapter.
	12.2(2)XA	Support was added for the Cisco uBR925 cable access router.

Usage Guidelines	Use the voice-port global configuration command to enter voice-port configuration mode. Use the exit command to exit the voice-port configuration mode and return to the global configuration mode. See the <i>Cisco IOS Multiservice Applications Command Reference</i> , available on Cisco.com and the Documentation CD-ROM for a list of subcommands that are supported by the voice-port command.
-------------------------	---

Examples	The following example shows how to enter the voice-port configuration mode for port 0, the first voice port (labeled “V1+V2”) on the router.
-----------------	--

```
Router# configure terminal
Router(config)# voice-port 0
Router(config-voice-port)#
```

Related Commands	Command	Description
	dial-peer voice	Enters dial-peer configuration mode, defines the type of dial peer, and defines the tag number associated with a dial peer.

vrf (multicast qos)

To specify the name for a virtual routing and forwarding (VRF) instance, use the **vrf** command in multicast QoS configuration mode. To disable the VRF instance, use the **no** form of this command.

vrf *name*

no vrf *name*

Syntax Description

<i>name</i>	Specifies the routing and forwarding instance that is populated with multicast Virtual Private Network (MVPN) routes.
-------------	---

Command Default

A VRF name is not defined for the multicast QoS group.

Command Modes

Multicast QoS configuration (config-mqos)

Command History

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

Usage Guidelines

If a multicast QoS (MQoS) group is not defined for the named VRF instance, you will see an error message. You must either define a specific MQoS group for each VRF instance, or define a default MQoS that can be assigned in those situations where no matching MQoS group is found.

Examples

The following example identifies a multicast QoS group VRF name using the **vrf** command:

```
Router(config)# cable multicast qos group 20 priority 55 global
Router(config-mqos)# vrf name1
```

Related Commands

Command	Description
cable multicast qos group	Specifies and configures a cable multicast QoS group.
show interface bundle multicast-sessions	Displays multicast session information for a specific virtual cable bundle.
show interface cable multicast-sessions	Displays multicast session information for a specific cable interface.

weekend duration

To configure different subscriber monitoring options over weekends on a Cisco CMTS router, use the **weekend duration** command in enforce-rule configuration mode. To remove the weekend monitoring configuration and to return to the same monitoring conditions for all days of the week, use the **no weekend** form of this command.

```
weekend duration minutes avg-rate rate sample-interval interval {downstream | upstream}
[enforce]
```

```
no weekend duration minutes avg-rate rate sample-interval interval {downstream | upstream}
[enforce]
```

```
no weekend
```

Syntax Description		
<i>minutes</i>		Specifies the size of the sliding window (in minutes) during which subscriber usage is monitored. The valid range is 10 to 44640 with a default of 360 minutes (6 hours).
avg-rate <i>rate</i>		Specifies the average sampling rate in kilobytes per second for the specified duration. The valid range is 1 to 400000 with no default.
sample-interval <i>interval</i>		Specifies how often (in minutes) the CMTS router should sample a service flow to get an estimate of subscriber usage. The valid range is 1 to 30, with a default value of 15.
downstream		Specifies monitoring of traffic in the downstream direction.
upstream		Specifies monitoring of traffic in the upstream direction.
enforce		(Optional) Specifies that the enforce-rule QoS profile should be applied automatically if a user violates their registered QoS profile.

Command Default Weekend monitoring is disabled.

Command Modes Enforce-rule configuration (enforce-rule)

Command History	Release	Modification
	12.3(23)BC2	This command was introduced.
	12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB. Support for the Cisco uBR7225VXR router was added.

Usage Guidelines The **weekend duration** command works similarly to the **duration** command for subscriber traffic monitoring. Use the **weekend duration** command when you want to configure different monitoring parameters for subscribers on weekends.

This command can only be used when you have already configured the **duration** or **peak-time1** commands as weekday monitoring conditions for an enforce-rule.

If you still want to monitor traffic over the weekend, but want to return to the same monitoring conditions for every day of the week, use the **no weekend** command. This command removes the weekend monitoring conditions, but still performs monitoring over the weekends according to the other monitoring options that you have configured in the enforce-rule.

If you want to disable monitoring entirely over the weekend, use the **weekend off** command.

Examples

The following example specifies automatic monitoring of upstream traffic over the weekend if a subscriber is identified as violating their QoS profile. The monitoring will take place every 10 minutes and last for 5 minutes, with traffic sampled at an average rate of 2 kb/s:

```
Router(enforce-rule) # weekend duration 5 avg-rate 2 sample-interval 10 upstream enforce
```

Related Commands

Command	Description
duration	Specifies the time period and sample rate to be used for monitoring subscribers.
peak-time1	Specifies peak and offpeak monitoring times on a Cisco CMTS router.
weekend off	Disables peak and offpeak monitoring on weekends on a Cisco CMTS router.
weekend peak-time1	Configures peak and offpeak subscriber monitoring over weekends on a Cisco CMTS router.

weekend off

To disable peak and offpeak monitoring on weekends on a Cisco CMTS router, use the **weekend off** command in enforce-rule configuration mode. To re-enable the configuration for weekend monitoring, use the **no** form of this command.

weekend off

no weekend off

Syntax Description This command has no arguments or keywords.

Command Default Weekend monitoring is enabled once you configure the **weekend duration** or **weekend peak-time1** commands.

Command Modes Enforce-rule configuration (enforce-rule)

Command History	Release	Modification
	12.3(23)BC2	This command was introduced.
	12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB. Support for the Cisco uBR7225VXR router was added.

Usage Guidelines Use the **weekend off** command to disable previously configured weekend monitoring and stop the CMTS router from monitoring cable modems (CMs) with that enforce-rule over the weekend. This command allows you to retain or modify your weekend monitoring configuration without enabling it for actual monitoring use on the CMTS router.

To perform weekend monitoring according to the same parameters used for weekday monitoring, use the **no weekend** command.

Examples The following example shows how to disable weekend monitoring when weekend peak-time monitoring has previously been configured on a Cisco CMTS router:

```
Router(config)# cable qos enforce-rule test
Router(enforce-rule)# weekend peak-time1 8 duration 60 avg-rate 100 peak-time2 20 duration
60 avg-rate 10000 duration 90 avg-rate 20000 sample-interval 20 downstream enforce
Router(enforce-rule)# weekend off
```

Related Commands	Command	Description
	weekend duration	Configures different subscriber monitoring options over weekends on a Cisco CMTS router.
	weekend peak-time1	Configures peak and offpeak subscriber monitoring over weekends on a Cisco CMTS router.

weekend peak-time1

To configure peak and offpeak subscriber monitoring over weekends on a Cisco CMTS router, use the **weekend peak-time1** command in enforce-rule configuration mode. To remove the peak and offpeak weekend monitoring configuration, use the **no** form of this command.

```
weekend peak-time1 hour duration minutes avg-rate rate [peak-time2 hour duration minutes
avg-rate rate] [duration offpeak-minutes avg-rate offpeak-rate] sample-interval minutes
{downstream | upstream}[enforce]
```

```
no weekend peak-time1 hour duration minutes avg-rate rate [peak-time2 hour duration minutes
avg-rate rate][duration offpeak-minutes avg-rate offpeak-rate] sample-interval minutes
{downstream | upstream}[enforce]
```

Syntax Description

hour	Specifies the time of day that monitoring occurs for the peak time. The range is from 0 to 23 using a 24-hour clock.
duration <i>minutes</i>	Specifies the size of the sliding window (in minutes) during which the subscriber usage is monitored for the first peak time, and optionally for a second peak time when used with the peak-time2 keyword. The valid range is 60 to 1440.
avg-rate <i>rate</i>	Specifies the average sampling rate in kilobytes per second for the specified duration. The valid range is 1 to 400000 with no default.
duration <i>offpeak-minutes</i>	(Optional) Specifies the size of the sliding window during which the subscriber usage is monitored for the remaining offpeak time (time not specified for peak monitoring). Valid range is 60 to 1440 minutes.
avg-rate <i>offpeak-rate</i>	Specifies the average sampling rate in kb/sec for the specified offpeak duration. The valid range is 1 to 400000 with no default.
peak-time2	(Optional) Specifies the time of day that monitoring occurs for a second peak time. The range is from 0 to 23 using a 24-hour clock.
sample-interval <i>minutes</i>	Specifies how often (in minutes) the CMTS router should sample a service flow to get an estimate of subscriber usage. The valid range is 1 to 30, with a default value of 15.
downstream	Specifies monitoring of traffic in the downstream direction.
upstream	Specifies monitoring of traffic in the upstream direction.
enforce	(Optional) Specifies that the enforce-rule QoS profile should be applied automatically if a user violates their registered QoS profile.

Command Default

Weekend monitoring is disabled. The only default value for the **weekend peak-time1** command is the 15-minute sample interval.

Command Modes

Enforce-rule configuration (enforce-rule)

Command History

Release	Modification
12.3(23)BC2	This command was introduced.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB. Support for the Cisco uBR7225VXR router was added.

Usage Guidelines

The **weekend peak-time1** command works similarly to the **peak-time1** command for subscriber traffic monitoring. Use the **weekend peak-time1** command when you want to configure different peak and offpeak monitoring parameters for subscribers on weekends.

This command can only be used when you have already configured the **duration** or **peak-time1** commands as weekday monitoring conditions for an enforce-rule.

Examples

The following example shows configuration of two peak monitoring windows on the weekend, with the first monitoring period beginning at 8:00 A.M. for one hour and the second monitoring period beginning at 8:00 P.M. for one hour, and monitoring at all other times of the weekend for 1-1/2 hours (90 minutes) for downstream traffic:

```
Router(enforce-rule)# weekend peak-time1 8 duration 60 avg-rate 10000 peak-time2 20
duration 60 avg-rate 100 duration 90 avg-rate 20000 sample-interval 20 downstream enforce
```

Related Commands

Command	Description
peak-time1	Specifies peak and offpeak monitoring times on a Cisco CMTS router.
weekend duration	Configures different subscriber monitoring options over weekends on a Cisco CMTS router.
weekend off	Disables peak and offpeak monitoring on weekends on a Cisco CMTS router.

■ weekend peak-time1