



## Cable Commands: i through p

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# identifier

To configure the MAC address of the RPD, use the **identifier** command in RPD configuration mode. To void the MAC address configuration, use the **no** form of this command.

**identifier** *mac\_address*

**no identifier**

<b>Syntax Description</b>	<i>mac_address</i> Specifies the MAC address of the RPD.
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<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	RPD configuration (config-rpd)
----------------------	--------------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** Use this command to configure the MAC address of the RPD.

The following example shows how to configure the MAC address of the RPD:

```
Router# configure terminal
Router(config)# cable rpd 1
Router(config-rpd)# identifier 0004.9f03.0214
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>cable rpd</b>	Enters the RPD configuration mode.

# init-tech-list

To set the DCC initialization techniques that the CMTS can use to load balancing cable modems, use the **init-tech-list** command in the config-lb-group configuration mode. To reset the DCC initialization techniques, use the **no** form of this command.

**init-tech-list** *group*list [**ucc**]  
**no init-tech-list**

## Syntax Description

<i>group</i> list	DCC initialization technique list.
<b>ucc</b>	(Optional) Determines whether Upstream Channel Change (UCC) can be used for modems during dynamic upstream load balancing.

## 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.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Examples

The following example shows how to set the DCC initialization techniques on a DOCSIS load balancing group on the CMTS, using the **init-tech-list** 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)# init-tech-list 1 ucc
Router(config-lb-group)#
```

## Related Commands

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

## init-tech-ovr

To set DCC initialization techniques that override the physical upstream channel pair, use the **init-tech-ovr** command in the config-lb-group configuration mode.

### Cisco uBR10012 Router

**init-tech-ovr cable** *slot/subslot/port upstream cable slot/subslot/port upstream* **init-tech-list** *init-tech-list* *0 -4* [**ucc**]

### Cisco uBR7225VXR and Cisco uBR7246VXR Routers

**init-tech-ovr cable** *slot/subslot/port upstream cable slot/subslot/port upstream* **init-tech-list** *init-tech-list* *0 -4* [**ucc**]

Syntax	Description
<b>cable</b> <i>slot/subslot/port upstream</i>	Specifies the CMTS interface slot, subslot, port number, and upstream parameters that are to be overridden. <ul style="list-style-type: none"> <li>• <i>slot</i>—Slot where the line card resides. The permitted range is from 5 to 8.</li> <li>• <i>subslot</i>—Subslot where the line card resides. The available slots are 0 or 1.</li> <li>• <i>port</i>—The downstream controller number on the line card. The permitted <i>port</i> range is from 0 to 4.</li> </ul>
<b>cable</b> <i>slot/subslot/port upstream</i>	Specifies the CMTS interface slot, subslot, port number, and upstream channel ID parameters that will override the CMTS interface and upstream channel.
<b>cable</b> <i>slot/port upstream</i>	Specifies the CMTS interface slot, port number, and upstream parameters that are to be overridden. <ul style="list-style-type: none"> <li>• <i>slot</i>—Slot where the line card resides.               <ul style="list-style-type: none"> <li>• Cisco uBR7225VXR router—The valid range is from 1 to 2.</li> <li>• Cisco uBR7246VXR router—The valid range is from 3 to 6.</li> </ul> </li> <li>• <i>port</i>—Downstream controller number on the line card. The permitted <i>port</i> values are 0 or 1.</li> </ul>
<b>cable</b> <i>slot/port upstream</i>	Specifies the CMTS interface slot, port number, and upstream parameters that will override the CMTS interface and upstream channel.
<b>init-tech-list</b> <i>0-4</i>	Specifies the DCC initialization technique list ranging from 0 to 4 for the upstream channel pair.
<b>ucc</b>	Determines whether Upstream Channel Change (UCC) can be used for modems during dynamic upstream load balancing.

**Command Default** None

**Command Modes** DOCSIS load balancing group mode (config-lb-group)

**Command History**

Release	Modification
12.2(33)SCC	This command was introduced.
IOS-XE 3.15.OS	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines**

The **init-tech-list** command accepts an upstream that is not added into the load balancing group. The upstream channel pair is invalid until the upstream is added. When the load balancing group is removed, all upstream channel pairs are also removed.

**Examples**

The following example shows how to set DCC initialization techniques that override the physical upstream channel pair to a DOCSIS load balancing group on the CMTS, using the **init-tech-ovr** 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)# init-tech-ovr cable
1/0 1 cable
1/1 2 1
```

**Related Commands**

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

# interface cable

To configure a cable interface, use the **interface cable** command in global configuration mode.

```
interface cable {slot/port slot/subslot/port}
```

**Cisco IOS Release 12.2(33)SCE and later**

```
interface cable {slot/cable-interface-index slot/subslot/cable-interface-index}
```

Syntax Description		
<i>slot</i>	Slot where the line card resides.	<ul style="list-style-type: none"> <li>• Cisco uBR7225VXR router—The valid value is 1 or 2.</li> <li>• Cisco uBR7246VXR router—The valid range is from 3 to 6.</li> <li>• Cisco uBR10012 router—The valid range is from 5 to 8.</li> <li>• Cisco cBR Series Converged Broadband Routers— The valid range is from 0 to 3 and from 6 to 9.</li> </ul>
<i>subslot</i>	(Cisco uBR10012 only) Secondary slot number of the cable interface line card. The valid subslots are 0 or 1.	For Cisco cBR Series Converged Broadband Routers, the valid value is 0.
<i>port</i>	Downstream port number.	<ul style="list-style-type: none"> <li>• Cisco uBR7225VXR router and Cisco uBR7246VXR router—The valid value is 0 or 1.</li> <li>• Cisco uBR10012 router—The valid range is from 0 to 4 (depending on the cable interface).</li> </ul>
<i>cable-interface-index</i>	Downstream port of the Cisco uBR10-MC5X20 and Cisco uBR-MC28 line cards, or MAC domain index of the Cisco uBR-MC20X20V and Cisco uBR-MC3GX60V line cards.	<p>Cisco uBR7225VXR and Cisco uBR7246VXR routers—The valid port value is 0 or 1.</p> <p>Cisco uBR10012 router—The valid range for the Cisco uBR-MC20X20V and Cisco uBR-MC5X20 line cards is from 0 to 4. The valid range for the Cisco uBR-MC3GX60V line card is from 0 to 14.</p> <p>Cisco cBR Series Converged Broadband Routers— The valid range is from 0 to 15.</p>

**Command Default** None

### Command Modes

Global configuration (config)

### Command History

Release	Modification
12.3(21)BC	This command was introduced.
12.3(23)BC	This command was integrated into Cisco IOS Release 12.3(23)BC.

Release	Modification
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB.
12.2(33)SCD	This command was modified to support Cisco uBR7225VXR and Cisco uBR7246VXR routers.
12.2(33)SCE	This command was modified. The port parameter was changed to cable-interface-index to indicate the MAC domain index for the Cisco uBR-MC20X20V and Cisco uBR-MC3GX60V cable interface line cards.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Examples

The following example shows how to configure a cable interface in slot 5, and port 0 on a Cisco uBR7246VXR or Cisco uBR7225VXR router:

```
Router# configure terminal
Router(config)# interface cable 5/0
```

The following example shows how to configure a cable interface in slot 8, subslot 0, and port 0 on a Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# interface cable 8/0/0
```

The following example shows how to configure a Cisco uBR-MC3GX60V cable interface line card in slot 5, subslot 0, and cable interface index 13 (MAC domain index) on a Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# interface cable 5/0/13
```

The following example shows how to configure a Cisco uBR-MC3GX60V cable interface line card in slot 1, subslot 0, and cable interface index 13 (MAC domain index) on a Cisco cBR Series Converged Broadband Routers:

```
Router# configure terminal
Router(config)# interface cable 1/0/13
```

### Related Commands

Command	Description
<b>interface integrated-cable</b>	Specifies a integrated cable interface.
<b>interface modular-cable</b>	Specifies a modular cable interface.
<b>interface wideband-cable</b>	Specifies a wideband cable interface.

# interface cable-modem

To enter interface configuration mode for the cable interface on a router, use the **interface cable-modem** command in global configuration mode.

**Cisco uBR904, uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter**  
**interface cable-modem** *number*

<b>Syntax Description</b>	<i>number</i> Identifies the cable interface (always <b>0</b> ).
---------------------------	--

<b>Command Default</b>	Disabled
------------------------	----------

<b>Command Modes</b>	Global configuration
----------------------	----------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.3(4)NA	This command was introduced for the Cisco uBR904 cable access router.
	12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
	12.1(3)XL	Support was added for the Cisco uBR905 cable access router.
	12.1(5)XU1	Support was added for the Cisco CVA122 Cable Voice Adapter.
	12.2(2)XA	Support was added for the Cisco uBR925 cable access router.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

<b>Usage Guidelines</b>	When this command is used, the router switches from global configuration mode to interface configuration mode.
-------------------------	--

<b>Examples</b>	The following example shows how to enter interface configuration mode for the router's cable interface and then to enter the available interface configuration commands:
-----------------	--

```
Router(
config)#
interface cable-modem
0
Router(config-if)# cable-modem ?
  compliant      Enter compliant modes for interface
  downstream     Downstream channel characteristics
  fast-search    Enable/disable the DS fast search
  upstream       upstream channel characteristics
  voip           Options for Voice over IP traffic over the cable interface
Router(config-if)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>cable-modem compliant bridge</b>	Enables DOCSIS-compliant bridging on the cable interface.

Command	Description
<b>cable-modem downstream saved channel</b>	Modifies the saved downstream channel setting and upstream power value on the cable interface.
<b>cable-modem upstream preamble qpsk</b>	Enables the QPSK modulation scheme in the upstream direction from the cable interface to the CMTS.
<b>cable-modem voip best-effort</b>	Allows voice traffic to be transmitted on the upstream using a best-effort QoS.

# interface integrated-cable

To configure integrated cable interface on a cable interface line card, use the **interface integrated-cable** command in global configuration mode.

## Cisco uBR10012 Universal Broadband Router

```
interface integrated-cable slot/subslot/port:rf-channel
```

## Cisco uBR7225VXR and Cisco uBR7246VXR Universal Broadband Router

```
interface integrated-cable slot/subslot/port:rf-channel
```

## Cisco cBR Series Converged Broadband Routers

```
interface integrated-cable slot/subslot/port:rf-channel
```

Syntax Description	
<i>slot</i>	Identifies the chassis slot where the cable interface line card resides. <ul style="list-style-type: none"> <li>• Cisco uBR10012 router—The valid range is from 5 to 8.</li> <li>• Cisco uBR7225VXR router—The valid value is 1 or 2.</li> <li>• Cisco uBR7246VXR router—The valid range is from 3 to 6.</li> <li>• Cisco cBR Series Converged Broadband Routers— The valid range is from 0 to 3 and 6 to 9.</li> </ul>
<i>subslot</i>	(Cisco uBR10012 only) Secondary slot number of the cable interface line card. The valid subslots are 0 or 1.  For Cisco cBR Series Converged Broadband Routers, the valid subslot is 0.
<i>port</i>	Downstream port number. <ul style="list-style-type: none"> <li>• Cisco uBR7225VXR router and Cisco uBR7246VXR router—The valid value is 0 or 1.</li> <li>• Cisco uBR10012 router—The valid range is from 0 to 4.</li> <li>• Cisco cBR Series Converged Broadband Routers— The valid range is from 0 to 7.</li> </ul>
<i>rf-channel</i>	RF channel number. The valid range is from 0 to 162.

**Command Default** None

**Command Modes** Global configuration (config)

Command History	Release	Modification
	12.2(33)SCC	This command was introduced.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.
	IOS-XE 3.18.0SP	This command was modified on the Cisco cBR Series Converged Broadband Routers. The <i>rf-channel</i> range is 0 to 162 now.

**Usage Guidelines** The **interface integrated-cable** command is used to configure the following line cards:

- [Configuring the Cisco UBR-MC20X20V Cable Interface Line Card](#)
- [Configuring the Cisco uBR-MC88V Cable Interface Line Card](#)

The **interface integrated-cable** command is supported on Cisco cBR Converged Broadband Routers and also on Cisco uBR-MC88V and Cisco UBR-MC20X20V line cards.

### Examples

The following example shows how to configure a integrated cable interface in slot 7, subslot 0, and port 0 on a Cisco UBR-MC20X20V cable interface line card:

```
Router# configure terminal
Router(config)# interface integrated-cable 7/0/0:1
```

### Related Commands

Command	Description
<b>show interface integrated-cable</b>	Displays the current configuration and status for an integrated channel.

# interface modular-cable

To configure a modular cable interface, use the **interface modular-cable** command in global configuration mode.

**Cisco IOS Releases 2.3(21)BC, 12.3(23)BC, and 12.2(33)SCA**

**interface modular-cable***slot/subslot/bay:nb-channel-number*

**Cisco IOS Release 12.2(33)SCB**

**interface modular-cable***slot/subslot/bay:nb-channel-number*

**Cisco IOS Release 12.2(33)SCE**

**interface modular-cable***slot/subslot/bay:nb-channel-number*

Syntax Description	
<i>slot</i>	<p>Identifies the chassis slot where the Cisco Cable line card, or Cisco Wideband Shared Port Adaptor (SPA) is located.</p> <ul style="list-style-type: none"> <li>For the Cisco Cable line cards, the valid range is from 5 to 8.</li> <li>For the Cisco Wideband SPA, the valid values are: <ul style="list-style-type: none"> <li><i>slot</i>—1 or 3 (for SIP-600)</li> <li><i>slot</i>—1 (for Wideband SIP)</li> </ul> </li> </ul> <p><b>Note</b> In Cisco IOS Release 12.2(33)SCE, support for configuring modular-cable interface on the Cisco uBR-MC3GX60V cable line card is introduced.</p>
<i>subslot</i>	<p>Identifies the subslot where the Cisco Cable line card is located.</p> <ul style="list-style-type: none"> <li>For the Cisco Cable line cards, the valid value is 0 or 1.</li> </ul> <p><b>Note</b> In Cisco IOS Release 12.2(33)SCE, support for configuring modular-cable interface on the Cisco uBR-MC3GX60V cable line card is introduced.</p>
<i>bay</i>	<p>Identifies the bay where the Cisco Wideband SPA is located.</p> <p>The valid range is from 0 to 3.</p>
<i>port</i>	<p>Identifies the port on the Cisco Cable line card, or the Cisco Wideband SPA in the specified <i>slot/subslot</i> or <i>slot/bay</i>.</p> <ul style="list-style-type: none"> <li>For the Cisco UBR-MC20X20V cable interface line card, the valid range for is from 0 to 5.</li> <li>For the Cisco uBR-MC3GX60V cable interface line card, the valid range is from 0 to 2.</li> <li>For the Cisco Wideband SPA, the valid value is 0.</li> </ul>
<i>nb-channel-number</i>	Identifies the narrowband channel number.
<i>interface-number</i>	Identifies the modular-cable interface number. The valid range is from 0 to 23.

**Command Default** None

**Command Modes**

Global configuration (config)

**Command History**

Release	Modification
12.3(21)BC	This command was introduced.
12.3(23)BC	This command was integrated into Cisco IOS Release 12.3(23)BC.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.
12.2(33)SCB	This command was modified to change the addressing format for the modular cable interface from <i>slot/subslot/bay:nb-channel-number</i> to <i>slot/bay/port:nb-channel-number</i> .
12.2(33)SCE	Support for configuring modular-cable interface on the Cisco uBR-MC3GX60V cable line card was introduced.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

**Examples**

The following example shows how to configure a modular cable interface in slot 1, bay 3, and channel 23 on a Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# interface modular-cable 1/3/0:23
```

The following example shows how to configure a modular cable interface in slot 5, subslot 1, and port 2 on a Cisco uBR-MC3GX60V cable line card.

```
Router# configure terminal
Router(config)# interface modular-cable 5/1/2:0
```

**Related Commands**

Command	Description
<b>cable attribute-mask</b>	Specifies an attribute mask value for a modular cable interface.
<b>interface wideband-cable</b>	Specifies a wideband cable interface.
<b>interface cable</b>	Specifies a cable interface.

# interface port-channel

To create an EtherChannel interface on the Cisco Cable Modem Termination System (CMTS), use the **interface port-channel** command in global configuration mode. To remove this EtherChannel port from the Cisco CMTS, use the **no** form of this command.

```
interface port-channel n
no interface port-channel n
```

## Syntax Description

<i>number</i>	Identifying port channel number for this interface (EtherChannel port). The range is 1 to 64.
---------------	---

## Command Default

By default, EtherChannel groups and ports are not defined, and they are disabled.

## Command Modes

Global configuration (config)

## Command History

Release	Modification
12.2(11)BC3	This command was introduced on the Cisco uBR7246VXR router.
12.2(9a)BC	This command was introduced on the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

The first EtherChannel interface configured becomes the bundle primary for all EtherChannel interfaces in the group. That is, the MAC address of the first EtherChannel interface is the MAC address for all EtherChannel interfaces in the group. If the first EtherChannel interface is later removed, the second EtherChannel interface to be configured becomes the bundled primary by default.

Repeat this configuration on every EtherChannel port to be bundled into:

- FastEtherChannel (FEC) or GigabitEtherChannel (GEC) group on the Cisco uBR10012 and Cisco uBR7200 series routers.
- Ten Gigabit EtherChannel (Ten GEC) group on the Cisco cBR series routers.

This configuration must be present on all EtherChannel interfaces before the EtherChannel group can be configured.

## Examples

The following example configures the port to have an EtherChannel port number of 1 within its EtherChannel group. The EtherChannel group is defined with the **channel-group** command.

```
Router(config-if)# interface port-channel 1
```

## Related Commands

Command	Description
<b>channel-group</b>	Assigns an EtherChannel port to an EtherChannel group.

Command	Description
<b>show interface port-channel</b>	Displays the EtherChannel interfaces and channel identifiers, with their mode and operational status.

# interface virtualportgroup

To configure a VirtualPortGroup interface, use the **interface** command in the global configuration mode. To delete the VirtualPortGroup created, use the **no** form of the command.

```
interface virtualportgroup number
no interface virtualportgroup number
```

## Syntax Description

*number* Specifies the Virtual Port Group number. Valid range is 0 to 31.

## Command Default

None.

## Command Modes

Global configuration mode (config)

## Command History

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

## Usage Guidelines

This command is used to configure a VirtualPortGroup interface. If a VirtualPortGroup interface is configured, you will need to assign a primary IP address to it. You can also configure a secondary IP address on the VirtualPortGroup interface, similar to a gigabit Ethernet interface IP address configuration. You can assign only one secondary IP address.

The following example shows how to configure a VirtualPortGroup interface:

```
Router#configure terminal
Router(config)#interface VirtualPortGroup0
Router(config-if)#ip address 1.23.2.1 255.255.255.0
Router(config-if)#ip address 1.23.2.2 255.255.255.0 secondary
Router(config-if)#end
```

## Related Commands

Command	Description
<b>mgmt-intf</b>	Define a cable video management interface.
<b>show run interface VirtualPortGroup</b>	Displays the VirtualPortGroup interface configuration.
<b>show run   include mgmt-intf</b>	Displays the cable video management interface configuration.
<b>show interfaces VirtualPortGroup</b>	Displays the VirtualPortGroup interface state.

# interface wideband-cable

To configure a wideband cable interface, use the **interface wideband-cable** command in global configuration mode.

## Cisco uBR10012 Universal Broadband Router

Cisco IOS Releases 12.3(21)BC, 12.3(23)BC, and 12.2(33)SCA  
**interface wideband-cable** *slot/subslot/bay:wideband-channel*

Cisco IOS Releases 12.3(21)BC, 12.3(23)BC, and 12.2(33)SCB  
**interface wideband-cable** *slot/bay/port:wideband-channel*

Cisco IOS Releases 12.3(21)BC, 12.3(23)BC, and 12.2(33)SCC  
**interface wideband-cable** *slot / {subslotbay} / port:wideband-channel*

Cisco IOS Releases 12.3(21)BC, 12.3(23)BC, and 12.2(33)SCE  
**interface wideband-cable** *slot / subslot / controller:wideband-channel*

## Cisco uBR7225VXR and Cisco uBR7246VXR Universal Broadband Routers

Cisco IOS Releases 12.3(21)BC, 12.3(23)BC, and 12.2(33)SCD  
**interface wideband-cable** *slot / / port:wideband-channel*

Cisco cBR Series Converged Broadband Routers  
**interface wideband-cable** *slot / subslot / controller:wideband-channel*

### Syntax Description

<i>slot</i>	<p>The slot where a SIP or cable line card resides.</p> <ul style="list-style-type: none"> <li>• Cisco uBR7246VXR router—The valid range is from 3 to 6.</li> <li>• Cisco uBR7225VXR router—The valid range is from 1 to 2.</li> <li>• Cisco uBR10012 router—The valid range for: <ul style="list-style-type: none"> <li>• Cable line card is from 5 to 8</li> <li>• SIP is 1 and 3</li> </ul> </li> <li>• Cisco cBR Series Converged Broadband Routers— The valid range is from 0 to 3 and 6 to 9.</li> </ul>
<i>subslot</i>	<p>The subslot where a SIP or cable line card resides.</p> <ul style="list-style-type: none"> <li>• Cisco uBR10012 router—The valid value for: <ul style="list-style-type: none"> <li>• Cable line card in slot 5 to 8 is 0 or 1</li> <li>• SPAs in a SIP in slot 1 or 3, prior to Cisco IOS Release 12.2(33)SCB is 0 or 1. For Cisco IOS Release 12.2(33)SCB and later, subslot is not specified.</li> </ul> </li> <li>• For Cisco cBR Series Converged Broadband Routers, the valid subslot is 0.</li> </ul>
<i>bay</i>	<p>The bay in a SIP where a SPA is located. The valid range is from 0 to 3.</p>

<i>controller</i>	Controller index for the modular cable. The valid range is from 0 to 2. For Cisco cBR Series Converged Broadband Routers, the valid range is from 0 to 7.
<i>port</i>	Specifies the port number. <ul style="list-style-type: none"> <li>• Cisco uBR7246VXR router and Cisco uBR7225VXR router—The valid range is from 0 to 1.</li> <li>• Cisco uBR10012 router—The valid value for: <ul style="list-style-type: none"> <li>• Slot 1 and 3 is 0</li> <li>• Slot 5 to 8 is from 0 to 4</li> </ul> </li> </ul>
<i>wideband-channel</i>	Represents the wideband channel number. <ul style="list-style-type: none"> <li>• Cisco uBR10012 router—The valid range for: <ul style="list-style-type: none"> <li>• Cisco UBR-MC20X20V cable interface line card is from 0 to 5.</li> <li>• Cisco uBR-MC3GX60V cable interface line card and SPAs is from 0 to 31.</li> </ul> </li> <li>• Cisco uBR7246VXR and Cisco uBR7225VXR routers—The valid range is from 0 to 5.</li> <li>• Cisco cBR Series Converged Broadband Routers—The valid range is from 0 to 162.</li> </ul>

**Command Default**

None

**Command Modes**

Global configuration (config)

**Command History**

Release	Modification
12.3(21)BC	This command was introduced.
12.3(23)BC	This command was integrated into Cisco IOS Release 12.3(23)BC.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.
12.2(33)SCB	This command was modified to change the addressing format for the wideband cable interface from <i>slot/subslot/bay:wideband-channel</i> to <i>slot/bay/port:wideband-channel</i> .
12.2(33)SCD	This command was modified. Support was added for Cisco uBR7225VXR and Cisco uBR7246VXR routers.
12.2(33)SCE	Support was added for Cisco uBR-MC3GX60V cable interface line card on the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command was integrated into Cisco IOS-XE Release 3.15.0S. Support for the Cisco cBR Series Converged Broadband Routers was added.
IOS-XE 3.18.0SP	This command was modified on Cisco cBR Series Converged Broadband Routers. The <i>wideband-channel</i> range is 0 to 162 now.

## Examples

The following example shows how to configure a wideband cable interface in slot 1, bay 3, and port 0 on a Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# interface wideband-cable 1/3/0:0
```

The following example shows how to configure a wideband cable interface in slot 5, subslot 1, and port 2 on a Cisco uBR-MC3GX60V cable line card.

```
Router# configure terminal
Router(config)# interface wideband-cable 5/1/2:0
```

The following example shows how to configure a wideband cable interface in slot 1, and port 0 on a Cisco uBR7225VXR or Cisco uBR7246VXR router:

```
Router# configure terminal
Router(config)# interface wideband-cable 1/0:0
```

## Related Commands

Command	Description
<b>cable downstream attribute-mask</b>	Specifies an attribute mask value for a wideband cable interface.
<b>cable rf-channels</b>	Associates RF channels on the router with a wideband interface and allocate bandwidth.
<b>cable bundle</b>	Specifies bundle number for bundling of cable interfaces.
<b>interface modular-cable</b>	Specifies a modular cable interface.
<b>interface cable</b>	Specifies a cable interface.

## interleaver-depth (QAM profile)

To set the interleaver-depth for a specific QAM profile, use the **interleaver-depth** command in QAM profile configuration mode.

**interleaver-depth** {**I12-J17** | **I128-J1** | **I128-J2** | **I128-J3** | **I128-J4** | **I128-J5** | **I128-J6** | **I128-J7** | **I128-J8** | **I16-J8** | **I32-J4** | **I64-J2** | **I8-J16**}

Syntax Description	
<b>I12-J17</b>	INTERLEAVER-I-12-J-17 for Annex A or C
<b>I128-J1</b>	INTERLEAVER-I-128-J-1 for Annex B
<b>I128-J2</b>	INTERLEAVER-I-128-J-2 for Annex B
<b>I128-J3</b>	INTERLEAVER-I-128-J-3 for Annex B
<b>I128-J4</b>	INTERLEAVER-I-128-J-4 for Annex B
<b>I128-J5</b>	INTERLEAVER-I-128-J-5 for Annex B
<b>I128-J6</b>	INTERLEAVER-I-128-J-6 for Annex B
<b>I128-J7</b>	INTERLEAVER-I-128-J-7 for Annex B
<b>I128-J8</b>	INTERLEAVER-I-128-J-8 for Annex B
<b>I16-J8</b>	INTERLEAVER-I-16-J-8 for Annex B
<b>I32-J4</b>	INTERLEAVER-I-32-J-4 for Annex B
<b>I64-J2</b>	INTERLEAVER-I-64-J-2 for Annex B
<b>I8-J16</b>	INTERLEAVER-I-8-J-16 for Annex B

**Command Default** None

**Command Modes** QAM profile configuration (config-qam-prof)

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

**Usage Guidelines** Use this command to set the interleaver-depth for a specific QAM profile.

**Examples** The following example shows how to set the interleaver-depth for a specific QAM profile:

```
Router# configure terminal
```

```
Router(config)# cable downstream qam-profile 4  
Router(config-qam-prof)# interleaver-depth I12-J17
```

**Related Commands**

Command	Description
<b>cable downstream qam-profile</b>	Set the QAM profile for the cable interface line card.
<b>annex</b>	Set the MPEG framing format.
<b>modulation</b>	Set the QAM modulation format.
<b>spectrum-inversion</b>	Set the spectrum-inversion on or off.
<b>symbol-rate</b>	Set the symbol rate.

## interleaver-depth (OFDM channel profile)

To specify the channel interleaver-depth, use the **interleaver-depth** command in OFDM channel profile configuration mode. To undo the interleaver-depth assignment, use **no** form of this command.

**interleaver-depth** *value*

**no interleaver-depth**

<b>Syntax Description</b>	<i>value</i> 1 to 16 for 25 KHz spacing, 1 to 32 for 50 KHz spacing.
---------------------------	--

<b>Command Default</b>	16
------------------------	----

<b>Command Modes</b>	OFDM channel profile configuration (config-ofdm-chan-prof)
----------------------	--

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	IOS-XE 3.18.0SP	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** Use this command to specify the channel interleaver-depth.

**Examples** The following example shows how to specify the channel interleaver-depth:

```
Router# configure terminal
Router(config)# cable downstream ofdm-chan-profile 21
Router(config-ofdm-chan-prof)# interleaver-depth 3
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>cable downstream ofdm-chan-profile</b>	Define the OFDM channel profile on the OFDM channel.
	<b>cyclic-prefix</b>	Specify the channel cyclic-prefix.
	<b>description (OFDM channel profile)</b>	Specify a user defined description for the profile.
	<b>pilot-scaling</b>	Specify the value used to calculate the number of continuous pilots.
	<b>profile-control</b>	Specify default modulation or profile as the channel control profile.
	<b>profile-data</b>	Specify default modulation or profile as the channel data profile.
	<b>profile-ncp</b>	Specify default modulation or profile as the channel ncp profile.
	<b>roll-off</b>	Specify the channel roll-off value.
	<b>subcarrier-spacing</b>	Specify the spacing for specific subcarriers configured in this profile.

# interval

To set the duration of time the CMTS waits before checking the load on an interface, use the **interval** command in the load balancing group configuration mode. To reset the duration of time, use the **no** form of this command.

**interval** *seconds*  
**no interval**

## Syntax Description

<i>seconds</i>	The polling interval for the CMTS to determine the current load on each cable interface. The valid range is from 1 to 1000. The default value is 10 seconds in Cisco IOS Release 12.2(33)SCE and earlier. The default value is 30 seconds in Cisco IOS Release 12.2(33)SCE1 and later.
----------------	--

## Command Default

None

## Command Modes

Load balancing group configuration (config-lb-group)

## Command History

Release	Modification
12.2(33)SCC	This command was introduced.
12.2(33)SCE1	This command was modified. The default value for this <b>command</b> was changed from 10 seconds to 30 seconds.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Examples

The following example shows how to set the duration of time that the CMTS waits before checking the load on the interface, using the **interval** 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)# interval
50
Router(config-lb-group)#
```

## Related Commands

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

## ip (virtual-arpd)

To configure the virtual advanced return path demodulator (ARPD) source IP address, use the **ip** command in OOB virtual ARPD configuration mode. To void the virtual ARPD source IP configuration, use the **no** form of this command.

**ip** *ip subnet\_mask* [*vrf*]

**no ip** *ip*

Syntax Description		
	<i>ip</i>	Specifies the virtual ARPD source IP address.
	<i>subnet_mask</i>	Specifies the virtual ARPD source subnet mask.

**Command Default** None

**Command Modes** OOB Virtual ARPD configuration (config-oob-varpd)

Command History	Release	Modification
	Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** Use this command to configure the virtual ARPD source IP address.

**Examples** The following example shows how to configure the virtual ARPD source IP address:

```
Router# configure terminal
Router(config)# cable oob
Router(config-oob)# virtual-arpd 1
Router(config-oob-varpd)# ip 225.225.225.225 255.255.255.0
```

Related Commands	Command	Description
	<b>virtual-arpd</b>	Defines a virtual ARPD configuration.
	<b>nc</b>	Configures the network controller for virtual ARPD.
	<b>source-id</b>	Configures the source ID for virtual ARPD.

## ip (virtual-om)

To configure the virtual OOB modulator (OM) source IP address, use the **ip** command in OOB virtual OM configuration mode. To void the virtual OM source IP configuration, use the **no** form of this command.

**ip** *ip subnet\_mask* [**vrf**]

**no ip** *ip*

Syntax Description		
	<i>ip</i>	Specifies the virtual OM source IP address.
	<i>subnet_mask</i>	Specifies the virtual OM source subnet mask.

**Command Default** None

**Command Modes** OOB Virtual OM configuration (config-oob-vom)

Command History	Release	Modification
	Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** Use this command to configure the virtual OM source IP address.

**Examples** The following example shows how to configure the virtual OM source IP address:

```
Router# configure terminal
Router(config)# cable oob
Router(config-oob)# virtual-om 1
Router(config-oob-vom)# ip 225.225.225.225 255.255.255.0
```

Related Commands	Command	Description
	<b>virtual-om</b>	Defines a virtual OM configuration.
	<b>join-group</b>	Joins multicast group address.

# ip address

To specify the IP address range for multicast pool, use the **ip address** command in multicast pool configuration mode. To void the IP address configuration, use the **no** form of this command.

**ip address** *ip mask*

**no ip address**

## Syntax Description

*ip mask* Specifies the IP address and subnet mask for the DEPI multicast pool.

## Command Default

None

## Command Modes

Multicast pool configuration (config-multicast-pool)

## Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

Use this command to specify the IP address range for multicast pool.

The following example shows how to specify the IP address range for multicast pool:

```
Router# configure terminal
Router(config)# cable depi multicast pool 1
Router(config-multicast-pool)# ip address 225.225.225.0 255.255.255.0
```

## Related Commands

Command	Description
<b>cable depi multicast pool</b>	Configures the DEPI multicast pool.

## ip address docsis

To specify that the cable access router should use the DHCP protocol, as required by the DOCSIS specification, to assign an IP address for its cable interface, use the **ip address docsis** command in cable interface configuration mode. To disable the use of DHCP, use the **no** form of this command.

**Cisco uBR905, uBR924, uBR925 cable access routers, Cisco CVA122 Cable Voice Adapter**  
**ip address docsis**  
**no ip address docsis**

### Syntax Description

There are no key words or arguments for this command.

### Command Default

The cable access router uses the DHCP protocol, as required by the DOCSIS specification, to assign an IP address to its cable interface during system power-on.

### Command Modes

Interface configuration (cable interface only)

### Command History

Release	Modification
12.1(3)XL	This command was introduced for the Cisco uBR905 cable access router.
12.1(4)T	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 cable access router.
12.1(5)XU1	Support was added for the Cisco CVA122 Cable Voice Adapter.
12.2(2)XA	Support was added for the Cisco uBR925 cable access router.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

The **ip address docsis** command configures the cable access router so that it obtains its IP address from a DHCP server at system power-on, which is a requirement for DOCSIS operation. This is the default mode of operation. If the configuration for the cable interface does not include any form of **ip address** command, the cable access router defaults to configuring the cable interface with the **ip address docsis** command.

Configuring the cable interface with any other form of the **ip address** command or with the **no ip address docsis** command prevents the cable access router from operating in DOCSIS networks. This mode of operation should be used only in lab or test networks.



**Note** Earlier Cisco IOS software releases for the cable access routers used either the **ip address negotiated** or the **ip address dhcp** command to specify that the cable interface should obtain its IP address from a DHCP server. These commands should no longer be used to configure the router's cable interface.

### Examples

The following example shows how to configure the cable access router so that it obtains the IP address for its cable interface from a DHCP server:

```
Router(config)# interface cable-modem 0
Router(config-if)# ip address docsis
Router(config-if)# exit
Router(config)#
```

**Related Commands**

Command	Description
<b>cable-modem dhcp-proxy</b>	Specifies that a DHCP server should provide the IP address for the router's Ethernet interface or for a NAT address pool.
<b>ip http dhcp</b>	Specifies the use of the DHCP protocol to obtain an IP address for any interface except the cable interface at system power-on.
<b>ip http negotiated</b>	Specifies that a serial interface should use the PPP/PCP to obtain an IP address at system power-on

## ip-address (controller)

To set the IP address of the Wideband SPA FPGA, use the **ip-address (controller)** command in controller configuration mode. To remove the IP address of the Wideband SPA FPGA, use the **no** form of this command.

**ip-address** *ip-address*  
**no ip-address** *ip-address*

### Syntax Description

<i>ip-address</i>	IP address for the Wideband SPA FPGA.
-------------------	---------------------------------------

### Command Default

No IP address is set for the Wideband SPA FPGA.

### Command Modes

Controller configuration (config-controller)

### 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.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

Use this command to set the IP address for the Wideband SPA FPGA. This address is used as the source IP address for packets that the Wideband SPA transmits to the EQAM device.

### Examples

The following example shows how to set the IP address of the Wideband SPA FPGA. The SPA is located in slot 1, subslot 0, bay 0.

```
Router(config)# controller modular-cable 1/0/0
Router(config-controller)# ip-address 192.168.200.6
```

### Related Commands

Command	Description
<b>annex modulation</b>	Sets the annex and modulation for the Wideband SPA.
<b>cable rf-channel</b>	Associates an RF channel on a Wideband SPA with a wideband channel.
<b>controller modular-cable</b>	Enters controller configuration mode to configure the Wideband SPA controller.
<b>modular-host subslot</b>	Specifies the modular-host line card.
<b>rf-channel frequency</b>	Sets the frequency for each RF channel.
<b>rf-channel ip-address mac-address udp-port</b>	Sets the IP address, MAC address and UDP port for each RF channel.

<b>Command</b>	<b>Description</b>
<b>rf-channel network delay</b>	Specifies the CIN delay for each RF channel.
<b>rf-channel description</b>	Specifies the description for each RF channel.
<b>rf-channel cable downstream channel-id</b>	Assigns a downstream channel ID to an RF channel.

# ip dhcp ping packet 0

To instruct the DHCP server to assign an IP address from its pool without first sending an ICMP ping to test whether a client is already currently using that IP address, use the **ip dhcp ping packet 0** command in global configuration mode. Use the no form of this command to remove this configuration.

**ip dhcp ping packet 0**

**no ip dhcp ping packet 0**

## Syntax Description

This command has no additional keywords or arguments.

## Command Default

By default, the DHCP server pings a pool address twice before assigning a particular address to a requesting client. If the ping is unanswered, the DHCP server assumes that the address is not in use and assigns the address to the requesting client.

## Command Modes

Global configuration

## Command History

Release	Modification
12.1 EC	Command support introduced on the Cisco CMTS.

## Usage Guidelines

Disabling the ping option can speed up address assignment when a large number of modems are trying to connect at the same time. However, disabling the ping option can also result in duplicate IP addresses being assigned if users assign unauthorized static IP addresses to their CPE devices.

For additional information about DHCP configuration on the Cisco CMTS, refer to the following documents on Cisco.com:

- *Filtering Cable DHCP Lease Queries on the Cisco CMTS*
- *DHCP and Time-of-Day Services on the Cisco CMTS*

## Examples

The following example of the show version command illustrates configuration of this feature on the Cisco CMTS:

```

version 12.1
no service pad
! provides nice timestamps on all log messages
service timestamps debug datetime msec localtime
service timestamps log uptime
! turn service password-encryption on to encrypt passwords
no service password-encryption
! provides additional space for longer configuration file
service compress-config
! supports a large number of modems / hosts attaching quickly
service udp-small-servers max-servers no-limit
!
hostname Router
!
boot system disk0:
!
```

```

no cable qos permission create
no cable qos permission update
cable qos permission modems
! permits cable modems to obtain Time of Day (TOD) from uBR7100
cable time-server
!
! High performance DOCSIS config file, additional options may be added
! 10 Mbit/sec download, 128 Kbit/sec upload speed, 10 Kbit/sec guaranteed upstream
! NOTE: cable upstream 0 admission-control 150 will prevent modems from
! connecting after 150% of guaranteed-bandwidth has been allocated to
! registered modems. This can be used for peek load balancing.
! max-burst 1600 prevents a modem with concatenation turned on from consuming
! too much wire time, and interfering with VoIP traffic.
! cpe max 8 limits the modem to 8 hosts connected before the CMTS refuses
! additional host MAC addresses.
! Timestamp option makes the config file only valid for a short period of time.
!
cable config-file platinum.cm
  service-class 1 max-upstream 128
  service-class 1 guaranteed-upstream 10
  service-class 1 max-downstream 10000
  service-class 1 max-burst 1600
  cpe max 8
  timestamp
!
! Medium performance DOCSIS config file, additional options may be added
! 5 Mbit/sec download, 128 Kbit/sec upload speed
!
cable config-file gold.cm
  service-class 1 max-upstream 64
  service-class 1 max-downstream 5000
  service-class 1 max-burst 1600
  cpe max 3
  timestamp
!
! Low performance DOCSIS config file, additional options may be added
! 1 Mbit/sec download, 64 Kbit/sec upload speed
!
cable config-file silver.cm
  service-class 1 max-upstream 64
  service-class 1 max-downstream 1000
  service-class 1 max-burst 1600
  cpe max 1
  timestamp
!
! No Access DOCSIS config file, used to correctly shut down an unused cable modem
! 1 kbit/sec download, 1 Kbit/sec upload speed, with USB/ethernet port shut down.
!
cable config-file disable.cm
  access-denied
  service-class 1 max-upstream 1
  service-class 1 max-downstream 1
  service-class 1 max-burst 1600
  cpe max 1
  timestamp
!
ip subnet-zero
! Turn on cef switching / routing, anything but process switching (no ip route-cache)
ip cef
ip cef accounting per-prefix
! Disables the finger server
no ip finger
! Prevents CMTS from looking up domain names / attempting to connect to
! machines when mistyping commands

```

```
no ip domain-lookup
! Prevents issuance of IP address that is already in use.
ip dhcp ping packets 0
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>cable dhcp-giaddr policy</b>	Sets the DHCP <i>giaddr</i> field of DHCP request packets to the primary address for cable modems and the secondary address for CPE devices, allowing the use of separate address pools for the different clients.
<b>cable dhcp-parse option</b>	Enables the parsing of certain DHCP options.
<b>cable helper-address</b>	Enables load-balancing of DHCP requests from cable modems and CPE devices by specifying different DHCP servers according to the cable interface or subinterface.
<b>ip dhcp ping packet 0</b>	Instructs the DHCP server to assign an IP address from its pool without first sending an ICMP ping to test whether a client is already currently using that IP address.
<b>ip dhcp relay information option</b>	Configures the DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.
<b>ip dhcp smart-relay</b>	Enables the DHCP relay agent on the CMTS to automatically switch a cable modem or CPE device to a secondary DHCP server or address pool if the primary DHCP server does not respond to three successive requests.

# ip dhcp pool

To create a DHCP address pool and enter DHCP pool configuration file mode, use the **ip dhcp pool** command in global configuration mode. To remove a configured DHCP pool, use the **no** form of this command.

## Syntax Description

Provide a name for the DHCP address pool

<i>name</i>	The <i>name</i> can be either an arbitrary string, such as <i>service</i> , or a number, such as <b>1</b> .
-------------	---

## Command Default

DHCP pool names are not configured by default.

## Command Modes

Global configuration

## Command History

Release	Modification
12.1 EC	Command support introduced on the Cisco CMTS.

## Usage Guidelines

Disabling the ping option can speed up address assignment when a large number of modems are trying to connect at the same time. However, disabling the ping option can also result in duplicate IP addresses being assigned if users assign unauthorized static IP addresses to their CPE devices.

For additional information about DHCP configuration on the Cisco CMTS, refer to the following documents on Cisco.com:

- <http://www.cisco.com/en/us/docs/cable/cmts/feature/cblsrcvy.html> Filtering Cable DHCP Lease Queries on the Cisco CMTS
- [http://www.cisco.com/en/US/docs/ios/cable/configuration/guide/cmts\\_services.html](http://www.cisco.com/en/US/docs/ios/cable/configuration/guide/cmts_services.html) *DHCP and Time-of-Day Services on the Cisco CMTS*

## Examples

The following example configures a DHCP pool with the name indicated, and enables additional configuration in the DHCP pool configuration mode:

```
Router# configure terminal
Router(config)# ip dhcp pool local
Router(dhcp-config)#
```

The following examples illustrate additional configurations that are typical for a DHCP pool configured when starting with the **ip dhcp pool** command, or with additional DHCP configuration commands.

```
ip dhcp pool cm-platinum
network 10.128.4.0 255.255.255.0
bootfile platinum.cm
next-server 10.128.4.1
default-router 10.128.4.1
option 2 hex ffff.8f80
option 4 ip 10.1.4.1
option 7 ip 10.1.4.1
lease 7 0 10
!
ip dhcp pool cm-gold
```

```

network 10.129.4.0 255.255.255.0
bootfile gold.cm
next-server 10.129.4.1
default-router 10.129.4.1
option 2 hex ffff.8f80
option 4 ip 10.1.4.1
option 7 ip 10.1.4.1
lease 7 0 10
!
ip dhcp pool cm-silver
network 10.130.4.0 255.255.255.0
bootfile silver.cm
next-server 10.130.4.1
default-router 10.130.4.1
option 2 hex ffff.8f80
option 4 ip 10.1.4.1
option 7 ip 10.1.4.1
lease 7 0 10
!
ip dhcp pool DisabledModem(0010.aaaa.0001)
host 10.128.1.9 255.255.255.0
client-identifier 0100.10aa.aa00.01
bootfile disable.cm
!
ip dhcp pool DisabledModem(0020.bbbb.0002)
host 10.128.1.10 255.255.255.0
client-identifier 0100.20bb.bb00.02
bootfile disable.cm
!
ip dhcp pool DisabledModem(1010.9581.7f66)
host 10.128.1.11 255.255.255.0
client-identifier 0100.1095.817f.66
bootfile disable.cm
!
ip dhcp pool hosts
network 10.254.1.0 255.255.255.0
default-router 10.254.1.1
dns-server 10.254.1.1 10.128.1.1
domain-name ExamplesDomainName.com
lease 7 0 10
!

```

**Related Commands**

Command	Description
<b>cable dhcp-giaddr policy</b>	Sets the DHCP <i>giaddr</i> field of DHCP request packets to the primary address for cable modems and the secondary address for CPE devices, allowing the use of separate address pools for the different clients.
<b>cable dhcp-parse option</b>	Enables the parsing of certain DHCP options.
<b>cable helper-address</b>	Enables load-balancing of DHCP requests from cable modems and CPE devices by specifying different DHCP servers according to the cable interface or subinterface.
<b>ip dhcp ping packet 0</b>	Instructs the DHCP server to assign an IP address from its pool without first sending an ICMP ping to test whether a client is already currently using that IP address.
<b>ip dhcp relay information option</b>	Configures the DHCP server to validate the relay agent information option in forwarded BOOTREPLY messages.

Command	Description
<b>ip dhcp smart-relay</b>	Enables the DHCP relay agent on the CMTS to automatically switch a cable modem or CPE device to a secondary DHCP server or address pool if the primary DHCP server does not respond to three successive requests.

# ipdr associate

To associate the Collector with a session, use the **ipdr associate** command in global configuration mode. To remove the association, use the **no** form of this command.

**ipdr associate** *session\_id collector\_name priority*  
**no ipdr associate** *session\_id collector\_name*

## Syntax Description

<i>session_id</i>	The unique IPDR session ID.
<i>collector_name</i>	The collector name. The name should not contain extra spaces.
<i>priority</i>	The priority value between the session and the collector. The value range is 1 to 10. A value of 1 indicates that the highest priority.

## Command Default

An association with the session will not be created.

## Command Modes

Global configuration mode

## Command History

Release	Modification
12.2(33)SCB	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command allows the user to associate the Collector with a session. Once the Collector is configured, the Exporter sends data to the Collector. IPDR supports redundant collector and consistent streaming continues when a collector is down or not functioning.

The no form of the command will only remove the association for the stopped session.



**Note** The collector and the session should be configured before running this command.

## Examples

The following example configures a Collector.

```
Router# configure terminal
Router(config)#ipdr associate 1 federal 1
```

## Related Commands

Command	Description
<b>ipdr collector</b>	Configures the IPDR Collector details.
<b>show ipdr collector</b>	Displays the collector information, message statistics and event for all the sessions that are associated with the collector.

Command	Description
<b>ipdr session</b>	Adds a session to the IPDR Exporter.

# ipdr authorization

To enable the Internet Protocol Detail Record (IPDR) authorization, use **ipdr authorization** command in global configuration mode. To remove the configuration, use the **no** form of this command.

**ipdr authorization**  
**no ipdr authorization**

**Syntax Description** This command has no arguments or keywords.

**Command Default** This IPDR authorization will be disabled by default.

**Command Modes** Global configuration (config)

Release	Modification
12.2(33)SCI2	This command was introduced.

**Usage Guidelines** The IPDR authorization is disabled by default. Use the **ipdr authorization** command to enable IPDR authorization. You can include it in the start-up configuration file as well. Whether IPDR authorization is enabled or not, any Collector coming from the bundle side will always be rejected.

**Examples** The following example shows how to enable IPDR authorization:

```
Router#configure terminal
Router(config)#ipdr authorization
IPDR authorization is enabled.
Router(config)#
```

Command	Description
<b>ipdr collector</b>	Configures the Internet Protocol Detail Record (IPDR) Collector details.

# ipdr collector

To configure the Internet Protocol Detail Record (IPDR) Collector details, use the **ipdr collector** command in global configuration mode. To remove the Collector, use the **no** form of this command.

```
ipdr collector collector_name ip_addr [port]
no ipdr collector collector_name
```

## Cisco IOS Release 12.2(33)SCI2

```
ipdr collector collector_name ip_addr [port] [nat-address ip_addr [port] ]
no ipdr collector collector_name
```

### Syntax Description

<i>collector_name</i>	The collector name. The name should not contain extra spaces.
<i>ip_addr</i>	The collector IP address.
<i>port</i>	(Optional) The collector port value. The default port number will be considered if the value is not entered.
<b>nat-address</b> <i>ip_addr</i>	(Optional) The collector's Network Address Translation (NAT) in IP header.

### Command Default

A Collector will not be configured.

### Command Modes

Global configuration mode

### Command History

Release	Modification
12.2(33)SCB	This command was introduced.
12.2(33)SCI2	This command was integrated into Cisco IOS Release 12.2(33)SCI2. The <b>nat-address</b> keyword was added.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command allows the user to configure an IPDR Collector and authenticate the IPDR protocol. Once the Collector is configured, the Exporter sends data to the Collector. User must provide the collector name and the IP address. Port number is used when an exporter creates an active connection.

The no form of the command will remove a specific IPDR Collector. If the collector is associated with an active session, you should stop the session before using the no command.

### Examples

The following example configures a Collector.

```
Router# configure terminal
Router(config)#ipdr collector federal 192.0.2.0
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show ipdr collector</b>	Displays the collector information, message statistics and event for all the sessions that are associated with the collector.
<b>ipdr session</b>	Adds a session to the IPDR Exporter.

# ipdr exporter ack-timeout

To set IPDR Exporter acknowledged records timeout value, use the **ipdr exporter ack-timeout** command in global configuration mode. To disable the acknowledged records timeout value, use the **no** form of this command.

**ipdr exporter ack-timeout** *time\_interval*  
**no ipdr exporter ack-timeout**

<b>Syntax Description</b>	<i>time_interval</i>	Acknowledged records timeout count. The valid range is from 5 to 60 seconds. The default value is 60.
---------------------------	----------------------	---

**Command Default** This command is enabled when the IPDR Exporter is running.

**Command Modes** Global configuration (config)

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.3(33)SCG	This command was introduced.
	IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** This command allows you to set acknowledged records timeout value for a session.



**Note** Restart the IPDR Exporter for the timer values to take effect.

## Examples

The following example shows how to configure the acknowledged records timeout value on the Cisco CMTS router:

```
Router# configure terminal
Router(config)
)# ipdr exporter ack-timeout 60
Router(config)# ipdr exporter start
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state on the Cisco CMTS router.

## ipdr exporter connection active

To enable the IPDR exporter to start connection, use the **ipdr exporter connection-active** command in global configuration mode. To enable collectors to start connection, use the **no** form of this command. It does not support to change connection type when the exporter is started. Stop exporter then change to another type.

```
ipdr exporter connection-active [source-interface interface]
no ipdr exporter connection-active
```

### Syntax Description

**source-interface** Specifies the interface on which the connection is established.

### Command Default

By default, the IPDR exporter process will not be started.

### Command Modes

Global configuration mode

### Command History

Release	Modification
IOS XE Gibraltar 16.12.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command allows the IPDR exporter to start connection.

The **no** form of the command will change the IPDR Exporter connection mode to default.

### Examples

The following example allows the IPDR Exporter to start connection on the TenGigabitEthernet port 4/1/0 of the CMTS.

```
Router# configure terminal
Router(config)#ipdr exporter connection-active source-interface TenGigabitEthernet4/1/0
```

### Related Commands

Command	Description
<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state.
<b>show ipdr collector</b>	Displays the collector information, message statistics and event for all the sessions that are associated with the collector.
<b>ipdr collector</b>	Configures the Internet Protocol Detail Record (IPDR) Collector details.

## ipdr exporter keepalive

To set the keepalive timer value on the IPDR exporter, use the **ipdr exporter keepalive** command in global configuration mode. To disable the keepalive timer value, use the **no** form of this command.

```
ipdr exporter keepalive time_interval
no ipdr exporter keepalive
```

### Syntax Description

<i>time_interval</i>	Keepalive timer count. The valid range is from 5 to 300 seconds. The default value is 300.
----------------------	--

### Command Default

This command is enabled when the IPDR Exporter is running.

### Command Modes

Global configuration (config)

### Command History

Release	Modification
12.3(33)SCG	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command allows you to set the keepalive timeout value for a session.



**Note** Restart the IPDR Exporter for the keepalive timer values to take effect.

### Examples

The following example shows how to configure the keepalive value on the Cisco CMTS router:

```
Router# configure terminal
Router(config)
)# ipdr exporter keepalive 300
Router(config)# ipdr exporter start
```

### Related Commands

Command	Description
<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state on the Cisco CMTS.

# ipdr exporter max-unacked

To set the maximum number of unacknowledged records on the IPDR exporter, on the Cisco CMTS, use the **ipdr exporter max unacked** command in global configuration mode. To reset the maximum number of unacknowledged records, use the **no** form of this command.

**ipdr exporter max-unacked** *records*  
**no ipdr exporter max-unacked**

## Syntax Description

<i>records</i>	Number of unacknowledged records. The valid range is from 5 to 200 records. The default value is 200.
----------------	---

## Command Default

This command is enabled when IPDR Exporter is running.

## Command Modes

Global configuration (config)

## Command History

Release	Modification
12.3(33)SCG	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command allows you to set the maximum number of unacknowledged records for a session.



**Note** Restart the IPDR Exporter for the number of records to take effect.

## Examples

The following example shows how to configure the number of unacknowledged records configured on the Cisco CMTS router:

```
Router# configure terminal
Router(config)
)# ipdr exporter max-unacked 200
Router(config)# ipdr exporter start
```

## Related Commands

Command	Description
<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state on the Cisco CMTS router.

## ipdr exporter start

To enable the CMTS application, to start the Internet Protocol Detail Record (IPDR) Exporter process to connect the exporter and the collector, use the **ipdr exporter start** command in global configuration mode. To terminate the connection between the exporter and collector, use the **no** form of this command.

**ipdr exporter start [ipv6]**  
**no ipdr exporter start**

<b>Syntax Description</b>	<b>ipv6</b> Configure IPDR in IPv6 mode.
---------------------------	--

<b>Command Default</b>	By default, the IPDR exporter process will not be started.
------------------------	--

<b>Command Modes</b>	Global configuration mode
----------------------	---------------------------

<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.2(33)SCB</td> <td>This command was introduced.</td> </tr> <tr> <td>IOS-XE 3.15.OS</td> <td>This command was implemented on the Cisco cBR Series Converged Broadband Routers.</td> </tr> <tr> <td>IOS XE Gibraltar 16.12.1</td> <td>This command was updated to include <b>ipv6</b> keyword.</td> </tr> </tbody> </table>	Release	Modification	12.2(33)SCB	This command was introduced.	IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.	IOS XE Gibraltar 16.12.1	This command was updated to include <b>ipv6</b> keyword.
Release	Modification								
12.2(33)SCB	This command was introduced.								
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.								
IOS XE Gibraltar 16.12.1	This command was updated to include <b>ipv6</b> keyword.								

<b>Usage Guidelines</b>	<p>This command allows the user to explicitly start the IPDR Exporter and connect to the collector. As a default behavior, the command will initiate all the sessions configured in the Exporter to a "Start" state.</p> <p>The <b>no</b> form of the command will stop the IPDR Exporter process. The command will also clear the connection with the collector while retaining other configurations.</p>
-------------------------	--

<b>Examples</b>	The following example starts the IPDR Exporter process on the CMTS.
-----------------	---

```
Router# configure terminal
Router(config)#ipdr exporter start
```

<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>show ipdr exporter</b></td> <td>Displays information about the IPDR Exporter state.</td> </tr> <tr> <td><b>show ipdr collector</b></td> <td>Displays the collector information, message statistics and event for all the sessions that are associated with the collector.</td> </tr> <tr> <td><b>ipdr collector</b></td> <td>Configures the Internet Protocol Detail Record (IPDR) Collector details.</td> </tr> </tbody> </table>	Command	Description	<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state.	<b>show ipdr collector</b>	Displays the collector information, message statistics and event for all the sessions that are associated with the collector.	<b>ipdr collector</b>	Configures the Internet Protocol Detail Record (IPDR) Collector details.
Command	Description								
<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state.								
<b>show ipdr collector</b>	Displays the collector information, message statistics and event for all the sessions that are associated with the collector.								
<b>ipdr collector</b>	Configures the Internet Protocol Detail Record (IPDR) Collector details.								

# ipdr session

To start or stop a specific session, use the **ipdr session** command in the privileged EXEC mode.

**ipdr session** *session\_id* {**start** | **stop**}

## Syntax Description

<i>session_id</i>	The unique IPDR session ID.
<b>start</b>	The keyword to start the session.
<b>stop</b>	The keyword to stop the session.

## Command Default

No sessions are started.

## Command Modes

Privileged EXEC mode

## Command History

Release	Modification
12.2(33)SCB	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command allows the user to start or stop a specific session. This command can be executed only when the IPDR exporter is started.



**Note** The user has to stop the session before configuring any tasks if the session is active.

## Examples

The following example enables the user to start a session.

```
Router# configure terminal
Router(config)#ipdr session 1 start
```

## Related Commands

Command	Description
<b>ipdr exporter start</b>	Starts the IPDR Exporter and connects to the collector.
<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state.
<b>ipdr associate</b>	Associates the Collector with a session.

## ipdr session (global configuration)

To enable the CMTS application to add a session to the Internet Protocol Detail Record (IPDR) exporter, use the **ipdr session** command in global configuration mode. To remove the session, use the **no** form of this command.

```
ipdr session session_id session_name session_descr
no ipdr session session_id
```

### Syntax Description

<i>session_id</i>	The unique IPDR session ID.
<i>session_name</i>	The session name. The name should not contain extra spaces.
<i>session_descr</i>	The description of the session.

### Command Default

No sessions are added to the IPDR exporter. It depends on the status of the IPDR exporter. After configuring one session, if the status of exporter is started, then the session is started automatically.

### Command Modes

Global configuration mode

### Command History

Release	Modification
12.2(33)SCB	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command allows the user to add a session to the IPDR exporter. User should provide session ID, session name and session description for every session.

The **no** form of the command will remove a specific session. Once a session is removed, the template and other information associated with the session is also lost.



**Note** You can not update template details or other details when a session already created.

### Examples

The following example adds a session to the Exporter.

```
Router# configure terminal
Router(config)#ipdr session 1 test no_descr
```

### Related Commands

Command	Description
<b>ipdr exporter start</b>	Starts the IPDR exporter and connects to the collector.
<b>show ipdr exporter</b>	Displays information about the IPDR exporter state.

Command	Description
ipdr associate	Associates the IPDR collector with a session.

# ipdr template

To add an Internet Protocol Detail Record (IPDR) template to the IPDR session on the Cisco CMTS, use the **ipdr template** command in global configuration mode. To remove the template, use the **no** form of this command.

**ipdr template** *session\_id* *template\_name*  
**no ipdr template** *session\_id* *template\_name*

## Syntax Description

<i>session_id</i>	Unique IPDR Session ID.
<i>template_name</i>	Template name.

## Command Default

The IPDR template is not added to the IPDR session.

## Command Modes

Global configuration (config)

## Command History

Release	Modification
12.2(33)SCB	This command was introduced.
12.2(33)SCG	A new template SERVICE-FLOW is added to the event-based and ad-hoc session types.
12.2(33)SCH5	A new template is defined for CM-STATUS and the old template is renamed as CM-STATUS-2008.
12.2(33)SCI1	This command is integrated from Cisco IOS Release 12.2(33)SCH5.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command allows the user to add an IPDR template to the desired session (based on session ID) on the Cisco CMTS.



**Note** You can only add the system-supported templates. The list can be viewed by entering “?” at the command prompt.

## Examples

The following example displays the **show running-config** command output of the configured IPDR sessions and types:

```
Router(config)# do show running-config | i ipdr
ipdr session 1 test test
ipdr session 2 event2 event2
ipdr session 3 ad-hoc3 ad-hoc3
ipdr type 1 time-interval 15
ipdr type 2 event
```

```
ipdr type 3 event
```

The following example shows the templates available in a timer-interval session.

```
Router# ipdr template 1 ?
CM-STATUS      DOCSIS-CMTS-CM-REG-STATUS-TYPE template
CM-US          DOCSIS-CMTS-CM-US-STATS-TYPE template
DIAGLOG-DETAIL DOCSIS-DIAG-LOG-DETAIL-TYPE template
SAMIS-TYPE1    DOCSIS-SAMIS-TYPE-1 template
SAMIS-TYPE2    DOCSIS-SAMIS-TYPE-2 template
SPECTRUM       DOCSIS-SPECTRUM-MEASUREMENT-TYPE template
TEST           Template for test
```

The following example shows how to add the SAMIS\_TYPE1 template in a timer-interval session.

```
Router(config)# ipdr template 1 SAMIS-TYPE1
```

The following example shows how to view the templates available in an event-based session.

```
Router(config)# ipdr template 2 ?
CM-STATUS      DOCSIS-CMTS-CM-REG-STATUS-TYPE template
CPE-TYPE       DOCSIS-CPE-TYPE template
DIAGLOG-DETAIL DOCSIS-DIAG-LOG-DETAIL-TYPE template
DIAGLOG-EVENT  DOCSIS-DIAG-LOG-EVENT-TYPE template
DS-UTIL        DOCSIS-CMTS-DS-UTIL-STATS-TYPE template
SAMIS          OSSI2.0 SAMIS template
SERVICE-FLOW  SERVICE-FLOW-TYPE template
TEST           Template for test
TOPOLOGY       DOCSIS-CMTS-TOPOLOGY-TYPE template
US-UTIL        DOCSIS-CMTS-US-UTIL-STATS-TYPE template
```

The following example shows how to view the templates available in an ad-hoc session.

```
Router(config)# ipdr template 3 ?
CM-STATUS      DOCSIS-CMTS-CM-REG-STATUS-TYPE template
CPE-TYPE       DOCSIS-CPE-TYPE template
DIAGLOG-DETAIL DOCSIS-DIAG-LOG-DETAIL-TYPE template
DIAGLOG-EVENT  DOCSIS-DIAG-LOG-EVENT-TYPE template
DS-UTIL        DOCSIS-CMTS-DS-UTIL-STATS-TYPE template
SAMIS          OSSI2.0 SAMIS template
SERVICE-FLOW  SERVICE-FLOW-TYPE template
TEST           Template for test
TOPOLOGY       DOCSIS-CMTS-TOPOLOGY-TYPE template
US-UTIL        DOCSIS-CMTS-US-UTIL-STATS-TYPE template
```

The following example shows the templates available in a timer-interval session for Cisco IOS Release 12.2(33)SCH5:

```
Router(config)# ipdr template 1 ?

CM-STATUS      DOCSIS-CMTS-CM-REG-STATUS-TYPE template
CM-STATUS-2008 DOCSIS-CMTS-CM-REG-STATUS-TYPE-2008 template
CPE-TYPE       DOCSIS-CPE-TYPE template
DIAGLOG-DETAIL DOCSIS-DIAG-LOG-DETAIL-TYPE template
DIAGLOG-EVENT  DOCSIS-DIAG-LOG-EVENT-TYPE template
DS-UTIL        DOCSIS-CMTS-DS-UTIL-STATS-TYPE template
SAMIS          OSSI2.0 SAMIS template
```

```
SERVICE-FLOW    SERVICE-FLOW-TYPE template
TEST            Template for test
TOPOLOGY        DOCSIS-CMTS-TOPOLOGY-TYPE template
US-UTIL         DOCSIS-CMTS-US-UTIL-STATS-TYPE template
```

**Related Commands**

Command	Description
<b>ipdr exporter start</b>	Starts the IPDR Exporter on the Cisco CMTS and connects to the collector.
<b>show ipdr exporter</b>	Displays information about the IPDR Exporter state on the Cisco CMTS.
<b>ipdr session</b>	Adds a session to the IPDR Exporter on the Cisco CMTS.

# ipdr type

To configure the IPDR session type, use the **ipdr type** command in global configuration mode. The IPDR session types that can be defined using this command are event type, time-interval type, and the ad hoc type.

Use the **no** form of the command to reset the session type to the default "event" type.

```
ipdr type session_id [{ad-hoc | event | time-interval value}]
no ipdr type session_id
```

## Syntax Description

<i>session id</i>	IPDR session ID. Range is from 1 to 255.
<b>ad-hoc</b>	The ad hoc session type.
<b>event</b>	The event session type.
<b>time-interval</b> <i>value</i>	The time-interval session type. Interval range is from 15 to 1440 minutes.

## Command Default

The IPDR session type is not defined.

## Command Modes

Global configuration (config)

## Command History

Release	Modification
12.2(33)SCD2	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command allows the user to define the specific IPDR session type.



**Note** Once the IPDR session type is configured, the templates supported by this IPDR type are automatically associated with it.

## Examples

The following example shows how to configure the IPDR "time-interval" session type for a time interval of 15 minutes.

```
Router> enable
Router# configure terminal
Router(config)# ipdr type 1 time-interval 15
```

## Related Commands

Command	Description
<b>cable ipdr cm-us-status interval</b>	Displays a cable modem's upstream channel status information.

Command	Description
<b>cable ipdr docs-spectrum interval</b>	Sets the interval between different spectrum measurements' data for a CMTS.
<b>cable ipdr diaglog interval</b>	Sets the time interval between different diagnostic logs' data for a CMTS.
<b>cable ipdr cm-status interval</b>	Displays the CMTS and cable modem registration status information.

**Related Commands**

To configure IPv6 segment routing (SRv6), use the **ipv6 address** command in the global configuration mode.

**ipv6 address** {*ipv6\_address\_prefixprefix\_length*} **segment-routing**  
**no ipv6 address** {*ipv6\_address\_prefixprefix\_length*} **segment-routing**

<i>ipv6_address_prefix</i>	IPv6 prefix associated with a particular SAV group, specified in the X:X:X:X::X format.
<i>prefix_length</i>	Length of the IPv6 prefix. The valid range is from 0 to 128

**Command Default**

None.

**Command Modes**

Global configuration mode (config)

**Command History**

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines**

This command is used to configure IPv6 Segment Routing. You can also configure multiple IPv6 addresses for SRv6 under the same interface. An IPv6 address with a prefix SID can also be associated with SRv6. to define a local prefix as an SID, use the following commands:

```
ipv6-sr prefix-sid
```

Use the **no ipv6-sr prefix-sid** command to disable the local prefix SID.

The following example shows how to configure IPv6 segment routing.

```
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#inter Ether0/0
Router(config-if)#ipv6 address 2001::0DB8/32 segment-routing
Router(config-if-sr-ipv6)#ipv6-sr prefix-sid
Router(config-if-sr-ipv6)#exit
Router(config-if)#exit
Router(config)#exit
```

The following example shows how to configure multiple IPv6 addresses for SRv6 under the same interface.

```
Router#config terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router(config)#inter Ether 0/0  
Router(config-if)# ipv6 address 110::110/64 segment-routing  
Router(config-if)# ipv6 address 111::111/64 segment-routing  
Router(config-if-sr-ipv6)#ipv6-sr prefix-sid  
Router(config-if-sr-ipv6)#end
```

---

**Related Commands**

Command	Description
<b>ipv6-sr prefix-sid</b>	Defines a local prefix as an SID.

# issu linecard abortversion

To roll back the current image version on a single line card or multiple line cards to the previous version, use the **issu linecard abortversion** command in the privileged EXEC mode.



**Note** This command is used to roll back the versions on redundant line cards only.

```
issu linecard abortversion {alllc slot/subslot} [forced]
```

## Syntax Description

<b>all</b>	All redundant line cards.
<i>lc_slot</i>	The line card slot number.
<i>subslot</i>	The line card sub slot number.
<b>forced</b>	(Optional) The ISSU would ignore potential service outage and line card incompatibility errors and proceed with abortversion instead of stopping and error handling.

## Command Default

None

## Command Modes

Privileged EXEC (#)

## Command History

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

## Usage Guidelines

This command allows the user to roll back to prior image on working or primary line card on a single or multiple line cards to the previous versions.



**Note** The **issu linecard reloadversion** command is used to reload a line card with the original version of images.

The following example rolls back the specific redundant line card's image version.

```
Router# configure terminal
Router(config)#issu linecard abortversion
```

## Related Commands

Command	Description
<b>issu linecard acceptversion</b>	Accepts the new image version on the working line card.
<b>issu linecard loadversion</b>	Loads a specific image version on the primary line card.

Command	Description
<b>issu linecard prepareversion</b>	Determines if the image version on the line card has to be upgraded or downgraded to the route processor's image version.
issu linecard reloadversion	Reloads the new loaded image on a working or a primary line card.
issu linecard runversion	Runs the new loaded image on a working or a primary line card.
issu linecard changeversion	Starts the upgrade or downgrade activity of the image version for a single line card or multiple line cards.

# issu linecard acceptversion

To accept the new image version on the working line card, use the **issu linecard acceptversion** command in the privileged EXEC mode.

**issu linecard acceptversion** *lc slot* [/subslot]

Syntax Description	
<i>lc_slot</i>	The line card slot number.
<i>subslot</i>	The line card sub slot number.

**Command Default** None

**Command Modes** Privileged EXEC (#)

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

**Usage Guidelines** This command allows the user to accept the new image version on the working line card. The command also indicates the completion of changing the image version for the specific line card and allows the ISSU of the next line card in the queue.

**Examples** The following example indicates a command accepting the image version on the slot 7 of the line card.

```
Router# configure terminal
Router(config)#issu linecard acceptversion 7/0
```

Related Commands	Command	Description
	<b>issu linecard abortversion</b>	Rolls back to the prior image on working/primary line card.
	<b>issu linecard loadversion</b>	Loads a specific image version on the primary line card.
	<b>issu linecard prepareversion</b>	Determines if the image version on the line card has to be upgraded or downgraded to the route processor's image version.
	<b>issu linecard reloadversion</b>	Reloads the new loaded image on a working or a primary line card.
	<b>issu linecard runversion</b>	Runs the new loaded image on a working or a primary line card.
	<b>issu linecard changeversion</b>	Starts the upgrade or downgrade activity of the image version for a single line card or multiple line cards.

# issu linecard changeversion

To start the upgrade or downgrade activity of the image version for a single working line card or multiple working line cards, use the **issu linecard changeversion** command in the privileged EXEC mode.



**Note** Effective with Cisco IOS Release 12.2(33)SCH2, the **issu linecard changeversion** command is used to check and upgrade the line card images automatically during the RP-only ISSU process.

**issu linecard changeversion** { **all** | **stop***slot\_1* [*/subslot\_1*]} . . . [*slot\_n* [*/subslot\_n*]] [**forced**]

## Syntax Description

<b>all</b>	All redundant line cards.
<i>slot_1</i>	The slot number for the first line card.
<i>subslot_1</i>	The sub slot number for the first line card.
<i>slot_n</i>	The slot number for the n th line card.
<i>subslot_n</i>	The sub slot number for the n th line card.
<b>forced</b>	(Optional) The ISSU would ignore potential service outage and line card incompatibility errors and proceed with changeversion instead of stopping and error handling.

## Command Default

None

## Command Modes

Privileged EXEC (#)

## Command History

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

## Usage Guidelines

This command allows the user to start the upgrade or downgrade activity of the image version for a single line card or multiple line cards. Here the line cards are of the primary or working type only.

Using the **all** option, you can change the image version of all the redundant line cards instead of specifying explicitly each of the line card.

Using the **stop** option, you can stop the version change process for a line card.

## Examples

The following example displays the command and uses the **all** option.

```
Router# configure terminal
Router(config)#issu linecard changeversion all
```

The following example displays the command and uses the slot value of 6.

```
Router# configure terminal
Router(config)#issu linecard changeversion 6/0
```

Related Commands	Command	Description
	<b>issu linecard abortversion</b>	Rolls back to the prior image on working/primary line card.
	<b>issu linecard acceptversion</b>	Accepts the new image version on the working line card.
	<b>issu linecard loadversion</b>	Loads a specific image version on the primary line card.
	<b>issu linecard prepareversion</b>	Determines if the image version on the line card has to be upgraded or downgraded to the route processor's image version.
	<b>issu linecard reloadversion</b>	Reloads the new loaded image on a working or a primary line card.
	<b>issu linecard runversion</b>	Runs the new loaded image on a working or a primary line card.

# issu linecard loadversion

To load a specific image version on the primary line card, use the **issu linecard loadversion** command in the privileged EXEC mode.

**issu linecard loadversion** *slot* [/subslot]

## Syntax Description

<i>slot</i>	The line card slot number.
<i>subslot</i>	The line card sub slot number.

## Command Default

None

## Command Modes

Privileged EXEC (#)

## Command History

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

## Usage Guidelines

This command allows the user to load a specific image version on the working line card.

## Examples

The following example shows the command that loads the image version on a line card with the slot number 7.

```
Router# configure terminal
Router(config)#issu linecard loadversion 7/0
```

## Related Commands

Command	Description
<b>issu linecard abortversion</b>	Rolls back to the prior image on working/primary line card.
<b>issu linecard acceptversion</b>	Accepts the new image version on the working line card.
<b>issu linecard prepareversion</b>	Determines if the image version on the line card has to be upgraded or downgraded to the route processor's image version.
<b>issu linecard reloadversion</b>	Reloads the new loaded image on a working or a primary line card.
<b>issu linecard runversion</b>	Runs the new loaded image on a working or a primary line card.
<b>issu linecard changeversion</b>	Starts the upgrade or downgrade activity of the image version for a single line card or multiple line cards.

# issu linecard prepareversion

To determine if the image version on the line card has to be upgraded or downgraded to the route processor's image version, use the **issu linecard prepareversion** command in the privileged EXEC mode.

**issu linecard prepareversion** *lc\_slot* [/subslot] [**forced**]

Syntax Description	
<i>lc_slot</i>	The line card slot number.
<i>subslot</i>	The line card sub slot number.
<b>forced</b>	(Optional) The ISSU would ignore potential service outage and line card incompatibility errors and proceed with prepareversion instead of stopping and error handling.

**Command Default** None

**Command Modes** Privileged EXEC (#)

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

**Usage Guidelines** This command allows the user to check if the image version on the line card has to be upgraded or downgraded to the route processor's image version.

This command also checks if the line card has a valid redundancy configuration. If the line card does not have a valid configuration, then the user has to reload the line card using the **issu linecard reloadversion** command.

## Examples

The following example shows the command executed for a line card with a slot value of 7.

```
Router# configure terminal
Router(config)#issu linecard prepareversion 7/0
```

Related Commands	Command	Description
	<b>issu linecard abortversion</b>	Rolls back to the prior image on working/primary line card.
	<b>issu linecard acceptversion</b>	Accepts the new image version on the working line card.
	<b>issu linecard loadversion</b>	Loads a specific image version on the primary line card.
	<b>issu linecard reloadversion</b>	Reloads the new loaded image on a working or a primary line card.
	<b>issu linecard runversion</b>	Runs the new loaded image on a working or a primary line card.

Command	Description
issu linecard changeversion	Starts the upgrade or downgrade activity of the image version for a single line card or multiple line cards.

# issu linecard process stop



**Note** Effective with Cisco IOS Release 12.2(33)SCG and later, `issu linecard process stop` is no longer supported on the Cisco CMTS router.

To stop the automatic line card ISSU process, use the `issu linecard process stop` command in privileged EXEC mode.

## issu linecard process stop

**Syntax Description** This command has no arguments or keywords.

**Command Default** This command is enabled by default.

**Command Modes** Privileged EXEC (#)

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

**Usage Guidelines** Use the `issu linecard process stop` command to interrupt the automatic ISSU process continuing to the next line card.

### Associated Features:

The `issu linecard process stop` command is associated with following features:

[Cisco IOS In Service Software Upgrade Process](#)

Example

The following example shows how to stop the ISSU process:

```
Router> enable
Router# issu linecard process stop
```

Related Commands	Command	Description
	<code>issu linecard abortversion</code>	Rolls back to the prior image on working/primary line card.
	<code>issu linecard acceptversion</code>	Accepts the new image version on the working line card.
	<code>issu linecard loadversion</code>	Loads a specific image version on the primary line card.

<b>Command</b>	<b>Description</b>
<b>issu linecard prepareversion</b>	Determines if the image version on the line card has to be upgraded or downgraded to the route processor's image version.
<b>issu linecard reloadversion</b>	Reloads the new loaded image on a working or a primary line card.
<b>issu linecard runversion</b>	Runs the new loaded image on a working or a primary line card.
<b>issu linecard changeversion</b>	Starts the upgrade or downgrade activity of the image version for a single line card or multiple line cards.

## issu linecard reloadversion

To reload the new loaded image on a working or a primary line card, use the **issu linecard reloadversion** command in the privileged EXEC mode.

**issu linecard prepareversion** {**original** | **target**} {**all**[*slot\_1* [*subslot\_1*]... [*slot\_n* [/*subslot\_n*]]}

Syntax Description	original	The original image version.
	all	All redundant line cards.
	<i>slot_1</i>	The slot number for the first line card.
	<i>subslot_1</i>	The sub slot number for the first line card.
	<i>slot_n</i>	The slot number for the n th line card.
	<i>subslot_n</i>	The sub slot number for the n th line card.

**Command Default** None

**Command Modes** Privileged EXEC (#)

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

**Usage Guidelines** This command allows the user to reload the new loaded image on a working or a primary line card.

This command can be used for the following line card conditions.

- Line cards that are not configured with redundancy, and do not support Minimal Disruptive Restart (MDR.)
- Line cards which are capable of line card redundancy which were rolled back due to an unsuccessful **changeversion** command.

### Examples

The following example shows the command executed with the original keyword.

```
Router# configure terminal
Router(config)#issu linecard reloadversion original 8/0
```

The following example shows the command executed with the target keyword.

```
Router# configure terminal
Router(config)#issu linecard reloadversion target 8/0
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>issu linecard abortversion</b>	Rolls back to the prior image on working or primary line card.
<b>issu linecard acceptversion</b>	Accepts the new image version on the working line card.
<b>issu linecard loadversion</b>	Loads a specific image version on the primary line card.
<b>issu linecard prepareversion</b>	Determines if the image version on the line card has to be upgraded or downgraded to the route processor's image version.
<b>issu linecard runversion</b>	Runs the new loaded image on a working or a primary line card.
<b>issu linecard changeversion</b>	Starts the upgrade or downgrade activity of the image version for a single linecard or multiple line cards.

# issu linecard runversion

To run the new loaded image on a working or a primary line card, use the **issu linecard runversion** command in the privileged EXEC mode.

**issu linecard runversion** *lc\_slot* [/ *subslot*] [**forced**]

Syntax Description	
<i>lc_slot</i>	The line card slot number.
<i>subslot</i>	The line card sub slot number.
<b>forced</b>	(Optional) The ISSU would ignore potential service outage and line card incompatibility errors and proceed with runversion instead of stopping and error handling.

**Command Default** None

**Command Modes** Privileged EXEC (#)

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

**Usage Guidelines** This command allows the user to run the new loaded image on a working or a primary line card.

**Examples** The following example displays the command executed to run the loaded image in the line card slot 7.

```
Router# configure terminal
Router(config)#issu linecard runversion 7/0
```

Related Commands	Command	Description
	<b>issu linecard abortversion</b>	Rolls back to the prior image on the working/primary line card.
	<b>issu linecard acceptversion</b>	Accepts the new image version on the working line card.
	<b>issu linecard loadversion</b>	Loads a specific image version on the primary line card.
	<b>issu linecard prepareversion</b>	Determines if the image version on the line card has to be upgraded or downgraded to the route processor's image version.
	<b>issu linecard reloadversion</b>	Reloads the new loaded image on a working or a primary line card.
	<b>issu linecard changeversion</b>	Starts the upgrade or downgrade activity of the image version for a single linecard or multiple line cards.

# jitter

To set session jitter, use the **jitter** command in cable video configuration mode. To disable session jitter, use the **no jitter** form of this command.

**jitter** {sdv | vod | broadcast | gaming | table-based} *value*  
**no jitter** {sdv | vod | broadcast | gaming | table-based} *value*

## Command Default

None.

## Command Modes

Cable video configuration (config-video)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

## Examples

The following example shows how to set session jitter:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)# jitter gaming 5
```

## Related Commands

Command	Description
<b>show cable video jitter</b>	Displays the session jitter information.

# join-group

To join multicast group address, use the **join-group** command in OOB virtual OM configuration mode. To void the virtual OM configuration, use the **no** form of this command.

**join-group** *ip* **source-ip** *ip* **out-group** *ip*

**no join-group** *ip* **source-ip** *ip* **out-group** *ip*

Syntax Description	
<b>join-group</b> <i>ip</i>	Specifies the group IP address.
<b>source-ip</b> <i>ip</i>	Specifies the SSM source IP address.
<b>out-group</b> <i>ip</i>	Specifies the local OM group IP address.

**Command Default** None

**Command Modes** OOB Virtual OM configuration (config-oob-vom)

Command History	Release	Modification
	Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** Use this command to join multicast group address.

**Examples** The following example shows how to join multicast group address:

```
Router# configure terminal
Router(config)# cable oob
Router(config-oob)# virtual-om 1
Router(config-oob-vom)# join-group 235.1.1.1 source-ip 2.3.4.5 out-group 239.2.2.2
```

Related Commands	Command	Description
	<b>virtual-om</b>	Defines a virtual OM configuration.
	<b>ip</b>	Configures the virtual OM source IP address.

# keepalive

To set the default ONID number, use the **default-onid** command in the video configuration mode.

**default-onid** *number*

<b>Syntax Description</b>	<i>number</i> The ONID number. By default, the system ONID is 0, which is commonly used in North America. If the default value of the ONID is used, the TSID must be unique. If you change the ONID, the TSID-ONID pair must be unique. The ONID must be in the range of 0 to 65535.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	Video configuration mode (config-video)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS-XE Release 3.18.0S</td> <td>This command was introduced on the Cisco cBR Series Converged Broadband Routers.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS-XE Release 3.18.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
Release	Modification				
Cisco IOS-XE Release 3.18.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.				
<b>Usage Guidelines</b>	<p>This command is used to change the default system ONID.</p> <p>The following example shows how to change the default ONID number:</p> <pre>configure terminal cable video default-onid 1580</pre>				

# lACP fast-switchover

To enable Link Aggregation Control Protocol (LACP) 1:1 link redundancy, use the **lACP fast-switchover** command in interface configuration mode. To disable LACP 1:1 link redundancy, use the **no** form of this command.

**lACP fast-switchover**  
**no lACP fast-switchover**

**Syntax Description** This command has no arguments or keywords.

**Command Default** LACP 1:1 link redundancy is disabled by default.

**Command Modes** Interface configuration (config-if)

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

**Usage Guidelines** Prior to entering the **lACP fast-switchover** command, you must ensure the following:

- The port channel protocol type is LACP.
- The **lACP max-bundle 1** command has been entered on the port channel. The **lACP fast-switchover** command will not affect the **lACP max-bundle** command.

When you enable LACP 1:1 link redundancy, based on the system priority and port priority, the port with the higher system priority chooses the link as the active link and the other link as the standby link. When the active link fails, the standby link is selected as the new active link without taking down the port channel. When the original active link recovers, it reverts to its active link status. During this change-over, the port channel is also up.



**Note** We recommend that you configure two ports only (one active and one hot-standby) in the bundle for optimum performance.

## Examples

This example shows how to enable LACP 1:1 link redundancy:

```
Router(config-if)# lACP fast-switchover
```

Related Commands	Command	Description
	<b>lACP max-bundle</b>	Assigns and configures an EtherChannel interface to an EtherChannel group.
	<b>show etherchannel</b>	Displays the EtherChannel information for a channel.

# lACP max-bundle

To define the maximum number of active bundled Link Aggregation Control Protocol (LACP) ports allowed in a port channel, use the **lACP max-bundle** command in interface configuration mode. To return to the default settings, use the **no** form of this command.

**lACP max-bundle** *max-bundles number*  
**no lACP max-bundle**

## Syntax Description

<i>max-bundles</i>	Maximum threshold of active member links allowed in the LACP bundle. The range from is 1 to 8. The maximum threshold value must be greater than or equal to the minimum threshold value.
--------------------	--

## Command Default

A maximum number of active bundled ports is not configured.

## Command Modes

Interface configuration (config-if)

## Command History

Release	Modification
Cisco IOS 12.2(33)SCJ	Support for this command was introduced.

## Usage Guidelines

The value specified in the *max-bundles* argument determines the number of active links that are bundled in the port channel. The remaining links are in hot-standby mode.

## Examples

This example shows how to set 3 ports to bundle in port channel 2:

```
Router(config)# interface port-channel 2
Router(config-if)# lACP max-bundle 3
Router(config-if)#
```

## Related Commands

Command	Description
<b>interface port-channel</b>	Creates a port-channel virtual interface and puts the CLI in interface configuration mode.
<b>ip address</b>	Sets a primary or secondary IP address on an interface.
<b>show etherchannel</b>	Displays the EtherChannel information for a channel.
<b>show interfaces port-channel</b>	Displays traffic that is seen by a specific port channel.

# lACP min-bundle

To define the minimum number of active bundled LACP ports allowed in a port channel, use the **lACP min-bundle** command in interface configuration mode. To return to the default settings, use the **no** form of this command.

**lACP min-bundle** *min-bundle*  
**no lACP min-bundle**

<b>Syntax Description</b>	<i>min-bundle</i>	Minimum threshold of active member links allowed in the LACP bundle. The range is from 1 to 8. The default is 1.
---------------------------	-------------------	--

**Command Default** The port-channel operational state will be “Down” only when there are no active links in the channel. If there are one or more active links, the port-channel state will be “Up.”

**Command Modes** Interface configuration (config-if)

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

**Usage Guidelines** Use the **lACP min-bundle** command to configure the minimum number of active links allowed in an LACP bundle. When the number of active links falls below this minimum threshold, the port channel shuts down.

**Examples** This example shows how to set the minimum number of active links to five ports:

```
Device(config-if)# lACP min-bundle 5
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>interface port-channel</b>	Creates a port-channel virtual interface and enters interface configuration mode.
	<b>ip address</b>	Sets a primary or secondary IP address on an interface.
	<b>show etherchannel</b>	Displays the EtherChannel information for a channel.
	<b>show interfaces port-channel</b>	Displays traffic that is seen by a specific port channel.

# lACP port-priority

To set the LACP priority for a physical interface, use the **lACP port-priority** command in interface configuration mode. To return to the default setting, use the **no** form of this command.

**lACP port-priority** *priority*

**no lACP port-priority**

<b>Syntax Description</b>	<i>priority</i> Integer that indicates the priority for the physical interface. The range is from 0 to 65535. The default is 32768.
---------------------------	---

**Command Default** The default port priority is set.

**Command Modes** Interface configuration (config-if)

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

**Usage Guidelines** You may assign a port priority to each port on a device running Link Aggregation Control Protocol (LACP). You can specify the port priority by using the **lACP port-priority** command at the command-line interface (CLI) or use the default port priority (32768) that is carried as part of the LACP protocol data unit (PDU) exchanged with the partner. Port priority is used to decide which ports should be put in standby mode when a hardware limitation or the **lACP max-bundle** command configuration prevents all compatible ports from aggregating. Priority is supported only on port channels with LACP-enabled physical interfaces.



**Note** A high priority number means a low priority.

Port priority together with port number form a port identifier.

To verify the configured port priority, issue the **show lACP** command.

## Examples

This example shows how to set a priority of 23700 for an interface:

```
Device> enable
Device# configure terminal
Device(config)# interface ethernet 0/0
Device(config-if)# lACP port-priority 23700
Device(config-if)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>channel-group</b>	Assigns and configures an EtherChannel interface to an EtherChannel group.
	<b>debug lACP</b>	Enables debugging of LACP activities.

Command	Description
<b>lACP max-bundle</b>	Defines the maximum number of active bundled LACP ports allowed in a port channel.
<b>lACP system-priority</b>	Sets the priority of the system.
<b>show lACP</b>	Displays information about LACP activity on the device.

# lACP system-priority

To set the priority for a system, use the **lACP system-priority** command in global configuration mode. To return to the default setting, use the **no** form of this command.

**lACP system-priority** *priority*

**no lACP system-priority**

<b>Syntax Description</b>	<i>priority</i> Integer that indicates the LACP priority for the system. The range is from 0 to 65535. The default is 32768.
---------------------------	--

**Command Default** The default system priority is set.

**Command Modes** Global configuration (config)

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

**Usage Guidelines** You can assign a system priority to each device running Link Aggregation Control Protocol (LACP). You can specify the system priority by using the **lACP system-priority** command at the command-line interface (CLI) or use the default system priority (32768) that is carried as part of the LACP protocol data unit (PDU) exchanged with the partner. System priority is used with the MAC address of the device to form the system ID and also is used during negotiation with other systems. Priority is supported only on port channels with LACP-enabled physical interfaces.



**Note** A high priority number means a low priority.

To verify the configured system priority, issue the **show lACP** command.

## Examples

The following example shows how to set a system priority of 25500 for a device:

```
Router> enable
Router# configure terminal
Router(config)# lACP system-priority 25500
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>channel-group</b>	Assigns and configures an EtherChannel interface to an EtherChannel group.
	<b>debug lACP</b>	Enables debugging of LACP activities.
	<b>lACP port-priority</b>	Sets the priority of a port.
	<b>show lACP</b>	Displays information about LACP activity on the device.

# lane start-freq

To set the start frequency for a specific lane, use the **lane start-freq** command from frequency profile configuration mode.

```
lane lane_id start-freq start-freq
```

## Syntax Description

<i>lane_id</i>	Specifies the ID of the lane that the start frequency to be set.
<i>start-freq</i>	Configures the start frequency for the lane.

## Command Default

None

## Command Modes

Frequency profile configuration (config-freq-prof)

## Command History

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

## Usage Guidelines

Use this command to set the start frequency for a specific lane.

## Examples

The following example shows how to set start frequency for a specific lane:

```
Router# Configure terminal
Router(config)# cable downstream freq-profile 4
Router(config-freq-prof)# lane 1 start-freq 45000000
```

## Related Commands

Command	Description
<b>cable downstream freq-profile</b>	Set the start frequency for a specific lane.

# lc-control-plane-timeout

To set the interval of monitoring cable line card control plane process restart, use the **lc-control-plane-timeout** *time* command in the process restart configuration mode.

```
lc-control-plane-timeout time
```

## Syntax Description

<i>time</i>	Cable line card control plane process restart monitoring interval in seconds.
-------------	---

## Command Default

None

## Command Modes

Process restart configuration (config-process-restart)

## Command History

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

## Usage Guidelines

This command sets the interval of monitoring cable line card control plane process restart.

The following example shows how to set the interval of monitoring cable line card control plane process restart.

```
Router# configure terminal
Router(config)# process-restart
Router(config-process-restart)# lc-control-plane-timeout 200
```

## Related Commands

Command	Description
<b>lc-us-scheduler-timeout</b>	Sets the interval of monitoring cable line card upstream scheduler process restart.
<b>restart-retry</b>	Sets the retrying times for process restart.

## lc-us-scheduler-timeout

To set the interval of monitoring cable line card upstream scheduler process restart, use the **lc-us-scheduler-timeout** *time* command in the process restart configuration mode.

```
lc-us-scheduler-timeout time
```

<b>Syntax Description</b>	<i>time</i> Cable line card upstream scheduler process restart monitoring interval in seconds.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Process restart configuration (config-process-restart)
----------------------	--

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

**Usage Guidelines**

This command sets the interval of monitoring cable line card upstream scheduler process restart.

The following example shows how to set the interval of monitoring cable line card upstream scheduler process restart.

```
Router# configure terminal
Router(config)# process-restart
Router(config-process-restart)# lc-us-scheduler-timeout 200
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>lc-control-plane-timeout</b>	Sets the interval of monitoring cable line card control plane process restart.
	<b>restart-retry</b>	Sets the retrying times for process restart.

# lcha-preferred

To select the LCHA when it is possible, use the **lc-control-plane-timeout** command in the process restart configuration mode. To disable this function, use the **no** form of this command.

```
lcha-preferred
```

```
no lcha-preferred
```

---

**Command Default**      None

---

**Command Modes**      Process restart configuration (config-process-restart)

---

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

---

**Usage Guidelines**      This command selects the LCHA when it is possible.  
 The following example shows how to select the LCHA when it is possible.

```
Router# configure terminal
Router(config)# process-restart
Router(config-process-restart)# lcha-preferred
```

---

Related Commands	Command	Description
	<b>disable-auto-restart</b>	Disables the automatic process restart.

## license feature evaluation disable

To disable an evaluation license for Cisco uBR-MC3GX60V and Cisco UBR-MC20X20V cable interface line cards on the Cisco uBR10012 router, use the **license feature evaluation disable** command in global configuration mode.

**license feature evaluation disable** {**DS\_license** | **US\_license** | **all** } **subslot** *slot/subslot*

Syntax Description	Parameter	Description
	<b>disable</b>	Disables an evaluation license for a cable interface line card.
	<b>DS_License</b>	Disables a downstream evaluation license for a cable interface line card.
	<b>US_License</b>	Disables an upstream evaluation license for a cable interface line card.
	<b>all</b>	Disables both downstream and upstream evaluation licenses for a cable interface line card.
	<b>subslot</b> <i>slot/subslot</i>	<ul style="list-style-type: none"> <li><i>slot</i>—Slot where the line card resides. The valid range is from 5 to 8.</li> <li><i>subslot</i>—Secondary slot number of the cable interface line card. The valid value is 0 or 1.</li> </ul>

**Command Default** A cable interface line card evaluation license is disabled by default.

**Command Modes** Global configuration (config)

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

**Usage Guidelines** Evaluation licenses are temporary and used to evaluate a feature set on a new line card. Ensure that an equivalent permanent license is installed on the Cisco CMTS before the evaluation license expires to avoid any service disruptions.

To obtain evaluation licenses from the Cisco licensing portal, go to:  
<https://tools.cisco.com/SWIFT/LicensingUI/demoPage>

### Examples

The following example shows how to disable both downstream and upstream evaluation licenses for a cable interface line card on the Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# license feature evaluation disable all subslot 5/0
```

The following example shows how to disable a downstream evaluation license for a cable interface line card on the Cisco uBR10012 router:

```
Router# configure terminal
```

```
Router(config)# license feature evaluation disable DS_License subslot 6/0
```

The following example shows how to disable an upstream evaluation license for a cable interface line card on the Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# license feature evaluation disable US_License subslot 6/1
```

#### Related Commands

Command	Description
<b>license feature evaluation enable</b>	Enables an evaluation license for Cisco uBR-MC3GX60V and Cisco UBR-MC20X20V cable interface line cards.

# license feature evaluation enable

To enable an evaluation license for Cisco uBR-MC3GX60V and Cisco UBR-MC20X20V cable interface line cards on the Cisco uBR10012 router, use the **license feature evaluation enable** command in global configuration mode.

**license feature evaluation enable** {**DS\_License** | **US\_License** | **all**} **subslot** *slot/subslot*

Syntax Description	enable	Enables an evaluation license for a cable interface line card.
	DS_License	Enables a downstream evaluation license for a cable interface line card.
	US_License	Enables an upstream evaluation license for a cable interface line card.
	all	Enables both downstream and upstream evaluation licenses for a cable interface line card.
	subslot <i>slot/subslot</i>	<ul style="list-style-type: none"> <li><i>slot</i>—Slot where the cable interface line card resides. The valid range is from 5 to 8.</li> <li><i>subslot</i>—Secondary slot number of the cable interface line card. The valid value is 0 or 1.</li> </ul>

**Command Default** A cable interface line card evaluation license is not enabled by default.

**Command Modes** Global configuration (config)

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

**Usage Guidelines** Evaluation licenses are temporary and used to evaluate a feature set on a new cable interface line card. Ensure that an equivalent permanent license is installed on the Cisco CMTS router before the evaluation license expires to avoid any service disruptions.

To obtain evaluation licenses from the Cisco licensing portal, go to:  
<https://tools.cisco.com/SWIFT/LicensingUI/demoPage>

## Examples

The following example shows how to enable both downstream and upstream evaluation licenses for a cable interface line card on the Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# license feature evaluation enable all subslot 5/0
```

The following example shows how to enable a downstream evaluation license for a cable interface line card on the Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# license feature evaluation enable DS_License subslot 6/0
```

The following example shows how to enable an upstream evaluation license for a cable interface line card on the Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# license feature evaluation enable US_License subslot 6/1
```

**Related Commands**

Command	Description
<b>license feature evaluation disable</b>	Disables an evaluation license for Cisco uBR-MC3GX60V and Cisco UBR-MC20X20V cable interface line cards.

# linecard

To define the encryption type of a linecard, use the **linecard** command in the encryption configuration mode. To remove the configuration, use the **no** form of this command.

**linecard** *slot / bay*

**ca-system** {**pme scrambler** *dvs042* | **powerkey scrambler** *des* | **powerkey scrambler** *dvb-csa* | **dvb scrambler** *dvb-csa* | **dualcrypt scrambler** *dvb-csa*}

**no linecard** *slot / bay*

**ca-system** {**pme scrambler** *dvs042* | **powerkey scrambler** *des* | **powerkey scrambler** *dvb-csa* | **dvb scrambler** *dvb-csa* | **dualcrypt scrambler** *dvb-csa*}

## Syntax Description

<i>slot / bay</i>	<ul style="list-style-type: none"> <li>• <i>slot</i>—Specifies the slot number. The valid range is from 0 to 9.</li> <li>• <i>bay</i>—Specifies the bay number. The valid value is 0.</li> </ul>
<b>ca-system</b>	<p>Specifies the encryption type of the virtual carrier group.</p> <ul style="list-style-type: none"> <li>• <i>pme</i>—Sets to privacy mode encryption.</li> <li>• <i>powerkey</i>—Sets to powerkey encryption.</li> <li>• <i>dvb</i>—Sets to DVB encryption.</li> <li>• <i>dualcrypt</i>—Sets to Dualcrypt encryption.</li> </ul>
<b>pme scrambler</b> <i>dvs042</i>	Specifies the scrambler algorithm for privacy mode encryption.
<b>powerkey scrambler</b> <i>des  dvb-csa</i>	Specifies the scrambler algorithm for powerkey encryption.
<b>dvb scrambler</b> <i>dvb-csa</i>	Specifies the scrambler algorithm for DVB encryption.
<b>dualcrypt scrambler</b> <i>dvb-csa</i>	Specifies the scrambler algorithm for DualCrypt encryption.

## Command Default

None.

## Command Modes

Encryption configuration (config-video-encrypt)

## Command History

Release	Modification
IOS-XE 3.18.0S	This command is introduced on the Cisco cBR Series Converged Broadband Routers.
Cisco IOS XE Everest 16.5.1	This command was updated to support DualCrypt encryption on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command defines the encryption type of a linecard.

## Examples

The following example shows how to configure the encryption for the linecard:

```

Router# configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#linecard 7/0 ca-system powerkey scrambler des

```

The following example shows how to configure the Dualcrypt encryption mode:

```

Router(config)#cable video
Router(config-video)#mgmt-intf VirtualPortGroup 0
Router(config-video)#encryption
Router(config-video-encrypt)#linecard 8/0 ca-system dualcrypt scrambler dvb-csa

```

#### Related Commands

Command	Description
<b>encrypt</b>	Enables encryption on a virtual carrier group.
<b>rf-channel</b>	Specifies the virtual RF channels in a virtual carrier group.
<b>virtual-edge-input-ip</b>	Configures a virtual edge input.
<b>virtual-carrier-group</b>	Defines a virtual carrier group.

## linecard-group (redundancy)

To configure the redundancy group, use the **linecard-group** command in redundancy configuration mode. To remove the configuration, use the **no** form of this command.

**linecard-group** *group-id* **internal-switch**  
**no linecard-group** *group-id* **internal-switch**

Syntax Description		
	<i>group-id</i>	The line card group identifier. The valid value is 0 on the Cisco cBR-8 Router.
	<b>internal-switch</b>	Sets the redundancy type to internal switch.

**Command Default** None.

**Command Modes** Redundancy configuration (config-red)

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

**Usage Guidelines** Line card group members must be removed before removing the redundancy group configuration.

### Examples

The following example shows how to configure the redundancy group:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# redundancy
Router(config-red)# linecard-group 0 internal-switch
Router(config-red-lc)#
```

Related Commands	Command	Description
	<b>class</b>	Configures redundancy class on the line card.
	<b>description</b>	Adds a description to the line card group.
	<b>member slot</b>	Adds a slot to the line card redundancy group.
	<b>redundancy</b>	Configures line card redundancy.
	<b>show redundancy linecard</b>	Displays information about a redundant line card or a line card group.

# listening-port

To configure the listening TCP port, use the **listening-port** command in the DVB scrambling EIS configuration mode. To void the listening TCP port configuration, use the **no** form of this command.

**listening-port** *port*  
**no listening-port** *port*

<i>port</i>	Specifies the listening TCP port.
-------------	-----------------------------------

**Command Default** None

**Command Modes** DVB scrambling EIS configuration mode (config-video-encrypt-dvb-eis)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following is an example of how to configure the listening TCP port:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dvb
Router(config-video-encrypt-dvb)#eis EIS-1 id 1
Router(config-video-encrypt-dvb-eis)#listening-port 8890
```

**Related Commands**

Command	Description
<b>cp-override</b>	Overrules and specifies the crypto period duration.
<b>overwrite-scg</b>	Enables Scrambling Control Group (SCG) overwrite.
<b>eis</b>	Enters the Event Information Scheduler configuration mode.

# logging cmts ipc-cable

To enable debug logging for the cable inter-processor communication (IPC) software, use the **logging cmts ipc-cable** command from the global configuration mode. To disable logging of these messages, use the **no** form of the command.



**Note** Use this command for debugging purpose only.

## logging cmts ipc-cable log-level

[{alerts critical debugging emergencies errors informational notifications warnings}]

## no logging cmts ipc-cable log-level

[{alerts critical debugging emergencies errors informational notifications warnings}]

### Syntax Description

<b>log-level</b>	Configures the log severity level. Logs with severity equal to or higher than the specified log-level are logged in log buffer.
<i>level=emergencies</i>	Emergency severity level indicates system is unusable. The default severity level for emergencies syslog messages is 0.
<i>level=alerts</i>	Alerts severity level indicates that immediate action is needed. The default severity level for alerts syslog messages is 1.
<i>level=critical</i>	Critical severity level indicates the critical condition of the system. The default severity level for critical syslog messages is 2.
<i>level=errors</i>	Errors severity level indicates the error conditions. The default severity level for errors syslog messages is 3.
<i>level=warnings</i>	Warning severity level warns the network administrator. The default severity level for warnings syslog messages is 4.
<i>level=notifications</i>	Notification severity level indicates normal but significant condition of the system. The default severity level for notification syslog messages is 5.
<i>level=informational</i>	Informational severity level provides additional information about the system. The default severity level for informational syslog messages is 6.
<i>level=debugging</i>	Debugging severity level provides debugging messages. The default severity level for debugging syslog messages is 7.

### Command Default

By default, the log-level is set to 'errors'.

### Command Modes

Global configuration (config)

### Command History

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

**Usage Guidelines**

Each cable IPC debug log has a severity level. The **logging cmts ipc-cable** command allows you to selectively enable cable IPC debug logs based on the log severities. Each debug log has a debug-enable flag that is set by the **debug cmts ipc-cable** command in Privileged EXEC mode. A debug log is recorded only if its severity is equal to or higher than the configured log-level, and if its debug enable flag is set.

**Examples**

The following example shows how to enable all the cable IPC debug logs:

```
Router(config)# logging cmts ipc-cable log-level debugging
```

The following example shows how to disable debug logging for the cable IPC:

```
Router(config)# no logging cmts ipc-cable log-level debugging
```

**Related Commands**

Command	Description
<b>debug cmts ipc-cable</b>	Sets the debug-enable flag for the cable IPC debug logs.
<b>show cmts ipc-cable</b>	Displays statistics of all IPC messages on a Cisco CMTS router.

## logging cmts sea

To enable the logging of syslog messages to System Event Archive (SEA), use the **logging cmts sea** command from global configuration mode. To disable logging of syslog messages to SEA, use the **no** form of the command.

**logging cmts sea**

**no logging cmts sea**

### Syntax Description

<b>syslog-level</b> <i>level</i>	(Optional) Configures the level of syslog messages inclusive of and above the specified level which will be stored in the SEA log file.
Possible values for level are: <i>level=emergencies</i>	Emergency security level indicates system is unusable. The default severity level for emergency syslog messages is 0.
<i>level=alerts</i>	Alerts severity level indicates that immediate action is needed. The default severity level for alerts syslog messages is 1.
<i>level=critical</i>	Critical severity level indicates the critical condition of the system. The default severity level for critical syslog messages is 2.
<i>level=errors</i>	Errors severity level indicates the error conditions. The default severity level for errors syslog messages is 3.
<i>level=warnings</i>	Warning severity level warns the network administrator. The severity level for warning syslog messages is 4.
<i>level=notifications</i>	Notification severity level indicates normal but significant condition of the system. By default severity level for syslog messages is configured as 'normal'. The default severity level for notification syslog messages is 5.
<i>level=informational</i>	Informational severity level provides additional information about the system. The default severity level for informational syslog messages is 6.
<i>level=debugging</i>	Debugging severity level provides debugging messages. The default severity level for debugging syslog messages is 7.

### Command Default

By default, storing of syslog messages to SEA log file is enabled, with the severity-level of syslog messages being set to 'notification'.

### Command Modes

Global configuration (config)

### Command History

Release	Modification
12.2(33)SCC	This command was introduced.
IOS-XE 3.15.OS	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines**

Use the **logging cmts sea** command is used to enable the logging of syslog messages to SEA log file. To change the severity-level of syslog messages inclusive of and above the level to be stored in SEA log file, specify the command **logging cmts sea [syslog-level *level*]**.

**Examples**

The following example shows how to enable logging of syslog messages to SEA log file on the Cisco uBR10012 router:

```
Router(config)# logging cmts sea
```

The following example shows how to disable logging of syslog messages to SEA log file on the Cisco uBR10012 router:

```
Router(config)# no logging cmts sea
```

The following example shows how to change the severity-level of syslog messages inclusive of and above the level being stored in the SEA log file:

```
Router(config)# logging cmts sea syslog-level warning
```

**Related Commands**

Command	Description
<b>clear logging system</b>	Clears the event records stored in the SEA.
<b>copy logging system</b>	Copies the archived system events to another location.
<b>logging system</b>	Enables or disables the SEA logging system.

# logical-edge-device

To define a logical edge device, use the **logical-edge-device** command in video configuration mode. To delete a logical edge device, use the **no** form of this command.

```
logical-edge-device name [id id]
no logical-edge-device name [id id]
```

## Syntax Description

<b>logical-edge-device</b> <i>name</i>	Specifies the logical edge device name.
<b>id</b> <i>id</i>	Specifies the logical edge device identifier.

## Command Default

None.

## Command Modes

Video configuration (config-video)

## Command History

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

## Usage Guidelines

This command defines a logical edge device.

## Examples

The following example shows how to define a logical edge device:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)# logical-edge-device vod id 1
```

## Related Commands

Command	Description
<b>protocol</b>	Specifies the protocol used in the logical edge device.
<b>show cable video logical-edge-device</b>	Displays the logical edge device information.

# load-interval

To change the length of time for which data is used to compute load statistics, use the **load-interval** command in MAC domain profile configuration mode, wideband-cable interface profile configuration mode, or downstream profile configuration mode. To void the configuration, use the **no** form of this command.

**load-interval** *seconds*  
**no low-latency** *seconds*

---

## Command Default

None.

---

## Command Modes

MAC domain profile configuration (config-profile-md)

Wideband-cable interface profile configuration (config-profile-wb)

Downstream profile configuration (config-profile-ds)

---

## Command History

Release	Modification
Cisco IOS XE Fuji 16.7.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
Cisco IOS XE Gibraltar 16.10.1c	This command was modified to support downstream profile configuration mode on the Cisco cBR Series Converged Broadband Routers.

---

## Examples

The following example shows how to set load interval:

```
Router# configure terminal
Router(config)# cable profile mac-domain MD
Router(config-profile-md)# load-interval 30
```

# low-latency

To set low latency VCG, use the **low-latency** command in virtual carrier group configuration mode. To disable low latency VCG, use the **no** form of this command.

**low-latency**  
**no low-latency**

## Command Default

None.

## Command Modes

Virtual carrier group configuration (config-video-vcg)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

## Examples

The following example shows how to set low latency VCG:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)# virtual-carrier-group vod id 1
Router(config-video-vcg)# low-latency
```

## Related Commands

Command	Description
<b>show cable video low-latency linecard</b>	Displays the linecard low latency information

## mac-addr-filter

To configure MAC filtering, use the **mac-addr-filter** command in the interface configuration mode. To disable MAC filtering, use the **no** form of this command.

**mac-addr-filter**  
**no mac-addr-filter**

**Command Default** None

**Command Modes** Interface configuration (config-if)

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

### Examples

The following example shows how to configure the MAC filtering for a backhaul interface:

```
Router# configure terminal
Router(config)# interface tenGigabitEthernet 4/1/0
Router(config-if)#mac-addr-filter
Router(config-if)#end
```

Related Commands	Command	Description
	<b>show platform software iomd</b>	Verifies the MAC filtering status.

# mac-address

To define the MAC address for a logical edge device, use the **mac-address** command in the logical edge device protocol configuration mode. To reset to default configuration, use the **no** form of this command.

**mac-address** *mac-address*  
**no mac-address** *mac-address*

## Syntax Description

<i>mac-address</i>	Specifies the MAC address for a logical edge device.
--------------------	--

## Command Default

None

## Command Modes

Logical edge device protocol configuration (config-video-led-protocol)

## Command History

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

## Usage Guidelines

Each logical edge device requires a unique MAC address. MAC address is required only when you configure the logical edge device with GQI protocol.



**Tip** Use the following command to get the chassis MAC address:

**show diag all eeprom detail | include MAC**

```
Chassis MAC Address : 54a2.120e.3000
MAC Address block size : 1024
```

Increment the least significant digit of the Chassis MAC address to give a unique identifier (mac-address) for each logical edge device. Example: 54a2.120e.3001.

The MAC address for a logical edge device should be unique with respect to the GQI server and it should not relate to a real MAC address.

## Examples

The following example shows how to define the MAC address for a logical edge device:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)#logical-edge-device vod id 1
Router#(config-video-led)protocol gqi
Router#(config-video-led-protocol)mac-address 0800.270e.25b8
```

## Related Commands

Command	Description
<b>logical-edge-device</b>	Defines a logical edge device.

<b>Command</b>	<b>Description</b>
<b>protocol</b>	Specifies the protocol used in the logical edge device.
<b>mgmt-ip</b>	Defines the local management IP address for a logical edge device.
<b>server</b>	Defines the server IP address of the session resource manager.
<b>vcg</b>	Specifies the virtual carrier group assigned to the logical edge device.
<b>virtual-edge-input-ip</b>	Defines a virtual edge input.
<b>show cable video logical-edge-device</b>	Displays the logical edge device information.
<b>show cable video gqi connections</b>	Displays the GQI connection information of the logical edge device with the Session Resource Manager.
<b>show diag all eeprom detail   include MAC</b>	Displays the chassis MAC address information.

## mgmt-intf virtualportgroup

To configure the cable video management interface, use the **mgmt-intf virtualportgroup** command in the video configuration mode. To delete the management interface created, use the **no** form of the command.

```
mgmt-intf virtualportgroup number
no mgmt-intf virtualportgroup number
```

<b>Syntax Description</b>	<b>VirtualPortGroup</b> <i>number</i> Defines the specified Virtual Port Group as the management interface. Valid range is 0 to 31.				
<b>Command Default</b>	None.				
<b>Command Modes</b>	Video configuration mode (config-video)				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Cisco IOS-XE Release 3.18.0S</td> <td>This command was introduced on the Cisco cBR Series Converged Broadband Routers.</td> </tr> </tbody> </table>	Release	Modification	Cisco IOS-XE Release 3.18.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
Release	Modification				
Cisco IOS-XE Release 3.18.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.				

**Usage Guidelines** This command is used to configure the cable video management interface.

The following example shows how to change the default ONID number:

```
Router#configure terminal
Router(config)#cable video
Router(config-video)#mgmt-intf VirtualPortGroup0
```

Related Commands	Command	Description
	<b>interface virtualportgroup</b>	Defines a VirtualPortGroup interface.
	<b>show run interface virtualportgroup</b>	Displays the VirtualPortGroup interface configuration.
	<b>show run   include mgmt-intf</b>	Displays the cable video management interface configuration.
	<b>show interfaces virtualportgroup</b>	Displays the VirtualPortGroup interface state.

# main-cpu

To enter main-CPU redundancy configuration mode, so that you can configure the synchronization of the active and standby Performance Routing Engine (PRE1) modules or Supervisor cards, use the **main-cpu** command in redundancy configuration mode.

## main-cpu

### Syntax Description

This command has no keywords or arguments.

### Command Default

No default behavior or values

### Command Modes

Redundancy configuration (config-r)

### Cisco RF Gateway 10

Redundancy configuration (config-red)

### Command History

Release	Modification
12.2(4)XF	This command was introduced for the Cisco uBR10012 router.
12.2(11)BC3	Support for the <b>switchover timeout</b> command was added.
12.3BC	This command was integrated into Cisco IOS Release 12.3BC.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA.
12.2(44)SQ	This command was integrated into Cisco IOS Release 12.2(44)SQ. Support for the Cisco RF Gateway 10 was added.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

When you enter main-CPU redundancy configuration mode, the prompt changes to the following:

```
Router(config-r-mc)#
```

After you enter main-CPU redundancy configuration mode, you can use the **auto-sync** command to specify which files are synchronized between the active and standby PRE1 modules or Supervisor cards. In Cisco IOS Release 12.2(11)BC3 and later releases, you can also use the **switchover timeout** command to specify the amount of time that the standby PRE1 module should wait when it first detects that the active PRE1 module is not active and when it initiates a switchover and becomes the active PRE1 module.

To leave main-CPU redundancy configuration mode and to return to redundancy configuration mode, use the **exit** command.

### Examples

The following example shows how to enter main-CPU redundancy mode and the commands that are available there:

```

Router# config t

Router(config)# redundancy

Router(config-r)# main-cpu

Router(config-r-mc)# ?

Main Cpu redundancy configuration commands:
  auto-sync   Sync elements
  exit        Exit from main-cpu configuration mode
  no          Negate a command or set its defaults
  switchover  Configuration of switchover
Router(config-r-mc)#

```

### Cisco RF Gateway 10

The following example shows how to enter main-CPU redundancy mode, and its associated commands:

```

Router# configure terminal

Router(config)# redundancy

Router(config-red)# main-cpu

Router(config-r-mc)# ?

Main CPU redundancy configuration commands:
  auto-sync   Sync elements
  default     Set a command to its defaults
  exit        Exit from main-cpu configuration mode
  no          Negate a command or set its defaults

```

#### Related Commands

Command	Description
<b>associate slot</b>	Logically associate slots for APS processor redundancy
<b>auto-sync</b>	Configures which files are synchronized between the active and standby PRE1 modules or Supervisor cards.
<b>redundancy</b>	Enters redundancy configuration mode.
<b>switchover timeout</b>	Configures the switchover timeout period of the PRE1 module.

# maintenance-mode

To configure the PRE1 modules on the router for maintenance mode, use the **maintenance-mode** command in redundancy configuration mode. To return to normal operations, use the **no** form of this command.

**maintenance-mode**  
**no maintenance-mode**

**Syntax Description** This command has no keywords or arguments.

**Command Default** Normal operations (**no maintenance-mode**)

**Command Modes** Redundancy configuration

## Command History

Release	Modification
12.2(4)XF	This command was introduced for the Cisco uBR10012 router.
IOS-XE 3.15.OS	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

When the Cisco uBR10012 router is configured with redundant PRE1 modules, the active PRE1 module automatically synchronizes the configuration, network state information, and other information with the standby PRE1 module, so that if a switchover occurs, the standby module can restore normal operations quickly. You can use the **maintenance-mode** command to disable this automatic synchronization of the PRE1 modules, and to disable the reporting of any faults on the standby module to the active module.



**Note** The **maintenance-mode** command disables the ability of the Cisco uBR10012 router to switchover PRE1 modules and should be used only while upgrading the router or troubleshooting network problems.

## Examples

The following example shows how to disable the automatic PRE1 module synchronization on the Cisco uBR10012 router and enter maintenance mode:

```
Router# config t
Router(config)# redundancy
Router(config-r)# maintenance-mode
Router(config-r)# exit
Router(config)#
```

The following example shows how to leave maintenance mode and return to normal operations, which includes the automatic synchronization of the PRE1 modules:

```
Router# config t
Router(config)# redundancy
```

```
Router(config-r)# no maintenance-mode
Router(config-r)# exit
Router(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>auto-sync</b>	Configures which files are synchronized between the active and standby PRE1 modules.
<b>redundancy</b>	Enters redundancy configuration mode.

# match

To configure the matching option for the DHCP IPv4 profile, use the **match** command in DHCP IPv4 profile configuration mode. To void the configuration, use the **no** form of this command.

**match option** { **43 suboption** *type* | **hex value** || **60 hex value** }  
**no match option** { **43 suboption** *type* | **hex value** || **60 hex value** }

## Syntax Description

<b>option</b>	Specifies the matching option.
<b>suboption</b> <i>type</i>	Specifies the suboption for the option 43.
<b>hex</b> <i>value</i>	Specifies the HEX pattern

## Command Default

None.

## Command Modes

DHCP IPv4 profile configuration (config-dhcpv4-profile)

Release	Modification
IOS XE Fuji 16.8.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

## Examples

The following example shows how to configure the matching option:

```
Router# configure terminal
Router(config)# cable dhcp ipv4 profile DEVICE1
Router(config-dhcpv4-profile)# match option 43 suboption 100 hex 123456
Router(config-dhcpv4-profile)# match option 60 hex *efef*
```

## Related Commands

Command	Description
<b>cable dhcp ipv4 profile</b>	Enters the IPv4 DHCP profile configuration mode.

## match rule

To configure the match rule, rule priority and related action in the selected cable multicast authorization profile, use the **match rule** command in interface configuration mode. To disable a cable multicast authorization profile match, use the **no** form of this command.

```
match rule [ipv4|ipv6] [source-prefix] [group-prefix] priority [priority-value] [permit|deny]
```

```
no match rule [ipv4|ipv6] [source-prefix] [group-prefix] priority [priority-value] [permit|deny]
```

Syntax Description	
<b>match rule</b> [ <i>ipv4 / ipv6</i> ]	Specifies the matching source rule. Though CLI allows IPv6 to be configured, only IPv4 is supported in the CMTS.
<i>source-prefix</i>	(Optional) Specifies the matching source address prefix. Example: 223.1.1.1/16
<i>group-prefix</i>	(Optional) Specifies the matching group address prefix. Example: 223.1.1.1/16
<b>priority</b> [ <i>priority-value</i> ]	Specifies the priority of the cable multicast authorization profile. Priority value range is: 0-255.
<i>permit</i>	The argument <i>permit</i> allows specified packets to be forwarded.
<i>deny</i>	The argument <i>deny</i> allows to specified packets to be rejected.

**Command Default** Cable multicast authorization is disabled.

**Command Modes** Interface configuration—cable interface only (config-mauth)

Command History	Release	Modification
	12.2(33)SCB	This command was introduced.
	IOS-XE 3.15.OS	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** This command specifies the cable multicast authorization profile match to be used.

**Examples** The following example shows how to use the selected multicast authorization profile match:

```
Router(config-mauth)# match rule rule1
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>cable multicast authorization enable default-action</b>	This command enables the cable multicast authorization features. If the multicast authorization feature is disabled, all defined authorization profiles are ineffective.
<b>cable multicast authorization profile-name</b>	Defines the cable multicast authorization profile.
<b>show cable multicast authorization</b>	Displays the list of defined multicast authorization profiles and all CMs associated with corresponding profiles.

## max-carrier

To specify the maximum number of carriers, use the max-carrier command in the controller sub configuration mode.

**max-carrier** *value*

<b>Syntax Description</b>	<i>value</i> Value for the maximum number of carriers. Valid range is from 0 to 128.				
<b>Command Default</b>	The default value is 128.				
<b>Command Modes</b>	Controller sub configuration mode (config-controller).				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>IOS-XE 3.15.0S</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	IOS-XE 3.15.0S	This command was introduced.
Release	Modification				
IOS-XE 3.15.0S	This command was introduced.				
<b>Usage Guidelines</b>	This command is used to specify the maximum number of carriers on an RF port.				

```
router#configure terminal
router (config)#controller Integrated-Cable 3/0/0
router (config-controller)#max-carrier 96
router (config-controller)#end
router #show controllers Integrated-Cable 3/0/0 rf-port
```

```
Admin: UP MaxCarrier: 96 BasePower: 32 dBmV Mode: normal
```

## max-comp-time

To configure the maximum time needed by ECMG to compute an ECM, use the **max-comp-time** command in the DVB scrambling ECMG overrule configuration mode. To void the maximum time configuration, use the **no** form of this command.

**max-comp-time** *time*

**no max-comp-time**

<b>max-comp-time</b> <i>time</i>	Specifies the maximum computing time in millisecond.
----------------------------------	--

### Command Default

None

### Command Modes

DVB scrambling ECMG overrule configuration mode (config-video-encrypt-dvb-ecmg-overrule)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command specifies the maximum time needed by ECMG to compute an ECM in milliseconds. The valid range is from 0 to 60000.

The following is an example of how to configure the maximum computing time:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dwb
Router(config-video-encrypt-dwb)#ecmg ECMG-7 id 7
Router(config-video-encrypt-dwb-ecmg)#overrule
Router(config-video-encrypt-dwb-ecmg-overrule)#max-comp-time 10000
```

### Related Commands

Command	Description
<b>overrule</b>	Enters DVB scrambling configuration mode.
<b>ac-start-delay</b>	Specifies the time between start of first CP after a change in AC and start of ECM broadcast.
<b>ac-stop-delay</b>	Specifies the time between end of last CP preceding a change in AC and end of ECM broadcast.
<b>max-streams</b>	Specifies the maximum number of simultaneous open streams supported by the ECMG on a channel.
<b>min-cp-duration</b>	Specifies the minimum crypto period.

<b>Command</b>	<b>Description</b>
<b>rep-period</b>	Specifies the time between two ECM packets at the output.
<b>start-delay</b>	Specifies the delay between the start of CP and ECM broadcast.
<b>stop-delay</b>	Specifies the delay between the end of CP and ECM broadcast.
<b>trans-start-delay</b>	Specifies the transition start delay.
<b>trans-stop-delay</b>	Specifies the transition stop delay.

## max-ofdm-spectrum

To specify the maximum spectrum used by all the OFDM channels on the given port, use the **max-ofdm-spectrum** command in controller configuration mode. To undo the maximum spectrum assignment, use **no** form of this command.

**max-ofdm-spectrum** *value*

**no max-ofdm-spectrum**

### Syntax Description

<i>value</i>	Maximum OFDM spectrum value (Hz), in 1 MHz increments. Valid range is from 24000000 to 1170000000.
--------------	--

### Command Default

None.

### Command Modes

Controller configuration (config-controller)

### Command History

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

### Usage Guidelines

Use this command to specify the maximum spectrum used by all the OFDM channels on the given port.

### Examples

The following example shows how to specify the maximum spectrum used by all the OFDM channels on the given port:

```
Router# configure terminal
Router(config)# controller integrated-cable 3/0/0
Router(config-controller)# max-ofdm-spectrum 24000000
```

## max-streams

To configure the maximum number of simultaneous open streams supported by the ECMG on a channel, use the **max-streams** command in the DVB scrambling ECMG override configuration mode. To void the maximum number configuration, use the **no** form of this command.

**max-streams** *number*  
**no max-streams**

<b>max-streams</b> <i>number</i>	Specifies the maximum number of simultaneous open streams supported by the ECMG on a channel.
----------------------------------	---

### Command Default

None

### Command Modes

DVB scrambling ECMG override configuration mode (config-video-encrypt-dvb-ecmg-override)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command specifies the maximum number of simultaneous open streams supported by the ECMG on a channel. The valid range is from 0 to 30000.

The following is an example of how to configure the maximum number of simultaneous open streams supported by the ECMG on a channel:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dvb
Router(config-video-encrypt-dvb)#ecmg ECMG-7 id 7
Router(config-video-encrypt-dvb-ecmg)#override
Router(config-video-encrypt-dvb-ecmg-override)#max-streams 10000
```

### Related Commands

Command	Description
<b>override</b>	Enters DVB scrambling configuration mode.
<b>ac-start-delay</b>	Specifies the time between start of first CP after a change in AC and start of ECM broadcast.
<b>ac-stop-delay</b>	Specifies the time between end of last CP preceding a change in AC and end of ECM broadcast.
<b>max-comp-time</b>	Specifies the maximum time needed by ECMG to compute an ECM.
<b>min-cp-duration</b>	Specifies the minimum crypto period.

<b>Command</b>	<b>Description</b>
<b>rep-period</b>	Specifies the time between two ECM packets at the output.
<b>start-delay</b>	Specifies the delay between the start of CP and ECM broadcast.
<b>stop-delay</b>	Specifies the delay between the end of CP and ECM broadcast.
<b>trans-start-delay</b>	Specifies the transition start delay.
<b>trans-stop-delay</b>	Specifies the transition stop delay.

## member slot

To add a line card as a primary or secondary card in a redundancy group, use the **member slot** command in line card redundancy configuration sub-mode. To remove the configuration, use the **no** form of this command.

```
member slot slot { primary | secondary }
no member slot slot { primary | secondary }
```

### Syntax Description

<i>slot</i>	Slot number of the line card. The range is from 0 to 3 and 6 to 9 on the Cisco cBR-8 router.
<b>primary</b>	Specifies the primary slot of the line card group.
<b>secondary</b>	Specifies the secondary slot of the line card group.

### Command Default

None.

### Command Modes

Line card redundancy configuration (config-red-lc)

### Command History

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

### Usage Guidelines

We can only add the secondary card (protect card) after which there should be at least one primary member in the group. You can add a single secondary card for multiple primary cards.



**Note** You cannot remove the last primary member if there is secondary member in redundancy group. You should remove the secondary member first in such case. If the primary card is in Standby role, you must revert back to it before removing.

When a line card is added as secondary card, the line card will be reloaded automatically. On the Cisco cBR-8 router, slot 3 and 6 cannot be configured as secondary card. Only the line card with CBR-RF-PROT-PIC installed could be set as secondary card. In addition, only the line card with CBR-RF-PIC installed could be set as primary card.

The CBR-RF-PROT-PIC can only send RF signals to lower slot (with larger slot number). So the slot number of the secondary card must be the smallest one in the line card redundancy group.

It is recommended to install the PROT-PIC in slot 0 and make line card 0 as secondary. The RF signal can only be relayed from upper slot to lower slot by CBR-RF-PIC. So, do not install any RF blank PICs between the secondary and primary cards.

### Examples

The following example shows how to add the line card as a primary card in the redundancy group:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# redundancy
Router(config-red)# linecard-group 0 internal-switch
```

```
Router(config-red-lc)# member slot 1 primary
```

The following example shows how to add the line card as a primary card in the redundancy group:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# redundancy
Router(config-red)# linecard-group 0 internal-switch
Router(config-red-lc)# member slot 0 secondary
```

## Related Commands

Command	Description
<b>class</b>	Configures redundancy class on the line card.
<b>description</b>	Adds a description to the line card group.
<b>linecard-group internal-switch</b>	Creates a line card group for the line card.
<b>redundancy</b>	Configures line card redundancy.
<b>show redundancy linecard</b>	Displays information about a redundant line card or a line card group.

# method

To select the method the CMTS uses to determine the load, use the **method** command in the config-lb-group configuration mode. To reset the method, use the **no** form of this command.

## Cisco uBR Series Router

```
method {modems | service-flows | utilization} us-method {modems | service-flows | utilization}
no method
```

## Cisco cBR Series Router

```
method {modems | service-flows | utilization} us-method {modems | utilization}
no method
```

Syntax Description		
<b>modems</b>		Specifies the load balancing method for the number of modems on the CMTS.
<b>service-flows</b>		Specifies the load balancing method for the number of service flows on the CMTS.
<b>utilization</b>		Specifies the load balancing method for the interface utilization on the CMTS.
<b>us-method {modems   service-flows   utilization}</b>		Specifies the load balancing method for upstream (US) channels on modems, service-flows, or utilization.  <b>Note</b> <b>service-flows</b> method is not supported in Cisco cBR-8 router.

**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.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers. The <b>service-flows</b> keyword was removed.

**Usage Guidelines** The upstream channel uses the same method as the downstream channel. Change the method of the upstream channel using the **method** command.

**Examples** The following example shows how to select the method the CMTS uses to determine the load, using the **method** 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)# method modems us-method service-flows
```

```
Router (config-lb-group) #
```

**Related Commands**

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

# mgmt-ip

To define the local management IP address for a logical edge device, use the **mgmt-ip** command in the logical edge device protocol configuration mode. To reset to default configuration, use the **no** form of this command.



**Note** The **mgmt-ip** address should be in the same subnet as the IP address of interface VirtualPortGroup.

**mgmt-ip** *ip-address*  
**no mgmt-ip** *ip-address*

<b>Syntax Description</b>	<i>ip-address</i> Specifies the local management IP address.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Logical edge device protocol configuration (config-video-led-protocol)
----------------------	--

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	IOS-XE 3.18.0S	This command is introduced on the Cisco cBR Series Converged Broadband Routers.

<b>Usage Guidelines</b>	This command defines the local management IP address for a logical edge device.
-------------------------	---

<b>Examples</b>	The following example shows how to define the local management IP address for a logical edge device:
-----------------	--

```
Router# configure terminal
Router(config)# cable video
Router(config-video)#logical-edge-device vod id 1
Router#(config-video-led)protocol gqi
Router#(config-video-led-protocol)mgmt-ip 172.16.0.1
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>logical-edge-device</b>	Defines a logical edge device.
	<b>protocol</b>	Specifies the protocol used in the logical edge device.
	<b>mac-address</b>	Defines the MAC address for a logical edge device.
	<b>server</b>	Defines the server IP address of the session resource manager.
	<b>vcg</b>	Specifies the virtual carrier group assigned to the logical edge device.
	<b>virtual-edge-input-ip</b>	Defines a virtual edge input.

<b>Command</b>	<b>Description</b>
<b>show cable video logical-edge-device</b>	Displays the logical edge device information.
<b>show cable video gqi connections</b>	Displays the GQI connection information of the logical edge device with the Session Resource Manager.
<b>show diag all eeprom detail   include MAC</b>	Displays the chassis MAC address information.

## mgmt-ip (DVB)

To configure the management IP for EIS/Broadcast ECMG, use the **mgmt-ip** command in the DVB scrambling configuration mode. To void the management IP configuration, use the **no** form of this command.

**mgmt-ip** *ip\_address*  
**no** **mgmt-ip**

<i>ip_address</i>	Specifies the management IP for EIS and Broadcast ECMG Connection.
-------------------	--

### Command Default

None

### Command Modes

DVB scrambling configuration mode (config-video-encrypt-dvb)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following is an example of how to configure the management IP for EIS/Broadcast ECMG:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dvb
Router(config-video-encrypt-dvb)#mgmt-ip 1.24.2.10
```

### Related Commands

Command	Description
<b>dvb</b>	Enters DVB scrambling configuration mode.
<b>strong-pairing-enforce</b>	Switches on the NDS strong pairing enforcement
<b>check-scg-at-prov</b>	Enables Check SCG at provision time.
<b>scramble-video-audio</b>	Scrambles only video and audio pids.
<b>route-ecmg</b>	Configures the route to the ECMG server.
<b>ca-interface</b>	Configures the conditional access interface.
<b>tier-based</b>	Enters the tier-based scrambling configuration mode.
<b>ecmg</b>	Enters the ECM Generator configuration mode.
<b>eis</b>	Enters the Event Information Scheduler configuration mode.

## microcode (uBR10012)

To reload the microcode software images on a Parallel eXpress Forwarding (PXF) processor or on all line cards that support downloadable microcode, use the **microcode** command in global configuration mode.

**microcode** {*pxf filename* | **reload**}

### Syntax Description

<b>pxf</b>	Reloads the microcode for the PXF processors on the Performance Routing Engine (PRE1) module.
<i>filename</i>	Specifies the microcode software image for the PXF processors by device name and filename.
<b>reload</b>	Reloads the microcode for all PRE1 modules and other line cards that support downloadable microcode software images.

### Command Default

None

### Command Modes

Global configuration (config)

### Command History

Release	Modification
12.2(1)XF1	This command was introduced for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

By default, the Cisco uBR10012 router automatically loads all required microcode on to the PXF processors and other line cards when it loads the Cisco IOS software image. Also, the PRE1 module automatically reloads the microcode on a card when certain faults occur, allowing the card to recover from the fault.

You can reload the microcode on the PRE1 module or on all line cards that support downloadable microcode by using the **microcode** command. Typically, this is not needed and should be done only upon the advice of Cisco TAC or field service engineers.



**Tip** You can also reload the microcode on the PXF processors or on all cards using the **microcode reload** command in privileged EXEC mode. In particular, use the **microcode reload** command to reload the PXF processors with the default microcode that was loaded along with the Cisco IOS software image.

### Examples

The following example shows how to reload the microcode on all PRE processors and line cards that support downloadable microcode:

```
Router# configure terminal
```

```
Router(config)# microcode reload  
Reload microcode? [confirm] yes
```

```
00:49:41: Downloading Microcode: file=system:pxf/ubr10k-ucode.1.2.3,  
version=1.1.0, description=Release Software created Wed 17-Jul-02 16:58  
<<list of interfaces going down or coming up>>
```

```
00:49:42: !!pxf clients started, forwarding code operational!!
Router(config)#
```

The following example shows how to reload the microcode on the PXF processors on the PRE1 module, using a specific image that is stored in the Flash memory:

```
Router# configure terminal
```

```
Router(config)# microcode pxf flash:pxf/ubr10k-ucode.122.1.2.3
```

```
Reload microcode? [confirm] yes
```

```
1d04h: Downloading Microcode: file=flash:pxf/ubr10k-ucode.122.1.2.3, version=122.1.2.3,
description=Release Software created Thu 17-Oct-02 11:33
```

```
<<list of interfaces going down or coming up>>
```

```
1d04h: !!pxf clients started, forwarding code operational!!
```

```
Router(config)#
```

#### Related Commands

Command	Description
<b>hw-module reset</b>	Resets a particular PRE1 module or a particular line card.
<b>microcode reload</b>	Reloads the microcode software images on one or all line cards that support downloadable microcode.
<b>show pxf microcode</b>	Displays display identifying information for the microcode being used on the PXF processors.

## microcode reload (uBR10012)

To reload the microcode software images on one or all line cards that support downloadable microcode, use the **microcode reload** command in privileged EXEC mode.

**microcode reload** {**all** | **pxf**} *device:* [{*filename*}]

### Syntax Description

<b>all</b>	Reloads the microcode for all Performance Routing Engine (PRE1) modules and other line cards that support downloadable microcode software images.
<b>pxf</b>	Reloads the microcode for the Parallel eXpress Forwarding (PXF) processors on the PRE1 module.
<i>device:</i> [ <i>filename</i> ]	(Optional) Loads the PXF processors with the microcode software image that has the specific filename on the specific device. If no filename is specified, the first image found on the device is loaded by default.

### Command Default

For **microcode reload pxf**, defaults to loading the microcode image that was originally loaded when the Cisco IOS software image was loaded.

### Command Modes

Privileged EXEC (#)

### Command History

Release	Modification
12.2(1)XF1	This command was introduced for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

By default, the Cisco uBR10012 router automatically loads all required microcode on to the PXF processors and other line cards when it loads the Cisco IOS software image. Also, the PRE1 module automatically reloads the microcode on a card when certain faults occur, allowing the card to recover from the fault.

You can reload the microcode on the PRE1 module or on all line cards that support downloadable microcode by using the **microcode reload** command. Typically, this is not needed and should be done only upon the advice of Cisco TAC or field service engineers.



**Tip** You can also reload the microcode on the PXF processors or on all cards using the **microcode** command in global configuration mode.

### Examples

The following example shows how to reload the microcode on all PRE processors and line cards that support downloadable microcode:

```
Router# microcode reload all
Reload microcode? [confirm] yes
```

```
00:49:41: Downloading Microcode: file=system:pxf/ubr10k-1-ucode.122.1.0, version=122.1.0,
```

```

description=Release Software created Wed 17-Jul-02 16:58
<<list of interfaces going down or coming up>>
00:49:42: !!pxf clients started, forwarding code operational!!
Router#

```

The following example shows a typical list of devices that you can use when loading microcode for the PXF processors. This list might vary, depending on whether a standby PRE1 module is installed and depending on the version of Cisco IOS software being used.

```

Router# microcode reload pxf ?

bootflash:      location of microcode
disk0:          location of microcode
disk1:          location of microcode
flash:          location of microcode
ftp:            location of microcode
null:           location of microcode
nvram:          location of microcode
rcp:            location of microcode
scp:            location of microcode
sec-bootflash:  location of microcode
sec-disk0:      location of microcode
sec-disk1:      location of microcode
sec-nvram:      location of microcode
sec-slot0:      location of microcode
sec-slot1:      location of microcode
slot0:          location of microcode
slot1:          location of microcode
system:         location of microcode
tftp:           location of microcode
<cr>
Router#

```

The following example shows how to reload the microcode on the PXF processors on the PRE1 module, using a specific image that is stored in the Flash memory:

```

Router# microcode reload pxf flash:pxf/ubr10k-1-ucode.122.1.0.4

Reload microcode? [confirm] yes

3d00h: Downloading Microcode: file=flash:pxf/ubr10k-1-ucode.122.1.0.4, version=122.1.0.4,
description=Release Software created Thu 27-Jun-02 16:05
<<list of interfaces going down or coming up>>
3d00h: !!pxf clients started, forwarding code operational!!
Router#

```

#### Related Commands

Command	Description
<b>hw-module reset</b>	Resets a particular PRE1 module or a particular line card.
<b>microcode</b>	Reloads the microcode software images on one or all line cards that support downloadable microcode.
<b>show pxf microcode</b>	Displays display identifying information for the microcode being used on the PXF processors.

## min-cp-duration

To configure the minimum crypto period, use the **min-cp-duration** command in the DVB scrambling ECMG override configuration mode. To void the minimum crypto period configuration, use the **no** form of this command.

**min-cp-duration** *time*  
**no min-cp-duration**

<b>min-cp-duration</b> <i>time</i>	Specifies the minimum crypto period in milliseconds.
------------------------------------	--

### Command Default

None

### Command Modes

DVB scrambling ECMG override configuration mode (config-video-encrypt-dvb-ecmg-override)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command specifies the minimum crypto period in milliseconds. The valid range is from 1000 to 3600000.

The following is an example of how to configure the minimum crypto period in milliseconds:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dwb
Router(config-video-encrypt-dwb)#ecmg ECMG-7 id 7
Router(config-video-encrypt-dwb-ecmg)#override
Router(config-video-encrypt-dwb-ecmg-override)#min-cp-duration 10000
```

### Related Commands

Command	Description
<b>override</b>	Enters DVB scrambling configuration mode.
<b>ac-start-delay</b>	Specifies the time between start of first CP after a change in AC and start of ECM broadcast.
<b>ac-stop-delay</b>	Specifies the time between end of last CP preceding a change in AC and end of ECM broadcast.
<b>max-comp-time</b>	Specifies the maximum time needed by ECMG to compute an ECM.
<b>max-streams</b>	Specifies the maximum number of simultaneous open streams supported by the ECMG on a channel.

<b>Command</b>	<b>Description</b>
<b>rep-period</b>	Specifies the time between two ECM packets at the output.
<b>start-delay</b>	Specifies the delay between the start of CP and ECM broadcast.
<b>stop-delay</b>	Specifies the delay between the end of CP and ECM broadcast.
<b>trans-start-delay</b>	Specifies the transition start delay.
<b>trans-stop-delay</b>	Specifies the transition stop delay.

# mode

To configure the application mode of ECMG, use the **mode** command in the DVB scrambling ECMG configuration mode. To void the ECMG application mode configuration, use the **no** form of this command.

**mode** {**broadcast** | **tier-based** | **vod linecard** *slot/bay*}  
**no mode**

<b>broadcast</b>	Specifies the ECM application mode broadcast.
<b>tier-based</b>	Specifies the ECM application mode tier-based.
<b>vod</b>	Specifies the ECM application mode VOD.
<i>slot/bay</i>	Specifies the slot and bay of the linecard.

## Command Default

None

## Command Modes

DVB scrambling ECMG configuration mode (config-video-encrypt-dvb-ecmg)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following is an example of how to configure the application mode of ECMG:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dwb
Router(config-video-encrypt-dwb)#ecmg ECMG-7 id 7
Router(config-video-encrypt-dwb-ecmg)#mode vod linecard 7/0
```

## Related Commands

Command	Description
<b>ecmg</b>	Enters the ECM Generator configuration mode.
<b>auto-channel-id</b>	Enables automatic channel ID selection.
<b>connection</b>	Configures the ECMG connection.
<b>ecm-pid-source</b>	Configures the source of ECM PID.
<b>ca-system-id</b>	Configures the CA system ID.
<b>type</b>	Configures the ECMG type.
<b>desc-rule</b>	Configures the descriptor rule.

Command	Description
overrule	Overrules the default settings.

## modular-host subslot

To specify the modular-host line card that will be used for DOCSIS 3.0 downstream or downstream channel bonding operations, use the **modular-host subslot** command in controller configuration mode. To remove the modular-host line card used for DOCSIS 3.0 downstream or downstream channel bonding operations, use the **no** form of this command.

**modular-host subslot** *slot/subslot*  
**no modular-host subslot** *slot/subslot*

### Syntax Description

<i>slot/subslot</i>	The location of the modular-host line card.
---------------------	---

### Command Default

No modular-host line card is configured for DOCSIS 3.0 downstream or downstream channel bonding operations.

### Command Modes

Controller configuration (config-controller)

### 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.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

This command specifies the modular-host line card for DOCSIS 3.0 downstream or downstream channel bonding operations. This applies to the cable interface line card (for example, the Cisco uBR10-MC5X20S-D line card) that is used for these operations. The Wideband SPA itself does not support DOCSIS 3.0 downstream channel bonding operations.



**Note** A maximum of 3 SPA controllers can be hosted on a single cable interface line card.

### Examples

The following example shows how to configure the modular-host line card for DOCSIS 3.0 downstream channel bonding operations for the Wideband SPA located in slot/subslot/bay 1/0/0:

```
Router(config)# controller modular-cable 1/0/0

Router(config-controller)# modular-host subslot 7/0
```

### Related Commands

Command	Description
<b>annex modulation</b>	Sets the annex and modulation for the Wideband SPA.

<b>Command</b>	<b>Description</b>
<b>cable rf-channel</b>	Associates an RF channel on a Wideband SPA with a wideband channel.
<b>controller modular-cable</b>	Enters controller configuration mode to configure the Wideband SPA controller.
<b>ip-address (controller)</b>	Sets the IP address of the Wideband SPA FPGA.
<b>rf-channel frequency</b>	Sets the frequency for each RF channel.
<b>rf-channel ip-address mac-address udp-port</b>	Sets the IP address, MAC address and UDP port for each RF channel.
<b>rf-channel network delay</b>	Specifies the CIN delay for each RF channel.
<b>rf-channel description</b>	Specifies the description for each RF channel.
<b>rf-channel cable downstream channel-id</b>	Assigns a downstream channel ID to an RF channel.

# modulation

To set the QAM modulation format for a specific QAM profile, use the **annex** command in QAM profile configuration mode.

**modulation** {256 | 64}

## Syntax Description

<b>modulation</b> {256   64}	Specifies the QAM modulation format: <ul style="list-style-type: none"> <li>• <b>256</b>– 256-QAM modulation.</li> <li>• <b>64</b>– 64-QAM modulation.</li> </ul>
------------------------------	---

## Command Default

None

## Command Modes

QAM profile configuration (config-qam-prof)

## Command History

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

## Usage Guidelines

Use this command to set the QAM modulation format for a specific QAM profile.

## Examples

The following example shows how to set the QAM modulation format for a specific QAM profile:

```
Router# configure terminal
Router(config)# cable downstream qam-profile 4
Router(config-qam-prof)# modulation 256
```

## Related Commands

Command	Description
<b>cable downstream qam-profile</b>	Set the QAM profile for the cable interface line card.
<b>interleaver-depth</b>	Set the interleaver-depth.
<b>annex</b>	Set the MPEG framing format.
<b>spectrum-inversion</b>	Set the spectrum-inversion on or off.
<b>symbol-rate</b>	Set the symbol rate.

## monitoring-basics

To specify the type of monitoring for subscriber traffic management on a Cisco CMTS router, use the **monitoring-basics** command in enforce-rule configuration mode. To disable the selected monitoring, use the **no** form of this command.

```
monitoring-basics {legacy | peak-offpeak} {docsis10 | docsis11}
no monitoring-basics {legacy | peak-offpeak} {docsis10 | docsis11}
```

Syntax Description	Option	Description
	<b>legacy</b>	Provides only one threshold and one monitoring duration.
	<b>peak-offpeak</b>	Allows the selection of two peak durations within a day.
	<b>docsis10</b>	Specifies application of the enforce-rule to DOCSIS 1.0 cable modems.
	<b>docsis11</b>	Specifies application of the enforce-rule to DOCSIS 1.1 cable modems.

**Command Default** The default for this command is **legacy** and **docsis10**.

**Command Modes** Enforce-rule configuration (enforce-rule)

Command History	Release	Modification
	12.3(9a)BC	This command was introduced.
	12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA. Support for the Cisco uBR7225VXR router was added.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.
	IOS-XE 3.17.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** Legacy monitoring (using the **legacy** keyword) occurs 24 hours a day, with no distinction between peak and offpeak hours. The available monitoring duration is between 10 minutes and 31 days.

Use the **peak-offpeak** keyword to set up monitoring duration and threshold for first peak, second peak, and offpeak monitoring. Each one can be different. After setting up first peak and second peak durations, the remaining hours are treated as offpeak. Monitoring happens during offpeak hours if the offpeak duration and threshold are defined. Monitoring duration is between 60 minutes and 23 hours.

### Examples

The following example shows configuration of peak-offpeak monitoring for DOCSIS 1.1 cable modems:

```
Router(enforce-rule)# monitoring-basics peak-offpeak docsis11
```

The following example shows configuration of legacy monitoring for DOCSIS 1.1 on a Cisco cBR Series Converged Broadband Router:

```
Router(enforce-rule)# monitoring-basics legacy docsis11
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>cable qos enforce-rule</b>	Creates an enforce-rule to enforce a particular QoS profile for subscriber traffic management and enters enforce-rule configuration mode.
<b>debug cable subscriber-monitoring</b>	Displays enforce-rule debug messages for subscriber traffic management on the Cisco CMTS routers.
<b>duration</b>	Specifies the time period and sample rate to be used for monitoring subscribers.
<b>peak-time1</b>	Specifies peak and offpeak monitoring times.
<b>qos-profile registered</b>	Specifies the registered QoS profile that should be used for this enforce-rule.
<b>qos-profile enforced</b>	Specifies a QoS profile that should be enforced when users violate the registered QoS profiles.
<b>service-class (enforce-rule)</b>	Identifies a particular service class for cable modem monitoring in an enforce-rule.
<b>show cable qos enforce-rule</b>	Displays the QoS enforce-rules that are currently defined.
<b>show cable subscriber-usage</b>	Displays subscribers who are violating their registered QoS profiles.

# monitoring-duration



**Note** Effective with Cisco IOS Release 12.3(9a)BC, the **monitoring-duration** command is replaced by the **duration** command.

To specify the time period and sample rate to be used for monitoring subscribers, use the **monitoring-duration** command in enforce-rule configuration mode. To reset an enforce-rule to its default values, use the **no** form of this command.

**monitoring-duration** *minutes* [**sample-rate** *minutes*]  
**no** **monitoring-duration**

## Syntax Description

<i>minutes</i>	Specifies the time (in minutes). The valid range is 10 to 10080, with a default of 360 (6 hours).
<b>sample-rate</b> <i>minutes</i>	(Optional) Rate of sampling, in minutes. The valid range is 1 to 30, with a default value of 15.

## Command Default

The **monitoring-duration** value defaults to 360 minutes (6 hours), and the **sample-rate** value defaults to 15 minutes.

## Command Modes

Enforce-rule configuration (enforce-rule)

## Command History

Release	Modification
12.2(15)BC1	This command was introduced.
12.2(15)BC2	The minimum <b>sample-rate</b> was reduced to 1 minute. Also, the <b>sample-rate</b> is not allowed to be set to a value greater than the <b>monitoring-duration</b> period. If you attempt to do so, the command is ignored and both parameters remain set to their current values.
12.3(9a)BC	This command was replaced by the <b>duration</b> command.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

The **sample-rate** *minutes* must be less than or equal to the **monitoring-duration** *minutes* period.

When you enable an enforce-rule, the Cisco CMTS router periodically checks the bandwidth being used by subscribers, to determine whether any subscribers are consuming more bandwidth than that specified by their registered QoS profile. The Cisco CMTS router keeps track of the subscribers using a sliding window that begins at each sample-rate interval and continues for the monitoring-duration period.

For example, with the default sample-rate interval of 15 minutes and the default monitoring-duration window of 360 minutes, the Cisco CMTS router samples the bandwidth usage every 15 minutes and determines the total bytes transmitted at the end of each 360-minute period. Each sample-rate interval begins a new sliding window period for which the Cisco CMTS router keeps track of the total bytes transmitted.



**Note** The **sample-rate** interval must be less than or equal to the **monitoring-duration** period. If you attempt to set the sample-rate interval to a value greater than the monitor-duration period, the command is ignored and the parameters are unchanged.

When you change the configuration of a currently active enforce-rule, that rule begins using the new configuration immediately to manage the cable modems tracked by this enforce-rule.

For more information about the Subscriber Traffic Management feature and to see an illustration of a sample monitoring window, refer to the Subscriber Traffic Management for the Cisco CMTS Routers feature document on Cisco.com.

## Examples

The following example shows an enforce-rule being configured for a monitoring-duration period that is 20 minutes in length, with a sampling rate of every 10 minutes:

```
Router# configure terminal
Router(config)# cable qos enforce-rule residential
Router(enforce-rule)# monitoring-duration 20 sample-interval 10
```

The following example shows the error message that is displayed when the **sample-rate** interval is configured to be greater than the **monitoring-duration** period. In this situation, the command is ignored and the parameters remain unchanged.

```
Router# configure terminal
Router(config)# cable qos enforce-rule residential
Router(enforce-rule)# monitoring-duration 20 sample-interval 30
```

```
Monitoring duration cannot be less than the Sampling interval -- so the values
would remain unchanged
```

## Related Commands

Command	Description
<b>activate-rule at-byte-count</b>	Specifies the number of bytes that a subscriber can transmit during the monitoring period on a Cisco CMTS router.
<b>cable qos enforce-rule</b>	Creates an enforce-rule to enforce a particular QoS profile for subscriber traffic management and enters enforce-rule configuration mode.
<b>enabled (enforce-rule)</b>	Activates an enforce-rule and begins subscriber traffic management on a Cisco CMTS router.
<b>penalty-period</b>	Specifies the time period that an enforced QoS profile should be in effect for subscribers that violate their registered QoS profiles.
<b>qos-profile enforced</b>	Specifies a QoS profile that should be enforced when users violate their registered QoS profiles.
<b>qos-profile registered</b>	Specifies the registered QoS profile that should be used for this enforce-rule.

Command	Description
<b>show cable qos enforce-rule</b>	Displays the QoS enforce-rules that are currently defined.
<b>show cable subscriber-usage</b>	Displays subscribers who are violating their registered QoS profiles.

# mute

To mute the port, use the **mute** command in the controller sub configuration mode. Use the **no** form of the command to unmute the port.

[no] **mute**

This command has no keywords or arguments.

---

**Command Default** Default is no mute.

---

**Command Modes** Controller sub configuration mode (config-controller).

---

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

---



---

**Usage Guidelines** This command is used to mute the RF channel without changing any channel configuration.

The following example shows how to mute the RF channel:

```
router#configure terminal
router (config)#controller Integrated-Cable 3/0/1
router (config-controller)#rf-chan 15
router (config-rf-chan)#mute
router (config-rf-chan)#exit
router (config-controller)#exit
router (config)#exit
```

---

**Related Commands**

Command	Description
<b>shutdown</b>	Disables or enables the interface on a line card.

# multicast-label

To create a multicast label used for table-based session configuration when more than one multicast source [S, G] is used as backup for the sessions, use the **multicast-label** command in cable video configuration mode.

**multicast-label** *label* **group** *group-ip* **source** *source-ip* **source2** *source-ip* **source3** *source-ip* **source4** *source-ip*

## Syntax Description

<i>label</i>	Specifies the multicast label name.
<b>group</b> <i>group-ip</i>	Identifies the multicast group for the label.
<b>source</b> <i>source-ip</i> <b>source2</b> <i>source-ip</i> <b>source3</b> <i>source-ip</i> <b>source4</b> <i>source-ip</i>	Specifies the multicast sources for the label.

## Command Default

None

## Command Modes

Cable video configuration mode (config-video)

## Command History

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

## Examples

The following example shows how to configure a multicast label:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#table-based
Router(config-video-tb)#multicast-label mlabel1 group 236.0.1.1 source 175.10.5.2 source2
175.10.6.20 source3 175.10.7.2
```

## Related Commands

Command	Description
<b>cable video</b>	Enters cable video configuration mode.
<b>table-based</b>	Enables table-based session configuration.

# multicast-pool

To specify the multicast pool for the downstream controller profile, use the **multicast-pool** command in controller profile configuration mode. To void the multicast pool configuration, use the **no** form of this command.

**multicast-pool** *id*

**no multicast-pool**

## Syntax Description

**Syntax Description** *id* Specifies the multicast pool ID.

## Command Default

None

## Command Modes

Controller profile configuration (config-controller-profile)

## Command History

Command History	Release	Modification
	Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

Use this command to specify the multicast pool for the downstream controller profile.

## Examples

The following example shows how to specify the multicast pool for the downstream controller profile:

```
Router# configure terminal
Router(config)# cable downstream controller-profile 1
Router(config-controller-profile)# multicast-pool 1
```

## Related Commands

Command	Description
<b>cable downstream controller-profile</b>	Configures the downstream controller profile.

# multicast-uplink

To set a TenGigabit Ethernet port for multicast traffic, use the **multicast-uplink** command in cable video configuration mode.

**multicast-uplink** *interface-name* [{**access-list** *access-list-name*}]

<i>interface-name</i>	Specifies the interface for multicast traffic.
<b>access-list</b> <i>access-list-name</i>	Specifies the access list for the multicast uplink.

**Command Default** None

**Command Modes** Cable video configuration mode (config-video)

## Command History

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

## Examples

The following example shows how to configure a multicast uplink:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#multicast-uplink TenGigabitEthernet4/1/2
```

The following example shows how to configure a multicast uplink with an access list:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#multicast-uplink Port-channel23 access-list all-multicasts
```

## Related Commands

Command	Description
cable video	Enters cable video configuration mode.

## name

To specify the name of the CMTS tag, use the **name** command in the cmts-tag configuration mode. To remove the name, use the **no** form of this command.

**name** *tag-name*

**no name** *tag-name*

### Syntax Description

<i>tag-name</i>	Name of the CMTS tag. The configured name is added to the DOCSIS load balancing group and policies.
-----------------	---

### Command Default

No default behavior or values.

### Command Modes

CMTS tag mode (cmts-tag)

### Command History

Release	Modification
12.2(33)SCC	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Examples

The following example shows how to give name to a CMTS tag using the **name** command:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# cable tag 1
Router(cmts-tag)# name cisco
```

### Related Commands

Command	Description
<b>cable load-balance docsis-group</b>	To configure a DOCSIS load balancing group on the CMTS.
<b>show cable load-balance docsis-group</b>	To display real-time configuration, statistical and operational information for load balancing operations on the router.
<b>cable tag</b>	To configure a tag for a DOCSIS load balancing group on the CMTS.

## nc

To configure the network controller for virtual ARPD, use the **nc** command in OOB virtual ARPD configuration mode. To void the network controller configuration, use the **no** form of this command.

**nc ip udp-port port\_number**

**no nc ip udp-port port\_number**

<b>Syntax Description</b>	<i>ip</i>	Specifies the IP address of the network controller.
	<i>port_number</i>	Specifies the destination UDP port number.

**Command Default** None

**Command Modes** OOB Virtual ARPD configuration (config-oob-varpd)

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** Use this command to configure the network controller for virtual ARPD.

**Examples** The following example shows how to configure the network controller for virtual ARPD:

```
Router# configure terminal
Router(config)# cable oob
Router(config-oob)# virtual-arpd 1
Router(config-oob-varpd)# nc 225.225.225.225 udp-port 23411
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>virtual-arpd</b>	Defines a virtual ARPD configuration.
	<b>ip</b>	Configures the virtual ARPD source IP address.
	<b>source-id</b>	Configures the source ID for virtual ARPD.

# network

To configure the DHCP address pool with the specified *network-number* and subnet *mask*, which are the DHCP *yiaddr* field and Subnet Mask (DHCP option 1) field, use the **network** command in global configuration mode. To remove this configuration, use the **no** form of this command.

**network** *network-number* [*mask*]

**no network** *network-number* [*mask*]

## Syntax Description

<i>network-number</i>	The DHCP <i>yiaddr</i> field.
<i>mask</i>	Subnet Mask (DHCP option 1). If you do not specify the <i>mask</i> value, it is supported to 255.255.255.255.

## Command Default

DHCP settings are not configured by default.

## Command Modes

DHCP configuration

## Command History

Release	Modification
Release 12.2(4)BC1	Supported on the Cisco uBR7100 series, Cisco uBR7200 series, and Cisco uBR10012 routers.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command requires that you first use the **dhcp ip dhcp pool name** command in global configuration mode to enter DHCP configuration mode.



**Note** To create an address pool with a single IP address, use the **host** command instead of **network**.

For additional information about DHCP support on the Cisco CMTS, refer to the following document on Cisco.com:

- *DHCP and ToD Servers on the Cisco CMTS*

## Examples

The following example illustrates use of the **network** command with the **ip dhcp pool name** command.

```
Router# configure terminal
Router(config)# ip dhcp pool name platinum
Router(dhcp-config)# network 10.10.10.0 255.255.0.0

Router(dhcp-config)#
```

**Related Commands**

Command	Description
<b>ip dhcp pool name</b>	Creates a DHCP address pool and enters DHCP pool configuration file mode.

# network-delay

To configure the DEPI latency measurement, use the **network-delay dlm** command in core-interface configuration mode. To void the DEPI latency measurement configuration, use the **no** form of this command.

**network-delay dlm** *interval\_in\_seconds* [measure-only]

**no network-delay dlm**

<b>Syntax Description</b>	<i>interval_in_seconds</i> Specifies the sampling interval in seconds.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Core-interface configuration (config-rpd-core)
----------------------	--

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

<b>Usage Guidelines</b>	Use this command to configure the DEPI latency measurement.
-------------------------	---

The following example shows how to configure the DEPI latency measurement:

```
Router# configure terminal
Router(config)# cable rpd 1
Router(config-rpd)# core-interface tengigabitethernet 3/0/1
Router(config-rpd-core)# network-delay dlm 100
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>core-interface</b>	Configures the core-interface of the RPD.

# nls

To enable Network Layer signaling (NLS) functionality, use the **nls** command in global configuration mode. To disable NLS functionality, use the **no** form of this command.

**nls** [authentication]  
**no nls** [authentication]

## Syntax Description

<b>authentication</b>	(Optional) Enables NLS protocol security authentication.
-----------------------	--

## Command Default

Disabled.

## Command Modes

Global configuration

## Command History

Release	Modification
12.3(21a)BC3	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

It is recommended that NLS message authentication is enabled all the time.

## Examples

The following example shows nls enabled on a router:

```
router (config)# nls
```

## Related Commands

Command	Description
<b>cpd</b>	Enables the CPD feature.
<b>nls ag-id auth-key</b>	Configures an Authorization Group Identifier (AG ID) for CMTS.
<b>nls resp-timeout</b>	Configures NLS response timeout.

## nls ag-id auth-key

To configure an Authorization Group Identifier (AG ID) for CMTS, use the **nls ag-id auth-key** command in global configuration mode. To disable the AG ID, use the **no** form of this command.

```
nls ag-id ag-id number auth-key auth-key char
no nls ag-id auth-key
```

### Syntax Description

<i>ag-id number</i>	Authorization Group Identifier. The valid range is 1- 4294967295.
<i>auth-key char</i>	Authentication key provisioned on CMTS. The valid range is 20-64 characters.

### Command Default

Disabled

### Command Modes

Global configuration

### Command History

Release	Modification
12.3(21a)BC3	This command was introduced.
IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Examples

The following example shows configuring the AG ID:

```
Router(config) # nls ag-id 345 auth-key aabbccddeeeeddcbbaa
```

### Related Commands

Command	Description
<b>cpd</b>	Enables CPD.
<b>nls</b>	Enables Network Layer signaling (NLS) functionality.
<b>nls resp-timeout</b>	Configures NLS response timeout.

## nls resp-timeout

To configure the NLS response timeout, use the **nls resp-timeout** command in global configuration mode. To disable CPD, use the **no** form of this command.

**nls resp-timeout** *timeout number*  
**no nls resp-timeout** *timeout number*

<b>Syntax Description</b>	<i>timeout number</i>	Controls the time CTMS will wait before getting a response for an NLS information request. The valid range is 1-60 seconds. Upon a response timeout, the CPD message is dropped.
---------------------------	-----------------------	--

**Command Default** The default timeout is 1 second.

**Command Modes** Global configuration

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.3(21a)BC3	This command was introduced.
	IOS-XE 3.15.OS	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

**Examples** The following example shows configuring the NLS response timeout:

```
Router(config)#nls rssp-timeout 35
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>cpd</b>	Enables CPD.
	<b>nls</b>	Enables Network Layer signalling (NLS) functionality.
	<b>nls ag-id auth-key</b>	Configures an Authorization Group Identifier (AG ID) for CMTS.

## ofdm-freq-excl-band

To specify the range of frequencies on this port that are excluded from all OFDM channels, use the **ofdm-freq-excl-band** command in controller configuration mode. To undo the frequency range assignment, use **no** form of this command.

**ofdm-freq-excl-band start-frequency** *frequency* **width** *value*

**no ofdm-freq-excl-band start-frequency** *frequency* **width** *value*

### Syntax Description

<i>frequency</i>	Frequency of the left edge of the exclusion band in Hz.
<i>value</i>	Width of the exclusion band in Hz. Valid range is from 1000000 to 1110000000.

### Command Default

None.

### Command Modes

Controller configuration (config-controller)

### Command History

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

### Usage Guidelines

Use this command to specify the range of frequencies on this port that are excluded from all OFDM channels.

### Examples

The following example shows how to specify the range of frequencies on this port that are excluded from all OFDM channels:

```
Router# configure terminal
Router(config)# controller integrated-cable 3/0/0
Router(config-controller)# ofdm-freq-excl-band start-frequency 10800000 width 1000000
```

# ofdm channel-profile

To configure the OFDM RF channel, use the **ofdm channel-profile** command in RF-channel configuration mode. To undo the configuration, use **no** form of this command.

**ofdm channel-profile** *id***start-frequency** *frequency* [**width** *value*] [**plc** *plc-spectrum-start-freq*]

**no ofdm channel-profile** *id***start-frequency** *frequency* [**width** *value*] [**plc** *plc-spectrum-start-freq*]

## Syntax Description

<b>ofdm channel-profile</b> <i>id</i>	OFDM RF channel profile.
<b>start-frequency</b> <i>frequency</i>	OFDM RF channel start frequency in Hz.
<b>width</b> <i>value</i>	Channel width in Hz.
<b>plc</b> <i>plc-spectrum-start-freq</i>	PLC spectrum start frequency in Hz.

## Command Default

None.

## Command Modes

RF-channel configuration (config-rf-chan)

## Command History

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

## Usage Guidelines

Use this command to configure the OFDM RF channel.

## Examples

The following example shows how to configure the OFDM RF channel:

```
Router# configure terminal
Router(config)# controller integrated-cable 3/0/0
Router(config-controller)# rf-chan 158
Router(config-rf-chan)# ofdm channel-profile 0 start-frequency 627000000 width 192000000
plc 720000000
```

# onid

To override the default ONID, use the **onid** command in the service distribution group configuration mode. To revert back to the default ONID, use the **no** form of the command.

**onid** *number*

<b>Syntax Description</b>	<i>number</i> Defines the new ONID value. By default, the system ONID is 0, which is commonly used in North America.
---------------------------	--

<b>Command Default</b>	None.
------------------------	-------

<b>Command Modes</b>	Service distribution group configuration mode (config-video-sdg)
----------------------	--

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

<b>Usage Guidelines</b>	This command is used to override the default ONID value. If you perform this configuration, all channels associated with the configured SDG will have the new ONID value.
-------------------------	---

The following example shows how to override the default ONID value:

```
router#configure terminal
router(config)#cable video
router(config-video)#service-distribution-group sdg id 1
router(config-video-sdg)#onid 100
```

## Related Commands

Command	Description
<b>service-distribution-group</b>	Defines a service distribution group.
<b>rf-port integrated-cable</b>	Defines the physical slot/bay/port to be used in a video service.
<b>psi-interval</b>	Override the default PSI value.
<b>show cable video service-distribution-group</b>	Displays the SDG configuration.

# oui

To configure the Organizational Unique Identifier (OUI) of the CM for the CMTS tag, use the **oui** command in the cmts-tag configuration mode. To remove the configured OUI from the CMTS tag, use the **no** form of this command.

```
[exclude] oui oui-of-CM
no oui oui-of-CM
```

Syntax Description	exclude	(Optional) Configures the tag to exclude the specified OUI.
	oui-of-CM	MAC address prefix of the vendor.

**Command Default** None

**Command Modes** CMTS tag mode (cmts-tag)

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

## Examples

The following example shows how to configure the OUI for the CMTS tag using the **oui** command:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# cable tag 1
Router(cmts-tag)# oui 00.1a.c3
```

Related Commands	Command	Description
	<b>cable load-balance docsis-group</b>	To configure a DOCSIS load balancing group on the CMTS.
	<b>show cable load-balance docsis-group</b>	To display real-time configuration, statistical and operational information for load balancing operations on the router.
	<b>cable tag</b>	To configure a tag for a DOCSIS load balancing group on the CMTS.

# output-rate



**Note** Starting with Cisco IOS Release 12.2(33)SCG, the **output-rate** command is not supported on the Cisco uBR10012 router.

To specify a custom-defined output line rate to a WAN interface instead of the default output line rate, use the **output-rate** command in interface configuration mode. Use the **no** form of this command to use the default output line rate.

**output-rate** *rate*  
**no output-rate**

## Syntax Description

<i>rate</i>	Output rate to the WAN interface, in kilobits per second. Valid values range from 1 to 1,000,000.
-------------	---

## Command Default

Gigabit Ethernet output line rate is 1,000,000 kbps.

## Command Modes

Interface configuration (config-if)

## Command History

Release	Modification
12.2(33)SCC	This command was introduced.
12.2(33)SCG	Support for this command was removed for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command specifies a custom-defined output line rate for the WAN interface.

Starting with Cisco IOS Release 12.2(33)SCG, the **output-rate** command is not supported and the value 10,000 is used for the output line rate on a Cisco uBR10012 router.

## Examples

The following example shows how to specify a custom-defined output line rate for the WAN interface:

```
Router# configure terminal
Router(config)
)# interface gigabitethernet 1/0/0
Router(config-if)
)# output-rate 100
```

## Related Commands

Command	Description
<b>show running-config interface gigabitethernet</b>	Displays the configuration settings for the specified Gigabit Ethernet interface.

Command	Description
<b>show interfaces gigabitethernet</b>	Displays the status and configuration settings for Gigabit Ethernet interfaces.

# override

To override the Type/Length/Value (TLV) or SNMP when assigning a restricted load balancing group (RLBG) to CM, use the **override** command in the cmts-tag configuration mode. To reenable the TLV or SNMP when assigning a RLBG to CM, use the **no** form of this command.

**override**

**no override**

## Command Default

TLV or SNMP are effective when assigning a RLBG to CM.

## Command Modes

CMTS tag mode (cmts-tag)

## Command History

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

## Examples

The following example shows how to override the TLV or SNMP when assigning a RLBG using the **override** command:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# cable tag 1
Router(cmts-tag)# override
```

## Related Commands

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

# override

To override the default settings, use the **override** command in the DVB scrambling ECMG configuration mode. To void the override configuration, use the **no** form of this command.

**override**  
**no override**

## Command Default

None

## Command Modes

DVB scrambling ECMG configuration mode (config-video-encrypt-dvb-ecmg)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following is an example of how to override the default settings:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dwb
Router(config-video-encrypt-dvb)#ecmg ECMG-7 id 7
Router(config-video-encrypt-dvb-ecmg)#override
Router(config-video-encrypt-dvb-ecmg-override)#
```

## Related Commands

Command	Description
<b>ecmg</b>	Enters the ECM Generator configuration mode.
<b>ac-start-delay</b>	Specifies the time between start of first CP after a change in AC and start of ECM broadcast.
<b>ac-stop-delay</b>	Specifies the time between end of last CP preceding a change in AC and end of ECM broadcast.
<b>max-comp-time</b>	Specifies the maximum time needed by ECMG to compute an ECM.
<b>max-streams</b>	Specifies the maximum number of simultaneous open streams supported by the ECMG on a channel.
<b>min-cp-duration</b>	Specifies the minimum crypto period.
<b>rep-period</b>	Specifies the time between two ECM packets at the output.
<b>start-delay</b>	Specifies the delay between the start of CP and ECM broadcast.

<b>Command</b>	<b>Description</b>
<b>stop-delay</b>	Specifies the delay between the end of CP and ECM broadcast.
<b>trans-start-delay</b>	Specifies the transition start delay.
<b>trans-stop-delay</b>	Specifies the transition stop delay.

## overwrite-scg

To enable Scrambling Control Group (SCG) overwrite, use the **overwrite-scg** command in the DVB scrambling EIS configuration mode. To disable the SCG overwrite, use the **no** form of this command.

**overwrite-scg**  
**no overwrite-scg**

### Command Default

None

### Command Modes

DVB scrambling EIS configuration mode (config-video-encrypt-dvb-eis)

Release	Modification
IOS-XE 16.4.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following is an example of how to enable Scrambling Control Group (SCG) overwrite:

```
Router>enable
Router#configure terminal
Router(config)#cable video
Router(config-video)#encryption
Router(config-video-encrypt)#dwb
Router(config-video-encrypt-dwb)#eis EIS-1 id 1
Router(config-video-encrypt-dwb-eis)#overwrite-scg
```

### Related Commands

Command	Description
<b>eis</b>	Enters the Event Information Scheduler configuration mode.
<b>listening-port</b>	Configures the listening TCP port.
<b>cp-overrule</b>	Overrules and specifies the crypto period duration.

# packetcable

To enable PacketCable operations on the Cisco CMTS, use the **packetcable** command in global configuration mode. To disable PacketCable operations, use the **no** form of this command.

**packetcable**  
**no packetcable**

**Syntax Description** This command has no keywords or arguments.

**Command Default** PacketCable operation is disabled.

**Command Modes** Global Configuration (config)

Release	Modification
12.2(8)BC2	This command was introduced for the Cisco uBR7200 series universal broadband router.
12.2(11)BC1	Support was added for automatically creating a random Element ID when PacketCable operations are enabled.
12.2(15)BC1	Support was added for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** This command enables PacketCable operations on all cable interfaces and takes effect immediately. If you do not need to change any parameters from their default values, this is the only command needed to enable PacketCable operations.

In Cisco IOS Release 12.2(11)BC1 and later releases, this command also automatically creates a random Element ID for the CMTS that is in the range of 0 and 99,999. To ensure that this Element ID is unique across the entire PacketCable domain, you should use the **packetcable element-id** command.



**Note** PacketCable operations can be configured together with HCCP N+1 redundancy, but the PacketCable states are not synchronized between the Working and Protect interfaces. If a switchover occurs, existing voice calls continue, but when the user hangs up, PacketCable event messages are not generated because the Protect interface is not aware of the previous call states. However, new voice calls can be made and proceed in the normal fashion.

### Channel Width Limitations

The 200,000 Hz channel width cannot be used on upstreams that support PacketCable voice calls, or on any upstreams that use Unsolicited Grant Service (UGS) or UGS with Activity Detection (UGS-AD) service flows. Using this small a channel width with voice and other UGS/UGS-AD service flows results in calls being rejected because of “DSA MULTIPLE ERRORS”.

### Examples

The following example shows PacketCable operation being enabled:

```
Router# configure terminal
Router(config)# packetcable
Router(config)#
```

The following example shows PacketCable operation being disabled (default):

```
Router# configure terminal
Router(config)# no packetcable
Router(config)#
```

#### Related Commands

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

# packetcable authorize vanilla-docsis-mta

To allow Unsolicited Grant Service (UGS) service flows without a proper PacketCable gate ID when PacketCable operations are enabled on the Cisco CMTS, use the **packetcable authorize vanilla-docsis-mta** command in global configuration mode. To prevent CMs from requesting non-PacketCable UGS service flows when PacketCable operations are enabled, use the **no** form of this command.

**packetcable authorize vanilla-docsis-mta**  
**no packetcable authorize vanilla-docsis-mta**

## Syntax Description

This command has no keywords or arguments.

## Command Default

Non-PacketCable UGS service flows are not allowed when PacketCable operations are enabled.

## Command Modes

Global Configuration (config)

## Command History

Release	Modification
12.2(11)BC2	This command was introduced for the Cisco uBR7200 series universal broadband router.
12.2(15)BC1	Support was added for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

By default, when PacketCable operations are enabled (using the **packetcable** ccommand), CMs must follow the PacketCable protocol when requesting UGS service flows. This prevents DOCSIS CMs that do not support PacketCable operations from using DOCSIS-style UGS service flows.

If you have a mixed network that contains both PacketCable and non-PacketCable DOCSIS CMs, you can allow DOCSIS CMs to request UGS service flows by using the **packetcable authorize vanilla-docsis-mta** command. If, however, your CMTS is providing PacketCable services, use the **no packetcable authorize vanilla-docsis-mta** command to disable DOCSIS-style service flows. This is the default configuration when PacketCable operations are enabled, and it requires that CMs must provide a validly authorized gate ID before being granted a UGS service flow.

## Examples

The following example shows PacketCable operation being enabled, while still allowing DOCSIS-style UGS service flows:

```
Router# configure terminal
Router(config)# packetcable
Router(config)# packetcable authorize vanilla-docsis-mta
```

The **show packetcable global** command has also been enhanced to display whether non-PacketCable DOCSIS-style UGS service flows are allowed.

The following is a sample output on the Cisco uBR10012 router:

```
Router# show packetcable global
Packet Cable Global configuration:
```

```

Enabled      : Yes
Element ID: 12456
Max Gates   : 1048576
Allow non-PacketCable UGS
Default Timer value -
  T0        : 30000 msec
  T1        : 300000 msec
  T2        : 2000 msec
  T5        : 500 msec
Router#

```

The following is a sample output on a Cisco cBR series router:

```

Router# show packetcable global
Packet Cable Global configuration:
Packetcable DQOS Enabled      : Yes
Packetcable Multimedia Enabled : No
Element ID: 88330
Max Gates   : 512000
Allow non-PacketCable UGS
Default Multimedia Timer value -
  T1          : 200000 msec
  Persistent gate : 0 hour
  Volume Limit   : STOPPED
Default DQoS Timer value -
  T0          : 30000 msec
  T1          : 300000 msec
Client Accept Timer: Disabled
Client Accept Timer Expired: 0
Packetcable DQOS Gate Send SubscriberID Enabled: No
Router#

```

### Related Commands

Command	Description
<b>clear packetcable gate counter commit</b>	Resets the counters that track the total number of committed gates.
<b>packetcable</b>	Enables PacketCable operations on the Cisco CMTS.
<b>packetcable element-id</b>	Configures the PacketCable Event Message Element ID.
<b>packetcable gate maxcount</b>	Changes the maximum number of PacketCable gate IDs in the gate database on the Cisco CMTS.
<b>packetcable timer</b>	Changes the value of the different PacketCable DQoS timers.
<b>show packetcable gate</b>	Displays information about one or more gates in the gate database.
<b>show packetcable gate counter commit</b>	Displays the total number of committed gates since system reset or since the counter was last cleared.
<b>show packetcable global</b>	Displays the current PacketCable configuration.

# packetcable element-id

To configure the PacketCable Event Message Element ID on the Cisco CMTS, use the **packetcable element-id** command in global configuration mode. To reset the counter to its default value, use the **no** form of this command.

**packetcable element-id** *n*  
**no packetcable element-id**

## Syntax Description

<i>n</i>	PacketCable Event Message Element ID for the Cisco CMTS. The valid range is 0 through 99999, with a default that is a random number in that range.
----------	--

## Command Default

A random value between 0 and 99,999.

## Command Modes

Global Configuration (config)

## Command History

Release	Modification
12.2(11)BC1	This command was introduced for the Cisco uBR7200 series universal broadband router.
12.2(15)BC1	Support was added for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

The PacketCable Event Message specification (PKT-SP-EM-I03-011221) requires that each trusted PacketCable network element that generates an Event Message MUST identify itself with a static Element ID that is unique across an entire PacketCable domain. This command allows you to configure the CMTS with an Element ID that is unique for your particular network. If you do not manually configure this parameter with the **packetcable element-id** command, it defaults to a random value between 0 and 99,999 when PacketCable operations is enabled.

The CMTS includes the Element ID in its Event Messages, along with its timezone information. You can display the current value using the **show packetcable global** command.

## Examples

The following example shows the Event Message Element ID for this particular CMTS being set to 12456:

```
Router# configure terminal
Router(config)# packetcable element-id 12456
Pktcbl: Configured element ID 12456
Router(config)#
```

## Related Commands

Command	Description
<b>packetcable</b>	Enables PacketCable operations on the Cisco CMTS.

Command	Description
<b>packetcable authorize vanilla-docsis-mta</b>	Allows Unsolicited Grant Service (UGS) service flows without a proper PacketCable gate ID when PacketCable operations are enabled on the Cisco CMTS.
<b>packetcable gate maxcount</b>	Changes the maximum number of PacketCable gate IDs in the gate database on the Cisco CMTS.
<b>packetcable timer</b>	Changes the value of the different PacketCable DQoS timers.
<b>show packetcable global</b>	Displays the current PacketCable configuration, including the Element ID.

# packetcable gate maxcount

To change the maximum number of PacketCable gate IDs in the gate database on the Cisco CMTS, use the **packetcable gate maxcount** command in global configuration mode. To reset the counter to its default value, use the **no** form of this command.

**packetcable gate maxcount** *n*  
**no packetcable gate maxcount**

## Syntax Description

<i>n</i>	Maximum number of gate IDs to be allocated in the gate database on the CMTS.  The valid range on the Cisco uBR10012 and Cisco uBR7200 series routers is 512 through 2097152, with a default value of 2097152 (8 * 512 * 512), which is sufficient to support 8 cable interface line cards.  The valid range on the Cisco cBR series routers is 1 to 512000 and the default is 512000.
----------	---

## Command Default

2097152 gate IDs on the Cisco uBR10012 and Cisco uBR7200 series routers.  
 512000 gate IDs on the Cisco cBR series routers.

## Command Modes

Global Configuration (config)

## Command History

Release	Modification
12.2(8)BC2	This command was introduced for the Cisco uBR7200 series universal broadband router.
12.2(11)BC2	The maximum number of possible gates and the default number of gates were doubled from 1,048,576 to 2,097,152 to accommodate a maximum of eight cable interface line cards (where each cable interface line card can use a maximum of 512*512, or 262,144, gates).
12.2(15)BC1	Support was added for the Cisco uBR10012 router.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

This command configures the number of gate IDs that the Cisco CMTS can store in its gate database. Because each PacketCable gate ID typically refers to both an upstream gate and a downstream gate, multiply this number by 2 to get the maximum number of gates that can be created on the Cisco CMTS.



**Note** Each cable interface line card on the Cisco uBR10012 and Cisco uBR7200 series routers supports a maximum of 512\*512 (262,144) PacketCable gates, so ensure that you set the maximum number of gates to accommodate all installed cable interface line cards.

## Examples

The following example shows the maximum number of gate IDs being set to 524288 on the Cisco uBR10012 router, which is sufficient for two cable interface line cards:

```
Router# configure terminal
Router(config)# packetcable gate maxcount 524288
```

The following example shows the maximum number of gate IDs being set to 10 on a Cisco cBR series router:

```
Router# configure terminal
Router(config)# packetcable gate maxcount 10
```

#### Related Commands

Command	Description
<b>packetcable</b>	Enables PacketCable operations on the Cisco CMTS.
<b>packetcable authorize vanilla-docsis-mta</b>	Allows Unsolicited Grant Service (UGS) service flows without a proper PacketCable gate ID when PacketCable operations are enabled on the Cisco CMTS.
<b>packetcable element-id</b>	Configures the PacketCable Event Message Element ID.
<b>packetcable timer</b>	Changes the value of the different PacketCable DQoS timers.
<b>show packetcable global</b>	Displays the current PacketCable configuration.

# packetcable gate send-subscriberID

To include subscriber identification in GATE-OPEN and GATE-CLOSE gate control messages, use the **packetcable gate send-subscriberID** command in global configuration mode. To remove subscriber identification information from the gate control messages, use the **no** form of this command.

**packetcable gate send-subscriberID**  
**no packetcable gate send-subscriberID**

**Syntax Description** This command has no arguments or keywords.

**Command Default** No subscriber identification information is provided in the GATE-OPEN and GATE-CLOSE gate control messages.

**Command Modes** Global configuration (config)

Release	Modification
12.3(23)BC1	This command was introduced.
12.2(33)SCB	This command was integrated into Cisco IOS Release 12.2(33)SCB. Support for the Cisco uBR7225VXR router was added.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

**Examples** The following example enables gate control subscriber identification information using the **packetcable gate send-subscriberID** command:

```
Router(config)# packetcable gate send-subscriberID
```

Command	Description
<b>packetcable</b>	Enables PacketCable operation.
<b>show packetcable gate</b>	Displays information about one or more gates in the gate database.
<b>show packetcable global</b>	Displays the current PacketCable configuration.

**packetcable multimedia**

To enable the Cisco CMTS router to start or stop responding to PCMM COPS messages received from the PCMM Policy Server, use the **packetcable multimedia** command in the Global Configuration (config) mode.

**packetcable multimedia****no packet cable multimedia**

To configure the SessionClassID that the Cisco CMTS router applies to high priority PCMM calls, use the **packetcable multimedia high-priority** command in the Global Configuration (config) mode.

**packetcable multimedia high-priority** *priority***Syntax Description**

**high-priority** To configure the SessionClassID for high priority calls.

*priority* SessionClassID of the high priority (911) calls.

**Command Default**

The default SessionClassID of high priority (911) calls is 15.

**Command Modes**

Global Configuration (config)

**Command History**

Release	Modification
IOS-XE 3.15.0S	The <b>packetcable multimedia</b> command was implemented on the Cisco cBR Series Converged Broadband Routers.
Cisco IOS XE Amsterdam 17.3.1x	The <b>packetcable multimedia high-priority</b> command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines**

Enable packetcable multimedia before you use **packetcable multimedia high-priority** *priority*.

## packetcable timer

To change the value of the different PacketCable Dynamic Quality of Service (DQoS) timers, use the **packetcable timer** command in global configuration mode. To reset a timer to its default value, use the **no** form of this command.

```
packetcable timer {T0 timer-value | T1 timer-value | multimedia T1 timer-value}
no packetcable timer {T0 timer-value | T1 timer-value | multimedia T1 timer-value}
```

Syntax Description		
<b>T0</b> timer-value	Sets the T0 timer in milliseconds. The valid range is from 1 to 1,000,000,000 milliseconds, with a default value of 30000 milliseconds (30 seconds).	
<b>T1</b> timer-value	Sets the T1 timer in milliseconds. The valid range is from 1 to 1,000,000,000 milliseconds, with a default value of 200000 milliseconds (200 seconds).	
<b>multimedia T1</b> timer-value	Sets the PacketCable multimedia T1 timer in milliseconds. The valid range is 1 to 1,000,000,000 milliseconds, with a default value of 200000 milliseconds (200 seconds).	

**Command Default** None

**Command Modes** Global Configuration (config)

Command History	Release	Modification
	12.2(8)BC2	This command was introduced for the Cisco uBR7200 series universal broadband router.
	12.2(11)BC2	The T2 and T5 timers were removed to conform to the requirements of the PacketCable DQoS Engineering Change Notice (ECN) 02148.
	12.2(15)BC1	Support was added for the Cisco uBR10012 router.
	IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** This command sets the following timers, which are defined in the *PacketCable™ Dynamic Quality-of-Service Specification* (PKT-SP-DQOS-I03-020116):

- T0 specifies the amount of time that a gate ID can remain allocated without any specified gate parameters. The timer begins counting when a gate is allocated with a Gate-Alloc command. The timer stops when a Gate-Set command marks the gate as Authorized. If the timer expires without a Gate-Set command being received, the gate is deleted.
- T1 specifies the amount of time that an authorization for a gate can remain valid. It begins counting when the CMTS creates a gate with a Gate-Set command and puts the gate in the Authorized state. The timer stops when the gate is put into the committed state. If the timer expires without the gate being committed, the CMTS must close the gate and release all associated resources.



**Note** The new timer values apply to all gates that are created after giving the command. Existing gates are not affected.

### Examples

The following example shows the T0 timer being set to 20 seconds (20,000 milliseconds):

```
Router# configure terminal
Router(config)# packetcable timer T0 20000
```

### Related Commands

Command	Description
<b>packetcable</b>	Enables PacketCable operations on the Cisco CMTS.
<b>packetcable authorize vanilla-docsis-mta</b>	Allows Unsolicited Grant Service (UGS) service flows without a proper PacketCable gate ID when PacketCable operations are enabled on the Cisco CMTS.
<b>packetcable element-id</b>	Configures the PacketCable Event Message Element ID.
<b>packetcable gate maxcount</b>	Changes the maximum number of PacketCable gate IDs in the gate database on the Cisco CMTS.
<b>show packetcable global</b>	Displays the current PacketCable configuration. show packetcable global

## pcr-based-source-switch

To configure source switching of multicast SPTS streams to be based on PCR PID bitrate instead of stream bitrate, use the **pcr-based-source-switch** command in video configuration mode. To disable the PCR PID based source switch, use the **no** form of this command.

**pcr-based-source-switch**

**no pcr-based-source-switch**

---

### Command Default

None

---

### Command Modes

Video configuration (config-video)

---

### Command History

Release	Modification
Cisco IOS XE 16.8.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following example shows how to enable PCR PID based source switch:

```
Router(config)#cable video
Router(config-video)#pcr-based-source-switch
```

# peak-time1

To specify peak and offpeak monitoring times on a Cisco CMTS router, use the **peak-time1** command in enforce-rule configuration mode. To disable configuration of peak monitoring times, use the **no** form of this command.

```

peak-time1 {hourhour:minutes} duration minutes avg-rate rate
peak-time2 {hourhour:minutes} duration minutes avg-rate rate
duration offpeak-minutes avg-rate offpeak-minutes
sample-interval minutes]minutes [{penalty minutes}]{downstream | upstream}[{enforce}]
no peak-time1 {hourhour:minutes} duration minutes avg-rate rate
peak-time2 {hourhour:minutes} duration minutes avg-rate rate
duration offpeak-minutes avg-rate offpeak-minutes
sample-interval minutes]minutes [{penalty minutes}]{downstream | upstream}[{enforce}]

```

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```

peak-time1 {hourhour:minutes} duration minutes avg-rate rate
peak-time2 {hourhour:minutes} duration minutes avg-rate rate
duration offpeak-minutes avg-rate offpeak-minutes
sample-interval minutesminutes [{penalty-period minutes}]{downstream | upstream}[{enforce}]
no peak-time1 {hourhour:minutes} duration minutes avg-rate rate
peak-time2 {hourhour:minutes} duration minutes avg-rate rate
duration offpeak-minutes avg-rate offpeak-minutes
sample-interval minutesminutes [{penalty-period minutes}]{downstream | upstream}[{enforce}]

```

### Syntax Description

<i>hour</i>   <i>hour:minutes</i>	Specifies the time of day, in either hh or hh:mm format, during which monitoring occurs for the peak time.  If the time is specified in hour (hh), the valid range is 1 to 23 using a 24-hour clock.  If the time is specified in hour:minutes (hh:mm), the valid range for hour is 1 to 23 using a 24-hour clock, and the valid range for minutes is 0 to 59.
<b>duration</b> <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 <b>peak-time2</b> keyword. The valid range is 60 to 1440.  For Cisco cBR Series Converged Broadband Routers, the valid range is 6 to 1440.
<b>avg-rate</b> <i>rate</i>	Specifies the average sampling rate in kilobits per second for the specified duration. The valid range is 1 to 400000 kilobits with no default.
<b>duration</b> <i>offpeak-minutes</i>	(Optional) Specifies the size of the sliding window (in minutes) during which the subscriber usage is monitored for the remaining offpeak time (time not specified for peak monitoring). The valid range is 60 to 1440.  For Cisco cBR Series Converged Broadband Routers, the valid range is 6 to 1440.
<b>avg-rate</b> <i>offpeak-rate</i>	Specifies the average sampling rate in kilobits per second for the specified offpeak duration. The valid range is 1 to 400000 kilobits with no default.

<b>peak-time2</b> hour   hour:minutes	(Optional) Specifies the time of day during which monitoring occurs for a second peak time. The time can be specified either in hour or hour:minutes format. The valid range for hour is 1 to 23 using a 24-hour clock, and the valid range for minutes is 0 to 59.
<b>sample-interval</b> minutes	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.
<b>penalty</b> minutes	(Optional) Specifies the period (in minutes) during which a cable modem can be under penalty. The valid range is 1 to 10080.
<b>penalty-period</b> minutes	(Optional) Specifies the period during which an enforced quality of service (QoS) profile should be in force for subscribers who violate their registered QoS profile.
<b>downstream</b>	Specifies monitoring of traffic in the downstream direction.
<b>upstream</b>	Specifies monitoring of traffic in the upstream direction.
<b>enforce</b>	(Optional) Specifies that the enforce-rule QoS profile should be applied automatically if a user violates their registered QoS profile.

**Command Default**

Peak and offpeak monitoring is disabled. The only default value for the **peak-time1** command is the 15-minute sample interval.

**Command Modes**

Enforce-rule configuration (enforce-rule)

**Command History**

Release	Modification
12.3(9a)BC	This command was introduced.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA. Support for the Cisco uBR7225VXR router was added.
12.2(33)SCD2	The <b>minute-level granularity (hh:mm) for peak-time1 and peak-time2 duration, and the penalty</b> keyword option were added.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.
IOS-XE 3.17.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers. The <b>penalty</b> keyword option was removed. The <b>penalty-period</b> option was added.

**Usage Guidelines**

**Note** This command is applicable only after the **monitoring-basics** command is configured with the keyword **peak-offpeak**.

You can monitor two peak monitoring periods using the initial **peak-time1** command and its options, followed by the **peak-time2** keyword and the corresponding options. The remaining hours are considered offpeak and can be monitored by configuring the optional **duration** keyword and the corresponding options.

The **penalty** duration, which is configured using the **peak-time1** command, is unique to weekdays, and takes precedence over the global penalty duration configured using the **penalty-period** command.

When you use the **show running-configuration** command to display the configuration, the keyword options for the **peak-time1** command are truncated. In the following example, “d” represents **duration** (a single peak and offpeak duration are configured), “avg” represents **avg-rate**, “sa” represents **sample-interval**, “pen” represents penalty, “do” represents **downstream**, and “enf” represents **enforce**:

```
Router# show running-configuration
.
.
.
peak-time1 1 d 60 avg 2 d 60 avg 40 sa 10 pen 11 do enf
```

## Examples

The following example shows an enforce-rule that defines two peak monitoring periods for upstream traffic:

```
Router(enforce-rule)# peak-time1 10:30 duration 120 avg-rate 10 peak-time2 23 duration 60
avg-rate 10 sample-interval 10 penalty 11 upstream enforce
```

The following example shows an enforce-rule being configured on a Cisco cBR Series Converged Broadband Router:

```
Router(enforce-rule)# peak-time1 1 duration 6 avg-rate 1 sample-interval 1 penalty-period
1 downstream enforce
```

## Related Commands

Command	Description
<b>cable qos enforce-rule</b>	Creates an enforce-rule to enforce a particular QoS profile for subscriber traffic management and enters enforce-rule configuration mode.
<b>debug cable subscriber-monitoring</b>	Displays enforce-rule debug messages for subscriber traffic management on the Cisco CMTS routers.
<b>duration</b>	Specifies the time period and sample rate to be used for monitoring subscribers.
<b>monitoring-basics</b>	Specifies the type of monitoring for subscriber traffic management on a Cisco CMTS router.
<b>penalty-period</b>	Specifies the period during which an enforced quality of service (QoS) profile should be in force for subscribers who violate their registered QoS profile.
<b>qos-profile enforced</b>	Specifies a QoS profile that should be enforced when users violate their registered QoS profiles. This command is applicable for DOCSIS 1.0 cable modems
<b>qos-profile registered</b>	Specifies the registered QoS profile that should be used for this enforce-rule. This command is applicable for DOCSIS 1.0 cable modems

Command	Description
<b>service-class (enforce-rule)</b>	Identifies a particular service class for cable modem monitoring in an enforce-rule. This command is applicable for DOCSIS 1.1 or later cable modems.
<b>show cable qos enforce-rule</b>	Displays the QoS enforce-rules that are currently defined.
<b>show cable subscriber-usage</b>	Displays subscribers who are violating their registered QoS profiles.
<b>weekend peak-time1</b>	Configures peak and offpeak subscriber monitoring over weekends on a Cisco CMTS router.

# penalty-period

To specify the time period that an enforced quality of service (QoS) profile should be in force for subscribers that violate their registered QoS profile, use the **penalty-period** command in enforce-rule configuration mode. To reset an enforce-rule to its default penalty period, use the **no** form of this command.

**penalty-period** *minutes* [**time-of-day** *hour*]  
**no penalty-period** *minutes* [**time-of-day** *hour*]

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**penalty-period** *minutes* [**time-of-day** {*hourhour:minutes*} **monitoring-on**]  
**no penalty-period** *minutes* [**time-of-day** {*hourhour:minutes*} **monitoring-on**]

Syntax Description	
<i>minutes</i>	Specifies a time period (in minutes) during which a cable modem (CM) can be under penalty. The range is 1 to 10080, with a default value of 10080 (7 days).
<b>time-of-day</b> { <i>hour / hour:minutes</i> }	(Optional) Specifies the time of day (in hh or hh:mm format) when: <ul style="list-style-type: none"> <li>• A CM that is under penalty is released from the penalty period.</li> <li>• A CM that is not under penalty has its subscriber monitoring counters reset.</li> </ul> If the time of day is specified in hour (hh), the valid range is 1 to 23 using a 24-hour clock.  If the time of day is specified in hour:minutes (hh:mm), the valid range for hour is 1 to 23 using a 24-hour clock, and the valid range for minutes is 0 to 59.
<b>monitoring-on</b>	(Optional) Specifies that monitoring should be turned on after the penalty release time. If this keyword is not specified, by default, monitoring is turned off after the release time, until the end of the day, that is 00:00 hrs.

**Command Default** The default time period is 10080 minutes (7 days).

**Command Modes** Enforce-rule configuration (enforce-rule)

Command History	Release	Modification
	12.2(15)BC1	This command was introduced.
	12.3(9a)BC	This command was integrated into Cisco IOS Release 12.3(9a)BC.
	12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA. Support for the Cisco uBR7225VXR router was added.
	12.3(23)BC2	The <b>time-of-day</b> keyword option was added.
	12.2(33)SCB	The <b>time-of-day</b> keyword option was integrated into Cisco IOS Release 12.2(33)SCB.
	12.3(23)SCD2	The <b>minute-level granularity for the time-of-day</b> duration, and the <b>monitoring-on</b> keyword option were added.

Release	Modification
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.
IOS-XE 3.17.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers.

### Usage Guidelines

When a subscriber overconsumes the maximum bandwidth that is specified in the enforce-rule, the Cisco CMTS router can automatically switch the subscriber to an enforced QoS profile for the time duration configured with the **penalty-period** command. When the penalty period expires, the Cisco CMTS router restores the subscriber to their registered QoS profile.

The penalty duration specified in the **penalty-period** command is a global configuration. This penalty duration is overridden if the individual penalty duration is already configured using the **duration**, **weekend duration**, **peaktime1** or **weekend peaktime1** commands. Similarly, if the individual penalty duration is not configured, the global penalty duration is used. The table below explains in detail the criteria for choosing the penalty duration:

*Table 1: Criteria for Choosing Penalty Duration*

Global Penalty-Period Configured	Weekday Penalty-Period Configuration (CLI: duration or peaktime1)	Weekend Penalty-Period Configuration (CLI: weekend duration, or weekend peaktime1)	Applied Penalty Duration for Weekdays	Applied Penalty Duration for Weekends
Yes	Yes	Yes	Weekday Penalty Configuration	Weekend Penalty Configuration
Yes	Yes	No	Weekday Penalty Configuration	Global Penalty Configuration
Yes	No	Yes	Global Penalty Configuration	Weekend Penalty Configuration
Yes	No	No	Global Penalty Configuration	Global Penalty Configuration

If the keyword monitoring-on is specified, monitoring starts immediately after the cable modems are released from penalty. However if this keyword is not specified, by default, all the cable modems using the enforce-rule are not monitored until the end of day, that is, 00:00 hrs.

The penalty period continues across reboots of the cable modem, so a user cannot avoid the enforced QoS profile by trying to reset their modem and reregister on the cable network. This allows service providers to set an appropriate penalty for users who consistently exceed the allocated maximum bandwidth.



**Note** To manually move a DOCSIS 1.0 cable modem back to its registered profile before the end of the penalty period, use the **cable modem qos profile** command. To manually move a DOCSIS 1.1(or later) cable modem back to its registered profile before the end of the penalty period, use the **cable modem {ip-address | mac-address} service-class-name** command.

When you change the configuration of a currently active enforce-rule, that rule begins using the new configuration immediately to manage the cable modems tracked by this enforce-rule.



**Note** Before making any changes to an active enforce-rule, we recommend that you first disable the enforce rule using the no enabled command.

A cable modem consists of two service flows, Primary upstream and Primary downstream. If a DOCSIS 1.0 cable modem enters the penalty period because one of its service flows has exceeded its allowed bandwidth, the QoS profile of the entire modem is changed. However, if a DOCSIS 1.1 or later cable modem enters the penalty period because its upstream or downstream service flow has exceeded the allowed bandwidth threshold, the service class name is changed only for the upstream or downstream service flow.

## Examples

The following example shows an enforce-rule named “test”, which is configured with a penalty period of 1440 minutes (1 day):

```
Router# configure terminal
Router(config)# cable qos enforce-rule test
Router(enforce-rule)# penalty-period 1440
```

The following example shows an enforce-rule named “test”, which is configured with a penalty period of 1440 minutes (1 day), but allowing the removal of the cable modems in penalty at 23:00. Monitoring will be turned off by default at 23:00, to 00:00 (1 hour):

```
Router# configure terminal
Router(config)# cable qos enforce-rule test
Router(enforce-rule)# penalty-period 1440 time-of-day 23
```

The following example shows an enforce-rule named “test”, which is configured with a penalty period of 1440 minutes (1 day), allowing the removal of the cable modems in penalty at 23:00. However, after the cable modems are released from penalty, fresh monitoring starts, with all the subscriber monitoring counters reset to 0:

```
Router# configure terminal
Router(config)# cable qos enforce-rule test
Router(enforce-rule)# penalty-period 1440 time-of-day 23 monitoring-on
```

The following example shows an enforce-rule being configured with a penalty period on a Cisco cBR Series Converged Broadband Router:

```
Router(enforce-rule)# penalty-period 1 time-of-day 1 monitoring-on
```

## Related Commands

Command	Description
<b>activate-rule at-byte-count</b>	Specifies the number of bytes that a subscriber can transmit during the monitoring period on a Cisco CMTS router.

Command	Description
<b>cable qos enforce-rule</b>	Creates an enforce-rule to enforce a particular QoS profile for subscriber traffic monitoring, and enters the enforce-rule configuration mode.
<b>duration</b>	Specifies the time period and sample rate to be used for monitoring subscribers.
<b>enabled (enforce-rule)</b>	Activates an enforce-rule and begins subscriber traffic management on a Cisco CMTS router.
<b>qos-profile enforced</b>	Specifies a QoS profile that should be enforced when users violate their registered QoS profiles. This command is applicable for only DOCSIS 1.0 cable modems.
<b>qos-profile registered</b>	Specifies the registered QoS profile that should be used for this enforce-rule. This command is applicable for only DOCSIS 1.0 cable modems.
<b>service-class (enforce-rule)</b>	Specifies a service class (enforced or registered) that should be used for the cable modem monitoring in an enforce-rule. This command is applicable for DOCSIS 1.1 or later cable modems.
<b>show cable qos enforce-rule</b>	Displays the QoS enforce-rules that are defined.
<b>show cable subscriber-usage</b>	Displays subscribers who are violating their registered QoS profiles.

# periodic-rel-pxf enable

To enable the Reload PXF in the Standby PRE Support feature, use the **periodic-rel-pxf enable** command in redundancy configuration mode. To disable the Reload PXF in the Standby PRE feature, use the **no** form of this command.

**periodic-rel-pxf enable**  
**no periodic-rel-pxf enable**

**Syntax Description** This command has no arguments or keywords.

**Command Default** None

**Command Modes** Redundancy configuration (config-red)

Command History	Release	Modification
	12.2(33)SCG2	This command was introduced.
	IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** The **periodic-rel-pxf enable** command is used to enable the [Reload PXF on Standby PRE Support feature](#). The **periodic-rel-pxf enable** command is supported on Cisco uBR10012 router only.

**Examples** The following example shows how to enable the Reload PXF on Standby PRE feature on the Cisco uBR10012 router:

```
Router# configure terminal
Router(config)# redundancy
Router(config-red
)# periodic-rel-pxf enable
Router(config-red
)# end
```

Related Commands	Command	Description
	<b>redundancy</b>	Enters redundancy configuration mode.

## ping docsis

To determine whether a specific cable modem (CM) is reachable from the CMTS at the DOCSIS MAC layer, use the **ping docsis** command in privileged EXEC mode.

**ping docsis** {*mac-addr ip-addr* | **name fqdn**} [*count*] [**repeat queue-intervals**] [**verbose**]

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**ping docsis** {*mac-addr ip-addr* } [*count*] [**repeat queue-intervals**] [**verbose**]

#### Syntax Description

<i>mac-addr</i>	The 48-bit hardware (MAC) address of the CM. If you specify the MAC address of a CPE device, the command will resolve it to the MAC address of the CM servicing that CPE device and send the DOCSIS ping to the CM.
<i>ip-addr</i>	IPv4 or IPv6 address of the CM. If you specify the IP address of a CPE device, the command will resolve it to the IP address of the CM servicing that CPE device and send the DOCSIS ping to the CM.
<b>name fqdn</b>	Specifies the fully qualified domain name (FQDN) of the cable device to be displayed. This option is only available if the <b>show cable modem domain-name</b> command has been run for the first time to update the cable DNS cache on the CMTS router.
<b>repeat queue-intervals</b>	(Optional) Specifies the number of maintenance intervals for a queue. Valid values are from 1 to 2147483647.
<b>verbose</b>	(Optional) Specifies verbose mode for the output, giving additional details about the packets transmitted and received.

#### Command Default

If no count is specified, five DOCSIS ping packets are sent.

#### Command Modes

Privileged EXEC (#)

#### Command History

Release	Modification
11.3 NA	This command was introduced for the Cisco uBR7200 series router.
12.0(4)XI1	Support was added for the Cisco uBR924 cable access router.
12.1(3)XL	Support was added for the Cisco uBR905 cable access router.
12.1(5)XU1	Support was added for the Cisco CVA122 Cable Voice Adapter.
12.1(1a)T1	The command output was enhanced.
12.1(3)XQ1	Support was added for wireless radio modems.
12.1(5)EC	Support was added for the Cisco uBR7100 series routers.
12.2(2)XA	Support was added for the Cisco uBR925 cable access router.

Release	Modification
12.2(1)XF1	Support was added for the Cisco uBR10012 router.
12.2(4)BC1	This command was integrated into Cisco IOS Release 12.2(4)BC1.
12.2(33)SCA	This command was integrated into Cisco IOS Release 12.2(33)SCA, with the following changes: <ul style="list-style-type: none"> <li>• Support for the Cisco uBR7225VXR router was added.</li> <li>• Support for specifying the IPv6 address of a CM or CPE device was added.</li> <li>• The <b>name</b> keyword option was added for specifying the fully-qualified domain name of a CM.</li> </ul>
12.2(33)SCC	The <b>repeat</b> keyword was added to specify maintenance intervals for queues.
IOS-XE 3.15.0S	This command was implemented on the Cisco cBR Series Converged Broadband Routers. The <b>name</b> keyword and <i>fqdn</i> variable were removed.

### Usage Guidelines

The DOCSIS ping is a unique Cisco patented technology that allows a cable operator to quickly diagnose the health of a channel between the CMTS router and any particular DOCSIS cable CPE device. The DOCSIS ping is similar in concept to the IP ping but uses the lower MAC layer instead of the datalink or transport layers. Using the MAC layer has two major advantages:

- A DOCSIS ping uses only 1/64 of the bandwidth of an IP ping.
- A DOCSIS ping can be used with CMs that have not yet acquired an IP address. This allows cable operators to ping CMs that were not able to complete registration or that were improperly configured at the IP layer.

In addition to providing connectivity information, the **ping docsis** command provides a real-time view and plot of requested power adjustments, frequency, timing offset adjustments, and a measure of optimal headend reception power.

If a CM responds to the **ping docsis** command, but does not respond to an IP ping, the problem could be one of the following:

- The CM is still in the registration process and has not yet come completely online. In particular, the CM could be waiting for the DHCP server to assign it an IP address.
- Severe interference or other faults on the physical layer (either the upstream or downstream).
- Significant upstream signal error, distortion, or amplitude errors, often resulting in frequent power adjustments (which are shown in the cable flap list).
- A non-DOCSIS compliant upstream carrier-to-noise power ratio (C/N) that is between 14 and 21 dB, along with a mixed modulation profile, such as ranging request/response messages being sent in QPSK mode and short and long data grants in 16-QAM mode.



**Note** The **ping docsis** command is a DOCSIS-compliant process that can be used with any two-way DOCSIS-compliant CM; the CM does not require any special features or code. The **ping docsis** command cannot be used with telco-return CMs.



**Note** In Cisco IOS Release 12.2(33)SCA, the **show cable modem domain-name** command must be run first on the route processor (RP) of the CMTS router before any domain name can be used as part of a cable command.

The table below explains the different characters that can appear in the output for the **ping docsis** command:

**Table 2: ping docsis Command Output Characters**

Output Character	Description
!	Indicates that a successful response was received from the ping request. This indicates that the CM is reachable from the CMTS and can respond to CMTS requests at the DOCSIS MAC layer.
.	Indicates that a DOCSIS ping request was sent out but that the ping request timed out without receiving a response. This indicates that the CM is having difficulties maintaining DOCSIS MAC layer connectivity to the CMTS.  <b>Note</b> If the <b>ping docsis</b> command displays a number of periods (.) along with exclamation points (!), it strongly indicates the presence of RF noise or physical cable and plant issues that is causing a loss of MAC layer connectivity.
a	Indicates that a response was received but that an adjustment of frequency, power, or timing was also made in the response. This indicates that, although the upstream channel is functional, some sort of problem is forcing power averaging and other misreads of the upstream received power signals.
f	Indicates that the CMTS failed to send the DOCSIS ping request because the CM is offline, and therefore MAC-layer communication is not possible. This indicates that the CM had previously registered with the CMTS, but that at some point it stopped responding to the DOCSIS station maintenance messages and that the CMTS eventually marked the CM as offline. The CM might have lost power or might have been disconnected from the coaxial cable.  <b>Tip</b> Use the <b>show cable modem</b> command with the same MAC or IP address as you used with the <b>ping docsis</b> command to show the current status of this CM.



**Note** If a CM is already in the flap list, the **ping docsis** command increments the hit, miss, and power-adjustment fields for it in the cable flap list.

## Examples



**Note** The following example shows a default **ping docsis** command that sends five packets to the CM with the MAC address of 00d0.ba77.7595, with a response being received for each:



```

Queueing 22 MAC-layer station maintenance intervals, timeout is 25 msec:
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (22/22)

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>cable flap-list aging</b>	Specifies the number of days to keep a CM in the flap-list table before aging it out of the table.
<b>cable flap-list insertion-time</b>	Sets the insertion time interval that determines whether a CM is placed in the flap list.
<b>cable flap-list miss-threshold</b>	Specifies miss threshold for recording a flap-list event.
<b>cable flap-list power-adjust threshold</b>	Specifies the power-adjust threshold for recording a CM flap-list event.
<b>cable flap-list size</b>	Specifies the maximum number of CMs that can be listed in the flap-list table.
<b>clear cable flap-list</b>	Clears all the entries in the flap-list table.
<b>ping</b>	Outputs one or more IP ping requests to a particular IP address.
<b>show cable flap-list</b>	Displays the current contents of the flap list.

## ping docsis pnm

To send RxMER probes on OFDMA channel assigned to the modem, use the **ping docsis pnm** command in privileged EXEC mode.

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**ping docsis pnm** *mac-address* [ **ignore** | **upstream** *us-channel* [ **ignore** ] ]

#### Syntax Description

<i>mac-address</i>	MAC address of a specific CM to be displayed.
--------------------	---

#### Command Default

None.

#### Command Modes

Privileged EXEC (#)

#### Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1c	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

#### Usage Guidelines

The usage for each of the commands are listed below:

- **ping docsis pnm** *mac-address* : sends RxMER probes on each OFDMA channel assigned to the modem. If enabled, auto profile management will analyze the results and potentially change the active profile.
- **ping docsis pnm** *mac-address upstream us-channel* : sends RxMER probes on a specified OFDMA channel assigned to the modem. If enabled, auto profile management will analyze the results and potentially change the active profile.
- **ping docsis pnm** *mac-address ignore*: sends RxMER probes on each OFDMA channel assigned to the modem. Auto profile management will always **ignore** the results of the probe.
- **ping docsis pnm** *mac-address upstream us-channel ignore*: sends RxMER probes on a specified OFDMA channel assigned to the modem. Auto profile management will always **ignore** the results of the probe.

#### Examples

The following example shows how to configure the system to send RxMER probes on OFDMA channel assigned to the modem:

```
Router# ping docsis pnm 34bd.fa0c.b480
```

#### Related Commands

Command	Description
<b>show cable modem prof-mgmt upstream</b>	Displays the results of RxMER probes.

# platform power protection

To configure voltage thresholds to switch between different modes when power budget provided by AC PSMs is not sufficient to power Field Replaceable Units (FRUs), use the **platform power protection** command in global configuration mode. To use the default voltage thresholds, use the **no** form of the command.

By default, power protection action is disabled to avoid service outage. If protection action is disabled, any online FRU is not powered down in the event of insufficient power budget, but any newly installed line card is not powered up. To enable power protection action, use the **platform power protection action shutdown linecard** command.

**platform power protection ac220v** *voff von*

**no platform power protection ac220v**

**platform power protection action shutdown linecard**

## Syntax Description

*voff* Specifies the hysteresis threshold value value. The hysteresis thresholds define when the PSM should switch modes.

For example, if the *voff* value is configured as 180V, the PSM switches to the 120V mode with 1300W capacity when input voltage drops below 180V.

*von* Specifies the hysteresis threshold value value. The hysteresis thresholds define when the PSM should switch modes.

For example, if the *von* value is configured as 200V, the PSM switches to the 220V mode when input voltage increases to more than 200V.

## Command Default

The default value of *voff* is 190V while the default value of *von* is 197V.

## Command Modes

Global configuration (config)

## Command History

Release	Modification
IOS-XE 16.7.1	This command was introduced on the Cisco eBR Series Converged Broadband Routers.

## Examples

The following example shows a sample configuration:

```
Router# configure terminal
Router(config)# platform power protection ac220v 180 200
Router(config)#
```

The following example shows how to enable power protection action.

```
Router# configure terminal
Router(config)# platform power protection action shutdown linecard
```

The following example shows how to verify the voltage threshold configuration.

```
Router# configure terminal  
Router(config)# sh run | i protection  
platform power protection ac220v 180 200
```

# platform punt-policer

To rate-limit the aggregate punt-rate on a per-punt-cause basis, use the **platform punt-policer** command in global configuration mode. Using the **no** form of the command returns the rate to the default value.

**platform punt-policer** { **cable-snmpp** | *punt-cause\_value* } *rate\_value* [**high**]

**no platform punt-policer**

Syntax Description	
<b>punt-policer</b> <i>punt-cause_value</i>	Specifies the punt cause value. <i>punt-cause_value</i> can be obtained from <b>show platform software punt-policer</b> command.
<b>cable-snmpp</b>	This is the punt-cause assigned to SNMP packets destined to the CMTS.
<i>rate_value</i>	Specifies the rate in packets/second. The range is from 10 to 300000.

**Command Default** The default rate is 512 packets/second.

**Command Modes** Global configuration (config)

Command History	Release	Modification
	IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
	IOS XE 16.12.1z1	This command was updated. <b>cable-snmpp</b> was added as a new punt cause to rate-limit SNMP packets destined to cBR-8.

**Usage Guidelines** In most cases, cable-snmpp punts are normal priority.

**Examples** The following example shows a sample configuration:

```
Router# configure terminal
Router(config)# platform punt-policer cable-snmpp 1000
Router(config)#
```

Related Commands	Command	Description
	<b>show platform software punt-policer</b>	Displays configuration and statistics for the per-cause punt-policer.
	<b>show platform hardware qfp active infrastructure punt-policer summary</b>	Displays detailed configuration data and statistics for the per-cause punt-policer.
	<b>show platform hardware qfp active infrastructure punt summary</b>	Displays the punt summary statistics which includes a summary of punted packets and aggregate drop-counts from CoPP, SBRL, the punt-policer and the global policer.
	<b>show platform hardware qfp active infrastructure punt sbrl</b>	Displays the SBRL statistics.

Command	Description
<b>platform punt-sbri</b>	Rate-limit packet streams identified by the Source-Based Rate-Limit (SBRL).
<b>show policy-map control-plane</b>	Displays configuration and statistics for the control-plane service-policy.
<b>clear control-plane</b>	Clears the control-plane service-policy statistics.
<b>show platform hardware qfp active infrastructure punt statistics type global-drop</b>	Displays the global punt-policer statistics.

## platform punt-sbri

To rate-limit packet streams identified by the Source-Based Rate-Limit (SBRL), use the **platform punt-sbri** command in global configuration mode. To disable the rate-limiting, use the **no** form of the command.

Subscriber-side configuration before Cisco IOS XE Fuji 16.8.x

```
platform punt-sbri subscriber rate { rate_value | no-drop }
```

```
platform punt-sbri subscriber punt-cause punt-cause_value rate rate_value
```

Subscriber-side configuration in Cisco IOS XE Fuji 16.8.x

```
platform punt-sbri subscriber punt-cause punt-cause_value rate-per-4-sec { no-drop | rate_value
[ quarantine-time q_time burst-factor b_value ] }
```

Subscriber-side configuration in Cisco IOS XE Fuji 16.9.x and later

```
platform punt-sbri subscriber punt-cause punt-cause_value rate-per-4-sec { no-drop | rate_value
[ bucket-size b_size ] [ quarantine-time q_time burst-factor b_value ] }
```

WAN-side configuration before Cisco IOS XE Fuji 16.8.x

```
platform punt-sbri wan punt-cause punt-cause_value rate rate_value [ quarantine-time q_time
burst-factor b_value ]
```

WAN-side configuration in Cisco IOS XE Fuji 16.8.x and later

```
platform punt-sbri wan punt-cause punt-cause_value rate-per-1-sec rate_value [ quarantine-time
q_time burst-factor b_value ]
```

```
no platform punt-sbri
```

### Syntax Description

<b>punt-cause</b> <i>punt-cause_value</i>	Specifies the punt-cause value in number 1 to 107 or string.
<b>rate</b> <i>rate_value</i>	Specifies the rate in packet per seconds. The range is from 1 to 256, specified in powers-of-2.
<b>no-drop</b>	Disables the rate-limiting.
<b>rate-per-4-sec</b> <i>rate_value</i>	Specifies the rate in packet per 4 seconds. The range is from 1 to 255.
<b>rate-per-1-sec</b> <i>rate_value</i>	Specifies the rate in packet per seconds. The range is from 1 to 256, specified in powers-of-2.
<b>quarantine-time</b> <i>q_time</i>	Specifies the quarantine time in minutes. The range is from 1 to 60.
<b>bucket-size</b> <i>b_size</i>	Specifies the bucket size in packets. The range is from 1 to 255.
<b>burst-factor</b> <i>b_value</i>	Specifies the quarantine burst factor in packets. The range is from 50 to 1000.

**Command Default**

The WAN-side default rate is zero, which means that rate-limiting does not occur. Using the **no** configuration returns the rate to the default value.

The default subscriber-side global rate is zero. The default subscriber-side per-cause rate for CABLE\_L3\_MOBILITY is 4 packets per second. Using the **no** configuration returns the rate to the default value.

**Command Modes**

Global configuration (config)

**Command History**

Release	Modification
IOS-XE 3.15.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers. The <b>platform punt-sbri wan</b> command replaces <b>service divert-rate-limit ip</b> and <b>service divert-rate-limit ipv6</b> commands. The <b>platform punt-sbri subscriber</b> command replaces <b>service divert-limit</b> and <b>cable divert-rate-limit</b> commands.
IOS XE Fuji 16.8.1	The command <b>platform punt-sbri subscriber rate rate_value</b> was deprecated.
IOS XE Fuji 16.9.1	The keyword <b>bucket-size</b> was added in the command.

**Usage Guidelines****WAN-side configuration**

WAN configuration consists of two parts:

- 1) Configure CoPP to specify which WAN-side packet streams are subject to SBRL. The policy-map action **set qos-group 99** specifies that packets matching that class are subject to SBRL.
- 2) Configure WAN-side SBRL to specify which punt-causes are rate-limited. Trusted sites are specified by adding classes to the CoPP policy-map. ACLs are used to finely identify trusted streams. It is important to understand the CoPP applies to all punted packets, so it may be necessary to ensure that subscriber-side packets do not match the trusted-site ACLs. Quarantine can optionally be configured. When a packet-stream enters quarantine, all punts from the stream are dropped for the configured period of time. When (*burst-factor x rate*) packets arrive at a rate faster than *rate*, quarantine is activated for that stream.

For more information, see the WAN-side configuration example.

**Subscriber-side configuration**

The subscriber-side configuration is global. There is also a per-cause configuration which currently only applies to the CABLE\_L3\_MOBILITY punt-cause. All subscriber-side packets go to SBRL, regardless of the CoPP configuration.

**Examples**

The following example shows the subscriber-side configuration:

```
Router# configure terminal
Router(config)# platform punt-sbri subscriber punt-cause 99 rate 8
Router(config)#

Router# configure terminal
Router(config)# platform punt-sbri subscriber rate 64
Router(config)#
```

The following example shows a simple CoPP configuration which sends all WAN-side punts to SBRL:

```
Router# configure terminal
Router(config)# policy-map copp_policy
Router(config-pmap)# class class-default
Router(config-pmap-c)# set qos-group 99
Router(config-pmap-c)# exit
Router(config-pmap)# exit
Router(config)# control-plane
Router(config-cp)# service-policy input copp_policy
Router(config-cp)# exit
Router(config)# platform punt-sbri wan punt-cause 11 rate 64 quarantine 5 burst-factor 500
```

### Related Commands

Command	Description
<b>show platform hardware qfp active infrastructure punt summary</b>	Displays the punt summary statistics which includes a summary of punted packets and aggregate drop-counts from CoPP, SBRL, the punt-policer and the global policer.
<b>show platform hardware qfp active infrastructure punt sbri</b>	Displays the SBRL statistics.
<b>platform punt-policer</b>	Configures the per-cause punt-policer.
<b>show platform software punt-policer</b>	Displays configuration and statistics for the per-cause punt-policer.
<b>show platform hardware active qfp infrastructure punt-policer summary</b>	Displays detailed configuration data and statistics for the per-cause punt-policer.
<b>show policy-map control-plane</b>	Displays configuration and statistics for the control-plane service-policy.
<b>clear control-plane</b>	Clears the control-plane service-policy statistics.
<b>show platform hardware qfp active infrastructure punt statistics type global-drop</b>	Displays the global punt-policer statistics.

# platform aom pending-thresh

To configure a threshold value in seconds to notify that an AOM download is stuck, use the **platform aom pending-threshold** command in the global configuration mode.

If you configure the **no** form of the command, the *seconds-to-error* and *seconds-to-warning*, revert to their default values.

```
platform aom pending-thresh { seconds-to-error } { seconds-to-warning }
```

```
no platform aom pending-thresh { seconds-to-error } { seconds-to-warning }
```

## Syntax Description

*seconds-to-error* Allows you to configure a threshold value in seconds to notify that an AOM download is stuck. The *seconds-to-error* specifies the threshold value in seconds to log an error on the console.

The valid range is 60 to 3600 seconds and the default value is 1800 seconds

*seconds-to-warning* Specifies the threshold value in seconds to log a warning in the trace log when the AOM download is stuck.

The valid range is 60 to 3600 seconds and the default value is 900 seconds

## Command Default

The default value for *seconds-to-error* is 1800 seconds and the default value for *seconds-to-warning* is 900 seconds.

If you configure the **no** form of the command, the *seconds-to-error* and *seconds-to-warning*, revert to their default values.

## Command Modes

Global configuration (config)

## Command History

### Release Modification

17.6.1z This command is introduced.

## Usage Guidelines

The **platform aom pending-thresh** command allows you to configure a threshold value, in seconds, to notify that an AOM download is stuck. When the specified threshold time is reached, an error and warning notification is sent to the console and trace log, respectively. The valid range is 60–3600 seconds. Use the **no** form of the command to remove the threshold value.

## Examples

The following example shows a sample configuration:

```
Router# configure terminal
Router(config)# platform aom pending-thresh 300 180
Router(config)#
```

In this example, 300 indicates the threshold value in seconds to log an error on the console and 180 specifies the threshold value in seconds to log an warning on the console.

# pilot-scaling

To specify the value to calculate the number of continuous pilots, use the **pilot-scaling** command in OFDM channel profile configuration mode. To undo the pilot-scaling value assignment, use **no** form of this command.

**pilot-scaling** *value*

**no pilot-scaling**

## Syntax Description

<i>value</i>	Value to scale the number of continuous pilots. Valid range is from 48 to 120.
--------------	--

## Command Default

The default value is 48.

## Command Modes

OFDM channel profile configuration (config-ofdm-chan-prof)

## Command History

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

## Usage Guidelines

Use this command to specify the value to calculate the number of continuous pilots.

## Examples

The following example shows how to specify the value to calculate the number of continuous pilots:

```
Router# configure terminal
Router(config)# cable downstream ofdm-chan-profile 21
Router(config-ofdm-chan-prof)# pilot-scaling 50
```

## Related Commands

Command	Description
<b>cable downstream ofdm-chan-profile</b>	Define the OFDM channel profile on the OFDM channel.
<b>cyclic-prefix</b>	Specify the channel cyclic-prefix.
<b>description (OFDM channel profile)</b>	Specify a user defined description for the profile.
<b>interleaver-depth</b>	Specify the channel interleaver-depth.
<b>profile-control</b>	Specify default modulation or profile as the channel control profile.
<b>profile-data</b>	Specify default modulation or profile as the channel data profile.
<b>profile-ncp</b>	Specify default modulation or profile as the channel ncp profile.
<b>roll-off</b>	Specify the channel roll-off value.
<b>subcarrier-spacing</b>	Specify the spacing for specific subcarriers configured in this profile.

## pme cem

To define parameters for the Cisco Edge QAM Manager server, use the **pme cem** command in the encryption configuration mode. To reset the parameters to default value, use the **no** form of this command.



**Note** There can be only one entry for VODS-ID, CEM IP, CEM Port, and Management Interface IP. Defining any configuration with newer values clears the previous configuration. The individual configurations can be cleared with the **no** form of the command.

```
pme cem ip-address tcp-port
no pme cem ip-address tcp-port
```

Syntax Description	ip-address	Specifies the IP address of the Cisco Edge QAM Manager server.
	tcp-port	Specifies the TCP port number of the Cisco Edge QAM Manager server. The valid range is from 1024 to 65534.

**Command Default** None

**Command Modes** Encryption configuration (config-video-encrypt)

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

**Usage Guidelines** This command defines the parameters for the Cisco Edge QAM Manager server during privacy mode encryption configuration.

**Examples** The following example shows how to define parameters for the Cisco Edge QAM Manager server:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)# encryption
Router(config-video-encrypt)# pme cem 172.16.1.163 1024
```

Related Commands	Command	Description
	<b>encrypt</b>	Encrypts the virtual carrier group.
	<b>pme vodsid</b>	Configures the VODSID of Cisco Edge QAM Manager server.
	<b>pme mgmt-ip</b>	Configures the privacy mode encryption management IP to establish Cisco Edge QAM Manager server connection.
	<b>show cable video encryption pme</b>	Displays the privacy mode encryption information.

Command	Description
<b>show cable video encryption linecard</b>	Displays the encryption configuration information of the line card.

## pme mgmt-ip

To define the privacy mode encryption management IP address for establishing Cisco Edge QAM Manager server connection, use the **pme mgmt-ip** command in the encryption configuration mode. To reset to default configuration, use the **no** form of this command.

```
pme mgmt-ip ip-address
no pme mgmt-ip ip-address
```

<b>Syntax Description</b>	<i>ip-address</i> Specifies the management IP address.
---------------------------	--

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	Encryption configuration (config-video-encrypt)
----------------------	---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	IOS-XE 3.18.0S	This command is introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** This command defines the privacy mode encryption management IP address.

**Examples** The following example shows how to define the privacy mode encryption management IP address:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)#encryption
Router#(config-video-encrypt)pme mgmt-ip 172.16.1.164
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>encrypt</b>	Encrypts the virtual carrier group.
	<b>pme vodsids</b>	Configures the VODSID of Cisco Edge QAM Manager server.
	<b>pme cem</b>	Configures the parameters for the Cisco Edge QAM Manager server.
	<b>show cable video encryption pme</b>	Displays the privacy mode encryption information.
	<b>show cable video encryption linecard</b>	Displays the encryption configuration information of the line card.

## pme vodsid

To define VODSID of the Cisco Edge QAM Manager server, use the **pme vodsid** command in the encryption configuration mode. To reset to default configuration, use the **no** form of this command.

**pme vodsid** *id*  
**no pme vodsid** *id*

### Syntax Description

<i>id</i>	Specifies the VODSID ID of the Cisco Edge QAM Manager server. The valid range is from 2 to 2147483647.
-----------	--

### Command Default

None

### Command Modes

Encryption configuration (config-video-encrypt)

### Command History

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

### Usage Guidelines

This command defines the VODSID for the Cisco Edge QAM Manager server.

### Examples

The following example shows how to define VODSID for the Cisco Edge QAM Manager server:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)# encryption
Router(config-video-encrypt)# pme vodsid 111
```

### Related Commands

Command	Description
<b>encrypt</b>	Encrypts the virtual carrier group.
<b>pme cem</b>	Configures the parameters for the Cisco Edge QAM Manager server.
<b>pme mgmt-ip</b>	Configures the privacy mode encryption management IP to establish CEM connection.
<b>show cable video encryption pme</b>	Displays the privacy mode encryption information.
<b>show cable video encryption linecard</b>	Displays the encryption configuration information of the line card.

# policy

To select modems based on the type of service flow that is balanced, use the **policy** command in the config-lb-group configuration mode. To reset the selection, use the **no** form of this command.

```
policy {pcmm | ugs | us-across-ds | pure-ds-load}
no policy {pcmm | ugs | us-across-ds | pure-ds-load}
```

## Syntax Description

<b>pcmm</b>	Enables balancing of modems with active PCMM service flows.
<b>ugs</b>	Enables balancing of modems with active UGS service flows.
<b>us-across-ds</b>	Sets load balancing on upstream (US) groups across downstream (DS) and DS group methods are ignored.
<b>pure-ds-load</b>	Considers DS load and not US load when calculating DS utilization.

## Command Default

None

## Command Modes

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

## Command History

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

## Examples

The following example shows how to select the modems on the CMTS based on the type of service flow that is balanced using the **policy** 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)# policy
pure-ds-load
Router(config-lb-group)#
```

## Related Commands

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

# power-adjust

To adjust the channel's power level, use the **power-adjust** command in the RF channel sub configuration mode.

**power-adjust** *value*

**Syntax Description** *value* Value for the power level. Valid range is -6.0 to 2.0 dBmV.

**Command Default** None.

**Command Modes** RF channel sub configuration mode (config-rf-chan)

**Usage Guidelines** This command is used to adjust the channel's power levels.

The following example shows how to change the channel's power level:

```

router#configure terminal
router(config)#controller integrated-cable 3/0/0
router(config-controller)#rf-chan 5 10
router(config-rf-chan)#type video
router(config-rf-chan)#frequency 723000000
router(config-rf-chan)#rf-output alt
router(config-rf-chan)#power-adjust 0
router(config-rf-chan)#exit
router(config-controller)#exit
router(config)#exit
router#show controller integrated-Cable 3/0/0 rf-channel 5 10
Chan State Admin Frequency Type Annex Mod srates Interleaver dcid power output
 5 TEST UP 723000000 VIDEO B 256 5361 I32-J4 164 34 ALT
10 TEST UP 753000000 VIDEO B 256 5361 I32-J4 169 34 ALT

```

## Related Commands

Command	Description
<b>controller integrated-cable</b>	Enters the controller configuration mode.
<b>frequency</b>	Defines the RF channel frequency.
<b>qam-profile</b>	Defines the QAM profile number.
<b>rf-chan</b>	Enters the RF channel sub configuration mode.
<b>rf-output</b>	Defines the QAM output mode.
<b>power-adjust</b>	Defines the channel power level.

# power-tilt

To configure downstream power tilt for a controller port, use the **power-tilt** command in the controller sub configuration mode.

**power-tilt** {*cable-loss-approx* | *linear*}*tilt* **max-frequency** *frequency*

<b>Syntax Description</b>	<i>tile</i>	Measured cable loss at <i>frequency</i> , specified in 1/10 dB.
	<i>frequency</i>	The maximum frequency for the RF channel.
<b>Command Default</b>	None	
<b>Command Modes</b>	Controller sub configuration mode (config-controller).	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	IOS XE Fuji 16.7.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

**Usage Guidelines** This command is used to configure downstream power tilt for a controller port.

The following example shows how to define the base channel power level:

```
router#configure terminal
router(config)#controller Integrated-Cable 3/0/0
router(config-controller)#max-ofdm-spectrum 192000000
router(config-controller)#max-carrier 32
router(config-controller)#base-channel-power 34
router(config-controller)#power-tilt linear 4.0 max-frequency 696000000
router(config-controller)#rf-chan 0 31
router(config-rf-chan)#type DOCSIS
router(config-rf-chan)#frequency 261000000
router(config-rf-chan)#rf-output NORMAL
router(config-rf-chan)#power-adjust -2.0
router(config-rf-chan)#qam-profile 1
router(config-rf-chan)#docsis-channel-id 1
router(config-rf-chan)#exit
router(config-controller)#rf-chan 158
router(config-rf-chan)#power-adjust 0
router(config-rf-chan)#docsis-channel-id 159
router(config-rf-chan)#ofdm channel-profile 20 start-frequency 600000000 width 96000000 plc
645000000
```

Related Commands	Command	Description
	<b>base-channel-power</b>	Sets the base channel power level.
	<b>power-adjust</b>	Adjusts the power levels of the RF channel.

# prefix

To configure an IPv4 or IPv6 prefix in a source address verification (SAV) group, use the **prefix** command in SAV configuration mode. To disable the use of a configured prefix in a SAV group, use the **no** form of this command.

```
prefix{ipv4_prefix/ipv4_prefix_lengthipv6_prefix/ipv6_prefix_length}
no prefix{ipv4_prefix/ipv4_prefix_lengthipv6_prefix/ipv6_prefix_length}
```

## Syntax Description

<i>ipv4_prefix</i>	IPv4 prefix associated with a particular SAV group, specified in the X.X.X.X/X format.
<i>ipv4_prefix_length</i>	Length of the IPv4 prefix. The valid range is from 0 to 32.
<i>ipv6_prefix</i>	IPv6 prefix associated with a particular SAV group, specified in the X:X:X:X::/X format.
<i>ipv6_prefix_length</i>	Length of the IPv6 prefix. The valid range is from 0 to 128.

## Command Default

None

## Command Modes

SAV Configuration (config-sav)

## Command History

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

## Usage Guidelines

The **prefix** command is used to configure IPv4 or IPv6 prefixes within a particular SAV groups. The Cisco CMTS uses these prefixes to authenticate a cable modem (CM). A CM may be configured with an IPv4 or IPv6 prefix belonging to a particular SAV group. The time, length, value (TLV) 43.7.2 specifies the prefix associated with the CM. The Cisco CMTS considers a packet from a CM authorized if that packet is sourced with an IP address that belongs to the configured prefix in a SAV group.

A maximum of four prefixes are supported on one SAV group. These prefixes can be either IPv4s, IPv6s, or a combination of both prefixes (maximum up to four)

## Examples

The following example shows how to configure a SAV group with one IPv4 prefixes and one IPv6 prefixes:

```
Router(config)# cable source-verify group sav1
Router(config-sav)# prefix 10.16.0.0/12
Router(config-sav)# prefix 10::/12
Router(config-sav)# exit
```

## Related Commands

Command	Description
<b>cable source-verify enable-sav-static</b>	Enables SAV prefix processing.

Command	Description
<code>cable source-verify group</code>	Configures SAV groups.

# principal

To specify the principal core of the RPD, use the **principal** command in RPD core-interface configuration mode. To void the principal core configuration, use the **no** form of this command.

**principal**

**no principal**

## Command Default

None

## Command Modes

RPD core-interface configuration (config-rpd-core)

## Command History

Release	Modification
Cisco IOS XE Everest 16.5.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

Use this command to specify the principal core of the RPD.

The following example shows how to specify the principal core of the RPD:

```
Router# configure terminal
Router(config)# cable rpd 1
Router(config-rpd)# core-interface tengigabitethernet 3/1/0
Router(config-rpd-core)# principal
```

## Related Commands

Command	Description
<b>core-interface</b>	Configures the core-interface of the RPD.

# privacy

To create a DOCSIS configuration file that enables and configures the DOCSIS Baseline Privacy Interface (BPI) option, use the **privacy** command in cable config-file configuration mode. To disable BPI for the CM, use the **no** form of this command.

```

privacy grace-time {authorization value | tek value}
privacy timeout {authorize value | operational value | re-authorize value | rekey value}
no privacy grace-time {authorization | tek}
no privacy timeout {authorize | operational | re-authorize | reject | rekey}

```

## Syntax Description

<b>authorization</b> <i>value</i>	Authorization grace time in seconds. Valid values are 1 to 1800 seconds. Default value is 600 seconds.
<b>tek</b> <i>value</i>	TEK grace time in seconds. Valid range is 1 to 1800 seconds. Default is 600 seconds.
<b>authorize</b> <i>value</i>	Authorize wait timeout in seconds. Valid range is 1 to 30 seconds. Default value is 10 seconds.
<b>operational</b> <i>value</i>	Operational Wait timeout in seconds. Valid range is 1 to 10 seconds. Default is 1 second.
<b>re-authorize</b> <i>value</i>	Re-authorize wait timeout in seconds. Valid range is 1 to 20 seconds.
<b>reject</b> <i>value</i>	Authorize reject wait timeout in seconds. Valid range is 1 to 600 seconds. Default is 60 seconds.
<b>rekey</b> <i>value</i>	Rekey wait timeout in seconds. Valid range is 1 to 10 seconds. Default is 1 second.

## Command Default

None

## Command Modes

Cable config-file configuration

## Command History

Release	Modification
12.1(2)EC1	This command was introduced.
12.2(11)BC2	This command was supported on the Release 12.2 BC train.
IOS-XE 3.15.0S	This command is not supported on the Cisco cBR Series Converged Broadband Routers.

## Usage Guidelines

Specifying the **privacy** command without any of the keywords and arguments enables BPI encryption and decryption for the CM. In addition to this command, you must also specify the **service-class privacy** command to enable BPI operations on the cable modem.



**Note** The **privacy** command appears and is supported only in images with support for BPI or BPI+ encryption. This option configures the CM for BPI or BPI+ encryption. To use BPI encryption, the Cisco CMTS must also be configured for BPI or BPI+ encryption, using the **cable privacy** command.

## Examples

The following example shows how to set the CM privacy TEK gracetime to 1200 seconds and enables BPI operations for the cable modem.

```
router(config)# cable config-file bpi.cm
router(config-file)# privacy grace-time tek 1200
router(config-file)# service-class 1 privacy

router(config-file)# exit

router(config)#
```

## Related Commands

Command	Description
<b>access-denied</b>	Disables access to the network.
<b>cable config-file</b>	Creates a DOCSIS configuration file and enters configuration file mode.
<b>cable privacy</b>	Enables BPI or BPI+ encryption on the Cisco CMTS.
<b>channel-id</b>	Specifies upstream channel ID.
<b>cpe max</b>	Specifies CPE information.
<b>download</b>	Specifies download information for the configuration file.
<b>frequency</b>	Specifies downstream frequency.
<b>option</b>	Provides config-file options.
<b>service-class</b>	Specifies service class definitions for the configuration file.
<b>snmp manager</b>	Specifies Simple Network Management Protocol (SNMP) options.
<b>timestamp</b>	Enables time-stamp generation.

# profile

To bind the profile to the controller, use the **profile** command in controller configuration mode. To undo the bind, use **no** form of this command.

**profile** *id*

**no profile**

<b>Syntax Description</b>	<i>id</i> The ID of the configured controller profile.
---------------------------	--

<b>Command Default</b>	None.
------------------------	-------

<b>Command Modes</b>	Controller configuration (config-controller)
----------------------	--

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Fuji 16.7.1	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

<b>Usage Guidelines</b>	Use this command to bind the profile to the controller.
-------------------------	---

<b>Examples</b>	The following example shows how to bind the profile to the controller:
-----------------	--

```
Router#configure terminal
Router(config)#controller integrated-cable 1/0/1
Router(config-controller)#profile 1
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>cable downstream controller-profile</b>	Configures the downstream controller profile.
	<b>cable upstream controller-profile</b>	Configures the upstream controller profile.

# profile-control

To specify the control-plane profile used for MAC management and other control messages, use the **profile-control** command in OFDM channel profile configuration mode. To undo the control-plane profile assignment, use **no** form of this command.

**profile-control** {**modulation-default** *value* | **modulation-profile** *id*}

**no profile-control**

## Syntax Description

<b>modulation-default</b> <i>value</i>	The default modulation. Valid values are 16-QAM, 64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM, 2048-QAM, and 4096-QAM.
<b>modulation-profile</b> <i>id</i>	Global modulation profile ID.

## Command Default

1024-QAM

## Command Modes

OFDM channel profile configuration (config-ofdm-chan-prof)

## Command History

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

## Usage Guidelines

Use this command to specify the control-plane profile used for MAC management and other control messages.

## Examples

The following example shows how to specify the control-plane profile used for MAC management and other control messages:

```
Router# configure terminal
Router(config)# cable downstream ofdm-chan-profile 21
Router(config-ofdm-chan-prof)# profile-control modulation-default 1024-qam
```

## Related Commands

Command	Description
<b>cable downstream ofdm-chan-profile</b>	Define the OFDM channel profile on the OFDM channel.
<b>cyclic-prefix</b>	Specify the channel cyclic-prefix.
<b>description (OFDM channel profile)</b>	Specify a user defined description for the profile.
<b>interleaver-depth</b>	Specify the channel interleaver-depth.
<b>pilot-scaling</b>	Specify the value used to calculate the number of continuous pilots.
<b>profile-data</b>	Specify default modulation or profile as the channel data profile.
<b>profile-ncp</b>	Specify default modulation or profile as the channel ncp profile.

Command	Description
<b>roll-off</b>	Specify the channel roll-off value.
<b>subcarrier-spacing</b>	Specify the spacing for specific subcarriers configured in this profile.

## profile-data

To specify the data-plane profiles used for data packets, use the **profile-data** command in OFDM channel profile configuration mode. To undo the data-plane profile assignment, use **no** form of this command.

**profile-data** *id*{**modulation-default** *value* | **modulation-profile** *id*}

**no profile-data** *id*

Syntax Description		
	<b>profile-data</b> <i>id</i>	Channel data profile ID. Valid range is from 1 to 5.
	<b>modulation-default</b> <i>value</i>	The default modulation. Valid values are 16-QAM, 64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM, 2048-QAM, and 4096-QAM.
	<b>modulation-profile</b> <i>id</i>	Global modulation profile ID.

**Command Default** None.

### Command Modes

OFDM channel profile configuration (config-ofdm-chan-prof)

### Command History

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

### Usage Guidelines

Use this command to specify the data-plane profiles used for data packets.

### Examples

The following example shows how to specify the data-plane profiles used for data packets:

```
Router# configure terminal
Router(config)# cable downstream ofdm-chan-profile 21
Router(config-ofdm-chan-prof)# profile-data 3 modulation-default 1024-qam
```

### Related Commands

Command	Description
<b>cable downstream ofdm-chan-profile</b>	Define the OFDM channel profile on the OFDM channel.
<b>cyclic-prefix</b>	Specify the channel cyclic-prefix.
<b>description (OFDM channel profile)</b>	Specify a user defined description for the profile.
<b>interleaver-depth</b>	Specify the channel interleaver-depth.
<b>pilot-scaling</b>	Specify the value used to calculate the number of continuous pilots.
<b>profile-control</b>	Specify default modulation or profile as the channel control profile.
<b>profile-ncp</b>	Specify default modulation or profile as the channel ncp profile.

Command	Description
<b>roll-off</b>	Specify the channel roll-off value.
<b>subcarrier-spacing</b>	Specify the spacing for specific subcarriers configured in this profile.

# profile-description

To provide a profile description for each profile in the selected cable multicast authorization profile, use the **profile-description** command in multicast authorization profile configuration mode. To remove the profile description, use the **no** form of this command.

**profile-description** *profile-description*  
**no profile-description** *profile-description*

## Syntax Description

<i>profile-description</i>	Specifies profile description for the selected profile. You can use up to 128 characters to describe the profile.
----------------------------	---

## Command Default

Profile description is empty.

## Command Modes

Multicast authorization configuration—(config-mauth)

## Command History

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

## Usage Guidelines

This command is available only from the cable multicast authorization profile mode.

## Examples

The following example shows how to enter a profile description for a multicast authorization profile name:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# cable multicast auth profile-name
Router(config)# cable multicast auth profile-name gold
Router(config-mauth)# profile-description gold-configured-may
```

## Related Commands

Command	Description
<b>cable multicast authorization enable default-action</b>	Enables the cable multicast authorization features.
<b>cable multicast authorization profile-name</b>	Defines the cable multicast authorization profile.
<b>show cable multicast authorization</b>	Displays the list of defined multicast authorization profiles and all CMs associated with corresponding profiles.
<b>show running-config interface cable</b>	Displays the running configuration for each of the cable interfaces.

# profile-ncp

To specify the ncp profile, use the **profile-ncp** command in OFDM channel profile configuration mode. To undo the ncp profile assignment, use **no** form of this command.

**profile-ncp** {**modulation-default** *value* | **modulation-profile** *id*}

**no profile-ncp**

## Syntax Description

<b>modulation-default</b> <i>value</i>	The default modulation. Valid values are QPSK, 16-QAM, and 64-QAM.
<b>modulation-profile</b> <i>id</i>	Global modulation profile ID.

## Command Default

None.

## Command Modes

OFDM channel profile configuration (config-ofdm-chan-prof)

## Command History

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

## Usage Guidelines

Use this command to specify the ncp profile.

## Examples

The following example shows how to specify the ncp profile:

```
Router# configure terminal
Router(config)# cable downstream ofdm-chan-profile 21
Router(config-ofdm-chan-prof)# profile-ncp modulation-default qpsk
```

## Related Commands

Command	Description
<b>cable downstream ofdm-chan-profile</b>	Define the OFDM channel profile on the OFDM channel.
<b>cyclic-prefix</b>	Specify the channel cyclic-prefix.
<b>description (OFDM channel profile)</b>	Specify a user defined description for the profile.
<b>interleaver-depth</b>	Specify the channel interleaver-depth.
<b>pilot-scaling</b>	Specify the value used to calculate the number of continuous pilots.
<b>profile-control</b>	Specify default modulation or profile as the channel control profile.
<b>profile-data</b>	Specify default modulation or profile as the channel data profile.
<b>roll-off</b>	Specify the channel roll-off value.
<b>subcarrier-spacing</b>	Specify the spacing for specific subcarriers configured in this profile.

# protect-tunnel

To configure a Downstream External PHY Interface (DEPI) tunnel for the protect cable interface line card on a Cisco CMTS router, use the **protect-tunnel** command in global configuration mode. To disable this configuration, use the **no** form of this command.

**protect-tunnel** *protect-depi-tunnel-name*  
**no protect-tunnel** *protect-depi-tunnel-name*

## Syntax Description

<i>protect-tunnel-name</i>	DEPI tunnel name for the protect cable interface line card.
----------------------------	---

## Command Default

The N+1 DEPI redundancy feature is disabled.

## Command Modes

Global configuration (config)

## Command History

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

## Usage Guidelines

The protect tunnel must be explicitly configured. The working tunnel and the protect tunnel are configured using the same **depi-tunnel** command. The protect tunnel inherits L2TP class and DEPI class parameters from the working tunnel. When you configure the protect tunnel and specify the destination IP address for the protect tunnel, the protect tunnel inherits the QAM channel parameters specified for the working tunnel.

## Examples

The following example shows how to configure a DEPI tunnel for the protect cable interface line card on the Cisco uBR10012 router:

```
Router> enable
Router# configure terminal
Router(config)# depi-tunnel protect1
Router(config-depi-tunnel)# dest-ip 192.0.2.103
Router(config-depi-tunnel)# exit
Router(config)# depi-tunnel depi-tunnel working1
Router(config-depi-tunnel)# protect-tunnel protect1
Router(config-depi-tunnel)# end
```

## Related Commands

Command	Description
<b>depi-tunnel</b>	Specifies a template for DEPI tunnel configuration settings.

# protocol

To specify the protocol used in the logical edge device, use the **protocol** command in logical edge device configuration mode. To undo the protocol assignment, use the **no** form of this command.

```
protocol {GQI | table-based}
no protocol {GQI | table-based}
```

## Command Default

None.

## Command Modes

Logical edge device configuration mode (config-video-led)

## Command History

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

## Usage Guidelines

This command specifies the protocol.

## Examples

The following example shows how to specify the protocol:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)# logical-edge-device vod id 1
Router(config-video-led)# protocol table-based
```

## Related Commands

Command	Description
<b>logical-edge-device</b>	Defines a logical edge device.
<b>show cable video logical-edge-device</b>	Displays the logical edge device information.

## provider-name

To specify the provider name as part of the service descriptor, use the **provider-name** command in the service descriptor configuration mode. To revoke the configuration, use the **no** form of the command.

**provider-name** *string*

<b>Syntax Description</b>	<i>string</i> Specifies the provider name.
---------------------------	--

<b>Command Default</b>	None.
------------------------	-------

<b>Command Modes</b>	Service descriptor configuration mode (config-video-serv-desc)
----------------------	--

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Cisco IOS XE Gibraltar 16.10.1c	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

The following example shows how to specify the provider name:

```
router#configure terminal
router (config)#cable video
router (config-video)#service-descriptor-default
router (config-video-serv-desc)#provider-name test
```

### Related Commands

<b>Command</b>	<b>Description</b>
<b>serving-area</b>	Configures the serving area which enables the set tops to discover VOD content.
<b>service-descriptor-default</b>	Enables the operator to specify the default values for the service descriptor.

# psi-interval

To override the default PSI value, use the **psi-interval** command in the service distribution group configuration mode. To revert back to the default psi-interval value, use the **no** form of the command.

**psi-interval** *number*

## Syntax Description

*number* Defines the new psi-interval value.

## Command Default

None.

## Command Modes

Service distribution group configuration mode (config-video-sdg)

## Command History

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

## Usage Guidelines

This command is used to override the default psi-interval value.

The following example shows how to override the default psi-interval:

```
router#configure terminal
router(config)#cable video
router(config-video)#service-distribution-group sdg id 1
router(config-video-sdg)#psi-interval 250
```

## Related Commands

Command	Description
<b>service-distribution-group</b>	Defines a service distribution group.
<b>rf-port integrated-cable</b>	Defines the physical slot/bay/port to be used in a video service.
<b>onid</b>	Override the default ONID.
<b>show cable video service-distribution-group</b>	Displays the SDG configuration.

# show ptp clock running

To display the PTP clock, use the **show ptp clock running** command.

**show ptp clock running**

---

## Command Default

## Command Modes

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## Command History

Release	Modification
Cisco IOS XE 16.8.x	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

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## Usage Guidelines

Use this command to display the running PTP clock.

The following example shows how to display the PTP clock.

```
router# show ptp clock running
PTP Ordinary Clock [Domain 55]
State Ports Pkts sent Pkts rcvd Redundancy
Mode
PHASE_ALIGNED 1 68938 138822 Hot standby
PORT SUMMARY
PTP Master
Name Tx Mode Role Transport State Sessions
Port Addr
slave-from-903 unicast slave Lo1588 Slave 1
10.90.3.93
```

## pxf-fail-switchover-trap enable

To enable the sending of ciscoRFSwactNotif trap which is encoded with extended switchover, that indicates the Toaster SEU error triggered PRE switchover, use the **pxf-fail-switchover-trap enable** command in the redundancy configuration mode.



**Note** This command is a hidden command.

### pxf-fail-switchover-trap enable

**Syntax Description** This command has no keywords or arguments.

**Command Default** None.

**Command Modes** Redundancy configuration mode (config-red)

Command History	Release	Modification
	12.2(33)SCJ1	This command was introduced in Cisco uBR10012 router.

**Usage Guidelines** Before configuring ciscoRFSwactNotif trap, use **snmp-server enable traps rf** to enable the sending of ciscoRFSwactNotif trap for cable related events.

The following example shows how to enable to send the extended switchover reason (uses private switchover reason 100) of ciscoRFSwactNotif trap:

```
router#configure terminal
router(config)#redundancy
router(config-red)#pxf-fail-switchover-trap enable
```

You need to notice the extended switchover reason is a private value (100), which is not ciscoRFSwactNotif trap standard value, the trap receive utility in customer side may need to be updated in order to understand the private switchover reason(100). The extended switchover reason will be sent out after PRE switchover when old active PRE boots up.

Related Commands	Command	Description
	<b>snmp-server enable traps rf</b>	Enables the sending of SNMP traps for cable related events.
	<b>show redundancy switchover history</b>	Displays the redundancy switchover information.

pxf-fail-switchover-trap enable