Cable Commands: a through cable-modem

ac-start-delay

To configure the time between start of first CP after a change in AC and start of ECM broadcast, use the **ac-start-delay** command in the DVB scrambling ECMG overrule configuration mode. To void the time configuration, use the **no** form of this command.

ac-start-delay *delay*
no ac-start-delay

ac-start-delay *delay*	Specifies the time between start of first CP after a change in AC and start of ECM broadcast 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 time between start of first CP after a change in AC and start of ECM broadcast in millisecond. The valid range is from -30000 to 30000.

The following is an example of how to specify the time between start of first CP after a change in AC and start of ECM broadcast:

```
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)#overrule
Router(config-video-encrypt-dvb-ecmg-overrule)#ac-start-delay 10000
```

Related Commands

Command	Description
overrule	Enters DVB scrambling configuration mode.
ac-stop-delay	Specifies the time between end of last CP preceding a change in AC and end of ECM broadcast.
max-comp-time	Specifies the maximum time needed by ECMG to compute an ECM.
max-streams	Specifies the maximum number of simultaneous open streams supported by the ECMG on a channel.

Command	Description
min-cp-duration	Specifies the minimum crypto period.
rep-period	Specifies the time between two ECM packets at the output.
start-delay	Specifies the delay between the start of CP and ECM broadcast.
stop-delay	Specifies the delay between the end of CP and ECM broadcast.
trans-start-delay	Specifies the transition start delay.
trans-stop-delay	Specifies the transition stop delay.

ac-stop-delay

To configure the time between end of last CP preceding a change in AC and end of ECM broadcast, use the **ac-stop-delay** command in the DVB scrambling ECMG overrule configuration mode. To void the time configuration, use the **no** form of this command.

ac-stop-delay *delay*
no ac-stop-delay

ac-stop-delay *delay*	Specifies the time between end of last CP preceding a change in AC and end of ECM broadcast 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 time between end of last CP preceding a change in AC and end of ECM broadcast in milliseconds. The valid range is from -30000 to 30000.

The following is an example of how to configure the time between end of last CP preceding a change in AC and end of ECM broadcast:

```
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)#overrule
Router(config-video-encrypt-dvb-ecmg-overrule)#ac-stop-delay 10000
```

Related Commands

Command	Description
overrule	Enters DVB scrambling configuration mode.
ac-start-delay	Specifies the time between start of first CP after a change in AC and start of ECM broadcast.
max-comp-time	Specifies the maximum time needed by ECMG to compute an ECM.
max-streams	Specifies the maximum number of simultaneous open streams supported by the ECMG on a channel.

Command	Description
min-cp-duration	Specifies the minimum crypto period.
rep-period	Specifies the time between two ECM packets at the output.
start-delay	Specifies the delay between the start of CP and ECM broadcast.
stop-delay	Specifies the delay between the end of CP and ECM broadcast.
trans-start-delay	Specifies the transition start delay.
trans-stop-delay	Specifies the transition stop delay.

access-denied

To create a DOCSIS configuration file that disables network access to the customer premise equipment (CPE) devices that are attached to the cable modem (CM) on a Cisco CMTS router, use the **access-denied**command in cable config-file configuration mode. To enable access, use the **no** form of this command.

access-denied
no access-denied

Syntax Description

This command has no arguments or keywords.

Command Default

Access to the cable network is permitted.

Command Modes

Cable config-file configuration (config-file)

Command History

Release	Modification
12.1(2)EC1	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.

Usage Guidelines

This command sets the Network Access Control object in the DOCSIS configuration file. If the object is set to 1 (set by the default of **no access-denied**), the CPE devices behind the CM allow access to the network. If the object is set to 0 (by configuration of the **access-denied** command) to disable network access for the CPE devices, the CM does not forward traffic from its attached CPE devices.

For normal operation, the CM must be set to allow access (the default). However, to deny service for reasons such as nonpayment or unauthorized use of services, the **access-denied** command can be used.

Examples

The following example shows how to disable network access for the CPE devices that are connected to the CM:

```
cable config-file disable.cm
 access-denied
```

Related Commands

Command	Description
cable config-file	Creates a DOCSIS configuration file and enters configuration file mode.
channel-id	Specifies upstream channel ID.
cpe max	Specifies customer premise equipment information.
download	Specifies download information for the configuration file.

Command	Description
frequency	Specifies the downstream frequency.
option	Specifies vendor-specific information fields in a DOCSIS configuration file.
privacy	Specifies privacy options for baseline privacy images.
service-class	Specifies service class definitions for the configuration file.
snmp manager	Specifies Simple Network Management Protocol (SNMP) options.
timestamp	Enables time-stamp generation.

activate-rule at-byte-count

Note Effective with Cisco IOS Release 12.3(9a)BC, the **activate-rule at-byte-count** command is not available in Cisco IOS software.

To specify the number of bytes that a subscriber can transmit during the monitoring period on a Cisco CMTS router, use the **activate-rule at-byte-count** command in enforce-rule configuration mode. To reset the rule to its default values, use the **no** form of this command.

activate-rule at-byte-count *kbytes* {**downstream** | **upstream**} [**enforce**]
no activate-rule at-byte-count *kbytes* {**downstream** | **upstream**} [**enforce**]

Syntax Description

kbytes	Maximum number of kilobytes that the subscriber can transmit in the specified direction during the monitoring period. The valid range is 1 to 4294967, with a default of 0 (no limit). **Note** To reset the kilobyte count to 0, use the **no** form of this command.
downstream	Specifies that the kilobyte count applies to traffic in the downstream direction.
upstream	Specifies that the kilobyte count applies to traffic in the upstream direction. The default value is **upstream**.
enforce	(Optional) Specifies that the enforce-rule QoS profile should be applied automatically if a user violates the registered QoS profile. **Note** You must have previously configured a registered QoS profile, using the **qos-profile registered** command, before being able to use the **enforce** keyword.

Command Default

The *kbytes* value defaults to 0 (no limit), upstream direction, and enforce-rule QoS profiles are not automatically applied (**no activate-rule at-byte-count enforce**).

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

Usage Guidelines

The **activate-rule at-byte-count** command specifies the maximum number of bytes that a subscriber can transmit during the monitor window period (see the **monitoring-duration** command). If a subscriber transmits traffic beyond this maximum value, the CMTS router considers the subscriber to be overconsuming.

If the optional **enforce** keyword has been specified for an enforce-rule, the CMTS router automatically switches overconsuming subscribers to the enforced QoS profile (see the **qos-profile enforced**command). The enforced QoS profile remains in force during the penalty time period (see the **qos-profile registered** command).

An enforce-rule can be created for only one direction, either upstream or downstream. To activate subscriber traffic management for both the upstream and downstream directions, create two different enforce-rules, with one rule's **activate-rule-at-byte-count** command specifying the downstream direction and the other rule specifying the upstream direction.

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 the enforce-rule.

Note You can create an enforce-rule that is a duplicate of an existing enforce-rule, but the duplicate rule is not activated and applied to service flows until at least one of its parameters is changed so that it has a unique configuration.

Examples

The following example shows a typical **activate-rule-at-byte-count** command for the downstream direction:

```
Router# configure terminal

Router(config)# cable qos enforce-rule residential

Router(enforce-rule)# activate-rule at-byte-count 20 downstream
```

The following example shows a typical **activate-rule-at-byte-count** command for the upstream direction. The **enforce** option is also added so that the enforce-rule QoS profile is automatically applied to users who exceed their registered profile:

```
Router# configure terminal

Router(config)# cable qos enforce-rule test

Router(enforce-rule)# activate-rule at-byte-count 5 upstream enforce
```

The following example shows the same command being given for a second enforce-rule. The system rejects the command because it is a duplicate of an existing rule, using the same QoS profile and direction. You must change at least one of the rule parameters to make it unique before it is mapped and applied to service flows.

```
Router# configure terminal

Router(config)# cable qos enforce-rule test2

Router(enforce-rule)# activate-rule at-byte-count 5 upstream enforce

Enforce-rule test2 won't be mapped to service flows as it is duplicate of test1 with same
registered qos-profile 5 and same direction
```

Related Commands

Command	Description
cable qos enforce-rule	Creates an enforce-rule to enforce a particular QoS profile for subscriber traffic management and enters enforce-rule configuration mode.
enabled (enforce-rule)	Activates an enforce-rule and begins subscriber traffic management on a Cisco CMTS router.
duration	Specifies the time period and sample rate to be used for monitoring subscribers.
penalty-period	Specifies the time period that an enforced QoS profile should be in effect for subscribers that violate their registered QoS profiles.
qos-profile enforced	Specifies a QoS profile that should be enforced when users violate their registered QoS profiles.
qos-profile registered	Specifies the registered QoS profile that should be used for this enforce-rule.
show cable qos enforce-rule	Displays the QoS enforce-rules that are currently defined.
show cable subscriber-usage	Displays subscribers who are violating their registered QoS profiles.

active

To activate the logical edge device, use the **active** command in logical edge device protocol configuration mode. To deactivate the logical edge device, use the **no** form of this command.

active
no active

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

This command activates the logical edge device.

Examples

The following example shows how to activate the logical edge device:

```
Router# configure terminal
Router(config)# cable video
Router(config-video)# logical-edge-device vod id 1
Router(config-video-led)# protocol table-based
Router(config-video-led-protocol)# active
```

Related Commands

Command	Description
logical-edge-device	Define a logical edge device.
protocol	Specifies the protocol used in the logical edge device.
virtual-edge-input-ip	Specifies and configures a cable multicast QoS group.
vcg	Specifies the virtual carrier group assigned to this logical edge device.
show cable video logical-edge-device	Displays the logical edge device information.

add-priv-data

To add private data to the descriptor, use the **add-priv-data** command in the DVB scrambling ECMG descriptor configuration mode. To void the addition, use the **no** form of this command.

add-priv-data {**as-per-eis** | **at-es-level**}**private-data** *data* {**all** | **ecm-ids** *id*}
no add-priv-data {**as-per-eis** | **at-es-level**}**private-data** *data* {**all** | **ecm-ids** *id*}

as-per-eis	Specifies that the insertion level is determined by EIS.
at-es-level	Insert at elementary streams level.
private-data *data*	Specifies the private data for the descriptor.
all	Apply the rule for all ecm ids.
ecm-ids *id*	Specifies the ecm ids to apply the rule. Only applies to session-based scrambling.

Command Default

None

Command Modes

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

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 add private data to the descriptor:

```
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)#desc-rule desc_8_1 id 1
Router(config-video-encrypt-dvb-ecmg-desc)#add-priv-data at-es-level private-data 12345678
 ecm-ids 81,82,83,84,85
```

Related Commands

Command	Description
ecmg	Enters the ECM Generator configuration mode.
do-not-insert	Prohibits inserting standard descriptors.

admission-control max-reserved-bandwidth

To define the maximum reserved bandwidth per bonding group for all service flows that are allowed by the Cisco CMTS, use the **admission-control max-reserved-bandwidth** command in the interface configuration mode. To reset or disable the maximum reserved bandwidth value, use the **no** form of this command.

admission-control max-reserved-bandwidth *bw-in-kbps*
no admission-control max-reserved-bandwidth

Syntax Description

bw-in-kbps	Maximum admission control reserved bandwidth. The value is in kbps and is based on the RF bandwidth percent defined for the bonding group. Valid range is from 0 to the maximum bandwidth of the upstream bonding group.

Command Default

Without explicitly configured max-reserved-bandwidth, service flows admitted on a US bonding group are not subject to admission control.

Command Modes

Upstream bonding configuration (config-upstream-bonding)

Command History

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

Usage Guidelines

This command allows the user to define the maximum reserved bandwidth per bonding group. The default maximum reserved bandwidth value is 80 percent. However the user can choose to configure a higher (up to 96 percent) or lower reserved bandwidth so that there is bandwidth allocated for zero committed information rate (CIR) best effort traffic.

Examples

The following example shows a sample definition of the maximum reserved bandwidth value.

```
Router> enable
Router# configure terminal
Router(config)# interface c5/0/1
Router(config-if)# cable upstream bonding-group 1
Router(config-upstream-bonding)#  admission-control max-reserved-bandwidth 6344
```

Related Commands

Command	Description
cable admission-control	Configures the CPU and memory thresholds for the Cisco CMTS router and supporting broadband processing engines (BPEs).
cable admission-control event	Configures and enables admission control event types on the Cisco CMTS router.
cable admission-control ds-bandwidth	Configures admission control downstream bandwidth thresholds on the Cisco CMTS router.

Command	Description
cable admission-control us-bandwidth	Configures admission control upstream bandwidth thresholds on the Cisco CMTS router.
debug cable admission-control	Enables automatic admission control troubleshooting processes on the Cisco CMTS router.
show cable admission-control	Displays the current admission control configuration and status on the Cisco CMTS router or on a specified interface.

admission-control application-type

To enable Service Group Admission Control (SGAC) checking for the specified application-type, use **admission-control application-type** command in cable fiber node configuration mode. To remove the configuration, use the **no** form of this command.

admission-conrtrol application-type *app-type* **ds-bandwidth** *percentage*
no admission-conrtrol application-type *app-type* **ds-bandwidth**

admission-conrtrol application-type *grouplist* **ds-bandwidth** *percentage*
no admission-conrtrol application-type *grouplist* **ds-bandwidth**

Syntax Description

application-type *app-type*	Specifies the application type. The valid range is from 1 to 8.
application-type *grouplist*	Specifies the application type. The valid range is from 1 to 8. The *grouplist* variable can be either a range of application types or a list of specific application types separated by a space.
ds-bandwidth *percentage*	Specifies the downstream bandwidth percentage. Valid range is from 0 to 100.

Command Default

The command is not configured by default.

Command Modes

cable fiber node configuration (config-fiber-node)

Command History

Release	Modification
IOS-XE 3.17.0S	This command was modified. The *app-type* variable was replaced by *grouplist* variable.
IOS-XE 3.16.0S	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

Use the **admission-control application-type** command under each fiber node to enable SGAC check for an application type and any service flow of the specified application type, which is admitted to a service group.

Starting with Cisco IOS-XE Release 3.17.0S, admission control can be applied for both normal priority and emergency voice flows. The *grouplist* variable can be either a range of application types or a list of specific application types separated by a space.

Examples

The following example shows how to enable SGAC check for an application type and any service flow of the specified application type:

```
Router# configure terminal
Router(config)# cable fiber-node 1
Router(config-fiber-node)# admission-control application-type 1 ds-bandwidth 1
```

The following example shows how to enable SGAC check for a group of application types:

```
Router# configure terminal
Router(config)# cable fiber-node 1
Router(config-fiber-node)# admission-control application-type 1 6 ds-bandwidth 1

Or

Router# configure terminal
Router(config)# cable fiber-node 1
Router(config-fiber-node)# admission-control application-type 3-6 ds-bandwidth 1
```

Related Commands

Command	Description
cable application-type	Defines an application type and its categorization rules.

analog

To configure the analog Tx/Rx modules alarm threshold, use the **analog** command in RPD configuration mode. To void the alarm threshold configuration, use the **no** form of this command.

analog {rx-power | tx-power} major-lo-th *value* **minor-lo-th** *value* **normal-th** *value* **minor-hi-th** *value*

no analog {rx-power | tx-power}

Syntax Description

rx-power	Specifies the RPD analog module receiving power.
tx-power	Specifies the RPD analog module transmitting power.
major-lo-th	Specifies the major low threshold.
minor-lo-th	Specifies the minor low threshold.
normal-th	Specifies the normal threshold.
minor-hi-th	Specifies the minor high threshold.

Command Default

None

Command Modes

RPD configuration (config-rpd)

Command History

Release	Modification
Cisco IOS XE Gibraltar 16.10.1d	This command was introduced on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

Use this command to configure the analog Tx/Rx modules alarm threshold.

Note The threshold for each alarm must follow this rule: major low threshold < minor low threshold < normal threshold < minor high threshold. Otherwise the command can not be executed.

```
Router# configure terminal
Router(config)# cable rpd 1
Router(config-rpd)# analog rx-power major-lo-th 0 minor-lo-th 50 normal-th 150 minor-hi-th
 200
```

Related Commands

Command	Description
cable rpd	Enters the RPD configuration mode.

annex

To set the annex (MPEG framing format) for a specific QAM profile, use the **annex** command in QAM profile configuration mode.

annex {**A** | **B** | **C**}

Syntax Description

A |**B** |**C**	Specifies the MPEG framing format: • **A**–Annex A. The downstream is compatible with the European MPEG framing format specified in ITU-TJ.83 Annex A. • **B**–Annex B. The downstream is compatible with the North American MPEG framing format specified in ITU-TJ.83 Annex B. • **C**–Annex C. The downstream is compatible with the Japan MPEG framing format specified in ITU-TJ.83 Annex C.

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 Annex (MPEG framing format) for a specific QAM profile.

Examples

The following example shows how to set the MPEG framing format for a specific QAM profile:

```
Router# configure terminal
Router(config)# cable downstream qam-profile 4
Router(config-qam-prof)# annex A
```

Related Commands

Command	Description
cable downstream qam-profile	Set the QAM profile for the cable interface line card.
interleaver-depth	Set the interleaver-depth.
modulation	Set the QAM modulation format.
spectrum-inversion	Set the spectrum-inversion on or off.
symbol-rate	Set the symbol rate.

annex modulation

Note Effective with Cisco IOS Release 12.3(23)BC, the **annex modulation** command is obsolete and **annex** and **modulation** are included as keyword options in the **rf-channel frequency** command.

To set the annex (MPEG framing format) and modulation for the Wideband SPA, use the **annex modulation** command in controller configuration mode. To set the annex to B and the modulation to 64 QAM, use the **no** form of this command.

annex {**A** | **B**} **modulation** {**64qam** | **256qam**} [*rf-start-index* *rf-end-index*]
no annex {**A** | **B**} **modulation** {**64qam** | **256qam**} [*rf-start-index* *rf-end-index*]

Syntax Description

A |**B**	Specifies the MPEG framing format: • **A**–Annex A. The downstream is compatible with the European MPEG framing format specified in ITU-TJ.83 Annex A. • **B**–Annex B. The downstream is compatible with the North American MPEG framing format specified in ITU-TJ.83 Annex B.
64qam|**256qam**	Specifies the modulation rate: • **64qam**–64-QAM modulation. • **256qam**–256-QAM modulation.
rf-start-index *rf-end-index*	(Optional) Specifies the start and end indexes for RF channels. The following values are allowed: • If the annex is A and the modulation is 256 QAM, *rf-start-index* must be 0, and *rf-end-index* must be 17. • For all other cases, *rf-start-index* must be 0, and *rf-end-index* must be 23.

Command Default

No annex or modulation is set for the Wideband SPA.

Command Modes

Controller configuration (config-controller)

Command History

Release	Modification
12.3(21)BC	This command was introduced for the Cisco uBR10012 router.
12.3(23)BC	This command was made obsolete and **annex** and **modulation** were included as keyword options in the **rf-channel frequency** command.
IOS-XE 3.15.0S	This command was replaced by the **controller Integrated-Cable** and **controller Upstream-Cable** commands on the Cisco cBR Series Converged Broadband Routers.

Usage Guidelines

Use this command to set the following on a Wideband SPA:

- Annex (MPEG framing format)
- Modulation
- Start and end indexes for RF channels

Each Wideband SPA supports up to 24 RF channels depending on how the SPA is configured with the **annex modulation** command.

- For annex A and 256 QAM modulator, each Wideband SPA supports 18 RF channels.
- For all other cases, each Wideband SPA supports 24 RF channels.

The *rf-start-index* and *rf-end-index* arguments are intended for future use and are not currently needed. If *rf-start-index* and *rf-end-index* are not specified, the default values are as follows:

- If the annex is A and the modulation is 256 QAM, *rf-start-index* is 0, and *rf-end-index* is 17.
- For all other cases, *rf-start-index* is 0, and *rf-end-index* is 23.

Examples

The following example shows how to set the MPEG framing format and modulation for the Wideband SPA located at slot 1, subslot 0, bay 0:

```
Router(config)# controller modular-cable 1/0/0
Router(config-controller)# annex B modulation 64qam
```

Related Commands

Command	Description
cable rf-channel	Associates an RF channel on a Wideband SPA with a wideband channel.
controller modular-cable	Enters controller configuration mode to configure the Wideband SPA controller.
ip-address (controller)	Sets the IP address of the Wideband SPA FPGA.
modular-host subslot	Specifies the modular-host line card.
rf-channel frequency	Sets the frequency for each RF channel.
rf-channel ip-address mac-address udp-port	Sets the IP address, MAC address and UDP port for each RF channel.
rf-channel network delay	Specifies the CIN delay for each RF channel.
rf-channel description	Specifies the description for each RF channel.
rf-channel cable downstream channel-id	Assigns a downstream channel ID to an RF channel.

announce-event-profile

To configure the GQI announce event profile, use the **announce-event-profile** command in global configuration mode.

announce-event-profile {*name* | **id** *id* }
ack-timeout *time (in seconds)*
filter [**all-events** | *event-code*]

Syntax Description

name	Specify a name for the GQI announce event profile.
id	Specify an ID for the GQI announce event profile.
ack-timeout *time (in seconds)*	Specify the time (in seconds) the Cisco cBR-8 router waits for an acknowledgement from the SRM before sending the next announce message. The range is from 0-240 seconds. If the time is set to 0 seconds, the Cisco cBR-8 router sends the message without waiting for an acknowledgement from SRM.
filter all-events	Specifies that the Cisco cBR-8 router does not send any announce messages.
filter *event-code*	Filter one or more messages by using specific event codes.

Command Default

None.

Command Modes

Global configuration (config).

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command is introduced on the Cisco cBR Series Converged Broadband Routers.

Examples

The following example shows how to configure the GQI announce event profile:

```
enable
configure terminal
cable video
  announce-event-profile gqi-led-1 id 2
      ack-timeout 240
      filter 5502
      filter 5602
logical-edge-device led-1 id 1
   protocol gqi
    event-profile gqi-led-1
    vcg vcg-1
    active
```

Related Commands

Command	Description
show cable video announce-event-profile	Displays the configuration of the GQI announce event profile and a list of LEDs that use the profile.
event-profile	Applies the GQI announce event profile to a specific LED.

application-id

To specify an application type to allow admission control to be applied to a group configuration, use the **application-id** command in multicast QoS configuration mode. To disable admission control, use the **no** form of this command.

application-id *number*
no application-id *number*

Syntax Description

number	Specifies the application identification number of the multicast QoS group. The valid range is 1–65535.

Command Default

Multicast QoS group application type is not identified.

Command Modes

Multicast QoS configuration (config-mqos)

Command History

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

Usage Guidelines

To enable intelligent multicast admission control, you must enable and configure an application type using the **application-id** command.

Examples

The following example identifies a multicast QoS group application ID using the **applicaton-id** command:

```
Router(config)# cable multicast qos group 20 priority 55 global
Router(config-mqos)# application-id 44
```

The following example identifies a multicast QoS group application ID using the **applicaton-id** command in Cisco cBR Series Converged Broadband Routers:

```
Router(config)# cable multicast qos group 30 priority 60 global
Router(config-mqos)# application-id 77
```

Related Commands

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

assign

To assign modulation to subcarrier, use the **assign** command in OFDM modulation profile configuration mode. To undo a modulation assignment, use **no** form of this command.

assign {**modulation-default** *value* | **modulation** *value* {**list-subcarriers** {**freq-abs** | **freq-offset**} *freqency* | **range-subcarriers** {**freq-abs** | **freq-offset**} *freqency* **width** *value*}}

no assign {**modulation-default** *value* | **modulation** *value* {**list-subcarriers** {**freq-abs** | **freq-offset**} *freqency* | **range-subcarriers** {**freq-abs** | **freq-offset**} *freqency* **width** *value*}}

Syntax Description

modulation-default *value*	Assign a modulation value as the default value for all subcarriers. Valid values are QPSK, 16-QAM, 64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM, 2048-QAM, and 4096-QAM.
modulation *value*	Assign a specific modulation value to a range or list of subcarriers. Valid values are QPSK, 16-QAM, 64-QAM, 128-QAM, 256-QAM, 512-QAM, 1024-QAM, 2048-QAM, 4096-QAM, and zero-bit-load.
list-subcarriers	Assign modulation to a list of up to 10 subcarriers.
range-subcarriers	Assign modulation to a range of consecutive subcarriers specified by the first frequency and width in Hz.
freq-abs *freqency*	Specify range using absolute frequencies in Hz.
freq-offset *freqency*	Specify range using frequency offsets in Hz from the first configurable subcarrier determined by the profile's width.
width *value*	Specify width of range in Hz.

Command Default

None

Command Modes

OFDM modulation profile configuration (config-ofdm-mod-prof)

Command History

Release	Modification
IOS-XE 3.18.0SP	This command was introduced on the Cisco cBR Series Converged Broadband Routers.
Cisco IOS XE 16.8.1	This command was modified on the Cisco cBR Series Converged Broadband Routers. **zero-bit-load** was added as a modulation value.

Usage Guidelines

Use this command to assign modulation to subcarrier.

Only **freq-abs** or **freq-offset** keyword can be used depending on whether the **start-frequency** is configured. If it is configured, **freq-abs** is used and subsequent frequency values must be absolute values. If it is not configured, **freq-offset** is used and subsequent frequency values are offsets from the first configurable subcarrier determined by the profile's width.

Examples

The following example shows how to assign modulation to subcarrier with **start-frequency** configured:

```
Router# configure terminal
Router(config)# cable downstream ofdm-modulation-profile 21
Router(config-ofdm-mod-prof)# width 96000000
Router(config-ofdm-mod-prof)# start-frequency 627000000
Router(config-ofdm-mod-prof)# assign modulation 1024-QAM range-subcarriers freq-abs 635000000
 width 74050000
```

The following example shows how to assign modulation to subcarrier without **start-frequency** configured:

```
Router# configure terminal
Router(config)# cable downstream ofdm-modulation-profile 21
Router(config-ofdm-mod-prof)# width 96000000
Router(config-ofdm-mod-prof)# assign modulation 1024-QAM range-subcarriers freq-offset
8000000 width 74050000
```

The following example shows how to configure ZBL on a modulation profile:

```
Router# configure terminal
Router(config)# cable downstream ofdm-modulation-profile 159
Router(config-ofdm-mod-prof)# description an example of ZBL starting at 10MHZ for 1MHZ
Router(config-ofdm-mod-prof)# subcarrier-spacing 50KHZ
Router(config-ofdm-mod-prof)# width 96000000
Router(config-ofdm-mod-prof)# assign modulation-default 1024-QAM
Router(config-ofdm-mod-prof)# assign modulation zero-bit-load range-subcarriers freq-offset
 10000000 width 1000000
```

Related Commands

Command	Description
cable downstream ofdm-modulation-profile	Define the OFDM modulation profile on the OFDM channel.
description (OFDM modulation profile)	Specify a user defined description for the profile up to 64 characters.
start-frequency	(Optional) Specify the starting frequency associated with the first configurable subcarrier in the profile determined by the width.
subcarrier-spacing	Specify the spacing for specific subcarriers configured in this profile.
width	Specify width of profile in Hz.

attributes

To configure the attribute value for an upstream bonding group, use the **attributes** command in upstream bonding configuration submode. To restore the default attribute value, use the **no** form of this command.

attributes *value*
no attributes

Syntax Description

value	The upstream bonding group attibute value, in hexadecimal format. The range is from 0 to FFFFFFFF. The default is 80000000.

Command Default

The upstream bonding group attribute value is 80000000.

Command Modes

Upstream bonding configuration (config-upstream-bonding)

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 changes made to the configuration, using this command, on the working line card are synchronized with the configuration on the protect line card only after exiting the configuration mode. Use the end command to exit to Privileged EXEC mode, before using the show running configuration command.

Note Effective with Cisco IOS Release 12.2(33)SCH, the **no** form of this command disables the attribute on a Cisco uBR10012 router.

Examples

The following example shows how to configure the attribute value for an upstream bonding group on a cable interface line card on the Cisco uBR10012 router:

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

The following example shows how to configure the attribute value for an upstream bonding to allow all devices:

```
Router# configure terminal
Router(config)# interface cable7/1/0
Router(config-if)# cable upstream  2 attribute-mask 20000000
```

The following example shows how to configure the attribute value for an upstream bonding to specific devices:

```
Router# configure terminal
Router(config)# interface cable7/1/0
Router(config-if)# cable upstream  2 attribute-mask 20000004
```

Related Commands

Command	Description
cable upstream bonding-group	Creates an upstream bonding group on a cable interface.

auto-channel-id

To enable automatic channel ID selection, use the **auto-channel-id** command in the DVB scrambling ECMG configuration mode. To disable automatic channel ID selection, use the **no** form of this command.

auto-channel-id
no auto-channel-id

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 enable automatic channel ID selection:

```
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)#auto-channel-id
```

Related Commands

Command	Description
ecmg	Enters the ECM Generator configuration mode.
connection	Configures the ECMG connection.
ecm-pid-source	Configures the source of ECM PID.
ca-system-id	Configures the CA system ID.
type	Configures the ECMG type.
mode	Configures the application mode of ECMG.
desc-rule	Configures the descriptor rule.
overrule	Overrules the default settings.

base-channel-power

To set the base channel power level, use the **base-channel-power** command in the controller sub configuration mode.

base-channel-power *value*

Syntax Description

value	Value for the base channel power level. Valid range is from 26 to 34.

Command Default

If not specified, the default value is calculated based on the number of carriers.

Command Modes

Controller sub configuration mode (config-controller).

Command History

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

Usage Guidelines

This command is used to specify the base channel power level on an RF 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)#base-channel-power 26
router(config-controller)#exit
router#show controllers Integrated-Cable 3/0/0 rf-port
  Admin:  UP  MaxCarrier: 128  BasePower: 26 dBmV  Mode: normal
cbr8-router #show controller integrated-Cable 3/0/0 rf-channel 0

Chan State Admin Frequency  Type   Annex Mod  srate Interleaver  dcid  power  output

0     UP   UP   93000000   DOCSIS  B    256   5361  I32-J4       1    26   NORMAL
```

Related Commands

Command	Description
max-carrier	Specifies the maximum number of carriers.
power-adjust	Adjusts the power levels of the RF channel.

bind-vcg

To bind a set of virtual RF-channels defined in the virtual carrier group to the physical port in the service distribution group, use the **bind-vcg** command in video configuration mode. To unbind all virtual groups, use the **no** form of this command.

bind-vcg
no bind-vcg

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 binds a set of virtual RF-channels defined in the virtual carrier group to the physical port in the service distribution group.

Examples

The following example shows how to bind a set of virtual RF-channels defined in the virtual carrier group to the physical port in the service distribution group:

```
Router#config t
Router(config)#cable video
Router(config-video)#bind-vcg
Router(config-video-bd)#vcg movie-channels sdg west-regions
```

Related Commands

Command	Description
service-distribution-group	Defines a service distribution group.
rf-port integrated-cable	Specifies the RF ports in a service distribution group.
virtual-carrier-group	Defines a virtual carrier group.
rf-channel	Specifies the virtual RF channels in a virtual carrier group.

block-unref-pids

To block unreferenced PIDs on a QAM channel, use the **block-unref-pids** command in video configuration mode. To remove the configuration, use the **no** form of the command.

block-unref-pids
no block-unref-pids

Command Default

None.

Command Modes

Video configuration (config-video)

Command History

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

Examples

The following example shows how to block unreferenced PIDs on a QAM channel:

```
Router(config)# cable video
Router(config-video)# filter pid vcg vcg1
Router(cable-video-filter)#rf-channel 20-21
Router(cable-video-filter-ch)#block-unref-pids
```