QoS Command Reference

This chapter describes commands used to configure Quality of Service (QoS).

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bandwidth

To specify or modify the bandwidth allocated for a class belonging to a policy map, use the **bandwidth** command in policy-map class configuration mode. To remove the bandwidth specified for a class, use the **no** form of this command.

bandwidth {*bandwidth-value* | **percent** *x%* | **remaining percent** *x%* | **remaining ratio** *ratio*}

no bandwidth {*bandwidth-value* | **percent** *x%* | **remaining percent** *x%* | **remaining ratio** *ratio*}

Syntax Description

bandwidth value	Specifies the amount of bandwidth in kbps to be assigned to the class. Implies that the class where this is applied is given a minimum bandwidth guarantee of *bandwidth-value* kbps. The amount of bandwidth configured should be large enough to also accommodate Layer 2 overhead.
percent *x%*	Specifies the amount of bandwidth, in percentage from the available bandwidth, to be assigned to the class. The value ranges from 1 to 100 percent.
remaining percent *x%*	Specifies that the class where the command is specified should be given x% of the excess bandwidth, where excess bandwidth is the bandwidth in excess of all the minimum bandwidth guarantees of all the classes at the same level. The value ranges from 1 to 100 percent.
remaining ratio *ratio*	Specifies a bandwidth-remaining ratio for class-level or subinterface-level queues to be used during congestion to determine the amount of excess bandwidth (unused by priority traffic) to allocate to non priority queues. The value should be between 1 to 127.

Command Default

Bandwidth is not specified.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The restrictions and usage guidelines to configure quality of service (QoS) egress bandwidth on a CPT system are as follows:

- Bandwidth action is not supported on classes with match criteria as qos-group 3 or 7, or multicast-priority class.
- The **bandwidth** command cannot be used in combination with Bandwidth Remaining Ratio (BRR) or Bandwidth Remaining Percentage (BRP) in a class-map or a policy-map.
- The system does not validate for the total CIR configured on all the targets under the various congestion points. Therefore, ensure that the total committed information rate (CIR) configured does not exceed the total bandwidth available:
  - Total CIR configured under a 1 Gbps interface shall not exceed 1 Gbps; this includes CIR in policy applied on interface as well as services on that interface.
  - Total CIR configured under a 10 Gbps interface shall not exceed 10 Gbps; this includes CIR in policy applied on interface as well as services on that interface.
  - Total CIR on all targets on a CPT 50 shelf shall not exceed 9.882 Gbps; this is the least bandwidth for a CPT 50 shelf in a scenario where only one of the interconnects for a CPT50 shelf is functional.
  - Total CIR on all the unicast targets on two SFP+ interfaces on a fabric card shall not exceed 13 Gbps. The same is applicable if two CPT 50 shelves are connected to the two SFP+ interfaces of the same fabric card.

The restrictions and usage guidelines to configure QoS egress bandwidth remaining ratio or bandwidth remaining percent on a CPT system are as follows:

- The **bandwidth remaining ratio and bandwidth remaining percent** command is not supported in combination with bandwidth action in a class-map or a policy-map.
- The **bandwidth remaining ratio and bandwidth remaining percent** command is not supported on classes with match criteria as qos-group 3 or 7 or multicast-priority class

BRR is implemented on logical interfaces using hierarchical policy-maps.

Examples

The following example shows how to configure bandwidth remaining ratio at the egress:

```
Router(config)# policy-map BRR
Router(config-pmap)# class Test1
Router(config-pmap-c)# bandwidth remaining ratio 10
Router(config-pmap-c)# exit
Router(config-pmap)# class Test2
Router(config-pmap-c)# bandwidth remaining ratio 20
Router(config-pmap-c)# exit
Router(config-pmap)# class Test3
Router(config-pmap-c)# bandwidth remaining ratio 30
Router(config-pmap-c)# exit
Router(config-pmap)# class class-default
Router(config-pmap-c)#bandwidth remaining ratio 40
```

This example shows how to configure minimum bandwidth guarantee at the egress:

```
Router# config terminal
Router(config)# policy-map Test
Router(config-pmap)# class class-default
Router(config-pmap-c)# bandwidth 10000
Router(config-pmap-c)# exit
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
class-name {*class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
show policy-map interface	Displays the statistics and the configurations of the input and output policies that are attached to an interface.
show policy-map	Displays the policy-map information.

class

To specify the name of the class whose policy you want to create or change, or to specify the default class (commonly known as the **class-default** class) before you configure its policy, use the **class** command in policy-map configuration mode. To remove a class from the policy map, use the **no** form of this command.

class {*class-name* | **class-default**}

no class {*class-name* | **class-default**}

Syntax Description

class-name	User-defined class name to which the policy applies.
class-default	Specifies that the policy applies to the default traffic class.

Command Default

A class is not specified.

Command Modes

Policy-map configuration (config-pmap)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

Within a policy map, the **class** command can be used to specify the name of the class whose policy you want to create or change. First, the policy map must be identified. To identify the policy map (and enter the required policy-map configuration mode), use the **policy-map** command before you use the **class** (policy-map) command. After you specify a policy map, you can configure the policy for new classes or modify the policy for any existing classes in that policy map.

The class name that you specify in the policy map ties the characteristics for that class—that is, its policy—to the class map and its match criteria, as configured using the **class-map** command.

The **class-default** keyword is used to specify the predefined default class called class-default. The class-default class is the class to which traffic is directed if that traffic does not match any of the match criteria in the configured class maps.

Examples

The following example shows how to configure policing actions:

```
Router(config)# policy-map ABC
Router(config-pmap)# class class-default
Router(config-pmap-c)# police 10000000 8000 8000
Router(config-pmap-c-police)# conform-action set-cos-transmit 2
Router(config-pmap-c-police)# exceed-action set-cos-transmit 1
Router(config-pmap-c-police)# end
Router#
```

The following example shows how to configure a single rate 2-color policer:

```
Router(config)# policy-map 1r2c
Router(config-pmap)# class class-default
Router(config-pmap-c)# police 2000000
Router(config-pmap-c-police)# conform-action transmit
Router(config-pmap-c-police)# exceed-action drop
Router(config-pmap-c-police)# end
```

The following example shows how to configure a single rate, 2-color policer in class-default and a child policy:

```
Router# enable
Router# configure terminal
Router(config)# policy-map police5
Router(config-pmap)# class test18
Router(config-pmap-c)# service policy child-level
Router(config-pmap-c)# police cir 64000 50
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
police [cir | rate] *bps-value* **[bc | burst]** *bc* **[be | peak-burst]** *be* **conform-action** *action* **exceed-action** *action* **violate-action** *action*	Specifies a maximum bandwidth usage by a traffic class through the use of a token bucket algorithm.
police [cir | rate] *bps-value* **[bc | burst]** *bc* **[pir | peak-rate]** *pir* **[be | peak-burst]** *be* **conform-action** *action* **exceed-action** *action* **violate-action** *action*	Configures traffic policing using two rates (CIR and PIR).
police [cir | rate] percent *%* **[bc | burst]** *bc* **[be | peak-burst]** *be* **conform-action** *action* **exceed-action** *action* **violate-action** *action*	Configures traffic policing on the basis of a percentage of bandwidth available on an interface.

class-map

To create a class map to be used for matching packets to a specified class, use the **class-map** command in global configuration mode. To remove an existing class-map from the router, use the **no** form of this command. The **class-map** command enters class-map configuration mode in which you can enter one of the **match** commands to configure the match criteria for this class.

class-map [match-any] *class-map-name*

no class-map [match-any] *class-map-name*

Syntax Description

[match-any]	(Optional) Specifies that one of the match criterion must be met. Use this keyword only if you have to specify more than one match command.
class-map-name	Name of the class for the class-map. This argument is used for both the class-map and to configure a policy for the class in the policy map. The class name cannot contain spaces and can have a maximum of 40 alphanumeric characters.

Command Default

Class-map is not configured by default.

Command Modes

Global configuration (config)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

Use the **class-map** command to specify the class that you create or modify to meet the class-map match criteria. This command enters class-map configuration mode where you can enter one of the match commands to configure the match criteria for this class. Packets that arrive at either the input interface or the output interface (determined by how the **service-policy** command is configured) are checked against the match criteria configured for a class-map to determine if the packets belong to that class.

In the class-map configuration mode, the following configuration commands are available:

- **exit**—Used to exit from class-map configuration mode.
- **no**—Used to remove a match statement from a class-map.
- **match**—Used to configure classification criteria. The optional match subcommands and the description are listed in this table.

Command	Description
match cos *cos-number* **Example:** Router(config-cmap)# match cos 2	Matches a packet on the basis of a Layer 2 class of service (CoS) number. • *cos-number*— CoS value. The value can range from 0 to 7.
match ip precedence *ip-precedence-value* **Example:** Router(config-cmap)# match ip precedence 5	Identifies the IP precedence value as match criteria. • *ip-precedence-value*— IP precedence value. The value can range from 0 to 7.
match ip dscp *ip- dscp-value* **Example:** Router(config-cmap)# match ip dscp 6	Identifies a specific IP differentiated services code point (DSCP) value as a match criterion. • *ip- dscp-value* — IP DSCP value. The value can range from 0 to 63.
match mpls experimental topmost *exp-value* **Example:** Router(config-cmap)# match mpls experimental topmost 5	Matches the Multiprotocol Label Switching (MPLS) experimental (EXP) value in the topmost label. • *exp-value* — MPLS EXP value. The value can range from 0 to 7.

Examples

The following example shows how to configure a class-map named ipp5, and enter a match statement for IP precedence 5:

```
Router# enable
Router# configure terminal
Router(config)# class-map ipp5
Router(config-cmap)# match ip precedence 5
```

The following example shows how to a configure class-map on multiple match statements:

```
Router# enable
Router# configure terminal
Router(config)# class-map match-any IPP
Router(config-cmap)# match ip precedence 3
Router(config-cmap)# match ip precedence 4
```

The following example shows how to display class-map information for a specific class-map:

```
Router# show class-map ipp5

class Map match-any ipp5 (id 1)
match ip precedence 5
```

Related Commands

Command	Description
class class-default	Specifies that the policy applies to the default traffic class.

Command	Description
class *class-name*	User-defined class name to which the policy applies.
match cos	Matches a packet on the basis of a Layer 2 CoS number.
match ip precedence	Identifies the IP precedence value as match criteria.
match ip dscp	Identifies a specific IP DSCP value as a match criterion.
match mpls experimental topmost	Matches the MPLS EXP value in the topmost label.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show class-map	Displays the class-map information.

match ip precedence

To specify the IP precedence values to use as the match criteria, use the **match ip precedence** command in the class-map configuration mode. To remove IP precedence values from a class map, use the **no** form of this command.

match [ip] precedence *ip-precedence-value*

no match [ip] precedence *ip-precedence-value*

Syntax Description

ip	(Optional) Specifies that the match is for IPv4 packets.
ip-precedence-value	IP precedence value. The value can range from 0 to 7. You can enter up to four different values, separated by a space.

Command Default

IP precedence values are not configured as the match criteria.

Command Modes

Class-map configuration mode (config-cmap)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

You can enter up to four matching criteria, separated by a space, in one **match ip precedence** statement.

Examples

The following example shows how to configure a class-map named ipp5, and enter a match statement for IP precedence 5:

```
Router# enable
Router# configure terminal
Router(config)# class-map ipp5
Router(config-cmap)# match ip precedence 5
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
policy-map	Creates or modifies a policy-map that can be attached to one or more targets to specify a service policy.

Command	Description
service-policy (service configuration)	Attaches a policy-map to an input or an output target.
show class-map	Displays all class-maps and their matching criteria.
set ip precedence	Marks the precedence value in the IP header with a value between 0 to 7.

match cos

To match a packet on the basis of a Layer 2 class of service (CoS) marking, use the **match cos** command in class-map configuration mode. To remove a specific Layer 2 CoS marking as a match criterion, use the **no** form of this command.

match cos *cos-number*

no match cos *cos-number*

Syntax Description

cos-number	Packet CoS bit value. Specifies that the packet CoS bit value must match the specified CoS value. The value can range from 0 to 7. You can enter up to four different values, separated by a space.

Command Default

Packets are not matched on the basis of a Layer 2 CoS marking.

Command Modes

Class-map configuration (config-cmap)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

You can enter up to four matching criteria, separated by a space, in one **match cos** statement.

Examples

The following example shows a logical OR operation in a child policy with match cos and class-default in a parent class.

```
Router(config)# class-map match-any childOR
Router(config-cmap)# match cos 5
Router(config)# policy-map testchildOR
Router(config-pmap)# class childOR
Router(config-pmap-c)# police cir percent 10
Router(config)# policy-map parentOR
Router(config-pmap)# class class-default
Router(config-pmap-c)# police cir percent 20
Router(config-pmap-c)# service-policy testchildOR
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.

Command	Description
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show class-map	Displays all class-maps and their matching criteria.
set cos	Sets the Layer 2 CoS value of an outgoing packet.
service-policy (service configuration)	Attaches a policy-map to an input or an output target.

match ip dscp

To specify one or more differentiated service code point (DSCP) values as a match criterion, use the **match ip dscp** command in the class-map configuration mode. To remove a specific DSCP value from a class map, use the **no** form of this command.

match [ip] dscp *ip- dscp-value*

no match [ip] dscp *ip- dscp-value*

Syntax Description

ip	(Optional) Specifies that the match is for IPv4 packets.
ip- dscp-value	IP DSCP value. The value can range from 0 to 63. You can enter up to eight different values, separated by a space.

Command Default

DSCP values are not configured as the match criteria.

Command Modes

Class-map configuration mode (config-cmap)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

You can enter up to eight IP DSCP values, separated by a space, in one **match ip dscp** statement.

Examples

The following example shows how to set multiple match criteria; in this case, two IP DSCP value:

```
Router# enable
Router# configure terminal
Router(config)# class-map ipdscp5
Router(config-cmap)# match ip dscp 1 5
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
service-policy	Attaches a policy map to an input or an output target.

Command	Description
show class-map	Displays all class-maps and their matching criteria.
set ip dscp	Marks the precedence value in the IP header with a value between 0 to 63.

match mpls experimental topmost

To match the Multiprotocol Label Switching (MPLS) experimental (EXP) value in the topmost label header, use the **match mpls experimental topmost** command in the class-map configuration mode. To remove the EXP match criterion, use the **no** form of this command.

match mpls experimental topmost *exp-value*

no match mpls experimental topmost *exp-value*

Syntax Description

exp-value	MPLS EXP value in the topmost label. You can enter up to eight different values, separated by a space.

Command Default

MPLS EXP values are not configured as the match criteria.

Command Modes

Class-map configuration (config-cmap)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

Ingress marking of the MPLS EXP bit for MPLS traffic is not supported. Egress MPLS EXP marking is supported only in the interface mode of an MPLS interface.

Examples

The following example shows how to match the MPLS EXP value 3 in the topmost label header:

```
Router(config-cmap)# match mpls experimental topmost 3
```

Related Commands

Command	Description
platform set mpls-exp-topmost from qos-group, discard-class table	(Only for VPWS initiation and LSR scenarios) Maps the MPLS-EXP value from the table map.

match qos-group

To match a packet on the basis of traffic class represented by the qos-group, use the **match qos-group** command in the class-map configuration mode. To remove the group-group value, use the **no** form of this command.

match qos-group *qos-group-value*

no match qos group *qos-group-value*

Syntax Description

qos-group-value	Matches a packet on the basis of traffic class represented by the qos-group. The value can range from 0 to 7.

Command Default

A qos-group is not configured as the match criteria.

Command Modes

Class-map configuration (config-cmap)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **match qos-group** command is used by the class-map to identify a specific QoS group value marking on a packet. This command is supported only at the egress.

Examples

The following example shows a logical OR operation in a child policy with match qos-group and class-default in a parent class.

```
Router# enable
Router# configure terminal
Router(config)# class-map match-any childOR
Router(config-cmap)# match qos-group 1
Router(config)# policy-map testchildOR
Router(config-pmap)# class childOR
Router(config-pmap-c)# shape average 100000000
Router(config)# policy-map parentOR
Router(config-pmap)# class class-default
Router(config-pmap-c)# shape average 500000000
Router(config-pmap-c)# service-policy testchildOR
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.

Command	Description
class-name {*class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change
policy-map	Creates or modifies a policy-map that can be attached to one or more targets to specify a service policy.

platform

To associate table maps at the egress to an interface for Virtual Private Wire Service (VPWS) initiation and Label Switching Router (LSR) scenarios use the **platform set mpls-exp-topmost from qos-group, discard-class table** *table-map-name* command in the service configuration mode. To remove the table maps from the interface at egress, use the **no** form of the command.

platform set mpls-exp-topmost from qos-group, discard-class table *table-map-name*

no platform set mpls-exp-topmost from qos-group, discard-class table *table-map-name*

To associate table maps at the egress to an interface for Virtual Private Wire Service (VPWS) termination use the **platform set cos from qos-group, discard-class table** *table-map-name table-map-name* command in the service configuration mode. To remove the table maps from the interface at egress, use the **no** form of the command .

platform set cos from qos-group, discard-class table *table-map-name*

no platform set cos from qos-group, discard-class table *table-map-name*

Syntax Description

set mpls-exp-topmost from qos-group, discard-class	(Only for VPWS initiation and LSR scenarios) Maps the Multiprotocol Label Switching (MPLS) experimental (EXP) value from the table map.
set cos from qos-group, discard-class	(Only for VPWS termination scenario) Maps the VLAN CoS value from the table map.
table *table-map-name*	Indicates the use of table-map. *table-map-name* —Name of the table-map.

Command Default

The table-maps are not associated to the interface.

Command Modes

Service configuration mode (config-if-srv-instance).

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

This command is used only during the VPWS initiation, LSR, and VPWS termination scenarios. The **platform set cos from qos-group** command is accepted at the service instance level.

Examples

The following example shows how to map the MPLS-EXP value for VPWS initiation (that is, the frame contains MPLS header):

```
Router(config)# int tenGigabitEthernet 4/4
Router(config-if)# service-policy output egresspolicy1
Router(config-if)# platform set mpls-exp-topmost from qos-group, discard-class table
test_table
```

The following example shows how to map the VLAN CoS value for VPWS termination where the MPLS header is removed from the frame. The **platform set cos from qos-group** command is accepted at the service instance level.

```
Router(config)# int tenGigabitEthernet 4/4
Router(config-if)# service-policy output egresspolicy1
Router(config-if)# service instance 200 ethernet
Router(config-if-srv-instance)# platform set cos from qos-group, discard-class table
test_table
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
class-name	Specifies the name of the class whose policy you want to create or change.
map from *from-value1, from-value2* **to** *to-value*	Maps the QoS-group and discard values to the MPLS EXP or VLAN COS bit.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show table-map	Displays the configuration of a specified table map or all table maps.
set qos-group	Marks a QoS group identifier (ID) with a value between 0 to 7 that can be used later to classify packets.
set discard-class	Sets the discard-class internal label to a specified value between 0 to 2. This command is supported only during table-map creation.
service-policy	Attaches a policy map to an input or an output target.
table-map	Creates or specifies the name of the table map.

police (policy map)

To create a policer and configure the policy-map class to use it, use the **police** command in policy-map class configuration mode. To delete the policer from the policy-map class, use the **no** form of this command.

police [cir | rate] *bps-value* **[bc | burst]** *bc* **[be | peak-burst]** *be* **[conform-action** *action***] [exceed-action** *action* **] [violate-action** *action* **]**

no police [cir | rate] *bps-value* **[bc | burst]** *bc* **[be | peak-burst]** *be* **[conform-action** *action***] [exceed-action** *action* **] [violate-action** *action* **]**

Police (percent):

police [cir | rate] percent *%* **[bc | burst]** *bc* **[be | peak-burst]** *be* **[conform-action** *action***] [exceed-action** *action* **] [violate-action** *action* **]**

no police [cir | rate] percent *%* **[bc | burst]** *bc* **[be | peak-burst]** *be* **[conform-action** *action***] [exceed-action** *action* **] [violate-action** *action* **]**

Police (two-rate):

police [cir | rate] *bps-value* **[bc | burst]** *bc* **[pir | peak-rate]** *pir* **[be | peak-burst]** *be* **[conform-action** *action***] [exceed-action** *action* **] [violate-action** *action* **]**

no police [cir | rate] *bps-value* **[bc | burst]** *bc* **[pir | peak-rate]** *pir* **[be | peak-burst]** *be* **[conform-action** *action* **] [exceed-action** *action* **] [violate-action** *action* **]**

Syntax Description

cir	Specifies the committed information rate (CIR) used for policing traffic.
rate	Specifies the police rate used for policing traffic.
bps value	Average rate in bits per second. The valid values range from 8000 to 10000000000 seconds.
bc	Specifies the committed (conform) burst size used for policing traffic.
burst	Specifies the burst size used for policing traffic.
bc	Committed (conform) burst size or burst size in bytes. The valid values range from 1000 to 256000000. **Note** The burst size must be in milli-seconds or micro-seconds while using police (percent) command.
pir	Specifies the peak information rate (PIR) used for policing traffic.
peak-rate	Specifies the peak rate used for policing traffic.
pir	Peak information rate or peak rate in bits per second. The valid values range from 8000 to 10000000000 seconds.

be	Specifies the excess burst size used for policing traffic.
peak-burst	Specifies the peak-burst size used for policing traffic.
be	Excess burst size or peak-burst size in bytes. The valid values range from 1000 to 256000000 bytes. **Note** The burst size must be in milli-seconds or micro-seconds while using police (percent) command.
conform-action	Action to take on packets whose rate is less than the conform burst. You must specify a value for peak-burst-in-msec before you specify the conform-action.
exceed-action	Action to take on packets whose rate is within the conform and conform plus exceed burst.
violate-action	Action to take on packets whose rate exceeds the conform plus exceed burst. You must specify the exceed-action before you specify the violate-action.
action	Action taken on a packet when it conforms, exceeds, or violates the interface bandwidth: • transmit—Transmits the packet • drop—Drops the packet • set-discard-class-transmit—Sets the discard-class internal label to a specified value and transmits the packet. This action is effective only when egress QoS marking of an MPLS or VPWS traffic is achieved using table-maps. • set-cos-transmit—Sets the CoS value and transmits the packet. • set-dscp-transmit—Sets the IP DSCP value and transmit the packet. • set-precedence-transmit—Sets the IP precedence value and transmits the packet. • set-qos-transmit—Sets the QoS-group value and transmits the packet.
percent	Indicates that a percentage of bandwidth is used for calculating CIR or rate.
%	CIR or rate bandwidth percentage. The valid values range from 1 to 100.

Command Default Policing is not configured.

Command Modes Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced

Usage Guidelines The **police** command specifies the maximum bandwidth used by a traffic class through the use of a token bucket algorithm. The **police (percent)** command calculates the CIR on the basis of a percentage of the maximum amount of bandwidth available on the interface. When a policy map is attached to the interface, the equivalent CIR value in bits per second (bps) is calculated on the basis of the interface bandwidth and the percent value entered with this command. The police (two-rate) command configures traffic policing using two-rates, the CIR and the PIR.

Examples The following example shows how to configure a dual rate, 3-color policer:

```
Router(config)# policy-map 2r3c
Router(config-pmap)# class class-default
Router(config-pmap-c)# police cir 2000000 pir 3000000
Router(config-pmap-c-police)# conform-action set-prec-transmit 3
Router(config-pmap-c-police)# exceed-action set-prec-transmit 2
Router(config-pmap-c-police)# violate-action set-prec-transmit 1
Router(config-pmap-c-police)# end
Router#
```

The following example shows how to configure a single rate, 2-color policer with percent:

```
Router(config)# policy-map 1r2c_percent
Router(config-pmap)# class class-default
Router(config-pmap-c)# police cir percent 20
Router(config-pmap-c-police)# conform-action set-cos-transmit 0
Router(config-pmap-c-police)# exceed-action drop
Router(config-pmap-c-police)# end
Router#
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
class-name {*class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show policy-map	Displays the policy-map information.

policy-map

To enter policy-map configuration mode and create or modify a policy map that can be attached to one or more targets to specify a service policy, use the **policy-map** command in the global configuration mode. To delete a policy map, use the **no** form of this command.

policy-map *policy-map-name*

Syntax Description

policy-map-name	Policy map name. This is the name of the policy map and can have a maximum of 40 alphanumeric characters.

Command Default

The policy map is not configured.

Command Modes

Global configuration (config)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

Use the **policy-map** command to specify the name of the policy map to be created, added, or modified before you configure policies for classes whose match criteria are defined in a class map. The **policy-map** command enters policy-map configuration mode, in which you can configure or modify the class policies for a policy map.

You can configure class policies in a policy map only if the classes have match criteria defined for them. Use the **class-map** and **match** commands to configure match criteria for a class.

Examples

The following example shows how to configure policing actions:

```
Router(config)# policy-map ABC
Router(config-pmap)# class class-default
Router(config-pmap-c)# police 10000000 8000 8000
Router(config-pmap-c-police)# conform-action set-cos-transmit 2
Router(config-pmap-c-police)# exceed-action set-cos-transmit 1
Router(config-pmap-c-police)# end
Router#
```

The following example shows how to configure a single rate 2-color policer:

```
Router(config)# policy-map 1r2c
Router(config-pmap)# class class-default
Router(config-pmap-c)# police 2000000
Router(config-pmap-c-police)# conform-action transmit
```

```
Router(config-pmap-c-police)# exceed-action drop
Router(config-pmap-c-police)#end
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
class-name { *class-name* **| class-default }**	Specifies the name of the class whose policy you want to create or change
police [cir | rate] *bps-value* **[bc | burst]** *bc* **[be | peak-burst]** *be* **conform-action** *action* **exceed-action** *action* **violate-action** *action*	Specifies a maximum bandwidth usage by a traffic class through the use of a token bucket algorithm.
police [cir | rate] percent *%* **[bc | burst]** *bc* **[be | peak-burst]** *be* **conform-action** *action* **exceed-action** *action* **violate-action** *action*	Configures traffic policing on the basis of a percentage of bandwidth available on an interface.
police [cir | rate] *bps-value* **[bc | burst]** *bc* **[pir | peak-rate]** *pir* **[be | peak-burst]** *be* **conform-action** *action* **exceed-action** *action* **violate-action** *action*	Configures traffic policing using two rates (CIR and PIR).
show policy-map	Displays the policy-map information.
service-policy	Attaches a policy map to an input or an output target.

priority

To give priority to a class of traffic belonging to a policy map, use the **priority** command in the policy-map class configuration mode. To remove a previously specified priority for a class, use the **no** form of this command.

priority [*bandwidth-value***] [percent** *x%* **]**

no priority [*bandwidth-value***] [percent** *x%* **]**

Syntax Description

bandwidth value	Maximum bandwidth uses by a traffic class through the use of a token bucket algorithm. The *bandwidth value* is in kbps, and can range from 1 to 10000000.
percent	Specifies that the amount of guaranteed bandwidth is specified by the percentage of available bandwidth.
x%	Rate of traffic that is given low latency handling of *x%* of the parent interface bandwidth or *x%* parent class committed information rate (CIR) if policy not applied on an interface. The percentage can be a number from 1 to 100.

Command Default

Priority is not set.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **priority** command enables the rate-limit option to ensure that a particular rate is not exceeded. However, in the CPT system, egress rate limiting is achieved using shapers that can cause additional delays. Hence it is advised to ensure that for low latency queuing traffic, rate limiting is done at ingress, and the rates specified at egress are just placeholders and are never hit. Hitting the rate limit at egress would mean increased latencies for low latency queuing traffic. The **priority** command is supported only under class-map with match qos-group 3 or 7 and multicast-priority class.

Examples

The following example shows how to configure priority queue at the egress:

```
Router# config terminal
Router(config)# policy-map Test1
Router(config-pmap)# class Test
Router(config-pmap-c)# priority 10000
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
class-name { *class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show policy-map interface	Displays the statistics and the configurations of the input and output policies that are attached to an interface.
show policy-map	Displays the policy-map information.

service-policy

To attach a traffic policy to a target and to specify the direction in which the policy should be applied (either on packets coming into the target or packets leaving the target), use the **service-policy** configuration command. Only one traffic policy can be applied to an interface in a given direction. To detach a traffic policy from a target, use the **no** form of this command.

service-policy {input | output} *policy-map-name*

no service-policy {input | output} *policy-map-name*

Syntax Description

input	Attaches the policy-map to the input target.
output	Attaches the policy-map to the output target.
policy-map-name	Name of a service policy map (created using the policy-map command) to be attached. The name can be a maximum of 40 alphanumeric characters.

Command Default

A service policy is not specified nor a policy map is attached.

Command Modes

Service configuration mode (config-if-srv-instance).

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **input** and **output** keywords indicate the direction in which the policy map is applied. The value for the *policy-map-name* argument represents a quality of service (QoS) policy map configured on the CPT system using the **policy-map** *policy-map-name* global configuration command. The policy-map must already exist and must contain the QoS feature to be applied to the target, according to the provisions specified by the service level agreement (SLA).

Examples

The following example shows how to attach a traffic policy to a target:

```
Router# enable
Router# configure terminal
Router(config)# interface TenGigabitEthernet 4/1
Router(config-if)# service instance 100 ethernet
Router(config-if-srv-instance)# service-policy input policy1
Router(config-if-srv-instance)# end
```

The following example shows how to remove a traffic policy from a target:

```
Router# enable
Router# configure terminal
Router(config)# interface TenGigabitEthernet 4/1
```

```
Router(config-if)# service instance 100 ethernet
Router(config-if)# no service-policy input policy1
Router(config-if)# end
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
class-name {*class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show policy-map interface	Displays the statistics and the configurations of the input and output policies that are attached to an interface.
show policy-map	Displays the policy-map information.

set cos

To set the Layer 2 class of service (CoS) value of a packet, use the **set cos** command in the policy-map class configuration mode. To remove a specific CoS value setting, use the **no** form of this command.

set cos *cos-value*

no set cos

Syntax Description

cos-value	CoS value between 0 to 7 in an 802.1Q tagged frame.

Command Default

This command is disabled by default.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

For Multiprotocol Label Switching (MPLS) traffic flows, the **set cos** command can be used only in service policies that are attached in the output direction of an interface. Packets entering an interface cannot be set with a CoS value.

For Ethernet virtual circuit (EVC) traffic flows, the **set cos** command can be used only in service policies that are attached in the input direction of an interface.

Examples

The following example shows how to create a service policy called policy1. This service policy is associated to a previously defined classification policy through the use of the **class** command. This example assumes that a classification policy called class1 was previously configured. This example configures marking to set the cos value:

```
Router# enable
Router# configure terminal
Router(config)# policy-map policy1
Router(config-pmap)# class class1
Router(config-pmap-c)# set cos 1
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.

Command	Description
class-name {*class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
set ip precedence	Marks the IP precedence in the ToS byte with a value between 0 to 7.
set ip dscp	Marks the IP DSCP in the ToS byte with a value between 0 to 63.
set qos group	Marks a QoS group ID with a value between 0 to 7 that can be used later to classify packets.
set discard-class	Sets the discard-class internal label to a specified value between 0 to 2. This command is supported only during table-map creation.

set discard-class

To mark a packet with a discard-class value, use the **set discard-class** command in policy-map class configuration mode. To remove the marked discard-class value of a packet, use the **no** form of this command.

set discard-class *value*

no set discard-class *value*

Syntax Description

value	Discard-class internal label to a specified value. This is a value specified between 0 to 2. This command is supported only during table-map creation.

Command Default

This command is disabled by default.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

This command is supported only during table-map creation.

Examples

The following example shows the usage of **set discard-class** command:

```
!Ingress policy-map for pseudo-wire initiation
policy-map IngressPolicyMap
 class IngressClassmap1
  set qos-group 1
  set discard-class 0
 class IngressClassmap2
  set qos-group 2
  set discard-class 1
 class IngressClassmap3
  set qos-group 3
  set discard-class 2
 class IngressClassmap4
  set qos-group 4
  set discard-class 0
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.

Command	Description
class-name {*class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
map from *from-value1, from-value2* **to** *to-value*	Maps the QoS-group and discard values to the MPLS EXP or VLAN COS bit.
platform set mpls-exp-topmost from qos-group, discard-class table *table-map-name*	(Only for VPWS initiation and LSR scenarios) Maps the MPLS-EXP value from the table map.
platform set cos from qos-group, discard-class table *table-map-name*	(Only for VPWS termination scenario) Maps the VLAN CoS value from the table map.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
set qos-group *qos group value*	Marks a QoS group identifier (ID) with a value between 0 to 7 that can be used later to classify packets.
service-policy	Attaches a policy map to an input or an output target.
table-map *table-map-name*	Creates or specifies the name of the table map.

set ip dscp

To mark a packet by setting the IP differentiated services code point (DSCP) value in the type of service (ToS) byte, use the **set ip dscp** command in policy-map class configuration mode. To remove a previously set IP DSCP value, use the **no** form of this command.

set ip dscp *ip-dscp-value*

no set ip dscp

Syntax Description

ip-dscp-value	Marks the IP DSCP in the ToS byte with a value between 0 to 63.

Command Default

This command is disabled by default.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **set ip dscp** command cannot be used with the **set ip precedence** command to mark the same packet. The two values, DSCP and precedence, are mutually exclusive. A packet can have one value or the other, but not both.

Examples

The following example shows the creation of a service policy called policy1. This service policy is associated to a previously defined classification policy through the use of the **class** command. This example assumes that a classification policy called class1 was previously configured. This example configures marking to set the IP DSCP value:

```
Router# enable
Router# configure terminal
Router(config)# policy-map policy1
Router(config-pmap)# class class1
Router(config-pmap-c)# set ip dscp 7
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.

Command	Description
class-name { *class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
set cos	Marks the CoS value between 0 to 7 in an 802.1Q tagged frame
set ip precedence	Marks the IP precedence in the ToS byte with a value between 0 to 7.
set qos group	Marks a QoS group ID with a value between 0 to 7 to classify packets.
set discard-class	Sets the discard-class internal label to a specified value between 0 to 2. This command is supported only during table-map creation.

set ip precedence

To set the precedence value in the IP header, use the **set ip precedence** command in the policy-map class configuration mode. To leave the precedence value at the current setting, use the **no** form of this command.

set ip precedence *ip-precedence-value*

no set ip precedence

Syntax Description

ip-precedence-value	Marks the precedence value in the IP header with a value between 0 to 7.

Command Default

This command is disabled by default.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **set ip precedence** command cannot be used with the **set ip dscp** command to mark the same packet. The two values, DSCP and precedence, are mutually exclusive. A packet can have one value or the other, but not both.

Examples

The following example shows the creation of a service policy called policy1. This service policy is associated to a previously defined classification policy through the use of the **class** command. This example assumes that a classification policy called class1 was previously configured. This example configures marking to set the IP precedence value:

```
Router# enable
Router# configure terminal
Router(config)# policy-map policy1
Router(config-pmap)# class class1
Router(config-pmap-c)# set ip precedence 1
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
class-name { *class-name* **| class-default }**	Specifies the name of the class whose policy you want to create or change.

Command	Description
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
set cos *cos value*	Marks the CoS value between 0 to 7 in an 802.1Q tagged frame.
set ip dscp *ip dscp value*	Marks the IP DSCP in the ToS byte with a value between 0 to 63.
set qos group *qos group value*	Marks a QoS group identifier (ID) with a value between 0 to 7 that can be used later to classify packets.
set discard-class *value*	Sets the discard-class internal label to a specified value between 0 to 2. This command is supported only during table-map creation.

set qos-group

To set a quality of service (QoS) group ID to classify packets, use the **set qos-group** command in the policy-map class configuration mode. To remove the group ID, use the **no** form of this command.

set qos-group *qos-group-value*

no set qos-group *qos-group-value*

Syntax Description

qos-group-value	Marks a QoS group identifier (ID) with a value between 0 to 7 is used to classify packets.

Command Default

This command is disabled by default.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **set qos-group** command enables you to associate a group ID with a packet.

Examples

The following example shows the creation of a service policy called policy1. This service policy is associated to a previously defined classification policy through the use of the **class** command. This example assumes that a classification policy called class1 was previously configured. This example configures marking to set the qos-group value:

```
Router# enable
Router# configure terminal
Router(config)# policy-map policy1
Router(config-pmap)# class class1
Router(config-pmap-c)# set qos-group 1
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
class-name { *class-name* **| class-default }**	Specifies the name of the class whose policy you want to create or change.

Command	Description
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
set cos	Marks the CoS value between 0 to 7 in an 802.1Q tagged frame.
set ip dscp	Marks the IP DSCP in the ToS byte with a value between 0 to 63.
set ip precedence	Marks the IP precedence in the ToS byte with a value between 0 to 7.
set discard-class	Sets the discard-class internal label to a specified value between 0 to 2. This command is supported only during table-map creation.

shape

To control the traffic going out of an interface in order to match its flow to the speed of the remote target interface and to ensure that the traffic conforms to policies contracted for it, use the **shape** command in the policy-map class configuration mode. To remove shaping and leave the traffic unshaped, use the **no** form of this command.

shape {average percent *x%* **| average** *cir -value***}**

no shape {average percent *x%* **| average** *cir -value***}**

Syntax Description

average percent *x%*	Shapes a class to a percentage of visible bandwidth. • *%*—Percentage. The value should range from 1 to 100.
average *cir-value*	Specifies the average rate of traffic shaping. • *cir-value*—Committed information rate (CIR) value in bps. The committed information rate (CIR) value ranges from 8000 to 10000000000 bps.

Command Default

Shaping is not specified.

Command Modes

Policy-map class configuration (config-pmap-c)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The restrictions and usage guidelines to configure QoS egress shaping on a CPT system are as follows:

- The **shaping** command is not supported on classes with match criteria as qos-group 3 or 7, or multicast-priority class.
- Shape on a traffic class would mean buffering of traffic in the system memory, which could result in increased latencies for these streams.

Examples

The following example shows how to enable traffic shaping on a main interface; traffic leaving interface gi36/1 is shaped at the rate of 10 Mb/s:

```
Router# enable
Router# configure terminal
Router(config)# class-map class-interface-all
```

```
Router(config-cmap)# match qos-group 1
Router(config-cmap)# exit
Router(config)# policy-map dts-interface-all-action
Router(config-pmap)# class class-interface-all
Router(config-pmap-c)# shape average 10000000
Router(config-pmap-c)# exit
Router(config)# interface gi36/1
Router(config-if)# service-policy output dts-interface-all-action
```

The following example shows how the **shape average** command is applied at the parent level of an H-QoS policy-map:

```
Router# enable
Router# configure terminal
Router(config)# policy-map child2
Router(config-pmap)# class test
Router(config-pmap-c)# shape average 100000000
Router(config)# policy-map parent
Router(config-pmap)# class class-default
Router(config-pmap-c)# shape average 300000000
Router(config-if)# service-policy child2
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
class-name { *class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show policy-map interface	Displays the statistics and the configurations of the input and output policies that are attached to an interface.
show policy-map	Displays the policy-map information.

show class-map

To display class maps and their matching criteria, use the **show class-map** command in user EXEC or privileged EXEC mode.

show class-map [*class-map-name*]

Syntax Description

class-map-name	(Optional) Name of the class-map. The class-map name can be a maximum of 40 alphanumeric characters.

Command Default

All class maps are displayed.

Command Modes

User EXEC (>), Privileged EXEC (#)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

You can use the **show class-map** command to display all class maps and their matching criteria. If you enter the optional *class-map-name* argument, the specified class map and its matching criteria will be displayed.

Examples

The following is a sample output from the show class-map command displaying a specific class map:

```
Router# show class-map ipp5

class Map match-any ipp5 (id 1)
match ip precedence 5
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show policy-map	Displays the configuration of all classes for a specified service policy map or all classes for all existing policy maps.

show policy-map

To display the configuration of all classes for a specified service policy map or of all classes for all existing policy maps, use the **show policy-map** command in user EXEC or privileged EXEC mode.

show policy-map [*policy-map-name*]

Syntax Description

policy-map	(Optional) Name of the service policy map whose complete configuration is to be displayed. The name can be a maximum of 40 characters.

Command Default

All existing policy map configurations are displayed.

Command Modes

User EXEC (>) and Privileged EXEC (#)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **show policy-map** command displays the configuration of a policy map created using the **policy-map** command. You can use the **show policy-map** command to display all class configurations comprising any existing service policy map, whether or not that policy map has been attached to an interface.

Examples

The following is a sample output from the **show policy-map** command that displays police actions on separate lines:

```
Router# show policy-map Premium
```

```
Policy Map Premium
Class P1
priority
police percent 50 25 ms 0 ms
conform-action transmit
exceed-action transmit
violate-action drop
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.

Command	Description
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.

show policy-map class

To display the configuration for the specified class of the specified policy map, use the **show policy-map class** command in user EXEC or privileged EXEC mode.

show policy-map *policy-map-name* **class** *class-name*

Syntax Description

policy-map-name	Name of a policy map that contains the class configuration to be displayed.
class-name	Name of the class whose configuration is to be displayed.

Command Default

This command displays the class configuration for any service policy map.

Command Modes

User EXEC (>), Privileged EXEC (#)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

You can use the **show policy-map class** command to display any single class configuration for any service policy map, whether or not the specified service policy map has been attached to an interface.

Examples

The following is a sample output from the **show policy-map class** command displaying configurations for the class called class7 that belongs to the policy map called po1:

```
Router# show policy-map po1 class class7

Class class7
Bandwidth 937 (kbps) Max Thresh 64 (packets)
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.

Command	Description
show policy-map	Displays the configuration of all classes for a specified service policy map or all classes for all existing policy maps.

show policy-map interface

To display the statistics and the configurations of the input and output policies that are attached to an interface, use the **show policy-map interface** command in user EXEC or privileged EXEC mode.

show policy-map interface *interface-type interface-number*

Syntax Description

interface-type	Type of interface
interface-number	Interface number.

Command Default

This command displays the packet statistics of all classes that are configured for all service policies on the specified interface.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

The **show policy-map interface** command displays the packet statistics for classes on the specified policy-map interface only if a service policy has been attached to the interface.

Examples

The following is a sample output from the **show policy-map interface** command:

```
Router# show policy-map interface ten 2/4
```

```
Limited counter support. Refer documentation for details.
 TenGigabitEthernet2/4

  Service-policy output: Egress

  Counters last updated 00:00:20 ago

    Class-map: EgressClassmap1 (match-any)
      0 packets, 0 bytes
      5 minute offered rate 0000 bps, drop rate 0000 bps
      Match: qos-group 1
        0 packets, 0 bytes
        5 minute rate 0 bps
      Queueing
      queue limit 352 packets
      (queue depth/total drops/no-buffer drops) 0/0/0
      (pkts output/bytes output) 0/0
```

```
      shape (average) cir 10000000, bc 40000, be 40000
      target shape rate 10000000
```

Related Commands

Command	Description
class-map	Creates a class-map to be used for matching packets to a specified class.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
show policy-map	Displays the configuration of all classes for a specified service policy map or all classes for all existing policy maps.

table-map (value mapping)

To create a table-map that is used for mapping the values from qos-group and discard-class to the Multiprotocol Label Switching (MPLS) experimental (EXP) or Ethernet class of service (CoS) bit at egress use the **table-map** (value mapping) command in the global configuration mode. To disable the use of this table map, use the **no** form of this command. .

table-map *table-map-name* **map from** *from-value1, from-value2* **to** *to-value*

no table-map *table-map-name* **map from** *from-value1, from-value2* **to** *to-value*

Syntax Description

table-map-name	Name of the table-map. This can have a maximum of 40 alphanumeric characters.
map from	Indicates that a “map from” value is used. Maps the qos-group and discard values to the MPLS EXP or VLAN CoS bit.
from-value1	Value of the qos-group, which can range from 0 to 7.
from-value2	Value of the discard class, which can range from 0 to 2.
to	Indicates that a “map to” value is used. Maps the QoS-group and discard values to the MPLS EXP or VLAN CoS bit.
to-value	Value of the MPLS EXP or VLAN CoS bits, which can range from 0 to 7.

Command Default

Table-map is not configured.

Command Modes

Global configuration (config)

Command History

Release	Modification
9.3.0	This command was introduced.

Usage Guidelines

If a table-map is not attached, the MPLS EXP or the VLAN COS bit is set to zero. Also, the system default setting is zero.

Examples

The following example shows how to create a table map that contains multiple entries.

```
Router# enable
Router# configure terminal
Router(config)# table-map test_table
Router(config-tablemap)# map from 0,2 to 2
Router(config-tablemap)# map from 0,0 to 0
```

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
class-name {*class-name* | **class-default** }	Specifies the name of the class whose policy you want to create or change.
policy-map	Creates or modifies a policy map that can be attached to one or more targets to specify a service policy.
platform set mpls-exp-topmost from qos-group, discard-class table	(Only for VPWS initiation and LSR scenarios) Maps the MPLS-EXP value from the table map.
platform set cos from qos-group, discard-class table	(Only for VPWS termination scenario) Maps the VLAN CoS value from the table map.
show table-map	Displays the configuration of a specified table map or all table maps.
set qos-group	Marks a QoS group ID with a value between 0 to 7 that can be used later to classify packets.
set discard-class	Sets the discard-class internal label to a specified value between 0 to 2. This command is supported only during table-map creation.