Cisco Nexus 7000 Series QoS Command Reference

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Preface

Preface

This preface describes the audience, organization, and conventions of the Book Title. It also provides information on how to obtain related documentation.

This chapter includes the following topics:

Audience

This publication is for experienced network administrators who configure and maintain Cisco NX-OS on Cisco Nexus 7000 Series Platform switches.

Document Conventions

Note

- As part of our constant endeavor to remodel our documents to meet our customers' requirements, we have modified the manner in which we document configuration tasks. As a result of this, you may find a deviation in the style used to describe these tasks, with the newly included sections of the document following the new format.
- The Guidelines and Limitations section contains general guidelines and limitations that are applicable to all the features, and the feature-specific guidelines and limitations that are applicable only to the corresponding feature.

Command descriptions use the following conventions:

Convention	Description
bold	Bold text indicates the commands and keywords that you enter literally as shown.

Convention	Description
Italic	Italic text indicates arguments for which the user supplies the values.
[x]	Square brackets enclose an optional element (keyword or argument).
[x | y]	Square brackets enclosing keywords or arguments separated by a vertical bar indicate an optional choice.
{x | y}	Braces enclosing keywords or arguments separated by a vertical bar indicate a required choice.
[x {y | z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
`variable`	Indicates a variable for which you supply values, in context where italics cannot be used.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Examples use the following conventions:

Convention	Description
`screen font`	Terminal sessions and information the switch displays are in screen font.
`boldface screen font`	Information you must enter is in boldface screen font.
italic screen font	Arguments for which you supply values are in italic screen font.
< >	Nonprinting characters, such as passwords, are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

This document uses the following conventions:

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Related Documentation

Documentation for Cisco Nexus 7000 Series Switches is available at:

- Configuration Guides

  http://www.cisco.com/c/en/us/support/switches/nexus-7000-series-switches/products-installation-and-configuration-guides-list.html

- Command Reference Guides

  http://www.cisco.com/c/en/us/support/switches/nexus-7000-series-switches/products-command-reference-list.html

- Release Notes

  http://www.cisco.com/c/en/us/support/switches/nexus-7000-series-switches/products-release-notes-list.html

- Install and Upgrade Guides

  http://www.cisco.com/c/en/us/support/switches/nexus-7000-series-switches/products-installation-guides-list.html

- Licensing Guide

  http://www.cisco.com/c/en/us/support/switches/nexus-7000-series-switches/products-licensing-information-listing.html

Documentation for Cisco Nexus 7000 Series Switches and Cisco Nexus 2000 Series Fabric Extenders is available at the following URL:

http://www.cisco.com/c/en/us/support/switches/nexus-2000-series-fabric-extenders/products-installation-and-configuration-guides-list.html

Documentation Feedback

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see What's New in Cisco Product Documentation.

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the What's New in Cisco Product Documentation RSS feed. RSS feeds are a free service.

B Commands

bandwidth (QoS)

To allocate a minimum percentage of the interface bandwidth to a queue and configure the bandwidth on both ingress and egress queues, use the **bandwidth** command. To remove a bandwidth configuration, use the **no** form of this command.

bandwidth {*rate* [**bps** | **kbps** | **mbps** | **gbps**]| **percent** *percent*}

no bandwidth {*rate* [**bps** | **kbps** | **mbps** | **gbps**]| **percent** *percent*}

Syntax Description

rate	Bandwidth rate. The range is from 1 to 10000000000.
bps	(Optional) Specifies the units of bits per second.
kbps	(Optional) Specifies the units of 1000 bits per second.
mbps	(Optional) Specifies the units of megabits per second.
gbps	(Optional) Specifies the units of gigabits per second.
percent	Specifies the percentage of bandwidth of the underlying link rate.
percent	Percent value in the range from 1 to 100.

Command Default

None

Command Modes

Policy map type queuing class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can use the system-defined ingress or egress queue class for the type of module to which you want to apply the policy map. For more information about system-defined type queuing class maps, see the following table.

Table 1: System-Defined Type Queuing Class Maps

Class Map Queue Name	Description	Default CoS Values
1 Gigabit Module Ingress: 2 queues with 4 thresholds per queue		
2q4t-in-q1	Ingress queue 1 of 2q4t type	5-7
2q4t-in-q-default	Ingress default queue of 2q4t type	0-4
1 Gigabit Module Egress: 1 strict priority queue and 3 normal queues with 4 thresholds perqueue		
1p3q4t-out-pq1[1]	Egress priority queue of 1p3q4t type	5-7
1p3q4t-out-q2	Egress queue 2 of 1p3q4t type	–
1p3q4t-out-q3	Egress queue 3 of 1p3q4t type	–
1p3q4t-out-q-default	Egress default queue of 1p3q4t type	0-4
10 Gigabit Module Ingress: 8 queues with 2 thresholds per queue		
8q2t-in-q1	Ingress queue 1 of 8q2t type	5-7
8q2t-in-q2	Ingress queue 2 of 8q2t type	–
8q2t-in-q3	Ingress queue 3 of 8q2t type	–
8q2t-in-q4	Ingress queue 4 of 8q2t type	–
8q2t-in-q5	Ingress queue 5 of 8q2t type	–
8q2t-in-q6	Ingress queue 6 of 8q2t type	–
8q2t-in-q7	Ingress queue 7 of 8q2t type	–
8q2t-in-q-default	Ingress default queue of 8q2t type	0-4
10 Gigabit Module Egress: 1 strict priority queue and 7 normal queues with 4 thresholds per queue		
1p7q4t-out-pq1[2]	Egress priority queue of 1p7q4t type	5-7
1p7q4t-out-q2	Egress queue 2 of 1p7q4t type	–
1p7q4t-out-q3	Egress queue 3 of 1p7q4t type	–
1p7q4t-out-q4	Egress queue 4 of 1p7q4t type	–
1p7q4t-out-q5	Egress queue 5 of 1p7q4t type	–

Class Map Queue Name	Description	Default CoS Values
1p7q4t-out-q6	Egress queue 6 of 1p7q4t type	–
1p7q4t-out-q7	Egress queue 7 of 1p7q4t type	–
1p7q4t-out-q-default	Egress default queue of 1p7q4t type	0-4

1 These are either priority or normal queues. If you use the priority keyword in your configuration, these are used as priority queues. Otherwise, they are used as normal queues.

2 These are either priority or normal queues. If you use the priority keyword in your configuration, these are used as priority queues. Otherwise, they are used as normal queues.

Note After you use this command in a specified policy map, you cannot use the **priority** or **shape** command in the same policy map.

This command does not require a license.

Examples

This example shows how to specify a bandwidth rate for a queue:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# class type queuing 1p7q4t-out-pq1
switch(config-pmap-c-que)# bandwidth 10 mbps
```

This example shows how to remove a bandwidth rate for a queue:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# class type queuing 1p7q4t-out-pq1
switch(config-pmap-c-que)# no bandwidth 10 mbps
```

Related Commands

Command	Description
bandwidth remaining	Configures the bandwidth remaining on the interface in a queue.
show class-map	Displays class maps.
show policy-map	Displays policy maps and statistics.

bandwidth remaining

To configure the percentage of the bandwidth remaining on the interface after other allocations are configured on both ingress and egress queues, use the **bandwidth remaining** command. To remove the remaining bandwidth allocation, use the **no** form of this command.

bandwidth remaining percent {*percent* }

no bandwidth remaining percent { *percent* }

Syntax Description

percent	Percentage of remaining bandwidth on the underlying link. Valid values are from 0 to 100.

Command Default

None

Command Modes

Policy map type queuing class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can use the system-defined ingress or egress queue class for the type of module to which you want to apply the policy map. For more information about system-defined type queuing class maps, see Table 1: System-Defined Type Queuing Class Maps, on page 3. You can use this command with the **priority** command.

For more information on using this command, see the *Cisco Nexus 7000 Series NX-OS Quality of Service Configuration Guide, Release 5.0*.

This command does not require a license.

Examples

This example shows how to set the bandwidth remaining for the specified queue:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# class type queuing 1p7q4t-out-pq1
switch(config-pmap-c-que)# bandwidth remaining percent 25
```

This example shows how to remove the bandwidth remaining for the specified queue:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# class type queuing 1p7q4t-out-pq1
switch(config-pmap-c-que)# no bandwidth remaining percent 25
```

Related Commands

Command	Description
bandwidth	Allocates a minimum percentage of the interface bandwidth to a queue.
show class-map	Displays class maps.
show policy-map	Displays policy maps and statistics.

C Commands

class (policy map type qos)

To add a reference to an existing qos class map in a policy map and enter the class mode, use the **class** command. To remove a class from the policy map, use the **no** form of this command.

class [**type qos**] {*class-map-name*| **class-default**} [**insert-before** [**type qos**] *before-class-map-name*]

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

Syntax Description

type qos	(Optional) Specifies the component type, which is qos for this class. By default, the type is qos.
class-map-name	Reference to a class map.
class-default	Specifies the reserved class name that matches all traffic not classified in other classes in a policy map.
insert-before *before-class-map-name*	(Optional) Specifies the position of this class in the policy. If not specified, the class is placed at the end of the classes in the policy. Policy actions in the first class that matches the traffic type are performed.

Command Default

None

Command Modes

Policy map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Policy actions in the first class that matches the traffic type are performed.

This command does not require a license.

Examples

This example shows how to add a reference to a class map at the end of a policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap)# class traffic_class2
switch(config-pmap-c-qos)#
```

This example shows how to add a reference to a class map before an existing class map reference in a policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class insert-before traffic_class2 traffic_class1
switch(config-pmap-c-qos)#
```

This example shows how to add a reference to the class-default class map in a policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class class-default
switch(config-pmap-c-qos)#
```

This example shows how to remove a class map reference in a policy map:

```
witch(config)# policy-map my_policy1
switch(config-pmap)# no class traffic_class1
switch(config-pmap)#
```

Related Commands

Command	Description
show class-map qos	Displays class maps.
show policy-map	Displays policy maps and statistics.

class type queuing (policy map type queuing)

To add a reference to an existing queuing class map in a policy map and enter the class mode, use the **class type queuing** command. To remove a class from the policy map, use the **no** form of this command.

class type queuing *class-map-name*

no class type queuing *class-map-name*

Syntax Description

class-map-name	Reference to a system-defined class map. For a list of the system-defined type queuing class maps, see Table 1: System-Defined Type Queuing Class Maps, on page 3.

Command Default

None

Command Modes

policy map type queuing configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Policy actions in the first class that matches the traffic type are performed.

This command does not require a license.

Examples

This example shows how to add a reference to a class map at the end of a type queuing policy map:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# class type queuing 8q2t-in-q4
switch(config-pmap-c-que)#
```

This example shows how to add a reference to a class map before an existing class map reference in a type queuing policy map:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# class type queuing 8q2t-in-q4 insert-before type queuing 8q2t-in-q2
switch(config-pmap-c-que)#
```

This example shows how to remove a class map reference in a type queuing policy map:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# no class type queuing 8q2t-in-q4
switch(config-pmap-que)#
```

Related Commands

Command	Description
show class-map queuing	Displays class maps.
show policy-map	Displays policy maps and statistics.

class-map type network-qos match-any

To configure a class map and enter the type network qos configuration mode, use the **class-map type network-qos** command. To remove the class map of the type network qos, use the **no** form of this command.

class-map type network-qos match-any {*class-map-name*} {**c-nq-4e-drop| c-nq-4e-ndrop| c-nq-4e-ndrop-fcoe| c-nq-6e-drop| c-nq-6e-ndrop| c-nq-6e-ndrop-fcoe| c-nq-7e-drop| c-nq-7e-ndrop-fcoe| c-nq-8e| eth**}

no class-map type network-qos match-any {*class-map-name*} {**c-nq-4e-drop| c-nq-4e-ndrop| c-nq-4e-ndrop-fcoe| c-nq-6e-drop| c-nq-6e-ndrop| c-nq-6e-ndrop-fcoe| c-nq-7e-drop| c-nq-7e-ndrop-fcoe| c-nq-8e| eth**}

Syntax Description

class-map-name	Class-map name. The policy map names can contain alphabetic, hyphen, or underscore characters, are case sensitive, and can be up to 40 characters.
c-nq-4e-drop	Specifies the default 4e drop class.
c-nq-4e-ndrop	Specifies the default 4e no-drop class.
c-nq-4e-ndrop-fcoe	Specifies the default 4e no-drop Fibre Channel over Ethernet (FCoE) class.
c-nq-6e-drop	Specifies the default 6e drop class.
c-nq-6e-ndrop	Specifies the default 6e no-drop class.
c-nq-6e-ndrop-fcoe	Specifies the default 6e no-drop FCoE class.
c-nq-7e-drop	Specifies the default 6e drop class.
c-nq-7e-ndrop-fcoe	Specifies the default 7e no-drop FCoE class.
c-nq-8e	Specifies the default 8e drop class.
eth	Specifies the class map name of the type network qos.

Command Default

type—qos

Command Modes

Global configuration

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the class map of the type network qos:

```
switch# configure terminal
switch(config)# class-map type network-qos match-any eth
switch(config)#

This example shows how to remove the class map of the type network qos:

switch# configure terminal
switch(config)# no class-map type network-qos match-any eth
switch(config)#
```

Related Commands

Command	Description
show class-map network-qos	Display type network-qos class maps.
match cos (class map type network-qos)	Defines the class of traffic in type network-qos class maps.

class-map

To create or modify a class map that defines a class of traffic and enter the class-map configuration mode, use the **class-map** command. To remove a class map, use the **no** form of this command.

class-map [**type qos**] {[**match-any**| **match-all**] *class-map-name*| **conform-color-in**| **conform-color-out**| **exceed-color-in**| **exceed-color-out**}

no class-map [**type qos**] {*class-map-name*| [**match-any**| **match-all**]}

Syntax Description

type qos	(Optional) Specifies the component type qos for the class map. By default, the class map type is qos.
match-any	Specifies that if the packet matches any of the criteria configured for this class map with the **match** command, then this class map is applied to the packet.
match-all	Specifies that if the packet matches all the criteria configured for this class map with the **match** command, then this class map is applied to the packet. This is the default action if **match-any** is not specified. **Note** This option does not work. The match criteria is always treated as *match-any*.
class-map-name	Name assigned to the class map. The name class-default is reserved.
conform-color-in	Specifies the type qos conform color class map in the input direction. This color-aware class map makes a policer color-aware for conform action.
conform-color-out	Specifies the type qos conform color class map in the output direction. This color-aware class map makes a policer color-aware for conform action.
exceed-color-in	Specifies the type qos exceed color class map in the input direction. This color-aware class map makes a policer color-aware for exceed action.
exceed-color-out	Specifies the type qos exceed color class map in the output direction. This color-aware class map makes a policer color-aware for exceed action.

Command Default

type—qos

Command Modes

Global configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You cannot delete the system-defined queuing class map names. For more information about the **class-map** command, see the *Cisco Nexus 7000 Series NX-OS Quality of Service Configuration Guide, Release 5.0*.

Note When you configure match all for a qos class map by entering the **class-map type qos match-all** command, the match-all option does not work. Instead, the match criteria is always treated as match any.

This command does not require a license.

Examples

This example shows how to create or modify a qos class map:

```
switch(config)# class-map my_class1
switch(config-cmap-qos)#
```

This example shows how to remove a qos class map:

```
switch(config)# no class-map my_class1
switch(config)#
```

This example shows how to modify a qos color class map:

```
switch(config)# class-map conform-color-in
switch(config-color-map)#
```

Related Commands

Command	Description
show class-map qos	Displays class maps.

class-map type queuing match-any

To modify a type queuing class map and enter the class-map configuration mode, use the **class-map type queuing match-any** command.

class-map type queuing match-any {*queuing-class-map-name*| *WORD*}

Syntax Description

queuing-class-map-name	System-defined queuing class map name. For the list of system-defined queuing class maps, see Table 1: System-Defined Type Queuing Class Maps, on page 3.
WORD	Hierarchical class-map name. It can be a string of 40 alphanumeric characters.

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
5.1(1)	Added the WORD argument.
4.0	This command was introduced.

Usage Guidelines

The argument *WORD* is supported only on the F-Series Modules.

When a non-8e template is active, it allows you to specify a hierarchical queuing (both ingress and egress) policy.

If the packet matches any of the criteria configured for this class map with the **match** command, this class map is applied to the packet. Class maps of type queuing support only this option.

Any modification made to the class maps type queuing changes the configuration for all ports of the specified port type on all VDCs.

You cannot delete system-defined queuing class map names. For more information on using the **class-map type queuing match-any** command, see the *Cisco Nexus 7000 Series NX-OS Quality of Service Configuration Guide, Release 5.0*.

This command does not require a license.

Examples

This example shows how to modify a queuing class map:

```
switch(config)# class-map type queuing match-any 2q4t-in-q1
switch(config-cmap-que)#
```

Related Commands

Command	Description
show class-map queuing	Displays class maps.
match cos	Defines the class of traffic in type queuing class maps.

clear qos statistics

To clear the quality of service (QoS) statistics, use the **clear qos statistics** command.

clear qos statistics [{**interface** [**ethernet** *type*/*slot*| **port-channel** *number*]| [**vlan** [*vlan-id*]]} [**input**| **output**] [**type** {**qos**| **queuing**}]]

Syntax Description

interface	(Optional) Specifies which interface to clear.
ethernet	(Optional) Specifies the statistics that are assigned to the Ethernet interface.
port-channel	(Optional) Specifies the statistics that are assigned to the port channel.
vlan *vlan-id*	(Optional) Specifies a VLAN to clear. Valid values are from 1 to 4094.
input	(Optional) Clears only input statistics.
output	(Optional) Clears only output statistics.
type	(Optional) Specifies the type of statistics to clear.
qos	Specifies to clear QoS statistics.
queuing	Specifies to clear queuing statistics.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

If you do not specify the interface or VLAN, the device clears the counters for all VLANs and interfaces.

This command does not require a license.

Examples

This example shows how to clear all the QoS statistics:

```
switch# clear qos statistics
switch#
```

This example shows how to clear all input QoS statistics for VLAN 1:

```
switch# clear qos statistics vlan 1 input
switch#
```

Related Commands

Command	Description
qos statistics	Enables or disables QoS statistics.
show qos statistics	Displays QoS statistics.

clear qos policies

To clear the default quality of service (QoS) policies, use the **clear qos policies** command.

clear qos policies

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

Before you downgrade from Cisco NX-OS Release 5.2(x) or 5.1(x) or higher version to Cisco NX-OS Release 5.0(x) or an earlier release, remove all the user defined network-qos and queuing policies configured on F series modules. Use the clear qos policies command to remove the defaults for F series modules. An internal process failure can result if the QoS policies are not removed prior to the downgrade. Downgrade should be done after running this CLI command.

This command does not require a license.

Examples

This example shows how to clear the default qos policies:

```
switch# clear qos policies
This will clear up all default qos configs from all the VDCs, Are you sure you
want to continue(yes/no)? [no] y
switch#
```

clear qos policies 8e4q4q

To clear default 8e-4q4q template network-qos and queuing policies from all the VDCs, use the **clear qos policies 8e-4q4q** command.

clear qos policies 8e-4q4q

Syntax Description

This command has no arguments or keywords.

Command Default

VDC

Command Modes

EXEC mode

Command History

Release	Modification
6.1(3)	This command was introduced.

Usage Guidelines

To make software downgrades non-disruptive from the version 6.1(3) and higher version to lower version, the following steps are required before the software downgrade:

- All the user defined and cloned 8e-4q4q template queuing policies should be detached manually from all the interfaces in each VDC.
- The default-nq-8e-4q4q-policy or the user defined or the cloned 8e-4q4q template network-qos policy should be detached from the system qos.
- All the user defined and cloned 8e-4q4q template network-qos policies should be removed manually from the default VDC.
- All the user defined 8e-4q4q template queuing policies should be removed manually from all the VDCs.
- Use the CLI command **clear qos policies 8e-4q4q** in default VDC to clear the default 8e-4q4q template policies. This command clears PPF (Portability Policy Format) nodes of 8e-4q4q template policies.
- After executing **clear qos policies 8e-4q4q** command, the user MUST do downgrade. Otherwise the behavior will be unexpected. This command does not require a license.

Note Reloading a F series module will bring up the default 8e-4q4q template policies.

Examples

This example shows how to clear the 8e-4q4q template network-qos and queuing policies from all the VDC:

```
switch # configure terminal
switch# clear qos policies 8e-4q4q
```

```
This will clear up 8e-4q4q template configs from all the VDCs, Are you sure you
want to continue(yes/no)? [no] y
switch#
```

Related Commands

Command	Description
clear qos policies	Clears the default QoS policies.

congestion-control

To configure congestion control, use the **congestion-control** command. To remove the congestion control configuration, use the **no** form of this command.

congestion-control [**random-detect threshold** [**burst-optimized**| **mesh-optimized**]| **tail-drop threshold** [**burst-optimized**| **mesh-optimized**]]

no congestion-control [**random-detect threshold** [**burst-optimized**| **mesh-optimized**]| **tail-drop threshold** [**burst-optimized**| **mesh-optimized**]]

Syntax Description

random-detect	(Optional) Specifies the weighted random early detection (WRED).
threshold	Specifies the threshold for the optimized traffic.
burst-optimized	(Optional) Specifies the burst-optimized traffic.
mesh-optimized	(Optional) Specifies the mesh-optimized traffic.
tail-drop	(Optional) Specifies the tail-drop algorithm for queue management.

Command Default

None

Command Modes

Policy-map type network qos configuration

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure congestion control:

```
switch# configure terminal
switch(config)# policy-map type network-qos my_template
switch(config-pmap-nqos)# class type network-qos eth
switch(config-pmap-nqos-c)# congestion-control tail-drop threshold mesh-optimized
switch(config-pmap-nqos-c)#
```

This example shows how to configure congestion control:

```
switch# configure terminal
switch(config)# policy-map type network-qos my_template
switch(config-pmap-nqos)# class type network-qos eth
switch(config-pmap-nqos-c)# no congestion-control tail-drop threshold mesh-optimized
switch(config-pmap-nqos-c)#
```

Related Commands

Command	Description
mtu	Configures the maximum transmission unit (MTU) size in a network qos policy.
pause	Configure no-drop per CoS.
priority	Marks the priority level in a traffic queue.
shape	Configures the traffic rate for a given traffic profile.

D Commands

default (table map)

To specify the default action for mapping input field values to output field values in a table map, use the **default** command.

default {*value*| **copy**}

no default {*value*| **copy**}

Syntax Description

value	Default value to use for the output value in the range from 0 to 63.
copy	Specifies that the default action is to copy all equal values to an equal output value.

Command Default

Copies the input value to the output value.

Command Modes

Table map configuration

Default table map configuration

Command History

Release	Modification
4.0	This command was introduced.
4.0(2)	The *ignore* variable for this command is no longer supported.

Usage Guidelines

The **copy** keyword is available only in the table map configuration mode. In the default table map configuration mode, the **copy** keyword is not available because all values must be assigned a mapping.

This command does not require a license.

Examples

This example shows how to remove the default mapping action copy. The resulting default action is ignore:

```
switch(config)# table-map my_table1
switch(config-tmap)# no default copy
switch(config-tmap)#
```

Related Commands

Command	Description
from	Specifies the input field to output field mappings in table maps.
show table-map	Displays table maps.

description

To add a description to a class map, policy map, or table map, use the **description** command. To remove the description, use the **no** form of this command.

description *text*

no description *text*

Syntax Description

text	Description for the class map, policy map, or table map. The description has a maximum of 200 characters.

Command Default

None

Command Modes

Class map type qos configuration

Policy map type qos configuration

Policy map type queuing configuration

Table map configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to add a description to a policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap)# description this policy applies to input packets
switch(config-pmap)#
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.
policy-map	Creates or modifies a policy map.
table-map	Creates or modifies a table map.

F Commands

feature pbr

To enable the Policy Based Routing (PBR) feature, use the **feature pbr** command. To disable the PBR feature use the **no** form of this command.

feature pbr

no feature pbr

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable the policy-based routing feature:

```
switch(config)# feature pbr
switch(config)#
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.

from (table map)

To specify a set of mappings of input field values to output field values in a table map, use the **from** command.

from *source-value* **to** *dest-value*

Syntax Description

source-value	Source value in the range from 0 to 63.
dest-value	Destination value in the range from 0 to 63.

Command Default

To configure the default mapping action for table maps, see the default (table map), on page 26 command.

Command Modes

Table map configuration

Default table map configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to create a mapping from three source values to the corresponding destination values:

```
switch(config)# table-map my_table1
switch(config-tmap)# from 0 to 7
switch(config-tmap)# from 1 to 6
switch(config-tmap)# from 2 to 5
```

Related Commands

Command	Description
default (table map)	Specifies the default action for mapping of the input field value to the output field value in a table map.
show table-map	Displays table maps.

H Commands

hardware access-list allow deny ace

To configure the deny ace support for seq based features, use the **hardware access-list allow deny ace** command. To turn off deny ace support, use the **no** form of this command.

hardware access-list allow deny ace

no hardware access-list allow deny ace

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.1(3)	This command was introduced.

Usage Guidelines

If an access-list matched inside a qos class-map has “deny” entry, we skip the qos action for that class-map. If any subsequent class-maps has the same acl entry but with permit action, then the qos action of the class-map having permit acl entry is applied. If not, no action is applied on the packets that matched the qos class-map having deny acl entry.

The customers can use this feature to selectively not apply qos to traffic from specific hosts (IP addresses) and to apply qos to all other hosts in that subnet/network.

Before this deny ace support, the permit or deny actions in an access-list are ignored by qos and only the classification criteria (src-ip/dst-ip/protocol/src-port/dst-port) of an acl is used for classification.

This command does not require a license.

Examples

This example shows how to configure the deny ace support for seq based features:

```
switch(config)#  hardware access-list allow deny ace
switch(config)#
```

Related Commands

Command	Description
show class-map	Displays class maps.

hardware module port-group

To configure a port group on a module, use the **hardware module port-group** command. To return to the default settings, use the **no** form of this command.

hardware module *module-number* **port-group** *group-number*

no hardware module *module-number* **port-group** *group-number*

Syntax Description

module-number	Specifies the module with the port group you want to configure.
port-group	Specifies the port group to configure.

Command Default

Disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(10)	This command was introduced.

Usage Guidelines

This command does not require a license.

This command enters the port-group-command mode. You can configure specific port groups in this mode.

Examples

This example shows how to enter the command mode to configure specified port groups:

```
switch(config)# hardware module 1 port-group 3
switch(config-port-group)#
```

Related Commands

Command	Description
show running-config	Displays the running configuration..

hardware qos dscp-to-queue ingress module-type

To enable dscp based queing on ingress and controls which type of modules dscp queuing is enabled, use the **hardware qos dscp-to-queue ingress module-type** command. To return to the default settings, use the **no** form of this command.

hardware qos dscp-to-queue ingress module-type [**all**| **f-series**| **m-series**]

no hardware qos dscp-to-queue

Syntax Description

all	Enables the dscp based queuing for all cards.
f-series	Enables the dscp based queuing for F series cards.
m-series	Enables the dscp based queuing for M series cards.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable the dscp based queuing for all cards:

```
switch(config)# hardware qos dscp-to-queue ingress module-type all
switch(config)#
```

Related Commands

Command	Description
show class-map	Displays class maps.

hardware qos shared-buffer module

To enable shared buffer queuing, use the **hardware qos shared-buffer module** command. To return to the default settings, use the **no** form of this command.

hardware qos shared-buffer module *module-number*

no hardware qos shared-buffer module *module-number*

Syntax Description

module-number	Specifies the module on which to enable shared buffer queuing.

Command Default

Disabled.

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(10)	This command was introduced.

Usage Guidelines

This command does not require a license.

This command enables shared buffer queuing with a default queue limit ratio of 50:50 shared:dedicated among port groups on the specified module. If you want to change this ratio, you must do it for each port group on the module.

If global level shared buffer queuing is disabled, then shared buffer for all port-groups in that VDC are disabled. If the global level is enabled, all port groups in the VDC are enabled. If all port groups are individually disabled, then the global level shared buffer feature remains enabled.

You must first disable the shared buffer queuing on all port groups on the specified module prior to disabling this command.

Note This command is available only on F3 Series modules.

Examples

This example shows how to enable shared buffer queuing in the default ratio of 50:50 on module 1:

```
switch(config)# hardware qos shared-buffer module 1
switch(config)#
```

Related Commands

Command	Description
show running-config	Displays the running configuration.

I Commands

ipv6 local policy route-map

To assign a route map for local Policy Based Routing (PBR) to the interface, use the **ipv6 local policy route-map** command. To disable the feature use the **no** form of this command.

ipv6 local policy route-map *map-name*

no ipv6 local policy route-map *map-name*

Syntax Description

map-name	Specifies the route map name. The maximum size is 63 characters.

Command Default

None

Command Modes

Global Configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

To use this command, Policy Based Routing (PBR) feature must be enabled.

This command does not require a license.

Examples

This example shows how to assign a route map for local Policy Based Routing (PBR) to the interface:

```
switch# configure terminal
switch(config)# feature pbr
switch(config)# ipv6 local policy route-map testmap
switch(config)#
```

Related Commands

Command	Description
show ipv6 local policy	Displays the information about the policy.

M Commands

match access-group

To identify a specified access control list (ACL) group as a match criteria for a class map, use the **match access-group** command in the class map configuration mode. To remove ACL match criteria from a class map, use the **no** form of this command.

match access-group name *acl-name*

no match access-group name *acl-name*

Syntax Description

acl-name	Name of the ACL.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.
4.1(2)	This command was updated to allow matching on IPv6 ACLs and IPv4 ACLs.

Usage Guidelines

Note The **permit** and **deny** ACL keywords do not affect the matching of packets.

This command does not require a license.

Examples

This example shows how to create a qos class map that matches characteristics of the ACL my_acl:

```
switch(config)# class-map class_acl
switch(config-cmap-qos)# match access-group name my_acl
```

Related Commands

Command	Description
show class-map	Displays class maps.

match class-map

To match on the **match c**ommands in a specified class map, use the **match class-map** command in the class map configuration mode. To remove the match on the specified class map, use the **no** form of this command.

match [not] class-map *class-map-name*

no match [not] class-map *class-map-name*

Syntax Description

not	(Optional) Negates the specified match result.
class-map-name	Specified class-map name where the **match** commands need to be matched.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to match on the matches specified in class map named my_test:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match class-name my_test
```

Related Commands

Command	Description
show class-map	Displays class maps.

match cos (class map type network-qos)

To define the class of traffic in a type network qos class map, use the **match cos** command. To remove the match configuration, use the **no** form of this command.

match cos *cos-list*

no match cos *cos-list*

Syntax Description

cos-list	CoS value or list of specified CoS values. Valid values are from 0 to 7.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

This command does not require a license.

Examples

This example shows how to match on the CoS value for a type network qos class map:

```
switch(config)# class-map type network-qos match-any eth
switch(config-cmap-nqos)# match cos 3-5
switch(config-cmap-nqos)#
```

Related Commands

Command	Description
show class-map	Displays class maps.

match cos (class map type qos)

To define the class of traffic using the class of service (CoS) value in a type qos class map, use the **match cos** command. To remove the match on the CoS value, use the **no** form of this command.

match [not] cos *cos-list*

no match [not] cos *cos-list*

Syntax Description

not	(Optional) Negates the specified match result.
cos-list	Specified CoS value or list of specified CoS values. Valid values are from 0 to 7.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

Note Only class maps of type qos support the optional **not** keyword form of this command. Class maps of type queuing do not support the **not** keyword.

This command does not require a license.

Examples

This example shows how to match on the CoS value for a type qos class map:

```
switch(config)# class-map class_acl
switch(config-cmap-qos)# match cos 5-7
```

Related Commands

Command	Description
show class-map	Displays class maps.

match cos (class map type queuing)

To define the class of traffic in a type queuing class map, use the **match cos** command. To remove the **match** configuration, use the **no** form of these commands.

match cos *cos-list*

no match cos *cos-list*

Syntax Description

cos-list	Specified class of service (CoS) value or list of specified CoS values. Valid values are from 0 to 7.

Command Default

None

Command Modes

Class-map type queuing configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

Any modifications that you make to the class map type queuing changes the configuration for all ports of the specified port type on all VDCs.

Note Only class maps of type qos support the optional **not** keyword form of this command.

This command does not require a license.

Examples

This example shows how to modify a type queuing class map to match on CoS:

```
switch(config)# class-map type queuing match-any 8q2t-in-q4
switch(config-cmap-que)# match cos 3
switch(config-cmap-que)#
```

Related Commands

Command	Description
show class-map	Displays class maps.

match discard-class

To identify specific discard class values as a match criteria, use the **match discard-class** command. To remove specified discard class values as a match criteria, use the **no** form of this command.

match [not] discard-class *discard-class-list*

no match [not] discard-class *discard-class-list*

Syntax Description

not	(Optional) Negates the specified match result.
discard-class-list	Specified discard class value or list of discard class values. Valid values are from 0 to 63.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The discard-class value is an internal label and is not part of the packet payload or any packet header. The discard-class values have no mathematical significance.

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

This command does not require a license.

Examples

This example shows how to match on the discard class value 5:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match discard-class 5
```

Related Commands

Command	Description
show class-map	Displays class maps.

match dscp

To identify specific Differentiated Services Code Point (DSCP) values as classification criteria to specify range of DSCP values under class-map, use the **match dscp** command. To remove specified DSCP values under class-map, use the **no** form of this command. The CLI is available for QoS policy and for Ingress queuing policy under class-maps "2q4t-8e-in-q1" and "2q4t-8e-in-q-default".

match dscp *value*

no match dscp *value*

Syntax Description

value	Specifies the list of DSCP values. The range is from 0 to 63.

Command Default

Disabled by default

Command Modes

Class-map mode

Command History

Release	Modification
6.1(2)	Starting with the Cisco NX-OS 6.1(2) release, DSCP to IVL is supported on IPV6 using F2E modules.
6.1(1)	Starting from 6.1(1) release DSCP to IVL is supported on ingress direction on F2 modules using **match dscp value** command with Class-maps "2q4t-8e-in-q1" and "2q4t-8e-in-q-default".
4.0	This command was introduced.

Usage Guidelines

match dscp command is only applicable to queues which have at least one cos value associated with it. Default queue should always have cos value associated with it if not all DSCP value are mapped to non-default ingress queue.

The dscp queuing is automatically disabled when the user removes all the match dscp's (using "no match" statements).

If match dscp values is used under 2q4t-8e-in-q1 with a few DSCP values, all remaining values get mapped to the default queue.

Below are some of the restrictions for this command:

- Only supports ingress queues for F2 modules for 8E template. (It does not support egress queues, M1 queues, or fabric-qos queues.)

- Ingress queues must have at least one cos value associated with it without restriction which Cos value is used.
- Cannot be used in user defined class-maps.
- Cannot be used in a user configuration session.
- Command must be disabled for ISSD otherwise the ISSD will be disruptive.
- By default DSCP to IVL is disabled.
- Queue-limit command cannot be specified based on COS or DSCP value. The configured queue-limit sizes are applicable for both DSCP and COS values.
- There are no additional statistics generated to differentiate how many packets are matched on DSCP or COS.
- When DSCP to IVL is enabled an interface will use DSCP value as trusted for IP packets and COS value will be trusted for NON-IP packets.
- Fabric Path Interface and FEX Port-channel interfaces do not support DSCP to IVL mapping.
- DSCP to IVL is not supported for IPv6 packets.
- DSCP to IVL mapping change is disruptive operation and might cause BFD/Routing protocols to Flap.

This command does not require a license.

Examples

This example shows how to match the DSCP value:

```
switch(config)# class-map type queuing match-any q4t-8e-in-q1
switch(config-cmap-que)# match dscp 1
switch(config-cmap-que)#
```

Related Commands

Command	Description
show class-map	Displays class maps.

match ip rtp

To configure a class map to use the Real-Time Protocol (RTP) port as a match criteria, use the **match ip rtp** command. To remove the RTP port as a match criteria, use the **no** form of this command.

match [not] ip rtp *port-list*

no match [not] ip rtp *port-list*

Syntax Description

not	(Optional) Negates the specified match result.
port-list	Specified User Datagram Protocol (UDP) or list of UDP ports that are using RTP. Valid values are from 2000 to 65535.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

This command does not require a license.

Examples

This example shows how to match on a port using RTP:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match ip rtp 2300
```

Related Commands

Command	Description
show class-map	Displays class maps.

match packet length

To configure a class map to use Layer 3 packet length in the IP header as a match criteria, use the **match packet length** command. To remove a previously specified Layer 3 packet length as a match criteria, use the **no** form of this command.

match [not] packet length *packet-length-list*

no match [not] packet length *packet-length-list*

Syntax Description

not	(Optional) Negates the specified match result.
packet-length-list	Specified Layer 3 packet length or list of packets lengths specified in bytes. Valid values are from 1 to 9198.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

This command does not require a license.

Examples

This example shows how to match on a Layer 3 packet length of 600 to 660:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match packet length 600-660
```

Related Commands

Command	Description
show class-map	Displays class maps.

match precedence

To configure a class map to use the precedence value in the Type of Service (ToS) byte field of the IP header as a match criteria, use the **match precedence** command. To remove the precedence values as a match criteria, use the **no** form of this command.

match [not] precedence *precedence-list*

no match [not] precedence *precedence-list*

Syntax Description

not	(Optional) Negates the specified match result.
precedence-list	Specified IP precedence value or list of IP precedence values specified in bytes. Valid values are shown in the Table 2: Precedence Values, on page 58.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

For a list of precedence values, see the following table:

Table 2: Precedence Values

Precedence Value	List of Precedence Values
<0-7>	IP precedence value
critical	Critical precedence (5)
flash	Flash precedence (3)
flash-override	Flash override precedence (4)
immediate	Immediate precedence (2)
internet	Internetwork control precedence (6)

Precedence Value	List of Precedence Values
network	Network control precedence (7)
priority	Priority precedence (1)
routine	Routine precedence (0)

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

This command does not require a license.

Examples

This example shows how to match on an IP precedence value:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match precedence 7
```

Related Commands

Command	Description
show class-map	Displays class maps.

match protocol

To configure a class map to use a specific protocol as a match criterion, use the **match protocol** command. To remove the specified protocol as a match criteria, use the **no** form of this command.

match [not] protocol *protocol-name*

no match [not] protocol *protocol-name*

Syntax Description

not	(Optional) Negates the specified match result.
protocol-name	Specified protocol name. Valid values are shown in Table 3: Protocol Names, on page 60.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The list of valid protocol names is shown in following table:

Table 3: Protocol Names

Argument	Description
arp	Address Resolution Protocol (ARP)
bridging	Bridging
cdp	Cisco Discovery Protocol (CDP)
clns	Connectionless Network Service (CLNS)
clns_es	CLNS End Systems
clns_is	CLNS Intermediate System
dhcp	Dynamic Host Configuration (DHCP)

Argument	Description
isis	Intermediate system to intermediate system (IS-IS)
ldp	Label Distribution Protocol (LDP)
netbios	NetBIOS Extended User Interface (NetBEUI)

Note A maximum of eight different protocols can be matched at a time.

To specify more than one protocol, enter the **match protocol** command with the desired protocol value each time.

This command does not require a license.

Examples

This example shows how to match on a specified protocol:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match protocol ldp
```

Related Commands

Command	Description
show class-map	Displays class maps.

match qos-group

To configure a class map to use a specific qos group value as a match criterion, use the **match qos-group** command. To remove the specified protocol as a match criteria, use the **no** form of this command.

match [not] qos-group *qos-group-list*

no match [not] qos-group *qos-group-list*

Syntax Description

not	(Optional) Negates the specified match result.
qos-group-list	Specified qos group value or list of qos group values specified in bytes. Valid values are from 1 to 126.

Command Default

None

Command Modes

Class-map type qos configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The qos group is an internal label and is not part of the packet payload or any packet header. The qos group values have no mathematical significance. For example, a qos group value of 2 is not greater than 1; the values are used only to internally differentiate qos groups. As such, this value has local significance only.

You can match on the qos group only in egress policies because its value is undefined until you set it in an ingress policy.

To specify a list of values, use one of the following options:

- Specify a range of values by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

This command does not require a license.

Examples

This example shows how to match on a specified qos group value:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match qos-group 6
```

Related Commands

Command	Description
show class-map	Displays class maps.

mtu

To configure the maximum transmission unit (MTU) size in a network qos policy, use the **mtu** command.

mtu [*mtu_size*]

Syntax Description

mtu_size	(Optional) MTU size. The range is from 1500 to 9216.

Command Default

None

Command Modes

Policy-map type network qos configuration

Command History

Release	Modification
6.1(1)	Added the usage guidelines and the command output.
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

The Fabric Extender(FEX) port channel requires a minimum MTU setting of 1058 for traffic with CoS 5-7. The FEX fails when the MTU is less than 1058 and does not register with the switch.

Examples

This example shows how to configure the MTU size in a network policy:

```
switch# configure terminal
switch(config)# policy-map type queuing my-4q-4e-drop-out
switch(config-pmap-que)# class type queuing 1p3q1t-8e-out-pq1
switch(config-pmap-que)# priority level 2
switch(config-pmap-que)# mtu 1500
switch(config-pmap-que)#

switch(config)# policy-map type network-qos nenq-7e
switch(config-pmap-nqos)# class type network-qos c-nq-7e-drop
switch(config-pmap-nqos-c)# mtu 1057
MTU less than 1058 for CoS 5-7 can bring down FEX port-channels. Do you want to continue?
(yes/no) [no]
```

Related Commands

Command	Description
congestion-control	Configures congestion control in a network qos policy.

Command	Description
pause	Configure no-drop per CoS.
priority	Marks the priority level in a traffic queue.
shape	Configures the traffic rate for a given traffic profile.

P Commands

pause

To configure no-drop per class of service (CoS), use the **pause** command. To remove the no-drop configuration, use the **no** form of this command.

pause

no pause

Syntax Description

This command has no arguments or keywords.

Command Default

no pause

Command Modes

Class-map type qos configuration

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure no-drop CoS:

```
switch# configure terminal
switch(config)# class-map type network-qos match-any eth
switch(config-cmap-nqos)# match cos 0,5-7
switch(config)# class-map type network-qos match-any fc1
switch(config-cmap-nqos)# match protocol fcoe
switch(config-cmap-nqos)# match cos 3
Switch(config)# class-map type network-qos match-any fc2
Switch(config-cmap-nqos)# match cos 1,2,4
switch(config)# policy-map type network-qos my_template
switch(config-pmap-nqos)# class type network-qos eth
switch(config-pmap-nqos-c)# pause
switch(config-pmap-nqos-c)#
```

Related Commands

Command	Description
congestion-control	Configures congestion control in a network qos policy.
mtu	Configures the maximum transmission unit (MTU) size in a network qos policy.
priority	Marks the priority level in a traffic queue.

police (QoS)

To configure policing of the data rates for a particular class of traffic, use the **police** command. To remove a policing configuration, use the **no** form of this command.

police [cir] {*cir-value* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *percent*}| [**[bc]** *bc-value* [**bytes**| **kbytes**| **mbytes**| **ms**| **us**]]| [**pir** {*pir-value* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *percent*}] [**[be]** *be-value* [**bytes**| **kbytes**| **mbytes**| **ms**| **us**]]| [**conform** {**transmit**| **set-prec-transmit** *precedence-value*| **set-dscp-transmit** *dscp-value*| **set-cos-transmit** *cos-val*| **set-discard-class-transmit** *discard-class-value*| **set-qos-transmit** *qos-group-value*} [**exceed** {**drop**| **set dscp dscp table cir-markdown-map**}] [**violate** {**drop**| **set dscp dscp table pir-markdown-map**}]]

no police [cir] {*cir-value* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *percent*}| [**[bc]** *bc-value* [**bytes**| **kbytes**| **mbytes**| **ms**| **us**]]| [**pir** {*pir-value* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *percent*}] [**[be]** *be-value* [**bytes**| **kbytes**| **mbytes**| **ms**| **us**]]| [**conform** {**transmit**| **set-prec-transmit** *precedence-value*| **set-dscp-transmit** *dscp-value*| **set-cos-transmit** *cos-val*| **set-discard-class-transmit** *discard-class-value*| **set-qos-transmit** *qos-group-value*} [**exceed** {**drop**| **set dscp dscp table cir-markdown-map**}] [**violate** {**drop**| **set dscp dscp table pir-markdown-map**}]]

Syntax Description

cir	(Optional) Sets the committed information rate as a bit rate or a percentage of the link rate.
cir-value	Committed information rate. The range of values is from 1 to 80000000000; the range of policing values that are mathematically significant is 8000 to 80 Gbps.
bps	(Optional) Specifies the units of bits per second.
kbps	(Optional) Specifies the units of kilobits per second.
mbps	(Optional) Specifies the units of megabits per second.
gbps	(Optional) Specifies the units of gigabits per second.
percent	Specifies the percentage of the related parameter.
percent	Specifies percent. Valid values are from 1 to 100.
bc	Sets the committed burst rate, which is how much the cir can be exceeded, either as a bit rate or an amount of time at cir.
bc-value	Committed burst rate. Valid values are from 1 to 536870912. The default value is 200.
bytes	(Optional) Specifies the units of bytes per second.
kbytes	(Optional) Specifies the units of kilobytes per second.

mbytes	(Optional) Specifies the units of megabytes per second.
ms	(Optional) Specifies the units of milliseconds.
us	(Optional) Specifies the units of microseconds.
pir	Sets the peak information rate.
pir-value	Peak information rate. Valid values are from 1 to 80000000000; the range of policing values that are mathematically significant is 8000 to 80 Gbps.
be	Specifies the extended burst rate. Valid values are from 1 to 536870912.
be-value	Extended burst rate. If the bc value is not specified, the default is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.
conform	Sets the action to take when the data rate is within bounds.
transmit	Specifies the action of transmitting packets.
set-prec-transmit *precedence-value*	Sets the IP precedence field to the specified value and transmits the packet. Valid values are from 0 to 7.
set-dscp-transmit *dscp-value*	Sets the Differentiated Service Code Point (DSCP) field to the specified value and transmits the packet.
set-cos-transmit *cos-val*	Sets the class of service (CoS) field to the specified value and transmits the packet. Valid values are from 0 to 7.
set-discard-class-transmit *discard-class-value*	Sets the discard class field to the specified value and transmits the packet. Valid values are from 0 to 63.
set-qos-transmit *qos-group-value*	Sets the qos group field to the specified value and transmits the packet. Valid values are from 1 to 126.
exceed	Sets the action to take when the data rate is exceeded. The default is drop.
drop	Specifies the action of dropping packets.
set dscp dscp table cir-markdown-map	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.

violate	Sets the action to take when the data rate violates the configured rate values. The default is drop.
set dscp dscp table pir-markdown-map	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.

Command Default

bc default value is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.

be default value is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.

exceed default action is drop.

violate default action is drop.

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows a 1-rate, 2-color policer that transmits if the data rate is within 200 milliseconds of traffic at 256000 bps and marks the DSCP value based on the system-defined table map pir-markdown-map if the data rate is violated:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class default-class
switch(config-pmap-c-qos)# police cir 256000 conform transmit violate drop
switch(config-pmap-c-qos)#
```

This example shows a 1-rate, 3-color policer that transmits if the data rate is within 200 milliseconds of traffic at 256000 bps, marks DSCP based on the system-defined table map cir-markdown-map if the data rate is within 300 milliseconds of traffic at 256000 bps, and drops packets otherwise (pir must equal cir):

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class default-class
switch(config-pmap-c-qos)# police cir 256000 pir 256000 conform transmit exceed set dscp
dscp table cir-markdown-map violate drop
switch(config-pmap-c-qos)#
```

This example shows a 2-rate, 3-color policer that transmits and sets CoS to 5 if the data rate is within 200 milliseconds of traffic at 256000 bps, marks DSCP based on the system-defined table map cir-markdown-map if the data rate exceeds 200 milliseconds of traffic at 512 bps, and drops packets otherwise:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class default-class
switch(config-pmap-c-qos)# police cir 256000 pir 512000 conform set-cos-transmit 5 exceed
```

```
set dscp dscp table cir-markdown-map violate drop
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

police aggregate

To apply an aggregate policer to a particular class of traffic across multiple interfaces, use the **police aggregate** command. To remove an aggregate policer configuration, use the **no** form of this command.

police aggregate *policer-name*

no police aggregate *policer-name*

Syntax Description

policer-name	Name of a shared aggregate policer to use.

Command Default

None

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Shared policers can only be applied to interfaces on the same module.

Note For information about configuring a shared policer, see the qos shared-policer, on page 92 command.

This command does not require a license.

Examples

This example shows how to configure a shared policer for the class-default class of traffic:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class default-class
switch(config-pmap-c-qos)# police aggregate my_aggregate_policer
switch(config-pmap-c-qos)#
```

This example shows how to remove the configuration of a shared policer from the class-default class of traffic:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class default-class
switch(config-pmap-c-qos)# no police aggregate my_aggregate_policer
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
qos shared-policer	Configures simultaneous policing across multiple interfaces for a specified class of traffic.
show policy-map	Displays policy maps and statistics.

policy-map type network-qos

To configure a policy map and enter the policy map type network qos configuration mode, use the **policy-map type network-qos** command. To remove a class map, use the **no** form of this command.

policy-map type network-qos *pmap-name-nq* [**template 8e| 6e| 7e| 4e| 8e-4q4q**]

no policy-map type network-qos *pmap-name-nq* [**template 8e| 6e| 7e| 4e| 8e-4q4q**]

Syntax Description

template	Specifies the template type.
8e	Specifies the 4e template.
6e	Specifies the 6e template.
7e	Specifies the 7e template.
4e	Specifies the 4e template.
8e-4q4q	Specifies the 8e-4q4q template.

Command Default

qos

Command Modes

Global configuration

Command History

Release	Modification
6.1(3)	Added a template option.
5.1(1)	This command was introduced.

Usage Guidelines

- Creates user-defined network-qos policy-map <pmap-name-nq> with the given template-type
- The properties of 8e template and 8e-4q4q template network-qos policy-maps are same. Thus this command explicitly says the type of the template
- If the template type is not mentioned then it will be considered as 8e or 7e or 6e or 4e based on the number of drop CoS and no-drop CoS

This command does not require a license.

Examples

This example shows how to configure a policy map of the type network qos:

```
switch# configure terminal
switch(config)# policy-map type network-qos my_template
switch(config-pmap-nqos)#
```

This example shows how to remove a policy map of the type network qos:

```
switch# configure terminal
switch(config)# no policy-map type network-qos my_template
```

This example shows how to configure a policy map of the type network qos with template type as 8e-4q4q:

```
switch # configure terminal
switch(config)# policy-map type network-qos my-8e-4q4q-nq template 8e-4q4q
switch(config-pmap-nqos)#
```

Related Commands

Command	Description
service-policy	Attaches a policy map to an interface.
show policy-map	Displays policy maps and statistics.

policy-map type qos

To create or modify a policy map and enter the policy map type qos configuration mode, use the **policy-map type qos** command. To remove a policy map, use the **no** form of this command.

policy-map [**type qos**] **[match-first]** *qos-policy-map-name*

no policy-map [**type qos**] **[match-first]** *qos-policy-map-name*

Syntax Description

match-first	(Optional) Specifies the policies associated with the first class that matches the packet characteristics are executed. This is the default action if this option is not specified. **Note** Because this is the default action, you do not need to enter this variable; it is there to ensure compatibility with other systems.
qos-policy-map-name	Name assigned to a type qos policy map.

Command Default

The software enters the policy map type qos configuration mode if you enter the **policy-map** command without specifying a type.

Command Modes

Global configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Use the service-policy, on page 110 command to assign policy maps to interfaces.

This command does not require a license.

Examples

This example shows how to create or modify a type qos policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)#
```

This example shows how to remove a type qos policy map:

```
switch(config)# no policy-map my_policy1
```

Related Commands

Command	Description
service-policy	Attaches a policy map to an interface.
show policy-map	Displays policy maps and statistics.

policy-map type queuing

To create or modify a policy map and enter the policy map type queuing configuration mode, use the **policy-map type queuing** command. To remove a policy map, use the **no** form of this command.

policy-map type queuing [match-first] {*queuing-policy-map-name*| **que-dynamic**}

no policy-map type queuing [match-first] {*queuing-policy-map-name*| **que-dynamic**}

Syntax Description

match-first	(Optional) Specifies the policies associated with the first class that matches the packet characteristics are executed. This is the default action if this option is not specified. **Note** Because this is the default action, you do not need to enter this variable; it is there to ensure compatibility with other systems.
queuing-policy-map-name	Name assigned to a type queuing policy map.
que-dynamic	Specifies already configured policy maps.

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
4.0	This command was introduced.
4.2(1)	The **que-dynamic** variable was added.

Usage Guidelines

Use the service-policy, on page 110 command to assign policy maps to interfaces.

This command does not require a license.

Examples

This example shows how to create or modify a queuing policy map:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)#
```

This example shows how to remove a type queuing policy map:

```
switch(config)# no policy-map type queuing my_policy1
switch(config)#
```

Related Commands

Command	Description
service-policy	Attaches a policy map to an interface.
show policy-map	Displays policy maps and statistics.

policy-map type queuing

To configure the policy map of a type queuing and to enter the policy-map mode for a specified policy map, use the **policy-map-name**command. To remove a policy map use the **no** form of this command.

policy-map queuing [*policy-map-name*]

no policy-map queuing [*policy-map-name*]

Syntax Description

policy-map-name	Policy map of a type queuing. **Note** The policy map names can contain alphabetical, hyphen, or underscore characters , are case sensitive, and can be up to 40 characters.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to configure the policy map of a type queuing:

```
switch# configure terminal
switch(config)# policy-map type queuing test
switch(config-pmap-que)#
```

This example shows how to remove a type queuing policy map:

```
switch(config)# no policy-map type queuing test
switch(config)#
```

Related Commands

Command	Description
show policy-map type queuing [policy-map-name]	Displays the queuing policy that you copied and renamed.

priority (queuing)

To configure a single output queuing class as the priority queue, use the **priority** command. To remove the priority queue selection, use the **no** form of this command.

priority [**level** *priority-value*]

no priority [**level** *priority-value*]

Syntax Description

level *priority-value*	(Optional) Specifies the priority level for an output queuing class. Only one priority level is supported. The priority value can only be 1.

Command Default

The software distributes the bandwidth among the output queues, when you do not specify the priority.

Command Modes

Policy map type queuing configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The priority level can only be 1.

Use the **bandwidth remaining** command to allocate the remaining bandwidth among the nonpriority output queues. By default, the software evenly distributes the remaining bandwidth among the nonpriority output queues.

You can also use the **police** command to explicitly configure the priority for specified classes of traffic.

Note After you use this command in a specified policy map, you cannot use the **bandwidth** or **shape** command in the same policy map.

This command does not require a license.

Examples

This example shows how to assign a priority queue:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# priority level 1
switch(config-pmap-c-que)#
```

This example shows how to remove a priority queue:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# no priority level 1
switch(config-pmap-c-que)#
```

Related Commands

Command	Description
bandwidth remaining	Configures the bandwidth remaining on the interface in a queue.
police	Configures policing for specified classes of traffic.
show policy-map	Displays policy maps and statistics.

priority-flow-control mode

To configure priority flow control (PFC) on an interface, use the **priority-flow-control mode** command.

priority-flow-control mode {**auto**| **off**| **on**}

Syntax Description

auto	Sets the PFC mode to automatic.
off	Sets the PFC mode to off.
on	Sets the PFC mode to on.

Command Default

auto

Command Modes

Global configuration

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to set the PFC mode to on:

```
switch# configure terminal
switch(config)# interface ethernet 2/5
switch(config-if)# priority-flow-control mode on
switch(config-if)#
```

This example shows how to set the PFC mode to off:

```
switch# configure terminal
switch(config)# interface ethernet 2/5
switch(config-if)# priority-flow-control mode off
switch(config-if)#
```

Related Commands

Command	Description
show interface priority-flow-control	Displays the status of priority flow control (PFC) on all interfaces.

Q Commands

qos copy policy-map

To copy a system-defined network-qos policy and modify it for use, use the **qos copy policy-map** command.

qos copy policy-map type {**network-qos** [**default-nq-4e-policy** {**prefix** *prefix*| **suffix** *suffix*}| **default-nq-6e-policy** {**prefix** *prefix*| **suffix** *suffix*}| **default-nq-7e-policy** {**prefix** *prefix*| **suffix** *suffix*}| **default-nq-8e-policy** {**prefix** *prefix*| **suffix** *suffix*}]| **queuing** [**default-4q-4e-in-policy** {**prefix** *prefix*| **suffix** *suffix*}| **default-4q-4e-out-policy** {**prefix** *prefix*| **suffix** *suffix*}]}

Syntax Description

type	Specifies the component type.
network-qos	Specifies a network qos policy.
default-nq-4e-policy	(Optional) Specifies the 4-Ethernet template.
prefix *prefix*	Specifies a prefix for the policy name. A prefix can be any alphanumeric character string.
suffix *suffix*	Specifies a suffix for the policy name. A prefix can be any alphanumeric character string.
default-nq-6e-policy	(Optional) Specifies the 6-Ethernet template.
default-nq-7e-policy	(Optional) Specifies the 7-Ethernet template.
default-nq-8e-policy	(Optional) Specifies the 8-Ethernet template.
queuing	(Optional) Specifies a queuing policy.
default-4q-4e-in-policy	(Optional) Specifies the default 4-Ethernet input queuing policy.
default-4q-4e-out-policy	(Optional) Specifies the default 4-Ethernet output queuing policy.

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to copy a system-defined network qos policy and modify it for use:

```
switch# configure terminal
switch(config)# qos copy policy-map type network-qos default-nq-4e-policy prefix my_
switch(config)#
```

Related Commands

Command	Description
policy-map type network-qos	Configure a policy map and enter the policy map type network qos configuration mode.

qos shared-buffer queue-limit

To change the default shared buffer queue limit ratio (which is 50:50 shared:dedicated) for a specified port group, use the **qos shared-buffer queue-limit** command. To return to the default queue limit ratio, use the **no** form of this command.

qos shared-buffer queue limit *percent*

no qos shared-buffer queue limit *percent*

Syntax Description

percent	Sets the percent of the queue limit ratio that is shared on the port group.

Command Default

None.

Command Modes

Port-group configuration

Command History

Release	Modification
6.2(10)	This command was introduced.

Usage Guidelines

This command does not require a license.

You must first enable shared buffer queuing for the entire module. When enabled, the default ratio is 50:50. You must enter this command separately for each port group on which you want to change the queue limit ratio.

Note This command is available only on F3 Series modules.

Examples

This example shows how to configure port group 3 on module 1 for a 60-percent shared buffer queue. (This moves the dedicated queue to 40 percent for the port group.):

```
switch(config-port-group)# qos shared-buffer queue-limit 60
switch(config-port-group)#
```

Related Commands

Command	Description
show running-config	Displays the running configuration.

qos shared-policer

To configure simultaneous policing of the data rates for a particular class of traffic across multiple interfaces, use the **qos shared-policer** command. To remove a shared policer configuration, use the **no** form of this command.

qos shared-policer [**type qos**] *policer-name* **[cir]** {*cir-value* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *-percent*}| [**[bc]** *bc-value* [**bytes**| **kbytes**| **mbytes**| **ms**| **us**]]| [**pir** {*pir-value* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *percent*} [**[be]** *be-value* [**bytes**| **kbytes**| **mbytes**| **ms**| **us**]]]| [**conform** {**transmit**| **set-prec-transmit** *precedence-value*| **set-dscp-transmit** *dscp-value*| **set-cos-transmit** *cos-val*| **set-discard-class-transmit** *discard-class-value*| **set-qos-transmit** *qos-group-value*} [**exceed** {**drop**| **set dscp dscp table cir-markdown-map**}] [**violate** {**drop**| **set dscp dscp table pir-markdown-map**}]]

no qos shared-policer [**type qos**] *policer-name*

Syntax Description

type qos	(Optional) Specifies the component type, which is quality of service (QoS) for this class.
policer-name	Name of a shared policer.
cir	(Optional) Sets the committed information rate as a bit rate or a percentage of the link rate.
cir-value	Committed information rate. Valid values are from 1 to 80000000000; the range of policing values that are mathematically significant is 8000 to 80 Gbps.
bps	(Optional) Specifies the units of bits per second.
kbps	(Optional) Specifies the units of kilobits per second.
mbps	(Optional) Specifies the units of megabits per second.
gbps	(Optional) Specifies the units of gigabits per second.
percent	Specifies the percentage of the related parameter.
percent	Specifies percent. Valid values are from 1 to 100.
bc	Sets the committed burst rate, which is how much the cir can be exceeded, either as a bit rate or an amount of time at cir.
bc-value	Committed burst rate. Valid values are from 1 to 536870912. The default value is 200.
bytes	(Optional) Specifies the units of bytes per second.

kbytes	(Optional) Specifies the units of kilobytes per second.
mbytes	(Optional) Specifies the units of megabytes per second.
ms	(Optional) Specifies the units of milliseconds.
us	(Optional) Specifies the units of microseconds.
pir	Sets the peak information rate.
pir-value	Peak information rate. Valid values are from 1 to 80000000000; the range of policing values that are mathematically significant is from 8000 to 80 Gbps.
be	Specifies the extended burst rate. Valid values are from 1 to 536870912.
be-value	Extended burst rate. If the bc value is not specified, the default is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.
conform	Sets the action to take when the data rate is within bounds.
transmit	Specifies the action of transmitting packets.
set-prec-transmit *precedence-value*	Sets the IP precedence field to the specified value and transmits the packet. Valid values are from 0 to 7.
set-dscp-transmit *dscp-value*	Sets the Differentiated Services Code Point (DSCP) field to the specified value and transmits the packet.
set-cos-transmit *cos-val*	Sets the class of service (CoS) field to the specified value and transmits the packet. Valid values are from 0 to 7.
set-discard-class-transmit *discard-class-value*	Sets the discard class field to the specified value and transmits the packet. Valid values are from 0 to 63.
set-qos-transmit *qos-group-value*	Sets the qos group field to the specified value and transmits the packet. Valid values are from 1 to 126.
exceed	Sets the action to take when the data rate is exceeded. The default is drop.
drop	Specifies the action of dropping packets.
set dscp dscp table cir-markdown-map	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.

violate	Sets the action to take when the data rate violates the configured rate values. The default is drop.
set dscp dscp table pir-markdown-map	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.

Command Default

type default value is qos.

bc default value is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.

be default value is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.

exceed default action is drop.

violate default action is drop.

Command Modes

Global configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The interfaces that are attached to the shared policer must be on the same module. For an example of using a shared policer, see the police aggregate, on page 74 command.

This command does not require a license.

Examples

This example shows configuration of a 2-rate, 3-color shared policer that transmits and sets CoS to 5 if the data rate is within 200 milliseconds of traffic at 256000 bps, marks DSCP based on the system-defined table map cir-markdown-map if the data rate exceeds 200 milliseconds of traffic at 512 bps, and drops packets otherwise:

```
switch(config)# qos shared-policer my_shared_policer cir 256000 pir 512000 conform
set-cos-transmit 5 exceed set dscp dscp table cir-markdown-map violate drop
switch(config)#
```

Related Commands

Command	Description
police aggregate	Configures simultaneous policing of the data rates for a particular class of traffic across multiple interfaces.
show policy-map	Displays policy maps and statistics.

qos statistics

To enable Quality of Service (QoS) statistics, use the **qos statistics** command. To disable QoS statistics, use the **no** form of this command.

qos statistics

no qos statistics

Syntax Description

This command has no arguments or keywords.

Command Default

Enabled

Command Modes

Global configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to enable QoS statistics:

```
switch(config)# qos statistics
switch(config)#
```

This example shows how to disable QoS statistics:

```
switch(config)# no qos statistics
switch(config)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

queue-limit (Tail drop threshold)

To configure tail drop by setting queue limits on both ingress and egress queues, use the **queue-limit** command. To remove a queue limit, use the **no** form of this command.

queue-limit {**cos** *cos-value* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *percent-queue-size*}

no queue-limit {**cos cos-value** [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *percent-queue-size*}

Syntax Description

cos *cos-value*	Applies the queue limit to packets with the specified CoS value. Valid values are from 0 to 7.
packets	(Optional) Specifies that queue size is in packets. If not specified, packets is the default units.
bytes	(Optional) Specifies that the queue size is in bytes.
kbytes	(Optional) Specifies that the queue size is in kilobytes.
mbytes	(Optional) Specifies that the queue size is in megabytes.
ms	(Optional) Specifies that the queue size is in milliseconds at the underlying interface minimum guaranteed link rate.
us	(Optional) Specifies that queue size is in microseconds at the underlying interface minimum guaranteed link rate.
percent	(Optional) Specifies the percentage of queue limit.
percent-queue-size	(Optional) Specifies the percentage of the buffer memory used by the queue. Valid values are from 1 to 100.

Command Default

queue-size is in packets by default.

Command Modes

Policy map type queuing class configuration

Command History

Release	Modification
5.1(1)	Modified the queue-limit command to include Tail drop threshold.

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The system drops packets that exceed the configured queue-size threshold.

By default, the queue limit is applied to all packets with a class of service (CoS) value that is not assigned a queue limit.

The queue limit is not supported on ingress policies on the Cisco Nexus 7000 M1-Series 32-Port 10Gb Ethernet modules (N7K-M132XP-12 and N7K-M132XP-12L).

Tail drop and weighted random early detection (WRED) cannot be configured in the same class. For information about configuring WRED, see the random-detect, on page 102 command.

This command does not require a license.

Examples

This example shows how to assign a queue limit to a policy map queuing class that applies only to the specified CoS value:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# queue-limit cos 3 10 mbytes
switch(config-pmap-c-que)#
```

This example shows how to remove a queue limit from a policy map queuing class:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# no queue-limit cos 3 10 mbytes
switch(config-pmap-c-que)#
```

Related Commands

Command	Description
random-detect	Configures weighted random early detection (WRED).
show policy-map	Displays policy maps and statistics.

queue-limit (queue-size)

To configure queue size on both ingress and egress queues, use the **queue-limit** command. To remove a queue limit, use the **no** form of this command.

queue-limit {*queue-size* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *percent-queue-size*}

no queue-limit {*queue-size* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *percent-queue-size*}

Syntax Description

queue-size	Queue size. Valid values are from 1 to 83886080.
packets	(Optional) Specifies that queue size is in packets. If not specified, packets is the default units.
bytes	(Optional) Specifies that the queue size is in bytes.
kbytes	(Optional) Specifies that the queue size is in kilobytes.
mbytes	(Optional) Specifies that the queue size is in megabytes.
ms	(Optional) Specifies that the queue size is in milliseconds at the underlying interface minimum guaranteed link rate.
us	(Optional) Specifies that queue size is in microseconds at the underlying interface minimum guaranteed link rate.
percent	(Optional) Specifies the percentage of queue limit.
percent-queue-size	(Optional) Specifies the percentage of the buffer memory used by the queue. Valid values are from 1 to 100.

Command Default

queue-size is in packets by default.

Command Modes

Policy map type queuing class configuration

Command History

Release	Modification
5.1(1)	Modified the queue-limit command to include queue size.
4.0	This command was introduced.

Usage Guidelines

The system drops packets that exceed the configured queue-size threshold.

By default, the queue limit is applied to all packets with a class of service (CoS) value that is not assigned a queue limit.

The queue limit is not supported on ingress policies on the Cisco Nexus 7000 M1-Series 32-Port 10Gb Ethernet modules (N7K-M132XP-12 and N7K-M132XP-12L).

Tail drop and weighted random early detection (WRED) cannot be configured in the same class. For information about configuring WRED, see the random-detect, on page 102 command.

This command does not require a license.

Examples

This example shows how to assign a queue limit to a policy map queuing class that applies only to the specified CoS value:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# queue-limit cos 3 10 mbytes
switch(config-pmap-c-que)#
```

This example shows how to remove a queue limit from a policy map queuing class:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# no queue-limit cos 3 10 mbytes
switch(config-pmap-c-que)#
```

Related Commands

Command	Description
random-detect	Configures weighted random early detection (WRED).
show policy-map	Displays policy maps and statistics.

R Commands

random-detect

To configure weighted random early detection (WRED) on both ingress and egress queues by setting aggregate minimum and maximum packet drop threshold default values for specific class of service (CoS) values, use the **random-detect** command. To remove a WRED configuration, use the **no** form of this command.

random-detect cos *cos-list* **[minimum-threshold]** {*min-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *min-percent-of-qsize*} **[maximum-threshold]** {*max-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *max-percent-of-qsize*}

no random-detect cos *cos-list* **[minimum-threshold]** {*min-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *min-percent-of-qsize*} **[maximum-threshold]** {*max-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *max-percent-of-qsize*}

Syntax Description

cos *cos-list*	Specifies the CoS values where the software applies thresholds. Valid values are from 0 to 7.
minimum-threshold	(Optional) Specifies the minimum threshold.
min-threshold	Minimum threshold. Valid values are from 1 to 52428800.
packets	(Optional) Specifies that thresholds are in packets.
bytes	(Optional) Specifies that thresholds are in bytes.
kbytes	(Optional) Specifies that thresholds are in kilobytes.
mbytes	(Optional) Specifies that thresholds are in megabytes.
ms	(Optional) Specifies that thresholds are in milliseconds at the underlying interface minimum guaranteed link rate
us	(Optional) Specifies that thresholds are in microseconds at the underlying interface minimum guaranteed link rate.
percent	Specifies the percentage of the threshold.
min-percent-of-qsize	Minimum percentage of the buffer memory used by the queue. Valid values are from 1 to 100.
maximum-threshold	(Optional) Specifies the maximum threshold.
max-threshold	Maximum threshold. Valid values are from 1 to 52428800.

max-percent-of-qsize	(Optional) Maximum percentage of the buffer memory used by the queue. Valid values are from 1 to 100.

Command Default

Thresholds are in packets by default.

The **random-detect cos-based** command must be specified for a queue to establish default thresholds for any CoS values that are not specified in **random-detect** commands for the same queue.

Command Modes

Policy map type queuing class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

Note You must enter the **random-detect cos-based** command before you enter the **random-detect** command.

The minimum and maximum threshold units must match.

The system drops packets that exceed the minimum threshold at an increasing rate as the maximum threshold is reached. By default, the units are in packets,

WRED and tail drop cannot be configured in the same class. For information about configuring tail drop, see the **queue-limit** command.

You cannot configure WRED on ingress on the 10-Gigabit Ethernet ports.

For CoS lists, you can use the following:

- Specify only one value**—cos 1**
- Specify a range of values**—cos 1-3**
- Specify a comma-separated list of values**—cos 1, 4-6**

This command does not require a license.

Examples

This example shows how to configure WRED for a queue by setting the default WRED thresholds followed by thresholds that apply to CoS values 5 and 7:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# random-detect cos 5,7 15 mbytes 20 mbytes
switch(config-pmap-c-que)#
```

This example shows how to configure WRED for a queue by setting the default WRED thresholds followed by queue buffer size thresholds that apply to CoS value 5:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# random-detect cos 5 percent 5 percent 15
switch(config-pmap-c-que)#
```

This example shows how to remove a WRED configuration from a policy map queuing class:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# no random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# no random-detect cos 5 percent 5 percent 15
switch(config-pmap-c-que)#
```

Related Commands

Command	Description
random-detect cos-based	Configures WRED.
queue limit	Configures tail drop.
show policy-map	Displays policy maps and statistics.

random-detect cos-based

To configure weighted random early detection (WRED) on both ingress and egress queues by setting minimum and maximum packet drop thresholds, use the **random-detect cos-based** command. To remove a WRED configuration, use the **no** form of this command.

random-detect cos-based [**aggregate [minimum-threshold]** {*min-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *min-percent-of-qsize*} **[maximum-threshold]** {*max-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *max-percent-of-qsize*}]

no random-detect cos-based [**aggregate [minimum-threshold]** {*min-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *min-percent-of-qsize*} **[maximum-threshold]** {*max-threshold* [**packets**| **bytes**| **kbytes**| **mbytes**| **ms**| **us**]| **percent** *max-percent-of-qsize*}]

Syntax Description

aggregate	(Optional) Specifies where the software applies aggregate thresholds for CoS values that are not specified in the **random-detect** command.
minimum-threshold	(Optional) Specifies the minimum threshold.
min-threshold	Minimum threshold. Valid values are from 1 to 52428800.
packets	(Optional) Specifies that thresholds are in packets.
bytes	(Optional) Specifies that thresholds are in bytes.
kbytes	(Optional) Specifies that thresholds are in kilobytes.
mbytes	(Optional) Specifies that thresholds are in megabytes.
ms	(Optional) Specifies that thresholds are in milliseconds at the underlying interface minimum guaranteed link rate
us	(Optional) Specifies that thresholds are in microseconds at the underlying interface minimum guaranteed link rate.
percent	Specifies the percentage of the threshold.
min-percent-of-qsize	(Optional) Minimum percentage of the buffer memory used by the queue. Valid values are from 1 to 100.
maximum-threshold	Specifies the maximum threshold.
max-threshold	Maximum threshold. Valid values are from 1 to 52428800.

max-percent-of-qsize	(Optional) Maximum percentage of the buffer memory used by the queue. Valid values are from 1 to 100.

Command Default Thresholds are in packets by default.

Command Modes Policy map type queuing class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines The **random-detect cos-based** command is required when you configure WRED to establish default thresholds for class of service (CoS) values for which you do not define specific thresholds.

The minimum and maximum threshold units must match.

The system drops packets that exceed the minimum threshold at an increasing rate as the maximum threshold is reached. By default, the units are in packets,

WRED and tail drop cannot be configured in the same class. For information about configuring tail drop, see the **queue-limit** command.

Note You cannot configure WRED on ingress 10-Gigabit Ethernet ports.

This command does not require a license.

Examples This example shows how to configure WRED for a queue by setting the default WRED thresholds followed by thresholds that apply to CoS values 5 and 7:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# random-detect cos 5,7 15 mbytes 20 mbytes
switch(config-pmap-c-que)#
```

This example shows how to configure WRED for a queue by setting the default WRED thresholds followed by queue buffer size thresholds that apply to CoS value 5:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# random-detect cos 5 percent 5 percent 15
switch(config-pmap-c-que)#
```

This example shows how to remove a WRED configuration from a policy map queuing class:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# no random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# no random-detect cos 5 percent 5 percent 15
switch(config-pmap-c-que)#
```

Related Commands

Command	Description
random-detect	Configures WRED.
queue limit	Configures tail drop.
show policy-map	Displays policy maps and statistics.

S commands

service-policy

To attach a policy map to an interface, VLAN, or tunnel, use the **service-policy** command. To remove a service-policy from an interface, VLAN or tunnel, use the **no** form of this command.

service-policy [**type** {**qos**| **queuing**}] {**input**| **output**} *policy-map-name* **[no-stats]**

no service-policy [**type** {**qos**| **queuing**}] {**input**| **output**} *policy-map-name* **[no-stats]**

Syntax Description

type	(Optional) Specifies whether the policy map is of type qos or queuing.
qos	Specifies a policy map of type qos.
queuing	Specifies a policy map of type queuing.
input	Applies this policy map to packets coming into this interface.
output	Applies this policy map to packets going out of this interface.
policy-map-name	Name of the policy map to attach to this interface. Only one policy map can be attached to the input and one to the output of a given interface for each of the policy type qos and queuing.
no-stats	(Optional) Disables generation of statistics for this policy map.

Command Default

type default is qos.

No policies of type qos are active on an interface until the **service-policy** command is entered. The system-defined type queuing class maps are attached to each interface unless you specifically attach a different class map. For a list of the system-defined type queuing class maps, see Table 1: System-Defined Type Queuing Class Maps, on page 3.

Command Modes

Interface configuration

VLAN configuration

Command History

Release	Modification
5.x	changed the command output.

Release	Modification
4.0	This command was introduced.
4.0(3)	Support for tunnel interfaces is added.

Usage Guidelines

No policies of type qos are active on an interface until you enter the **service-policy** command. The system-defined type queuing class maps are attached to each interface unless you specifically attach a different class map.

You can attach one ingress and one egress type qos policy map to a port, port channel, tunnel, or VLAN. You can attach one ingress and one egress type queuing policy map to an interface of type port, port channel, tunnel, or VLAN.

Only one policy map can be attached to the input and one to the output of a given interface for each of the policy type qos and queuing.

Note For more information on using service policies, see the *Cisco Nexus 7000 Series NX-OS Quality of Service Configuration Guide, Release 5.0*.

This command does not require a license.

Examples

This example shows how to attach qos type policy maps to the ingress and egress packets of a VLAN:

```
switch(config)# vlan configuration 111
switch(config-vlan)# service-policy input my_input_policy
switch(config-vlan)# service-policy output my_output_policy
switch(config-vlan)#
```

This example shows how to attach a queuing policy map to the ingress packets of a port interface:

```
switch(config)# interface ethernet 2/1
switch(config-if)# service-policy type queuing input my_input_q_policy
switch(config-if)#
```

This example shows how to remove a policy map from a VLAN:

```
switch(config)# vlan 1
switch(config-vlan)# no service-policy input my_input_policy
switch(config-vlan)#
```

Related Commands

Command	Description
show policy-map interface brief	Displays all interfaces and VLANs with attached service policies in a brief format.

set cos (policy map type qos)

To assign a class of service (CoS) value for a class of traffic in a type qos policy map, use the **set** command. To remove the assigned value from the class, use the **no** form of this command.

set cos *cos-value*

no set cos *cos-value*

Syntax Description

cos-value	CoS value to assign for this class of traffic. Valid values are from 0 to 7.

Command Default

None

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can use the **set cos (policy map type qos)** command only on type qos policies that are attached to egress ports.

This command does not require a license.

Examples

This example shows how to remove an assignment of CoS for a class of traffic in a type qos policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class traffic_class2
switch(config-pmap-c-qos)# no set cos 3
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

set cos (policy map type queuing)

To assign a class of service (CoS) value for untrusted ports in a type queuing policy map, use the **set cos** command. To remove the assigned value from the class, use the **no** form of this command.

set cos *cos-value-queuing*

no set cos *cos-value-queuing*

Syntax Description

cos *cos-cos-value-queuing*	Specifies the CoS value to assign for this class of traffic. Valid values are from 0 to 7.

Command Default

None

Command Modes

Policy map type queuing class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can only use this form of the **set cos (policy map type queuing)** command for ingress default type queuing classes. For a table of system-defined queuing class maps, see Table 1: System-Defined Type Queuing Class Maps, on page 3.

Note The CoS values that you set by using the **set cos** command apply to all packets that ingress the specified interfaces (not just to the class-default packets that ingress the interfaces).

If you set the CoS value, the device modifies the value before ingress queuing and scheduling so that the CoS-modified packets are classified differently.

This command does not require a license.

Examples

This example shows how to assign a CoS value for a class of traffic in a queuing policy map:

```
switch(config)# policy-map type queuing match-first my_queuing_policy1
switch(config-pmap-que)# class type queuing 2q4t-in-q-default
switch(config-pmap-c-que)# set cos 3
switch(config-pmap-c-que)#
```

This example shows how to remove a CoS assignment for a class of traffic in a queuing policy map:

```
switch(config)# policy-map type queuing match-first my_queuing_policy1
```

```
switch(config-pmap-que)# class type queuing 2q4t-in-q-default
switch(config-pmap-c-que)# no set cos 3
switch(config-pmap-c-que)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

set discard-class

To assign a discard-class value for a class of traffic in a type qos policy map, use the **set discard-class** command. To leave the discard-class values unchanged, use the **no** form of this command.

set discard-class *discard-value*

no set discard-class *discard-value*

Syntax Description

discard-value	Discard-class value to assign for this class of traffic. Valid values are from 0 to 63.

Command Default

None

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can set the discard-class value only in ingress policies.

Note If you configure this value, you cannot configure a value by using the **set dscp** or the **set precedence** command.

This command does not require a license.

Examples

This example shows how to assign the discard-class value for a class of traffic in a type qos policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class traffic_class2
switch(config-pmap-c-qos)# set discard-class 40
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

set dscp (QoS)

To assign a Differentiated Services Code Point (DSCP) value for a class of traffic in a type qos policy map, use the **set dscp** command. To remove a previously set DSCP value, use the **no** form of this command.

set dscp [tunnel] *dscp-value*

no set dscp [tunnel] *dscp-value*

Syntax Description

tunnel	Sets the DSCP value in the tunnel encapsulation. This keyword is not supported in Release 4.0.1.
dscp-value	DSCP value or parameter to assign for this class of traffic. Valid values are from 0 to 63.

Command Default

None

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.
4.0.3	The **tunnel** keyword is supported.

Usage Guidelin

Note If you configure this value, you cannot configure a value by the **set discard-class** or **set precedence** command. If QoS policy is applied on Vlan Configuration Level the DSCP value will Also derive the Cos value for Bridged and Routed Traffic from the three Most Significant DSCP bits

This command does not require a license.

Examples

This example shows how to assign DSCP for a class of traffic in a type qos policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class traffic_class2
switch(config-pmap-c-qos)# set cos 3
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

set precedence (QoS)

To set precedence value in an IP header for a class of traffic in a type qos policy map, use the **set precedence** command. To leave the precedence value unchanged for the class, use the **no** form of this command.

set precedence [tunnel] *precedence-value*

no set precedence [tunnel] *precedence-value*

Syntax Description

tunnel	(Optional) Sets the IP precedence value in the tunnel encapsulation. This keyword is not supported in Release 4.0.1.
precedence-value	IP precedence value to assign for this class of traffic. Valid values are from 0 to 7.

Command Default

None

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.
4.0.3	The **tunnel** keyword is supported.

Usage Guidelines

For a list of the IP precedence values, see Table 2: Precedence Values, on page 58.

The device rewrites the last 3 bits of the Type of Service (ToS) field in the IP header to 0 for packets that match this class.

Note If you configure this value, you cannot configure a value by using the **set discard-class** or **set dscp** command.

This command does not require a license.

Examples

This example shows how to set the IP precedence value for a class of traffic in a type qos policy map:

```
switch(config)# policy-map policy1
switch(config-pmap-qos)# class class2
```

```
switch(config-pmap-c-qos)# set precedence 3
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

set qos-group

To assign the QoS group identifier for a class of traffic in a type qos policy map, use the **set qos-group** command. To remove the assigned value from the class, 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	QoS group value to assign for this class of traffic. Valid values are from 1 to 126.

Command Default

None

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can set the QoS group identifier value only in ingress policies.

This command does not require a license.

Examples

This example shows how to assign a QoS group identifier for a class of traffic in a type qos policy map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class traffic_class2
switch(config-pmap-c-qos)# set qos-group 100
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

set table

To define a mapping between two fields for a class of traffic in a type qos policy map, use the **set table** command. To remove the assigned mapping from the class, use the **no** form of this command.

set *header-parameter* {*same-header-parameter*| *output-header-parameter*} **table** {*table-map-name*| *mutation-map*}

no set *header-parameter* {*same-header-parameter*| *output-header-parameter*} **table** {*table-map-name*| *mutation-map*}

Syntax Description

header-parameter	Header parameters. For example, **cos**, **dscp**, **precedence**, or **discard-class**.
same-header-parameter	Header parameter that is the same as the first header parameter in the command line.
output-header-parameter	Output header parameter that is different from the first header parameter in the command line. This parameter is used in mutation mapping.
table-map-name	User-defined table map name to use for mapping the specified header parameter.
mutation-map	System-defined table map name to use for mutation mapping of the input parameter to the output parameter.

Command Default

None

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
4.0	This command was introduced.
4.1(2)	You can set only similar values when you create a mutation map. For example, you can set cos-cos or dscp-dscp; you cannot set cos-dscp or dscp-precedence.

Usage Guidelines

The system-defined table maps used in the **set table** command are shown in the following table:

Table 4: System-Defined Table Maps Used in the set table Command

Table Map Name	Description
cos-discard-class-map	Table map used to map the CoS value to the discard-class value.
cos-dscp-map	Table map used to map the CoS value to the DSCP value.
cos-precedence-map	Table map used to map the CoS value to the precedence value.
dscp-cos-map	Table map used to map the DSCP value to the CoS value.
dscp-precedence-map	Table map used to map the DSCP value to the precedence value.
dscp-discard-class-map	Table map used to map the DSCP value to the discard-class value.
precedence-dscp-map	Table map used to map the precedence value to the DSCP value.
precedence-cos-map	Table map used to map the precedence value to the CoS value.
precedence-discard-class-map	Table map used to map the precedence value to the discard-class value.
discard-class-cos-map	Table map used to map the discard-class value to the CoS value.
discard-class-prec-map	Table map used to map the discard-class value to the precedence value.
discard-class-dscp-map	Table map used to map the discard-class value to the DSCP value.

Note You can set only similar values when you create a mutation map. For example, you can set cos-cos or dscp-dscp; you cannot set cos-dscp or dscp-precedence.

This command does not require a license.

Examples

This example shows how to perform mutation mapping for a class of traffic in a type qos policy map based on input DSCP, and output IP precedence using a system-defined table map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class traffic_class2
switch(config-pmap-c-qos)# set dscp precedence table dscp-precedence-map
switch(config-pmap-c-qos)#
```

This example shows how to perform mutation mapping for a class of traffic in a type qos policy map based on input DSCP and output IP precedence by using a user-defined table map:

```
switch(config)# policy-map my_policy1
switch(config-pmap-qos)# class class_default
switch(config-pmap-c-qos)# set dscp dscp table my_table
switch(config-pmap-c-qos)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

shape

To configure shaping on an egress queue to impose a maximum rate on it, use the **shape** command. To remove a shaping configuration, use the **no** form of this command.

shape [average] {*average-rate* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *percent-rate*}

no shape [average] {*average-rate* [**bps**| **kbps**| **mbps**| **gbps**]| **percent** *percent-rate*}

Syntax Description

average	(Optional) Specifies an optional keyword. Shaping is based on an average rate.
average-rate	Average rate for shaping. The range of values is from 1 to 80000000000; the range of policing values that are mathematically significant is from 8000 to 80 Gbps.
bps	(Optional) Specifies the units of bits per second.
kbps	(Optional) Specifies the units of 1000 bits per second.
mbps	(Optional) Specifies the units of megabits per second.
gbps	(Optional) Specifies the units of gigabits per second.
percent	Specifies the percentage of the underlying interface link rate. **Note** You can use the **percent** keyword only for interfaces that are set to autonegotiate.
percent-rate	Percentage from 1 to 100.

Command Default

bps is default data rate.

Command Modes

Global configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

You can use the system-defined egress queue class for the type of module to which you want to apply the policy map. For a list of the system-defined type queuing class maps, see Table 1: System-Defined Type Queuing Class Maps, on page 3.

The device forces the shape rate to the closest value in the following percentage intervals: 100, 50,33, 25, 12.5, 6.25, 3.13, or 1.07.

Note If you configure shaping, you cannot configure **bandwidth** or **priority** in the same policy map.

This command does not require a license.

Examples

This example shows how to apply shaping based on a percentage rate to a policy map type queuing class:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# shape percent 25
switch(config-pmap-c-que)#
```

This example shows how to apply shaping based on an average rate to a policy map type queuing class:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# shape 500 mbps
switch(config-pmap-c-que)#
```

This example shows how to remove a shaping configuration from a policy map type queuing class:

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing 1p3q4t-out-pq1
switch(config-pmap-c-que)# no shape percent 25
switch(config-pmap-c-que)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

Show commands

show class-map type network-qos

To display type network-qos class maps, use the **show class-map type network-qos** command.

show class-map type network-qos

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the type network-qos class maps:

```
switch# show class-map type network-qos
Type network-qos class-maps
  ===========================
  class-map type network-qos match-any c-nq-8e
      Description: 8E Drop CoS map
    match cos 0-7
  class-map type network-qos match-any c-nq-4e-drop
      Description: 4E Drop CoS map
    match cos 0,5-7
  class-map type network-qos match-any c-nq-6e-drop
      Description: 6E Drop CoS map
    match cos 0-2,5-7
  class-map type network-qos match-any c-nq-7e-drop
      Description: 7E Drop CoS map
    match cos 0-2,4-7
  class-map type network-qos match-any c-nq-4e-ndrop
      Description: 4E No-Drop CoS map
    match cos 1-2,4
  class-map type network-qos match-any c-nq-6e-ndrop
      Description: 6E No-Drop CoS map
    match cos 4
  class-map type network-qos match-any c-nq-4e-ndrop-fcoe
      Description: 4E No-Drop FCoE CoS map
    match cos 3
    match protocol fcoe
  class-map type network-qos match-any c-nq-6e-ndrop-fcoe
      Description: 6E No-Drop FCoE CoS map
    match cos 3
    match protocol fcoe
  class-map type network-qos match-any c-nq-7e-ndrop-fcoe
      Description: 7E No-Drop FCoE CoS map
```

```
match cos 3
match protocol fcoe
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.

show class-map type qos

To display type qos class maps, use the **show class-map type qos** command.

show class-map type qos [*class-map-name*| *color-class-map-name*]

Syntax Description

class-map-name	(Optional) Named class map. The name *class-default* is reserved.
color-class-map-name	(Optional) System-defined color class map.

Command Default

Displays all type qos class maps if no class map name is specified.

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

The following table displays the list of system-defined class maps that display with this command:

Table 5: System-Defined Type QoS Class Maps That Display with This Command

Class Map Name	Description
conform-color-in	Type qos conform color class map in the input direction. This color-aware class map makes a policer color-aware for conform action.
conform-color-out	Type qos conform color class map in the output direction. This color-aware class map makes a policer color-aware for conform action.
exceed-color-in	Type qos exceed color class map in the input direction. This color-aware class map makes a policer color-aware for exceed action.
exceed-color-out	Type qos exceed color class map in the output direction. This color-aware class map makes a policer color-aware for exceed action.

When you enter the command **show class-map** with no arguments or keywords, the system also displays the Control Plane Policing (CoPP) configuration.

This command does not require a license.

Examples

This example shows how to display all type qos class maps:

```
switch(config)# show class-map type qos

 Type qos class-maps
  ===================
    class-map type qos match-all abc
      match dscp 0-3
    class-map type qos conform-color-in
      Description: Conform color map in input direction
    class-map type qos conform-color-out
      Description: Conform color map in output direction
    class-map type qos exceed-color-in
      Description: Exceed color map in input direction
    class-map type qos exceed-color-out
      Description: exceed color map in output direction
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.

show class-map type queuing

To display type queuing class maps, use the **show class-map type queuing** command.

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

Syntax Description

class-map-name	(Optional) Named class map.

Command Default

Displays all type queuing class maps if no class map name is specified.

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

For a list of the system-defined type queuing class maps, see Table 1: System-Defined Type Queuing Class Maps, on page 3:

This command does not require a license.

Examples

This example shows how to display all type queuing class maps:

```
switch(config)# show class-map type queuing
  Type queuing class-maps
  ========================
    class-map type queuing match-any 2q4t-in-q1
      Description: Classifier for ingress queue 1 of type 2q4t
      match cos 5-7
    class-map type queuing match-any 2q4t-in-q-default
      Description: Classifier for ingress default queue of type 2q4t
      match cos 0-4
    class-map type queuing match-any 8q2t-in-q1
      Description: Classifier for ingress queue 1 of type 8q2t
      match cos 5-7
    class-map type queuing match-any 8q2t-in-q2
      Description: Classifier for ingress queue 2 of type 8q2t
    class-map type queuing match-any 8q2t-in-q3
      Description: Classifier for ingress queue 3 of type 8q2t
    class-map type queuing match-any 8q2t-in-q4
      Description: Classifier for ingress queue 4 of type 8q2t
    class-map type queuing match-any 8q2t-in-q5
      Description: Classifier for ingress queue 5 of type 8q2t
    class-map type queuing match-any 8q2t-in-q6
      Description: Classifier for ingress queue 6 of type 8q2t
    class-map type queuing match-any 8q2t-in-q7
      Description: Classifier for ingress queue 7 of type 8q2t
    class-map type queuing match-any 8q2t-in-q-default
```

```
  Description: Classifier for ingress default queue of type 8q2t
  match cos 0-4
class-map type queuing match-any 1p3q4t-out-pq1
  Description: Classifier for egress priority queue of type 1p3q4t
  match cos 5-7
class-map type queuing match-any 1p3q4t-out-q2
  Description: Classifier for egress queue 2 of type 1p3q4t
class-map type queuing match-any 1p3q4t-out-q3
  Description: Classifier for egress queue 3 of type 1p3q4t
class-map type queuing match-any 1p3q4t-out-q-default
  Description: Classifier for egress default queue of type 1p3q4t
  match cos 0-4
class-map type queuing match-any 1p7q4t-out-pq1
  Description: Classifier for egress priority queue of type 1p7q4t
  match cos 5-7
class-map type queuing match-any 1p7q4t-out-q2
  Description: Classifier for egress queue 2 of type 1p7q4t
class-map type queuing match-any 1p7q4t-out-q3
  Description: Classifier for egress queue 3 of type 1p7q4t
class-map type queuing match-any 1p7q4t-out-q4
  Description: Classifier for egress queue 4 of type 1p7q4t
class-map type queuing match-any 1p7q4t-out-q5
  Description: Classifier for egress queue 5 of type 1p7q4t
class-map type queuing match-any 1p7q4t-out-q6
  Description: Classifier for egress queue 6 of type 1p7q4t
class-map type queuing match-any 1p7q4t-out-q7
  Description: Classifier for egress queue 7 of type 1p7q4t
class-map type queuing match-any 1p7q4t-out-q-default
  Description: Classifier for egress default queue of type 1p7q4t
  match cos 0-4
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.

show hardware qos shared-buffer

To display the status of the shared buffer, use the **show hardware qos shared-buffer** command.

show hardware qos shared buffer [**module** *module number*] [**port-group** *port number*]

Syntax Description

module	Displays the shared buffer module information.
module number	Number of the module. The range is from 1 to 18.
port-group	Displays the shared buffer port-group information.
module number	Number of the port-group. The range is from 0 to 11.

Command Default

None

Command Modes

Any

Command History

Release	Modification
6.2(10)	This command was introduced

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the hardware QoS shared buffer module:

```
switch# show hardware qos shared-buffer module 1
Device: M2
--------------------
INGRESS VOQ DROP COUNTS:
--------------------
Source Intf    Traffic Type    Drop Reason            Count
-----------    ------------    --------------------   ------------------------
eth 17/1       Unicast         VOQ tail-drop                         2130695
eth 17/1       Multicast       VOQ tail-drop                         2077665
eth 17/2       Unicast         VOQ tail-drop                         1830747
eth 17/3       Unicast         VOQ tail-drop                            5969
eth 17/3       Multicast       VOQ tail-drop                           17809
eth 17/4       Unicast         VOQ tail-drop                          189479
eth 17/5       Unicast         VOQ tail-drop                         2025511
eth 17/6       Unicast         VOQ tail-drop                         2117541
--------------------
EGRESS MCAST TAIL DROP COUNTS:
--------------------
ASIC    Count
----    ------------------------
```

```
    0                      142235
    1                     1400315
    2                      140656
    3                     1395476
>
switch#
```

show hardware internal qengine inst registers name

To display the logs that is specific to a QEngine ASIC register, use the **show hardware internal qengine inst registers name** command.

show hardware internal qengine inst *asic-inst-number* **registers name** *name*

Syntax Description

asic-inst-number	ASIC instance number.
name *name*	Name of the register.

Command Default

None

Command Modes

Privileged EXEC mode

Command History

Release	Modification
7.3(0)D1(1)	This command was introduced

Usage Guidelines

The command should be executed after attaching to the module.

Examples

The following example shows the logs that is specific to the QEngine ASIC register whose name is specified in the command. The below output indicates that on port 11, that is Ethernet 1/11, there is traffic on VL 0, that is -out-q4, and 1, that is out-q5. Each nibble covers 4 VLs or queues. Hence, 2 nibbles are used for 1 port. The UE__0 register covers port 9-12 and the QUE__1 register covers port 13-14.

```
switch# show hardware internal qengine inst 1 registers name STA_ucr_que
+------------------------------------------------------------------------------
| Instance Registers for Queue Driver
| Inst 1; port(s) 9-16
|
ADDR(0x) REG NAME VAL(0x) [POS] FLD_NAME
________ ________
43f1 FLN_EB_STA_UCR_QUE__1 00000000
43f2 FLN_EB_STA_UCR_QUE__0 00030000
```

Related Commands

Command	Description
show system internal aclqos event-history	Displays port monitor active policies.
show hardware internal qengine event-history port	Displays the QEngine ASIC driver logs.

show hardware internal qengine event-history port

To display the QEngine ASIC driver logs, use the **show hardware internal qengine event-history port** command.

show hardware internal qengine event-history port *port-number*

Syntax Description

port *port-number*	Specifies the port number.

Command Default

None

Command Modes

Privileged EXEC mode

Command History

Release	Modification
7.3(0)D1(1)	This command was introduced

Usage Guidelines

None.

Examples

The following example shows how to display the QEngine ASIC driver logs. The below output indicates that shaper on egress is read to be 1% of port bandwidth for stream reservation (SR) Class A that corresponds to qnum 0 on interface Ethernet 1/10 that corresponds to port 10:

```
switch# show hardware internal qengine event-history port
+-------------------------------------------------------------------------------
1) Event:E_DEBUG, length:104, at 286547 usecs after Wed Mar 4 14:44:25 2015
[0] [INFO] fln_que_qos_get_dyn_shaper_cfg(3138): port 10: FS RL rate is 0% for qnum 1, speed
 10000 mbps
2) Event:E_DEBUG, length:104, at 284679 usecs after Wed Mar 4 14:44:25 2015
[0] [INFO] fln_que_qos_get_dyn_shaper_cfg(3138): port 10: FS RL rate is 1% for qnum 0, speed
 10000 mbps
3) Event:E_DEBUG, length:124, at 910973 usecs after Wed Mar 4 14:26:17 2015
[0] [INFO] fln_que_qos_set_dyn_shaper_cfg(3323): port 10: FS RL update succeeded for qnum
0, rate 1%, port speed 10000 mbps
...
```

Related Commands

Command	Description
show system internal aclqos event-history	Displays port monitor active policies.

Command	Description
show hardware internal qengine inst registers name	Displays the output that is specific to QEngine ASIC register.

show hardware queuing drops

To display the hardware queuing drops information, use the **show queuing drops** command.

show hardware queuing drops ingress egress module *module number*

Syntax Description

ingress	Displays the ingress drops.
egress	Displays the egress drops.
module	Displays the queuing drops module information.
module number	Displays the module number. The range is from 1 to 10.

Command Default

None

Command Modes

Any

Command History

Release	Modification
6.1(2)	Added the ingress and egress drops.
6.1(1)	This command was introduced.

Usage Guidelines

Egress is only supported on F2 module.

This command does not require a license.

Examples

This example shows how to display the hardware queuing drops for ingress:

```
switch# show hardware queuing drops ingress
slot  5
=======
Device: Clipper Xbar
Buffer tail drop:
  SOURCE INTERFACE    OVL      COUNT
  ----------------    -----    --------------------------
      E5/1             1          10
VOQ drop:
  SOURCE INTERFACE    VQI     CCOS    COUNT
  ----------------    ----    ----    --------------------------
      E5/1             96        3      20
SPAN drop:
  SOURCE INTERFACE    SESSION    COUNT
```

```
  ----------------    -------    --------------------------
```

This example shows how to display the hardware queuing drops for egress:

```
switch# show hardware queuing drops egress
slot  1
=======
VQ Drops
Output       VQ*           VQ           Source   Source       Input
Interface    Drops      Congestion      Module  Instance    Interface
---------    -----      ----------      ------- --------     ----------
  E1/2         2            3           8      0              E8/1-4
Egress Buffer Drops
Output          EB
Interface       Drops
---------       ------
  E1/2           4067
* VQ  Drops valid on F2E modules only
```

This example shows how to display the hardware queuing drops module for M2 cards:

```
switch# show hardware queuing drops ingress module 1
Device: M2
--------------------
INGRESS VOQ DROP COUNTS:
--------------------
Source Intf    Traffic Type    Drop Reason             Count
-----------    ------------    --------------------    -------------------------
eth 17/1       Unicast         VOQ tail-drop                          2130695
eth 17/1       Multicast       VOQ tail-drop                          2077665
eth 17/2       Unicast         VOQ tail-drop                          1830747
eth 17/3       Unicast         VOQ tail-drop                             5969
eth 17/3       Multicast       VOQ tail-drop                            17809
eth 17/4       Unicast         VOQ tail-drop                           189479
eth 17/5       Unicast         VOQ tail-drop                          2025511
eth 17/6       Unicast         VOQ tail-drop                          2117541
--------------------
EGRESS MCAST TAIL DROP COUNTS:
--------------------
ASIC    Count
----    -------------------------
   0                     142235
   1                    1400315
   2                     140656
   3                    1395476
>
switch#
```

Related Commands

Command	Description
priority-flow-control	Configures priority flow control (PFC) on an interface.

show interface priority-flow-control

To display the status of priority flow control (PFC) on all interfaces, use the **show interface priority-flow-control** command.

show interface priority-flow-control

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the status of PFC on all interfaces:

```
switch# show interface priority-flow-control
====================================
Interface      Admin Oper
====================================
Ethernet5/1    Auto  Off
Ethernet5/2    Auto  Off
Ethernet5/3    Auto  Off
Ethernet5/4    Auto  Off
Ethernet5/5    On    On
Ethernet5/6    Auto  Off
Ethernet5/7    Auto  Off
Ethernet5/8    Auto  Off
Ethernet5/9    Auto  Off
Ethernet5/10   Auto  Off
Ethernet5/11   Auto  Off
Ethernet5/12   Auto  Off
Ethernet5/13   Auto  Off
Ethernet5/14   Auto  Off
Ethernet5/15   Auto  Off
Ethernet5/16   Auto  Off
Ethernet5/17   Auto  Off
Ethernet5/18   Auto  Off
Ethernet5/19   Auto  Off
Ethernet5/20   Auto  Off
Ethernet5/21   Auto  Off
--More--
```

Related Commands

Command	Description
priority-flow-control	Configures priority flow control (PFC) on an interface,

show ipv6 local policy

To display the information about the policy, use the **show ipv6 local policy** command.

show ipv6 local policy

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global command mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

To use this command Policy Based Routing (PBR) feature must be enabled.

This command does not require a license.

Examples

This example shows how to display the information about the policy:

```
switch# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
switch(config)# feature pbr
switch(config)# show ipv6 local policy
Interface               Route-map           Status    VRF-Name
switch(config)#
```

Related Commands

Command	Description
feature pbr	Enables Policy Based Routing (PBR) fetaure.

show policy-map

To display policy maps and statistics, use the **show policy-map** command.

show policy-map [**type** {**qos**| **queuing**}] [*policy-map-name*]

Syntax Description

type	(Optional) Specifies the component type to display.
qos	Specifies the policy maps of the type qos only.It uses L3 MTU (Packet length). For Example, when a packet with length 1000 bytes L2 frame is used, it counts with 18 bytes without tag and 22 bytes less if it is with tag.
queuing	Specifies the policy maps of the type queuing only.It uses L2 MTU (Frame length) and counts as a full packet length.
policy-map-name	Named policy map.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.
4.0(3)	The WRR for the type queuing default-in-policy was changed from 50/50 to 80/20.

Usage Guidelines

When you enter the command **show policy-map** with no arguments or keywords, the system also displays the Control Plane Policing (CoPP) information.

This command does not require a license.

Examples

This example shows how to display a named policy map:

```
switch(config)# show policy-map abc
Type qos policy-maps
  ====================
  policy-map type qos abc
```

```
    class  abc
      set dscp 3
      set qos-group 3
      set cos dscp table cos-dscp-map
    class  class-default
```

This example shows how to display all type queuing policy maps:

```
switch(config)# show policy-map type queuing
  Type queuing policy-maps
  ========================
  policy-map type queuing q1
    class type queuing 8q2t-in-q-default
      set cos 4
  policy-map type queuing default-in-policy
    class type queuing in-q1
      queue-limit percent 50
      bandwidth percent 80
    class type queuing in-q-default
      queue-limit percent 50
      bandwidth percent 20
  policy-map type queuing default-out-policy
    class type queuing out-pq1
      priority level 1
      queue-limit percent 16
    class type queuing out-q2
      queue-limit percent 1
    class type queuing out-q3
      queue-limit percent 1
    class type queuing out-q-default
      queue-limit percent 82
      bandwidth remaining percent 25
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.

show policy-map interface

To display policy maps and statistics for the interfaces, use the **show policy-map interface** command.

show policy-map interface [**ethernet** *slot*/*port*| **port-channel** *channel-number*] [**input**| **output**] [**type** {**qos**| **queuing**}]

Syntax Description

ethernet	(Optional) Specifies the policy maps that are assigned to Ethernet interfaces.
slot/port	Policy maps that are assigned to a specified interface.
port-channel	(Optional) Specifies the policy maps that are assigned to port channels.
channel-number	Policy maps that are assigned to specified port channel.
input	(Optional) Displays policy maps that are assigned to input traffic only.
output	(Optional) Displays policy maps that are assigned to output traffic only.
type	(Optional) Specifies the component type to display.
qos	Specifies the policy maps of the type qos only.
queuing	Specifies the policy maps of the type queuing only.

Command Default

None.

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

By default, statistics are enabled.

The **shared** keyword displays the shared queuing status only if shared buffer queuing is enabled and applied.

This command does not require a license.

Examples

This example shows how to display policy maps that are assigned to a specified interface:

```
switch(config)# show policy-map interface ethernet 2/10
Global statistics status :   enabled
Ethernet2/10
  Service-policy (queuing) input:   default-in-policy
    policy statistics status:   enabled
    Class-map (queuing):   in-q1 (match-any)
      queue-limit percent 50
      bandwidth percent 50
      queue dropped pkts : 0
    Class-map (queuing):   in-q-default (match-any)
      queue-limit percent 50
      bandwidth percent 80
      queue dropped pkts : 0
  Service-policy (queuing) output:   default-out-policy
    policy statistics status:   enabled
    Class-map (queuing):   out-pq1 (match-any)
      priority level 1
      queue-limit percent 16
      queue dropped pkts : 0
    Class-map (queuing):   out-q2 (match-any)
      queue-limit percent 1
      queue dropped pkts : 0
    Class-map (queuing):   out-q3 (match-any)
      queue-limit percent 1
      queue dropped pkts : 0
    Class-map (queuing):   out-q-default (match-any)
      queue-limit percent 82
      bandwidth remaining percent 25
      queue dropped pkts : 0
```

This example shows how to display policy maps that are assigned to a specified interface:

```
switch(config)# show policy-map interface ethernet 2/2 type qos
Global statistics status : enabled
Ethernet2/2
Service-policy (qos) input: pmappolicy statistics status: enabled
Class-map (qos): map (match-all)1000000 packetsMatch: dscp 46police cir percent 20 bc 200
msconformed 78962304 bytes, 2725540 bps action: transmitviolated 49037696 bytes, 1692633
bps action: drop
Class-map (qos): class-default (match-any)1000000 packetspolice cir percent 10 bc 200
msconformed 39481856 bytes, 1362794 bps action: transmitviolated 88518144 bytes, 3055378
bps action: drop
```

This example shows how to display input queuing policy statistics in the specified interface. The below output indicates the ingress AVB statistics for Stream Reservation (SR) Class A (in-q3) and SR Class B (-in-q4). The field description is self-explanatory.

```
switch(config)# show policy-map interface Ethernet 1/15 input type queuing

Global statistics status :   enabled

Ethernet1/15

  Service-policy (queuing) input:   default-8021qav-4q8q-in-policy
    SNMP Policy Index:  301993025

    Class-map (queuing):   8021qav-4q8q-in-q1 (match-any)
      queue-limit percent 10
      bandwidth percent 10
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 65162  queue transmit bytes: 5287504
```

```
    Class-map (queuing):   8021qav-4q8q-in-q-default (match-any)
      queue-limit percent 30
      bandwidth percent 30
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 180604306  queue transmit bytes: 270903732036

    Class-map (queuing):   8021qav-4q8q-in-q3 (match-any)
      queue-limit percent 30
      bandwidth percent 30
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 90301204  queue transmit bytes: 135451806000

    Class-map (queuing):   8021qav-4q8q-in-q4 (match-any)
      queue-limit percent 30
      bandwidth percent 30
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 7525100  queue transmit bytes: 11287650000
```

This example shows how to display input queuing policy statistics in the specified interface. The below output indicates the ingress AVB statistics for Stream Reservation (SR) Class A (in-q3) and SR Class B (-in-q4). The field description is self-explanatory.

```
switch(config)# show policy-map interface e1/15 output type queuing
Global statistics status :   enabled
Ethernet1/15
   Service-policy (queuing) output:   default-8021qav-4q8q-out-policy
    SNMP Policy Index:  301996799

    Class-map (queuing):   8021qav-4q8q-out-q1 (match-any)
      priority level 2
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 0  queue transmit bytes: 0

    Class-map (queuing):   8021qav-4q8q-out-q2 (match-any)
      bandwidth remaining percent 30
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 0  queue transmit bytes: 0

    Class-map (queuing):   8021qav-4q8q-out-q3 (match-any)
      bandwidth remaining percent 30
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 0  queue transmit bytes: 0
    Class-map (queuing):   8021qav-4q8q-out-q4 (match-any)
      priority level 1
      shape average percent 0
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 0  queue transmit bytes: 0
    Class-map (queuing):   8021qav-4q8q-out-q5 (match-any)
      priority level 1
      shape average percent 0
      queue dropped pkts : 63399
      queue dropped bytes : 0
      queue transmit pkts: 1395  queue transmit bytes: 2137140
    Class-map (queuing):   8021qav-4q8q-out-q6 (match-any)
      bandwidth remaining percent 5
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 0  queue transmit bytes: 0
    Class-map (queuing):   8021qav-4q8q-out-q7 (match-any)
      bandwidth remaining percent 5
      queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 0  queue transmit bytes: 0
    Class-map (queuing):   8021qav-4q8q-out-q-default (match-any)
      bandwidth remaining percent 30
```

```
     queue dropped pkts : 0
      queue dropped bytes : 0
      queue transmit pkts: 3736344  queue transmit bytes: 5715525567
```

This example shows how to display input queuing policy statistics in the specified port channel.

```
switch(config)# show policy-map interface port-channel 6

Global statistics status: enabled

port-channel6

  Service-policy (queuing) input: default-8e-4q8q-in-policy
    SNMP Policy Index:  301993627

    Class-map (queuing): 8e-4q8q-in-q1 (match-any)
      queue-limit percent 10
      bandwidth percent 49
      queue dropped pkts: 0
      queue dropped bytes: 0
      queue transmit pkts: 2175032764  queue transmit bytes: 1051188564890

    Class-map (queuing): 8e-4q8q-in-q-default (match-any)
     queue-limit percent 88
      bandwidth percent 49
      queue dropped pkts: 0
      queue dropped bytes: 0  current depth bytes: 99
      queue transmit pkts: 518903560636  queue transmit bytes: 457520859584290
```

In this example, the **current depth bytes** field appears because of an active congestion.

The **current depth bytes** field appears for any physical interface when there is an active congestion and the software reads the counter. The value of the counter must be non zero. The current depth indicates that there are packets waiting in the buffer to be forwarded. The value of the current depth is in bytes.

Related Commands

Command	Description
class-map	Creates or modifies a class map.

show policy-map interface brief

To display policy maps applied to interfaces in a brief format, use the **show policy-map interface brief** command.

show policy-map interface brief

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display assigned policy maps in a brief format:

```
switch(config)# show policy-map interface brief
 Interface/VLAN [Status]:INP QOS       OUT QOS       INP QUE       OUT QUE
================================================================================
port-channel5   [Active]:                           default-in-po default-out-p
port-channel20  [Active]:                           default-in-po default-out-p
port-channel30  [Active]:                           default-in-po default-out-p
port-channel37  [Active]:                           default-in-po default-out-p
port-channel50  [Active]:                           default-in-po default-out-p
Ethernet2/2     [Active]:                           default-in-po default-out-p
Ethernet2/3     [Active]:                           default-in-po default-out-p
================================================================================
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

show policy-map port-group brief

To display a report of all policies attached to port groups in a brief format, use the **show policy-map port-group brief** command.

show policy-map port-group brief

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
6.2(10)	This command was introduced.

Usage Guidelines

The policy names displayed in the output correspond to current active templates or user-defined policies that are attached to port-groups.

This command does not require a license.

Examples

This example shows how to display a report of policy maps that are attached to port groups:

```
switch(config)# show policy-map port-group brief
Portgroup             [Status]   INP QUE
=========================================
Module 3 port-group 0   [Active] default-4q-7e-in-policy
Module 3 port-group 1   [Active] default-4q-7e-in-policy
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

show policy-map system

To display information about the network qos and queuing policy-maps that are currently in effect on the system, use the show policy-map system command.

show policy-map system

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the system fabric policy queuing:

```
switch# show policy-map system
  Type network-qos policy-maps
  ============================
  policy-map type network-qos default-nq-8e-policy template 8e
    class type network-qos c-nq-8e
      match cos 0-7
      congestion-control tail-drop
      mtu 1500
  Service-policy input:   default-4q-8e-in-policy
  Service-policy (queuing) input:   default-4q-8e-in-policy
    policy statistics status:   disabled (current status: disabled)
    Class-map (queuing):   2q4t-8e-in-q1 (match-any)
      queue-limit percent 10
      bandwidth percent 50
    Class-map (queuing):   2q4t-8e-in-q-default (match-any)
      queue-limit percent 90
      bandwidth percent 50
  Service-policy output:   default-4q-8e-out-policy
  Service-policy (queuing) output:   default-4q-8e-out-policy
    policy statistics status:   disabled (current status: disabled)
    Class-map (queuing):   1p3q1t-8e-out-pq1 (match-any)
      priority level 1
    Class-map (queuing):   1p3q1t-8e-out-q2 (match-any)
      bandwidth remaining percent 33
    Class-map (queuing):   1p3q1t-8e-out-q3 (match-any)
      bandwidth remaining percent 33
    Class-map (queuing):   1p3q1t-8e-out-q-default (match-any)
      bandwidth remaining percent 33
switch#
```

Related Commands

Commands	Description
show policy-map	Displays the policy maps and statistics.

show policy-map system type network-qos

To display the active type network-qos policy maps, use the **show policy-map system type network-qos** command.

show policy-map system type network-qos

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the active type network-qos policy maps:

```
switch# show policy-map system type network-qos
Type network-qos policy-maps
  ============================
  policy-map type network-qos default-nq-4e-policy
    class type network-qos c-nq-4e-drop
      match cos 0,5-7
      congestion-control tail-drop
      mtu 1500
    class type network-qos c-nq-4e-ndrop-fcoe
      match cos 3
      match protocol fcoe
      pause
      mtu 2112
    class type network-qos c-nq-4e-ndrop
      match cos 1-2,4
      pause
      mtu 1500
```

Related Commands

Command	Description
show policy-map type network-qos	Displays the type network qos policy maps.
show policy-map	Displays policy maps and statistics.

show policy-map type network-qos

To display the type network-qos policy maps, use the **show policy-map system type network-qos** command.

show policy-map type network-qos

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Any

Command History

Release	Modification
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the type network-qos policy maps:

```
switch# show policy-map type network-qos
Type network-qos policy-maps
  ============================
  policy-map type network-qos default-nq-4e-policy
    class type network-qos c-nq-4e-drop
      congestion-control tail-drop
      mtu 1500
    class type network-qos c-nq-4e-ndrop-fcoe
      pause
      mtu 2112
    class type network-qos c-nq-4e-ndrop
      pause
      mtu 1500
  policy-map type network-qos default-nq-6e-policy
    class type network-qos c-nq-6e-drop
      congestion-control tail-drop
      mtu 1500
    class type network-qos c-nq-6e-ndrop-fcoe
      pause
      mtu 2112
    class type network-qos c-nq-6e-ndrop
      pause
      mtu 1500
  policy-map type network-qos default-nq-7e-policy
    class type network-qos c-nq-7e-drop
      congestion-control tail-drop
      mtu 1500
    class type network-qos c-nq-7e-ndrop-fcoe
      pause
      mtu 2112
  policy-map type network-qos default-nq-8e-policy
```

```
class type network-qos c-nq-8e
  congestion-control tail-drop
  mtu 1500
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

show policy-map type queuing

To display the queuing policy that you copied and renamed, use the **show policy-map type queuing** command.

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

Syntax Description

policy-map-name	The queuing policy that you copied and renamed.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
6.2(2)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the queuing policy that you copied and renamed:

```
switch# configure terminal
switch# show policy-map type queuing test

Type queuing policy-maps
  ========================
  policy-map type queuing test
    class type queuing 8q2t-in-q2
    class type queuing 8q2t-in-q3
      queue-limit dscp 12 percent 50
    class type queuing 8q2t-in-q4
switch(config-pmap-que)#
```

Related Commands

Command	Description
show policy-map	Displays policy maps and statistics.

show policy-map vlan

To display policy maps for the VLANs, use the **show policy-map vlan** command.

show policy-map vlan[*vlan-id*] [**input**| **output**] [**type** {**qos**| **queuing**}]

Syntax Description

vlan-id	(Optional) Policy maps assigned to specified VLAN.
input	(Optional) Displays policy maps that are assigned to input traffic only.
output	(Optional) Displays policy maps that are assigned to output traffic only.
type	(Optional) Specifies the component type to display.
qos	Specifies the policy maps of type qos only.
queuing	Specifies the policy maps of type queuing only. This keyword is not supported in Release 4.0.1.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display policy maps that are assigned to all VLANs:

```
switch(config)# show policy-map vlan
Global statistics status :   enabled
Vlan 1
  Service-policy (qos) input:   abc
    policy statistics status:   enabled
    Class-map (qos):   abc (match-all)
      Match: dscp 0-3
      set dscp 3
      set qos-group 3
      set cos dscp table cos-dscp-map
```

```
  Class-map (qos):   class-default (match-any)
Service-policy (qos) output:   def
  policy statistics status:   enabled
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.

show qos dcbxp

To display the Data Center Bridging Capability Exchange Protocol (DCBXP) information on all interfaces, use the **show qos dcbxp** command.

show qos dcbxp {**incompatibility** [**interface ethernet** *slot*/*port-number*]| **info**}

Syntax Description

incompatibility	(Optional) Specifies the DCBXP incompatibility.
interface	(Optional) Specifies the Ethernet interface.
slot/port-number	Module number and the port number for which you want to display the incompatibility information.
info	(Optional) Specifies the DCBXP information.

Command Default

None

Command Modes

Any

Command History

Release	Modification
6.1(2)	Modified the command output to include iSCSI information.
5.1(1)	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display the status of DCBXP on all interfaces:

```
switch# show qos dcbxp info
Interface    PFC_rcvd/cmptble PG_rcvd/cmptble MTU_rcvd/cmptble FCOE_rcvd/cmptble
iSCSI_rvcd/cmptbl
------------------------------------------------------------------------------
Ethernet8/1        No/No           No/No           No/No           No/No      No/No
Ethernet8/2        No/No           No/No           No/No           No/No      No/No
Ethernet8/3        No/No           No/No           No/No           No/No      Yes/Yes
Ethernet8/4        No/No           No/No           No/No           No/No      No/No
switch#
```

Related Commands

Command	Description
show interface priority-flow-control	Displays the status of priority flow control (PFC) on all interfaces.

show qos shared-policer

To display qos shared policers, use the **show qos shared-policer** command.

show qos shared policer [**type qos**] [*policer-name*]

Syntax Description

type qos	(Optional) Specifies the type qos policers.
policer-name	(Optional) Specified policer name.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display all type qos policers:

```
switch(config)# show qos shared-policer
switch(config)# qos shared-policer foo cir 300 mbps bc 200 ms conform transmit violate drop
```

Related Commands

Command	Description
class-map	Creates or modifies a class map.

show queuing interface

To display queuing information on a specified interface, use the **show queuing interface** command.

show queuing interface ethernet *slot*/*port* **summary**

Syntax Description

ethernet	Specifies the Ethernet interface.
slot/port	Module number and the port number for which you want to display the queuing information.
summary	Specifies the summary.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
6.1(2)	Modified the command output to include DSP Queuing is not enabled for IPv6 packets.
6.1(1)	Added DSCPMap column to track DSCP to IVL changes. Added DSCP to IVL tracking status: Enabled or Disabled.
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

- On F cards we see HW related configuration (show queuing interface <X>) and (show queuing interface <X> summary)) will show the same output.
- On M cards “show queuing interface <X> summary” we see reference to SW configuration from User policy Applied. If Customer has to review the HW settings on M cards have to use “show queuing <X>” (or without summary keyword at the End)

Examples

This example shows how to display the queuing information for a specified interface:

```
switch# show queuing interface ethernet 2/9
Egress Queuing for Ethernet2/9 [System]
------------------------------------------
```

```
Template: 4Q8E
---------------------------------------------
Que# Group Bandwidth% PrioLevel Shape% CoSMap
---------------------------------------------
0     0      -        High      -      5-7
1     1      33       -         -      3-4
2     2      33       -         -      2
3     3      33       -         -      0-1
Ingress Queuing for Ethernet1/1 [System]
-----------------------------------------
Trust: Trusted
DSCP to Ingress Queue: Enabled
-----------------------------------------------------
Que# Group Qlimit% IVL CoSMap DSCPMap
-----------------------------------------------------
0     1     90      0 0-4      0-39
1     0     10      5 5-7      40-63
switch#

switch# show queuing interface e7/25
Egress Queuing for Ethernet7/25 [System]
-----------------------------------------
Template: 4Q8E
-------------------------------------------------
Que# Group Bandwidth% PrioLevel Shape%     CoSMap
-------------------------------------------------
   0     0          -      High      -        5-7
   1     1         33         -      -        3-4
   2     2         33         -      -          2
   3     3         33         -      -        0-1
Ingress Queuing for Ethernet7/25 [System]
-----------------------------------------
Trust: Trusted
DSCP to Ingress Queue : Enabled
[*DSCP Queuing is not enabled for IPV6 packets] >>> Do not supposed to show on CR boards.
-----------------------------------------------------
Que# Group Qlimit% IVL      CoSMap        DSCPMap
-----------------------------------------------------
   0     1      90   0         0-4                0-39
   1     0      10   5         5-7               40-63
This example shows how to display the queuing information for a specified interface and a
specified module:
switch# show queuing interface ethernet 1/1 module 1
Egress Queuing for Ethernet1/1 [System]
-----------------------------------------
Template: 8Q 8021QAV
------------------------------------------------------------------------------
Queue Group Bandwidth% PrioLevel Shape% CoSMap
------------------------------------------------------------------------------
8021qav-4q8q-out-q4 3 - High 55 3
8021qav-4q8q-out-q5 4 - High 5 2
8021qav-4q8q-out-q6 5 0 - - -
8021qav-4q8q-out-q7 6 0 - - -
8021qav-4q8q-out-q1 0 - Low - 5-7
8021qav-4q8q-out-q2 1 0 - - 4
8021qav-4q8q-out-q3 2 0 - - 1
8021qav-4q8q-out-q-default 7 0 - - 0
Ingress Queuing for Ethernet1/1 [System]
-----------------------------------------
Trust: Trusted
Shared Queue : Disabled
DSCP to Ingress Queue : Disabled
------------------------------------------------------------------------------------------
Queue Group Qlimit% IVL CoSMap EXPMap
------------------------------------------------------------------------------------------
8021qav-4q8q-in-q-default 1 30 0 0-1,4 0-1,4
8021qav-4q8q-in-q1 0 10 5 5-7 5-7
8021qav-4q8q-in-q4 3 30 2 2 2
8021qav-4q8q-in-q3 2 30 3 3 3
```

Related Commands

Command	Description
show class-map type queuing	Displays information about the class maps type queuing.
show policy-map type queuing	Displays information about the policy maps type queuing.

show running-config ipqos

To display information about the running-system configuration for quality of service (QoS), use the **show running-config ipqos** command.

show running-config ipqos [all]

Syntax Description

all	(Optional) Displays configured and default information.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display QoS information:

```
switch(config)# show running-config ipqos
version 4.0(3)
qos statistics
class-map type qos match-all abc
  match dscp 0-3
class-map type qos match-all qqq
class-map type qos match-all class1
class-map type qos match-all cmapdef
class-map type qos match-all my_test
  match cos 5
class-map type qos match-all my_class
  match discard-class 56
class-map type qos match-all class_acl
class-map type qos match-all class_protocol
class-map conform-color-in
class-map conform-color-out
class-map exceed-color-in
class-map exceed-color-out
class-map type queuing match-any 2q4t-in-q1
  match cos 5-7
class-map type queuing match-any 2q4t-in-q-default
  match cos 0-4
class-map type queuing match-any 8q2t-in-q1
  match cos 5-7
class-map type queuing match-any 8q2t-in-q2
class-map type queuing match-any 8q2t-in-q3
```

```
class-map type queuing match-any 8q2t-in-q4
class-map type queuing match-any 8q2t-in-q5
class-map type queuing match-any 8q2t-in-q6
class-map type queuing match-any 8q2t-in-q7
class-map type queuing match-any 8q2t-in-q-default
  match cos 0-4
class-map type queuing match-any 1p3q4t-out-pq1
  match cos 5-7
class-map type queuing match-any 1p3q4t-out-q2
class-map type queuing match-any 1p3q4t-out-q3
class-map type queuing match-any 1p3q4t-out-q-default
  match cos 0-4
class-map type queuing match-any 1p7q4t-out-pq1
  match cos 5-7
class-map type queuing match-any 1p7q4t-out-q2
class-map type queuing match-any 1p7q4t-out-q3
class-map type queuing match-any 1p7q4t-out-q4
class-map type queuing match-any 1p7q4t-out-q5
class-map type queuing match-any 1p7q4t-out-q6
class-map type queuing match-any 1p7q4t-out-q7
class-map type queuing match-any 1p7q4t-out-q-default
  match cos 0-4
table-map cir-markdown-map
  default copy
  from 10,12 to 12
  from 18,20 to 20
  from 26,28 to 28
  from 34,36 to 36
table-map pir-markdown-map
  default copy
  from 10,12 to 14
  from 18,20 to 22
  from 26,28 to 30
  from 34,36 to 38
table-map cos-dscp-map
  default copy
  from 0 to 2
table-map cos-precedence-map
  default copy
table-map cos-discard-class-map
  default copy
table-map dscp-cos-map
  default copy
table-map dscp-precedence-map
  default copy
table-map dscp-discard-class-map
  default copy
table-map precedence-cos-map
  default copy
table-map precedence-dscp-map
  default copy
table-map precedence-discard-class-map
  default copy
table-map discard-class-cos-map
  default copy
table-map discard-class-dscp-map
  default copy
table-map discard-class-precedence-map
  default copy
table-map t1
  default copy
table-map abc
  default copy
table-map my_table1
  default copy
table-map steve_tm2
  default 3
table-map steve_table_map
  default ignore
policy-map type queuing q
policy-map type queuing pq
  class type queuing 8q2t-in-q4
    queue-limit cos 3 1000 packets
```

```
    queue-limit cos 4 1000 packets
    queue-limit 10000 packets
policy-map type queuing q1
policy-map type queuing q2
  class type queuing 1p3q4t-out-pq1
policy-map type queuing p_q
  class type queuing 8q2t-in-q4
  class type queuing 8q2t-in-q-default
    set cos 4
policy-map type queuing abcq
  class type queuing 8q2t-in-q4
policy-map type queuing p_q2
  class type queuing 1p7q4t-out-q2
    shape average percent 10
policy-map type queuing steve_q
  class type queuing 1p7q4t-out-pq1
  class type queuing 1p7q4t-out-q4
  class type queuing 1p7q4t-out-q2
policy-map type queuing my_queue
  class type queuing 1p3q4t-out-pq1
policy-map type queuing steve_pq1
  class type queuing 1p3q4t-out-pq1
policy-map type qos abc
  class abc
switch# show running-config ipqos
version 4.0(3)
class-map type qos match-all abc
  match dscp 0-3
class-map type qos match-all qqq
class-map type qos match-all class1
class-map type qos match-all cmapdef
class-map type qos match-all my_test
  match cos 5
class-map type qos match-all my_class
  match discard-class 56
class-map type qos match-all class_acl
class-map type qos match-all class_protocol
table-map cos-dscp-map
  default copy
  from 0 to 2
table-map t1
  default copy
table-map abc
  default copy
table-map my_table1
  default copy
table-map steve_tm2
  default 3
table-map steve_table_map
  default ignore
policy-map type queuing q
policy-map type queuing pq
  class type queuing 8q2t-in-q4
    queue-limit cos 3 1000 packets
    queue-limit cos 4 1000 packets
    queue-limit 10000 packets
policy-map type queuing q1
policy-map type queuing q2
  class type queuing 1p3q4t-out-pq1
policy-map type queuing p_q
  class type queuing 8q2t-in-q4
  class type queuing 8q2t-in-q-default
    set cos 4
policy-map type queuing abcq
  class type queuing 8q2t-in-q4
policy-map type queuing p_q2
  class type queuing 1p7q4t-out-q2
    shape average percent 10
policy-map type queuing steve_q
  class type queuing 1p7q4t-out-pq1
  class type queuing 1p7q4t-out-q4
  class type queuing 1p7q4t-out-q2
policy-map type queuing my_queue
```

```
  class type queuing 1p3q4t-out-pq1
policy-map type queuing steve_pq1
  class type queuing 1p3q4t-out-pq1
policy-map type qos abc
  class abc
    set dscp 3
    set qos-group 3
    set cos dscp table cos-dscp-map
  class class-default
policy-map type qos def
policy-map type qos policy1
  class class-default
  class class1
policy-map type qos polilcy1
policy-map type qos my_policy
  class class-default
policy-map type qos my_policy1
policy-map type queuing my_policy1
  class type queuing 1p7q4t-out-q2
policy-map type queuing shape_queue
  class type queuing 1p3q4t-out-pq1
    queue-limit 38984 packets
    random-detect cos-based
policy-map type queuing shape_queues
  class type queuing 1p3q4t-out-pq1
policy-map type queuing 1p3q4t-out-pq1
policy-map type queuing untrusted_port_cos
  class type queuing 2q4t-in-q-default
interface Ethernet2/4
  service-policy type qos input abc
  service-policy type qos output def
  service-policy type queuing output q1
```

Related Commands

Command	Description
show class-map	Displays information about class maps.
show policy-map	Displays statistics and information about policy maps.

show running-config ipqos

To display information about the running-system configuration for quality of service (QoS), use the **show running-config ipqos** command.

show running-config ipqos [all]

Syntax Description

all	(Optional) Displays configured and default information.

Command Default

None

Command Modes

Any command mode

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelines

This command does not require a license.

Examples

This example shows how to display QoS information:

```
switch(config)# show running-config ipqos
version 4.0(3)
qos statistics
class-map type qos match-all abc
  match dscp 0-3
class-map type qos match-all qqq
class-map type qos match-all class1
class-map type qos match-all cmapdef
class-map type qos match-all my_test
  match cos 5
class-map type qos match-all my_class
  match discard-class 56
class-map type qos match-all class_acl
class-map type qos match-all class_protocol
class-map conform-color-in
class-map conform-color-out
class-map exceed-color-in
class-map exceed-color-out
class-map type queuing match-any 2q4t-in-q1
  match cos 5-7
class-map type queuing match-any 2q4t-in-q-default
  match cos 0-4
class-map type queuing match-any 8q2t-in-q1
  match cos 5-7
class-map type queuing match-any 8q2t-in-q2
class-map type queuing match-any 8q2t-in-q3
```

```
class-map type queuing match-any 8q2t-in-q4
class-map type queuing match-any 8q2t-in-q5
class-map type queuing match-any 8q2t-in-q6
class-map type queuing match-any 8q2t-in-q7
class-map type queuing match-any 8q2t-in-q-default
  match cos 0-4
class-map type queuing match-any 1p3q4t-out-pq1
  match cos 5-7
class-map type queuing match-any 1p3q4t-out-q2
class-map type queuing match-any 1p3q4t-out-q3
class-map type queuing match-any 1p3q4t-out-q-default
  match cos 0-4
class-map type queuing match-any 1p7q4t-out-pq1
  match cos 5-7
class-map type queuing match-any 1p7q4t-out-q2
class-map type queuing match-any 1p7q4t-out-q3
class-map type queuing match-any 1p7q4t-out-q4
class-map type queuing match-any 1p7q4t-out-q5
class-map type queuing match-any 1p7q4t-out-q6
class-map type queuing match-any 1p7q4t-out-q7
class-map type queuing match-any 1p7q4t-out-q-default
  match cos 0-4
table-map cir-markdown-map
  default copy
  from 10,12 to 12
  from 18,20 to 20
  from 26,28 to 28
  from 34,36 to 36
table-map pir-markdown-map
  default copy
  from 10,12 to 14
  from 18,20 to 22
  from 26,28 to 30
  from 34,36 to 38
table-map cos-dscp-map
  default copy
  from 0 to 2
table-map cos-precedence-map
  default copy
table-map cos-discard-class-map
  default copy
table-map dscp-cos-map
  default copy
table-map dscp-precedence-map
  default copy
table-map dscp-discard-class-map
  default copy
table-map precedence-cos-map
  default copy
table-map precedence-dscp-map
  default copy
table-map precedence-discard-class-map
  default copy
table-map discard-class-cos-map
  default copy
table-map discard-class-dscp-map
  default copy
table-map discard-class-precedence-map
  default copy
table-map t1
  default copy
table-map abc
  default copy
table-map my_table1
  default copy
table-map steve_tm2
  default 3
table-map steve_table_map
  default ignore
policy-map type queuing q
policy-map type queuing pq
  class type queuing 8q2t-in-q4
    queue-limit cos 3 1000 packets
```

```
    queue-limit cos 4 1000 packets
    queue-limit 10000 packets
policy-map type queuing q1
policy-map type queuing q2
  class type queuing 1p3q4t-out-pq1
policy-map type queuing p_q
  class type queuing 8q2t-in-q4
  class type queuing 8q2t-in-q-default
    set cos 4
policy-map type queuing abcq
  class type queuing 8q2t-in-q4
policy-map type queuing p_q2
  class type queuing 1p7q4t-out-q2
    shape average percent 10
policy-map type queuing steve_q
  class type queuing 1p7q4t-out-pq1
  class type queuing 1p7q4t-out-q4
  class type queuing 1p7q4t-out-q2
policy-map type queuing my_queue
  class type queuing 1p3q4t-out-pq1
policy-map type queuing steve_pq1
  class type queuing 1p3q4t-out-pq1
policy-map type qos abc
  class abc
switch# show running-config ipqos
version 4.0(3)
class-map type qos match-all abc
  match dscp 0-3
class-map type qos match-all qqq
class-map type qos match-all class1
class-map type qos match-all cmapdef
class-map type qos match-all my_test
  match cos 5
class-map type qos match-all my_class
  match discard-class 56
class-map type qos match-all class_acl
class-map type qos match-all class_protocol
table-map cos-dscp-map
  default copy
  from 0 to 2
table-map t1
  default copy
table-map abc
  default copy
table-map my_table1
  default copy
table-map steve_tm2
  default 3
table-map steve_table_map
  default ignore
policy-map type queuing q
policy-map type queuing pq
  class type queuing 8q2t-in-q4
    queue-limit cos 3 1000 packets
    queue-limit cos 4 1000 packets
    queue-limit 10000 packets
policy-map type queuing q1
policy-map type queuing q2
  class type queuing 1p3q4t-out-pq1
policy-map type queuing p_q
  class type queuing 8q2t-in-q4
  class type queuing 8q2t-in-q-default
    set cos 4
policy-map type queuing abcq
  class type queuing 8q2t-in-q4
policy-map type queuing p_q2
  class type queuing 1p7q4t-out-q2
    shape average percent 10
policy-map type queuing steve_q
  class type queuing 1p7q4t-out-pq1
  class type queuing 1p7q4t-out-q4
  class type queuing 1p7q4t-out-q2
policy-map type queuing my_queue
```

```
  class type queuing 1p3q4t-out-pq1
policy-map type queuing steve_pq1
  class type queuing 1p3q4t-out-pq1
policy-map type qos abc
  class abc
    set dscp 3
    set qos-group 3
    set cos dscp table cos-dscp-map
  class class-default
policy-map type qos def
policy-map type qos policy1
  class class-default
  class class1
policy-map type qos polilcy1
policy-map type qos my_policy
  class class-default
policy-map type qos my_policy1
policy-map type queuing my_policy1
  class type queuing 1p7q4t-out-q2
policy-map type queuing shape_queue
  class type queuing 1p3q4t-out-pq1
    queue-limit 38984 packets
    random-detect cos-based
policy-map type queuing shape_queues
  class type queuing 1p3q4t-out-pq1
policy-map type queuing 1p3q4t-out-pq1
policy-map type queuing untrusted_port_cos
  class type queuing 2q4t-in-q-default
interface Ethernet2/4
  service-policy type qos input abc
  service-policy type qos output def
  service-policy type queuing output q1
```

Related Commands

Command	Description
show class-map	Displays information about class maps.
show policy-map	Displays statistics and information about policy maps.

show system internal qos queuing stats

To display the IP Quality of Service (QOS) statistics for the specified interface, use the **show system internal qos queuing stats** command.

show system internal qos queuing stats interface ethernet *slot*/*port*

Syntax Description

interface ethernet *slot/port*	Specifies the Ethernet interface.

Command Default

None

Command Modes

Privileged EXEC mode.

Command History

Release	Modification
7.3(0)D1(1)	This command was introduced.

Examples

The following example shows the interface queuing statistics for the specified interface. The field descriptions are self-explanatory.

```
switch# show system internal qos queuing stats interface ethernet 1/2

Interface Ethernet1/2 statistics
Receive queues
----------------------------------------
Queue 8021qav-4q8q-in-q-default
Total bytes 0
Total packets 0
Pl Drops 0
Vq Drops 0
Other Drops 0
Queue 8021qav-4q8q-in-q1
Total bytes 1502260
Total packets 20461
Pl Drops 0
Vq Drops 0
Other Drops 0
Queue 8021qav-4q8q-in-q4
Total bytes 141892
Total packets 20178
Pl Drops 0
Vq Drops 0
Other Drops 0
Queue 8021qav-4q8q-in-q3
Total bytes 0
Total packets 0
Pl Drops 0
Vq Drops 0
Other Drops 0
Transmit queues
```

```
----------------------------------------
Queue 8021qav-4q8q-out-q4
Total bytes 646287700758
Total packets 6334968852
Eb Drops 0
Other Drops 0
Queue 8021qav-4q8q-out-q5
Total bytes 0
Total packets 0
Eb Drops 0
Other Drops 0
Queue 8021qav-4q8q-out-q6
Total bytes 0
Total packets 0
Eb Drops 0
Other Drops 0
Queue 8021qav-4q8q-out-q7
Total bytes 0
Total packets 0
Eb Drops 0
Other Drops 0
...
Queue 8021qav-4q8q-out-q3
Total bytes 0
Total packets 0
Eb Drops 0
Other Drops 0
Queue 8021qav-4q8q-out-q-default
Total bytes 877304
Total packets 2194
Eb Drops 0
Other Drops 0
```

Related Commands

Command	Description
show system internal ipqos event-history	Displays the statistics of IP QOS Manager Message and Text messages.

T commands

table-map

To create or modify a table map and enter the table map configuration mode, use the **table-map** command. To remove a table map, use the **no** form of this command.

table-map {*table-map-name*| *default-table-map-name*}

no table-map {*table-map-name*| *default-table-map-name*}

Syntax Description

table-map-name	Name of an existing or new user-defined table map.
default-table-map-name	Name of a system-defined table map.

Command Default

None

Command Modes

Global configuration

Command History

Release	Modification
4.0	This command was introduced.

Usage Guidelin

Note You cannot modify the system-defined table maps. For a list of the system-defined table maps, see Table 4: System-Defined Table Maps Used in the set table Command, on page 122.

This command does not require a license.

Examples

This example shows how to create or modify a table map:

```
switch(config)# table-map my_table1
switch(config-tmap)#
```

This example shows how to remove a table map:

```
switch(config)# no table-map my_table1
switch(config)#
```

Related Commands

Command	Description
show table-map	Displays table maps.