



## Preface

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This preface describes the audience, organization, and conventions of the *Cisco Nexus 6000 Series NX-OS QoS Command Reference*. It also provides information on how to obtain related documentation.

This preface includes the following sections:

- [Audience, page vii](#)
- [Document Conventions, page vii](#)
- [Related Documentation, page viii](#)
- [Obtaining Documentation and Submitting a Service Request, page ix](#)

## Audience

This publication is for experienced users who configure and maintain Cisco NX-OS devices.

## Document Conventions

Command descriptions use these conventions:

Convention	Description
<b>boldface font</b>	Commands and keywords are in boldface.
<i>italic font</i>	Arguments for which you supply values are in italics.
[ ]	Elements in square brackets are optional.
{ x   y   z }	Alternative keywords are grouped in braces and separated by vertical bars.
[ x   y   z ]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Screen examples use these conventions:

screen font	Terminal sessions and information that the switch displays are in screen font.
<b>boldface screen font</b>	Information you must enter is in boldface screen font.

<i>italic screen font</i>	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 the Cisco Nexus 6000 Series Switch is available at the following URL:

[http://www.cisco.com/en/US/products/ps12806/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps12806/tsd_products_support_series_home.html)

The documentation set is divided into the following categories:

### Release Notes

The release notes are available at the following URL:

[http://www.cisco.com/en/US/products/ps12806/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/ps12806/prod_release_notes_list.html)

### Installation and Upgrade Guides

The installation and upgrade guides are available at the following URL:

[http://www.cisco.com/en/US/products/ps12806/prod\\_installation\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps12806/prod_installation_guides_list.html)

### Command References

The command references are available at the following URL:

[http://www.cisco.com/en/US/products/ps12806/prod\\_command\\_reference\\_list.html](http://www.cisco.com/en/US/products/ps12806/prod_command_reference_list.html)

### Technical References

The technical references are available at the following URL:

[http://www.cisco.com/en/US/products/ps12806/prod\\_technical\\_reference\\_list.html](http://www.cisco.com/en/US/products/ps12806/prod_technical_reference_list.html)

### Configuration Guides

The configuration guides are available at the following URL:

[http://www.cisco.com/en/US/products/ps12806/products\\_installation\\_and\\_configuration\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps12806/products_installation_and_configuration_guides_list.html)

**Error and System Messages**

The system message reference guide is available at the following URL:

[http://www.cisco.com/en/US/products/ps12806/products\\_system\\_message\\_guides\\_list.html](http://www.cisco.com/en/US/products/ps12806/products_system_message_guides_list.html)

## Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to [nexus6k-docfeedback@cisco.com](mailto:nexus6k-docfeedback@cisco.com). We appreciate your feedback.

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as an RSS feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service. Cisco currently supports RSS Version 2.0.





## B Commands

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This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with B.

# 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 percent** *percent*

**no bandwidth percent** *percent*

## Syntax Description

<b>percent</b>	Specifies the percentage of bandwidth of the underlying link rate.
<i>percent</i>	Percent value. The range is from 0 to 100.

## Command Default

Default bandwidth rate is kbps.

## Command Modes

Policy map type queuing class configuration

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Examples

This example shows how to set the bandwidth 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 percent 25
switch(config-pmap-c-que)#
```

This example shows how to remove the bandwidth 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 percent 25
switch(config-pmap-c-que)#
```

## Related Commands

Command	Description
<b>show class-map</b>	Displays class maps.
<b>show policy-map</b>	Displays policy maps.



## C Commands

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This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with C.

# class (control plane policy map)

To specify a control plane class map for a control plane policy map, use the **class** command. To delete a control plane class map from a control plane policy map, use the **no** form of this command.

**class** *class-map-name*

**no class** *class-map-name*

<b>Syntax Description</b>	<i>class-map-name</i>	Name of the class map. The name is alphanumeric, case sensitive, and has a maximum of 64 characters.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Control plane policy map configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	You must create the control plane class maps before you reference them in this command. This command does not require a license.
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<b>Examples</b>	This example shows how to configure a class map for a control plane policy map:
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```
switch# configure terminal
switch(config)# policy-map type control-plane copp-system-policy-customized
switch(config-pmap)# class copp-system-class-dhcp
switch(config-pmap-c)# police cir 300 bc 1500
switch(config-pmap-c)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>class-map type control-plane</b>	Creates or configures a control plane class map.
	<b>police (policy map)</b>	Configures policing for a class map in a control plane policy map.
	<b>policy-map type control-plane</b>	Specifies a control plane policy map and enters policy map configuration mode.
	<b>show policy-map type control-plane</b>	Displays configuration information for control plane policy maps.



# 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
```

```
no class class-map-name
```

Syntax Description	type qos	(Optional) Specifies the component type, which is qos for this class. By default, the type is qos.
	<i>class-map-name</i>	Reference to a class map. The class map name can be a maximum of 40 characters. The name is case sensitive and can only contain alphabetic characters, numbers, hyphens, and underscores.

**Command Default** None

**Command Modes** Policy map type qos configuration

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines**

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

By default, the class-default class of type qos is created under every policy map of type qos in the system and it is mapped to the QoS group 0. You cannot change this mapping.

You cannot remove the class-default of type qos. If you attempt to delete the class-default class, the switch returns an error message.

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

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

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

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

Related Commands	Command	Description
	<b>set dscp</b>	Assigns a DSCP value to the traffic class.
	<b>set precedence</b>	Assigns a IP precedence to the traffic class.
	<b>set qos-group</b>	Assigns a QoS group to the traffic class.
	<b>show class-map type qos</b>	Displays type qos class maps.
	<b>show policy-map</b>	Displays policy maps.

# class class-default

To add a reference to the system default class that does not match any traffic class, use the **class class-default** command.

```
class class-default
```

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

**Command Default** None

**Command Modes** QoS policy map configuration mode  
Control-plane policy map configuration mode  
QoS policy map in switch profile configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** Traffic that fails to match any class is assigned to a default class of traffic called class-default. You cannot delete this class.

**Examples** This example shows how to add a reference to the system default class at the end of a policy map in a switch profile:

```
switch# configure sync
Enter configuration commands, one per line. End with CNTL/Z.
switch(config-sync)# switch-profile s5010
Switch-Profile started, Profile ID is 1
switch(config-sync-sp)# policy-map type qos my_policy1
switch(config-sync-sp-pmap-qos)# class class-default
switch(config-sync-sp-pmap-c-qos)#
```

Related Commands	Command	Description
	<b>set dscp</b>	Sets the DSCP value for the QoS traffic.
	<b>set precedence</b>	Sets the IP precedence value for the QoS traffic.
	<b>set qos-group</b>	Assigns a QoS group identifier for a class of traffic.
	<b>show policy-map</b>	Displays policy maps.
	<b>show switch-profile</b>	Displays information about the switch profile and the configuration revision.
	<b>switch-profile</b>	Creates or configures a switch profile.

# class type network-qos

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

**class type network-qos** *class-map-name*

**no class type network-qos** *class-map-name*

<b>Syntax Description</b>	<i>class-map-name</i>	Reference to a network QoS class map. The class map name can be a maximum of 40 characters. The name is case sensitive and can only contain alphabetic characters, numbers, hyphens, and underscores.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Policy map type network-qos configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	Policy actions in the first class that matches the traffic type are performed.
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**Examples** This example shows how to add a reference to a class map in a type network-qos policy map:

```
switch(config)# policy-map type network-qos nqos_policy
switch(config-pmap-nq)# class type network-qos nqos_class
switch(config-pmap-nq-c)#
```

This example shows how to remove a class map reference in a type network-qos policy map:

```
switch(config)# policy-map type network-qos nqos_policy
switch(config-pmap-nq)# no class type network-qos nqos_class
switch(config-pmap-nq)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>mtu</b>	Enables jumbo frames on a traffic class.
	<b>pause no-drop</b>	Enables Class-based Flow Control (CBFC) pause characteristics on a traffic class.
	<b>queue-limit</b>	Configures queue limits for the traffic class.
	<b>set cos</b>	Assigns a CoS value for a class of traffic.

<b>Command</b>	<b>Description</b>
<b>show class-map type network-qos</b>	Displays type network-qos class maps.
<b>show policy-map</b>	Displays policy maps.

# class 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*

<b>Syntax Description</b>	<i>class-map-name</i>	Reference to a queuing class map. The class map name can be a maximum of 40 characters. The name is case sensitive and can only contain alphabetic characters, numbers, hyphens, and underscores.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Policy map type queuing configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	Policy actions in the first class that matches the traffic type are performed.
-------------------------	--

**Examples** This example shows how to add a reference to a class map in a type queuing policy map:

```
switch(config)# policy-map type queuing my_policy1
switch(config-pmap-que)# class type queuing 1p7q4t-out-q3
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 1p7q4t-out-q3
switch(config-pmap-que)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show class-map type queuing</b>	Displays the type queuing class maps.
	<b>show policy-map</b>	Displays policy maps.

# class-map

To create or modify a class map 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-all | match-any] class-map-name
```

```
no class-map [type qos] [match-all | match-any] class-map-name
```

## Syntax Description

<b>type qos</b>	(Optional) Specifies the component type qos for the class map. By default, the class map type is qos.
<b>match-all</b>	Specifies that if the packet matches all the criteria configured for this class map with the <b>match</b> command, then this class map is applied to the packet.
<b>match-any</b>	Specifies that if the packet matches any of the criteria configured for this class map with the <b>match</b> command, then this class map is applied to the packet. This is the default action if match-all is not specified.
<i>class-map-name</i>	Name assigned to the QoS class map. The name can be a maximum of 40 characters. The name is case sensitive and can only contain alphanumeric characters, hyphens, and underscores.  The names class-default and class-fcoe are reserved.

## Command Default

```
type—qos  
match-all
```

## Command Modes

Global configuration mode

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

You can define a class map for each class of traffic to be used in QoS policies.

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. If no execution strategy is specified (match-any or match-all), then the default value of match-any is applied to the traffic class.

## 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 create a qos class map to match all traffic packets:

```
switch(config)# class-map type qos match-all my_class2  
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 the error message that appears when you attempt to remove a class-fcoe class map:

```
switch(config)# no class-map class-fcoe
ERROR: Reserved class-map(s) cannot be deleted/modified

switch(config)#
```

#### Related Commands

Command	Description
<b>description</b>	Adds a summary purpose for the class map.
<b>feature fcoe</b>	Enables FCoE on the switch.
<b>match</b>	Configures traffic class criteria.
<b>policy-map type qos</b>	Creates or modifies a qos policy map.
<b>service-policy</b>	Attaches a policy map to an interface or system policy.
<b>show class-map type qos</b>	Displays qos class maps.



# class-map type control-plane

To create or specify a control plane class map and enter class map configuration mode, use the **class-map type control-plane** command. To delete a control plane class map, use the **no** form of this command.

**class-map type control-plane** [**match-any**] *class-map-name*

**no class-map type control-plane** [**match-any**] *class-map-name*

Syntax Description	match-any	(Optional) Specifies to match any match conditions in the class map.
	<i>class-map-name</i>	Name of the class map. The name is alphanumeric and case-sensitive. The maximum length is 64 characters.

Command Default	match-any
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Command Modes	Global configuration mode
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Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

Usage Guidelines	<p>You cannot use match-any or class-default as names for control plane class maps.</p> <p>You can delete only dynamic class-maps of type control-plane. You cannot delete static class-maps of type control-plane.</p> <p>This command does not require a license.</p>
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Examples	This example shows how to specify a control plane class map and enter class map configuration mode:
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```
switch# configure terminal
switch(config)# class-map type control-plane copp-system-class-dhcp
switch(config-cmap)#
```

This example shows how to delete a control plane class map:

```
switch# configure terminal
switch(config)# no class-map type control-plane copp-system-class-dhcp
switch(config)#
```

Related Commands	Command	Description
	<b>match access-group</b>	Matches traffic with a specified access control list (ACL) group.
	<b>show class-map type control-plane</b>	Displays control plane policy map configuration information.

# class-map type network-qos

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

```
class-map type network-qos class_map_name
```

```
no class-map type network-qos class_map_name
```

## Syntax Description

<i>class-map-name</i>	Name assigned to the class map. The name class-default is reserved. The name can be a maximum of 40 characters. The name is case sensitive and can only contain alphanumeric characters, hyphens, and underscores.
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## Command Default

None

## Command Modes

Global configuration mode

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

Class maps of type network qos support only the **match qos-group** command. If a traffic packet matches any of the criteria configured for this class map with the **match** command, then this class map is applied to the packet. By default, traffic is filtered using the implicit match-any option.

## Examples

This example shows how to create or modify a network qos class map named my\_class1:

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

This example shows how to remove a network qos class map:

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

## Related Commands

Command	Description
<b>feature fcoe</b>	Enables FCoE on a switch.
<b>match qos-group</b>	Defines a traffic class that matches the QoS group values.
<b>show class-map type network-qos</b>	Displays network qos class maps configured in the system.

# class-map type queuing

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

**class-map type queuing** *class\_map\_name*

**no class-map type queuing** *class\_map\_name*

## Syntax Description

<i>class-map-name</i>	Name assigned to the class map or a system-defined queuing class map name. The name class-default is reserved. The name can be a maximum of 40 characters. The name is case sensitive and can only contain alphanumeric characters, hyphens, and underscores.
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## Command Default

None

## Command Modes

Global configuration mode

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

If you modify the queuing type class maps, the configuration for all ports of the specified port type also changes.

You cannot delete the system-defined queuing class map names.

Class maps of type queuing support only the **match qos-group** command. If a traffic packet matches any of the criteria configured for this class map with the **match** command, then this class map is applied to the packet. By default, traffic is filtered using the implicit match-any option.

## Examples

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

```
switch(config)# class-map type queuing my_class1
switch(config-cmap-que)#
```

This example shows how to modify a system-defined queuing class map named class-default:

```
switch(config)# class-map type queuing match-any class-default
switch(config-cmap-que)#
```

This example shows how to remove a queuing class map:

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

Related Commands	Command	Description
	<b>feature fcoe</b>	Enables FCoE on the switch.
	<b>match qos-group</b>	Configures a traffic class that matches the QoS group values.
	<b>show class-map type queuing</b>	Displays queuing class maps configured in the system.

# clear copp statistics

To clear Control Plane Policing (CoPP) statistics, use the **clear copp statistics** command.

**clear copp statistics**

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

**Command Default** None

**Command Modes** Any configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** This command does not require a license.

**Examples** This example shows how to clear the CoPP statistics:

```
switch# clear copp statistics
switch#
```

Related Commands	Command	Description
	<b>class-map type control-plane</b>	Configures a control plane class map.
	<b>show policy-map interface control-plane</b>	Displays the CoPP statistics for interfaces.

# control-plane

To enter control-plane configuration mode, which allows users to associate attributes that are associated with the control plane of the device, use the **control-plane** command.

## control-plane

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

**Command Default** None

**Command Modes** Global configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** After you use the **control-plane** command, you can associate a service policy to police all traffic that is destined to the control plane.

**Examples** This example shows how to enter the control plane configuration mode:

```
switch# configure terminal
switch(config)# control-plane
switch(config-cp)#
```

Related Commands	Command	Description
	<b>service-policy (control-plane)</b>	Attaches a policy map to a control plane for aggregate control plane services.
	<b>show policy-map type control-plane</b>	Displays the configuration of a class or all classes for the policy map of a control plane.



## D Commands

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This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with D.

# 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*

<b>Syntax Description</b>	<i>text</i>	Description for the class map, policy map, or table map. The description can be a maximum of 200 alphanumeric characters.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Class map type network qos configuration Class map type qos configuration Class map type queuing configuration Policy map type network qos configuration Policy map type qos configuration Policy map type queuing configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Examples** This example shows how to add a description to a qos class map:

```
switch(config)# class-map my_class1
switch(config-cmap-qos)# description This class map filters packets that matches an ACL
switch(config-cmap-qos)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>class-map</b>	Creates or modifies a class map.
	<b>policy-map</b>	Creates or modifies a policy map.
	<b>show class-map</b>	Displays class maps.
	<b>show policy-map</b>	Displays policy maps.





## F Commands

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This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with F.

# flowcontrol

To enable IEEE 802.3x link-level flow control for the selected interface, use the **flowcontrol** command.

**flowcontrol** [**receive** {**on** | **off**}] [**send** {**on** | **off**}]

Syntax Description	receive	(Optional) Sets flow control in the receive direction.
	<b>off</b>	Disables flow control traffic on an interface.
	<b>on</b>	Enables flow control traffic on an interface.
	<b>send</b>	(Optional) Sets flow control in the send direction.

**Command Default** None

**Command Modes** Interface configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** You can use this command on the following interfaces:

- Layer 2 interface
- Layer 3 interface



**Note** Use the **no switchport** command to configure an interface as a Layer 3 interface.

**Examples** This example shows how to enable flow control for traffic received on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/2
switch(config-if)# flowcontrol receive on
```

Related Commands	Command	Description
	<b>no switchport</b>	Configures an interface as a Layer 3 routed interface.
	<b>priority-flow-control</b>	Sets the PFC mode for the selected interface.
	<b>show interface flowcontrol</b>	Displays the detailed listing of the flow control settings on all interfaces.



## H Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with H.

# hardware profile tcam feature interface-qos limit

To configure the QoS TCAM limit, use the **hardware profile tcam feature interface-qos limit** command.

**hardware profile tcam feature interface-qos limit** *tcam-size*

<b>Syntax Description</b>	<i>tcam-size</i>	Interface QoS TCAM limit. The TCAM size can be from 7- 446 entries.
---------------------------	------------------	---

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

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

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	No interface policy entry should be present after the interface_qos limit in the QoS region of any TCAM.
-------------------------	--

<b>Examples</b>	This example shows how to set the interface QoS TCAM limit to 20 entries:
-----------------	---

```
switch(config)# configure terminal
switch(config)# hardware profile tcam feature interface-qos limit 20
switch(config)# show hardware profile tcam feature qos
Feature                               Limit
-----
Interface                               20
vlan-qos + global-qos                  428

switch(config)# copy running-config startup-config
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show hardware profile tcam feature qos</b>	Displays the limits of the QoS TCAMs.

# hardware unicast voq-limit

To enable the virtual output queuing (VOQ) limit for unicast traffic on a switch, use the **hardware unicast voq-limit** command. To disable the VOQ limit, use the **no** form of this command.

**hardware unicast voq-limit**

**no hardware unicast voq-limit**

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

**Command Default** Disabled

**Command Modes** Global configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** To alleviate congestion and blocking, you can use virtual output queuing (VOQ) to prevent one blocked receiver from affecting traffic that is being sent to other noncongested receivers (head-of-line blocking).

**Examples** This example shows how to enable the VOQ limits for unicast packets on a switch:

```
switch(config)# hardware unicast voq-limit
switch(config)#
```

Related Commands	Command	Description
	<b>hardware multicast disable-slow-port-pruning</b>	Disables slow port pruning on the switch.
	<b>show running-config</b>	Displays the running configuration on a switch.





# I Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with I.

## ip dscp (ERSPAN)

To configure the differentiated services code point (DSCP) value of the packets in the Encapsulated Remote Switched Port Analyzer (ERSPAN) traffic, use the **ip dscp** command. To revert to the default value, use the **no** form of this command.

```
ip dscp dscp_value
```

```
no ip dscp dscp_value
```

<b>Syntax Description</b>	<i>dscp_value</i>	DSCP value of the packets in the ERSPAN traffic. The range is from 0 to 63.
---------------------------	-------------------	---

<b>Command Default</b>	0
------------------------	---

<b>Command Modes</b>	ERSPAN session configuration mode
----------------------	-----------------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	This command does not require a license.
-------------------------	--

<b>Examples</b>	This example shows how to configure the DSCP value of the packets in the ERSRSPAN traffic:
-----------------	--

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# ip dscp 10
switch(config-erspan-src)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ip prec</b>	Configures the IP precedence value of the ERSPAN traffic.
<b>ip ttl</b>	Configures the IP time-to-live (TTL) value of the ERSPAN traffic.	
<b>monitor-session</b>	Enters the monitor configuration mode for configuring an ERSPAN session for analyzing traffic between ports.	



# ip ttl (ERSPAN)

To configure the IP time-to-live (TTL) value of the Encapsulated Remote Switched Port Analyzer (ERSPAN) traffic, use the **ip ttl** command. To revert to the default configuration, use the **no** form of this command.

**ip ttl** *ttl\_value*

**no ip ttl** *ttl\_value*

<b>Syntax Description</b>	<i>ttl_value</i>	IP TTL value of the ERSPAN traffic. The range is from 1 to 255.
---------------------------	------------------	---

<b>Command Default</b>	255
------------------------	-----

<b>Command Modes</b>	ERSPAN session configuration mode
----------------------	-----------------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	This command does not require a license.
-------------------------	--

**Examples** This example shows how to configure the IP TTL value of the ESRSPAN source:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# ip ttl 30
switch(config-erspan-src)#
```

This example shows how to remove the IP TTL value from the ESRSPAN source:

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# no ip ttl 30
switch(config-erspan-src)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ip dscp</b>	Configures the DSCP value of the packets in the ERSPAN traffic.
<b>monitor-session</b>	Enters the monitor configuration mode for configuring an ERSPAN session for analyzing traffic between ports.	





## M Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with M.

# 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. To remove an 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

**name** *acl-name* Matches on the characteristics in the ACL name specified.

## Command Default

None

## Command Modes

Class-map type qos configuration

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines



### Note

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

## 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
<b>show class-map</b>	Displays class maps.

# match cos

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

<b>not</b>	(Optional) Negates the specified match result.
<i>cos-list</i>	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
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

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

- Specify a range of values separated by a dash
- Specify a noncontiguous list of values separated by commas



### 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.

## 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
<b>show class-map</b>	Displays class maps.

# match dscp

To identify specific differentiated services code point (DSCP) values in the DiffServ field of the IP Header (either IPv4 or IPv6) as a match criteria, use the **match dscp** command. To remove specified DSCP values as a match criteria, use the **no** form of this command.

**match [not] dscp** *dscp-list*

**no match [not] dscp** *dscp-list*

## Syntax Description

<b>not</b>	(Optional) Negates the specified match result.
<i>dscp-list</i>	Specified DSCP value or list of DSCP values. See <a href="#">Table 1</a> for a list of valid DSCP values.

## Command Default

None

## Command Modes

Class-map type qos configuration

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

The standard DSCP values are shown in [Table 1](#).

**Table 1** Standard DSCP Values

DSCP Value	Description
af11	AF11 dscp (001010)—decimal value 10
af12	AF12 dscp (001100)—decimal value 12
af13	AF13 dscp (001110)—decimal value 14
af21	AF21 dscp (010010)—decimal value 18
af22	AF22 dscp (010100)—decimal value 20
af23	AF23 dscp (010110)—decimal value 22
af31	AF31 dscp (011010)—decimal value 26
af32	AF40 dscp (011100)—decimal value 28
af33	AF33 dscp (011110)—decimal value 30
af41	AF41 dscp (100010)—decimal value 34
af42	AF42 dscp (100100)—decimal value 36
af43	AF43 dscp (100110)—decimal value 38
cs1	CS1 (precedence 1) dscp (001000)—decimal value 8

**Table 1**      **Standard DSCP Values (continued)**

DSCP Value	Description
cs2	CS2 (precedence 2) dscp (010000)—decimal value 16
cs3	CS3 (precedence 3) dscp (011000)—decimal value 24
cs4	CS4 (precedence 4) dscp (100000)—decimal value 32
cs5	CS5 (precedence 5) dscp (101000)—decimal value 40
cs6	CS6 (precedence 6) dscp (110000)—decimal value 48
cs7	CS7 (precedence 7) dscp (111000)—decimal value 56
default	Default dscp (000000)—decimal value 0
ef	EF dscp (101110)—decimal value 46

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

- Specify a range of values separated by a dash
- Specify a noncontiguous list of values separated by commas

### Examples

This example shows how to match on DSCP value af21:

```
switch(config)# class-map my_test
switch(config-cmap-qos)# match dscp af21
```

### Related Commands

Command	Description
<b>show class-map</b>	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*

<b>Syntax Description</b>	<b>not</b>	(Optional) Negates the specified match result.
	<i>port-list</i>	Specified UDP port or list of UDP ports that are using RTP. Valid values range from 2000 to 65535.

**Command Default** None

**Command Modes** Class-map type qos configuration

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

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

- Specify a range of values separated by a dash
- Specify a noncontiguous list of values separated by commas

**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
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show class-map</b>	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 (either IPv4 or IPv6) 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*

<b>Syntax Description</b>	<b>not</b>	(Optional) Negates the specified match result.
	<i>precedence-list</i>	Specified IP precedence value or list of IP precedence values specified in bytes. Valid values are shown in <a href="#">Table 2</a> .

**Command Default** None

**Command Modes** Class-map type qos configuration

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** See [Table 2](#) for a list of precedence values.

**Table 2** Precedence Values

Precedence Value	Description
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)
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 separated by a dash
- Specify a noncontiguous list of values separated by commas

## ■ match precedence

---

**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**

<b>Command</b>	<b>Description</b>
<b>show class-map</b>	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.
	<i>protocol-name</i>	Specified protocol name. Valid values are shown in <a href="#">Table 3</a> .

**Command Default** None

**Command Modes** Class-map type qos configuration

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** The list of valid protocol names is shown in [Table 3](#).

**Table 3 Protocol Names**

Argument	Description
arp	Address Resolution Protocol (ARP)
clns_es	CLNS End Systems
clns_is	CLNS Intermediate System
dhcp	Dynamic Host Configuration (DHCP)
iscsi	Internet Small Computer System Interface (iSCSI)
ldp	Label Distribution Protocol (LDP)
netbios	NetBIOS Extended User Interface (NetBEUI)

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

**Examples** This example shows how to match on a specified protocol:

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

■ match protocol

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show class-map</b>	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

<b>not</b>	(Optional) Negates the specified match result.
<i>qos-group-list</i>	Specified QoS group value or list of QoS group values specified in bytes. Valid values are from 2 to 5.

## Command Default

None

## Command Modes

Class map type network-qos configuration  
Class map type queuing configuration

## Command History

Release	Modification
6.0(2)N1(1)	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 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 separated by a dash
- Specify a noncontiguous list of values separated by commas

## Examples

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

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

Related Commands	Command	Description
	<b>class-map type network-qos</b>	Creates or modifies a network qos class map.
	<b>class-map type queuing</b>	Creates or modifies a queuing class map.
	<b>show class-map</b>	Displays class maps.

## mtu (ERSPAN)

To set the maximum transmission unit (MTU) size for Encapsulated Remote Switched Port Analyzer (ERSPAN) packets in a monitor session, use the **mtu** command. To remove the configured MTU, use the **no** form of this command.

**mtu** *mtu-value*

**no mtu** *mtu-value*

<b>Syntax Description</b>	<i>mtu-value</i>	Maximum allowable MTU for ERSPAN packets in a monitor session. The range is from 64 to 1518 bytes.
---------------------------	------------------	--

<b>Command Default</b>	Default is no truncation enabled.
------------------------	-----------------------------------

<b>Command Modes</b>	ERSPAN session configuration mode
----------------------	-----------------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	ERSPAN packets larger than the specified allowable size for the monitor session are truncated. This command does not require a license.
-------------------------	--

<b>Examples</b>	This example shows how to set an MTU value for an ERSPAN session:
-----------------	---

```
switch# configure terminal
switch(config)# monitor session 1 type erspan-source
switch(config-erspan-src)# erspan-id 100
switch(config-erspan-src)# mtu 100
switch(config-erspan-src)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>monitor session</b>	Configures a SPAN or ERSPAN session.
	<b>show monitor session</b>	Displays the SPAN or ERSPAN session configuration.

## mtu (interface)

To configure the maximum transmission unit (MTU) size for Layer 2 and Layer 3 Ethernet interfaces, use the **mtu** command. To remove the configured MTU, use the **no** form of this command.

**mtu** *mtu-value*

**no mtu** *mtu-value*

<b>Syntax Description</b>	<i>mtu-value</i>	MTU value for the class of service (CoS). The range is from 64 to 9216.1500 to 9216.
---------------------------	------------------	--

<b>Command Default</b>	Default MTU value is 1500. For FCoE cos 3, the default is 2158.
------------------------	---

<b>Command Modes</b>	Policy map type network-qos class configuration
----------------------	---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	You can configure an MTU for each virtual link in the system.
-------------------------	---

**Examples** This example shows how to set an MTU value for a class in a type network-qos policy map:

```
switch(config)# class-map type network-qos my_class1
switch(config-cmap-nq)# match qos-group 1
switch(config-cmap-nq)# exit
switch(config)# policy-map type network-qos my_policy1
switch(config-pmap-nq)# class type network-qos my_class1
switch(config-pmap-nq-c)# mtu 5000
switch(config-pmap-nq-c)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>service-policy</b>	Attaches a policy map to an interface or system policy.
	<b>show class-map</b>	Displays class maps.
	<b>show policy-map</b>	Displays policy maps.
	<b>system qos</b>	Configures a system policy.





## P Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with P.

# pause no-drop

To enable Class Based Flow Control (CBFC) pause characteristics on a class referenced in a type network-qos policy map, use the **pause** command. To disable the CBFC pause characteristics on a class, use the **no** form of this command.

**pause no-drop** [**pfc-cos** *pfc-cos-list*]

**no pause no-drop** [**pfc-cos** *pfc-cos-list*]

## Syntax Description

<b>pfc-cos</b>	(Optional) Specifies the CoS values to assert priority flow control (PFC) on.
<i>pfc-cos-list</i>	PFC CoS list. The range is from 0 to 7.
	Use a comma (,) to separate multiple values, or a hyphen (-) to specify a range of values; for example, 0, 2, 3, or 2-5.

## Command Default

By default, pause no-drop is off.

## Command Modes

Policy map type network-qos class configuration

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

Ethernet interfaces use priority flow control (PFC) to provide lossless service to no-drop system classes. PFC implements pause frames on a per-class basis and uses the IEEE 802.1p CoS value to identify the classes that require lossless service.

You can configure PFC CoS only for traffic classes that match a criteria other than the CoS value (match cos).

## Examples

This example shows how to enable pause no-drop on a class referenced in a type network-qos policy map:

```
switch(config)# class-map type network-qos my_class1
switch(config-cmap-nq)# match qos-group 2
switch(config-cmap-nq)# exit
switch(config)# policy-map type network-qos my_policy1
switch(config-pmap-nq)# class type network-qos my_class1
switch(config-pmap-nq-c)# pause no-drop
switch(config-pmap-nq-c)#
```

Related Commands	Command	Description
	<b>show class-map type network-qos</b>	Displays type network-qos class maps.
	<b>show policy-map</b>	Displays policy maps.

## pause no-drop buffer-size

To enable Class Based Flow Control (CBFC) pause characteristics on a class referenced in a type network-qos policy map and configure the ingress buffer size for the no-drop class, use the **pause no drop buffer-size** command. To disable the CBFC pause characteristics on a class and reset the buffer, use the **no** form of this command.

**pause no-drop buffer-size** *buffer-size* **pause-threshold** *xoff-size* **resume-threshold** *xon-size*

**no** **pause no-drop buffer-size** *buffer-size* **pause-threshold** *xoff-size* **resume-threshold** *xon-size*

### Syntax Description

<i>buffer-size</i>	Buffer size for ingress traffic, in bytes. Valid values are from 10240 to 490880. <b>Note</b> On a Cisco Nexus device, you can configure a maximum buffer size of 152000 bytes.
<b>pause-threshold</b>	Specifies the buffer limit at which the port pauses the peer.
<i>xoff-size</i>	Buffer limit for pausing, in bytes. Valid values are from 0 to 490880. <b>Note</b> On a Cisco Nexus device, you can configure a maximum pause threshold value of 103360 bytes.
<b>resume-threshold</b>	Specifies the buffer limit at which the port resumes the peer.
<i>xon-size</i>	Buffer limit at which to resume, in bytes. Valid values are from 0 to 490880. <b>Note</b> On a Cisco Nexus device you can configure a maximum resume threshold value of 83520 bytes.

### Command Default

By default, pause no-drop is on.

### Command Modes

Policy map type network-qos class configuration

### Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

### Usage Guidelines

Use this command to configure the buffer size and threshold values for a no-drop class. You configure the buffer size to support lossless Ethernet over a link distance of 3000 meters (9843 feet). The switch software rejects the policy if enough buffer resources are not available to support the policy.

When you configure the buffer size, ensure the following:

- The pause threshold value must be greater than the resume threshold value. Otherwise, the following message appears:

```
ERROR: pause-threshold can't be less than resume-threshold
```

**Examples**

This example shows how to enable pause no-drop on a class referenced in a type network-qos policy map:

```
switch(config)# class-map type network-qos my_class1
switch(config-cmap-nq) # match qos-group 2
switch(config-cmap-nq) # exit
switch(config)# policy-map type network-qos my_policy1
switch(config-pmap-nq) # class type network-qos my_class1
switch(config-pmap-nq-c) # pause no-drop
switch(config-pmap-nq-c) #
```

This example shows how to set the no-drop buffer size for 3000 metres on a class referenced in a type network-qos policy map on a Cisco Nexus device:

```
switch(config-pmap-nq) # policy-map type network-qos policy-test
switch(config-pmap-nq) # class type network-qos cul-tal
switch(config-pmap-nq-c) # pause no-drop buffer-size 152000 pause-threshold 103360
resume-threshold 83520
switch(config-pmap-nq-c) #
```

**Related Commands**

Command	Description
<b>show class-map type network-qos</b>	Displays type network-qos class maps.
<b>show policy-map</b>	Displays policy maps.

# police (policy map)

To configure traffic policing for a class map in a control plane policy map, use the **police** command.

```
police { rate | cir rate }
```

Syntax Description		
<i>rate</i>		Average rate in packets per second (pps). The range is from 0 to 20480.
<b>cir</b>		Specifies the Committed Information Rate (CIR), in Kbps.

Command Default	
None	

Command Modes	
Control plane policy map configuration mode	

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

Usage Guidelines	
This command does not require a license.	

Examples	
This example shows how to configure traffic policing in a control plane policy map with the average rate at 200 packets per second:	

```
switch# configure terminal
switch(config)# policy-map type control-plane copp-system-policy-customized
switch(config-pmap)# class ClassMapA
switch(config-pmap-c)# police 200
switch(config-pmap-c)#
```

Related Commands	Command	Description
	<b>class (policy map)</b>	Specifies a control plane class map for a control plane policy map and enters policy map class configuration mode.
	<b>show policy-map type control-plane</b>	Displays configuration information for control plane policy maps.

# policy-map type control-plane

To enter the control plane policy map configuration mode, use the **policy-map type control-plane** command.

**policy-map type control-plane** *policy-map-name*

<b>Syntax Description</b>	<i>policy-map-name</i>	Name of the default control plane policy map. The name is alphanumeric, case sensitive, and has a maximum of 64 characters.
---------------------------	------------------------	---

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

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

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines**

In Cisco Nexus devices, you cannot create a user-defined Control Plane Policing (CoPP) policy map. The switch software includes a default control plane policy map, `copp-system-policy-default`, and one customized policy map, `copp-system-policy-customized`. You cannot add or remove classes from the default control-plane policy map. You can, however, add or remove classes to or from the `copp-system-policy-customized` control-plane policy map.

If you attempt to create a control plane policy with a name other than the default, you will see the following error message:

```
ERROR: Policy-map create failed
```

This command does not require a license.

**Examples**

This example shows how to enter the control plane policy map configuration mode:

```
switch# configure terminal
switch(config)# policy-map type control-plane copp-system-policy-customized
switch(config-pmap)#
```

This example shows the error message that appears when you create a control plane policy map other than the default control plane policy map:

```
switch# configure terminal
switch(config)# policy-map type control-plane PolicyMapA
ERROR: Policy-map create failed
switch(config)#
```

Related Commands	Command	Description
	<b>show policy-map type control-plane</b>	Displays configuration information for control plane policy maps.



# policy-map type network-qos

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

**policy-map type network-qos** *policy-map-name*

**no policy-map type network-qos** *policy-map-name*

## Syntax Description

<i>policy-map-name</i>	Name assigned to a type network-qos policy map. The name can be a maximum of 40 alphanumeric characters.
------------------------	--

## Command Default

None

## Command Modes

Global configuration mode

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

Use the **service-policy** command to assign policy maps to interfaces.

On a Cisco Nexus device, the switch software does not automatically attach the class-fcoe class map to a policy map. You can manually add the class-fcoe class to a policy map. On all other Cisco Nexus 5000 Series switches, this class is, by default, included in a policy map. On a Cisco Nexus device, you can remove the class-fcoe class from a policy map.

You can configure the qos-group of a class-fcoe class map on a Cisco Nexus device using the **set qos-group** command. The default qos-group value is 1.

## Examples

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

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

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

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

## Related Commands

Command	Description
<b>class type network-qos</b>	References a type network-qos class map in a policy map.
<b>description</b>	Adds a description to a class map or policy map.
<b>feature fcoe</b>	Enables FCoE on the switch.

Command	Description
<b>set qos-group</b>	Assigns a QoS group identifier for a class of traffic.
<b>show policy-map</b>	Displays policy maps.

# policy-map (type qos)

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

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

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

Syntax Description	type qos	(Optional) Specifies the type qos policy map.
	<i>qos-policy-map-name</i>	Name assigned to a type qos policy map. The name can be a maximum of 40 alphanumeric characters.

**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 mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** Use the **service-policy** command to assign policy maps to interfaces.

On a Cisco Nexus device, the switch software does not automatically attach the class-fcoe class map to a policy map. You can manually add the class-fcoe class to a policy map. On all other Cisco Nexus 5000 Series switches, this class is, by default, included in a policy map. On a Cisco Nexus device, you can remove the class-fcoe class from a policy map.

You can configure the qos-group of a class-fcoe class map on a Cisco Nexus device using the **set qos-group** command. The default qos-group value is 1.

**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
	<b>class-map type qos</b>	Configures a qos class map.
	<b>feature fcoe</b>	Enables FCoE features on the switch.

<b>Command</b>	<b>Description</b>
<b>service-policy</b>	Attaches a policy map to an interface.
<b>set dscp</b>	Sets the DSCP value for the QoS traffic.
<b>set precedence</b>	Sets the IP precedence value for the QoS traffic.
<b>set qos-group</b>	Assigns a QoS group identifier for a class of traffic.
<b>show policy-map</b>	Displays policy maps.

# 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** *queuing-policy-map-name*

**no policy-map type queuing** *queuing-policy-map-name*

<b>Syntax Description</b>	<i>queuing-policy-map-name</i> Name assigned to a type queuing policy map. The name can be a maximum of 40 alphanumeric characters.
---------------------------	---

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

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

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines**

Use the **service-policy** command to assign policy maps to interfaces.

On a Cisco Nexus device, the switch software does not automatically attach the class-fcoe class map to a policy map. You can manually add the class-fcoe class to a policy map. On all other Cisco Nexus 5000 Series switches, this class is, by default, included in a policy map. On a Cisco Nexus device, you can remove the class-fcoe class from a policy map.

You can configure the following on a class-fcoe class map:

- Bandwidth
  - The bandwidth value must be greater than zero (0).
- qos-group (on a Cisco Nexus device)



**Note** On a Cisco Nexus device, the default qos-group value is 1.

**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)# class type queuing my_class1
switch(config-pmap-c-que)# bandwidth percent 75
switch(config-pmap-c-que)# exit
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**

<b>Command</b>	<b>Description</b>
<b>bandwidth</b>	Configures the interface bandwidth.
<b>service-policy</b>	Attaches a policy map to an interface.
<b>set qos-group</b>	Assigns a QoS group identifier for a class of traffic.
<b>show policy-map</b>	Displays policy maps.

# priority

To assign a priority to a traffic class in a policy map, use the **priority** command. To remove the mapping, use the **no** form of this command.

**priority**

**no priority**

---

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

---

**Command Default** None

---

**Command Modes** Policy map type queuing class configuration

---

Release	Modification
6.0(2)N1(1)	This command was introduced.

---

---

**Usage Guidelines** When you configure a strict priority queue for a traffic class in a policy map, the priority class receives preference over other class queues. This queue is serviced before all other queues except queue zero (which carries control traffic, not data traffic).

---

**Examples** This example shows how to map the traffic class to a strict priority queue:

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

---

Command	Description
<b>show policy-map</b>	Displays the policy maps.

---

# priority (virtual Ethernet interface)

To assign a priority to a virtual Ethernet interface traffic class in a policy map, use the **priority** command. To remove the mapping, use the **no** form of this command.

**priority** *veth-priority*

**no priority**

<b>Syntax Description</b>	<i>veth-priority</i>	Virtual Ethernet interface priority. The range is from 0 to 65535.
---------------------------	----------------------	--

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

<b>Command Modes</b>	Virtual Ethernet interface configuration mode
----------------------	---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines**

Before you use this command, you must configure a virtual Ethernet interface by using the **interface vethernet** command.

When you configure a strict priority queue for a traffic class in a policy map, the priority class receives preference over other class queues. This queue is serviced before all other queues except queue zero (which carries control traffic, not data traffic).

**Examples**

This example shows how to configure the priority for a virtual Ethernet interface:

```
switch(config)# interface vethernet 10
switch(config-if)# priority
switch(config-if)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>interface vethernet</b>	Configures a virtual Ethernet interface.
	<b>show policy-map</b>	Displays the policy maps.



# priority-flow-control

To set the priority-flow-control (PFC) mode for the selected interface, use the **priority-flow-control** command.

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

**no priority-flow-control mode { auto | on | off }**

## Syntax Description

<b>auto</b>	Negotiates PFC capability.
<b>on</b>	Force-enables PFC.
<b>off</b>	Force-disables PFC.

## Command Default

Auto

## Command Modes

Interface configuration mode

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

You can use this command on the following interfaces:

- Layer 2 interface
- Layer 3 interface



**Note** Use the **no switchport** command to configure an interface as a Layer 3 interface.

## Examples

This example shows how to force-enable PFC on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/2
switch(config-if)# priority-flow-control mode on
switch(config-if)#
```

This example shows how to force-disable PFC on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# priority-flow-control mode off
switch(config-if)#
```

Related Commands	Command	Description
	<b>flowcontrol</b>	Sets link-level flow control for the selected interface.
	<b>no switchport</b>	Configures an interface as a Layer 3 routed interface.
	<b>show interface flowcontrol</b>	Displays the detailed listing of the flow control settings on all interfaces.
	<b>show interface priority-flow-control</b>	Displays the priority flow control details for a specified interface.



## Q Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with Q.

# queue-limit

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

**queue-limit** *queue-size* **bytes**

**no queue-limit** *queue-size* **bytes**

<b>Syntax Description</b>	<i>queue-size</i>	Queue size threshold (in bytes). The range is from 20480 to 204800. For the Cisco Nexus device, the range is from 20480 to 426880 bytes.
<b>Command Default</b>	None	
<b>Command Modes</b>	Policy map type network-qos class configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.
<b>Usage Guidelines</b>	<p>You can use this command to specify or modify the maximum number of packets the queue can hold for a class policy configured in a policy map. The system drops packets that exceed the configured queue-size threshold.</p> <p>You can use this command only for network-qos class maps that do not have “pause” configured.</p>	
<b>Examples</b>	<p>This example shows how to assign a queue limit to a policy map network-qos class:</p> <pre>switch(config)# policy-map type network-qos my_queue switch(config-pmap-nq)# class type network-qos nqos_class switch(config-pmap-nq-c)# queue-limit 20480 bytes switch(config-pmap-nq-c)#</pre> <p>This example shows how to remove a queue limit from a policy map queuing class:</p> <pre>switch(config)# policy-map type network-qos my_queue switch(config-pmap-nq)# class type network-qos nqos_class switch(config-pmap-nq-c)# no queue-limit 20480 bytes switch(config-pmap-nq-c)#</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>pause no-drop</b>	Enables pause characteristics on a class referenced in a type network-qos policy map.
	<b>show policy-map</b>	Displays policy maps.







## S Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with S.

# service-policy

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

```
service-policy {input | type {qos input | queuing {input | output}}} policy-map-name
```

```
no service-policy {input | type {qos input | queuing {input | output}}} policy-map-name
```

## Syntax Description

<b>input</b>	Applies this policy map to packets coming into this interface.
<b>type</b>	Specifies whether the policy map is of type qos or queuing.
<b>qos</b>	Specifies a policy map of type qos.
<b>queuing</b>	Specifies a policy map of type queuing.
<b>output</b>	Applies this policy map to packets going out of this interface.
<i>policy-map-name</i>	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.  The policy map name can be a maximum of 40 alphanumeric characters.

## Command Default

None

## Command Modes

Interface configuration mode  
Subinterface configuration mode  
Vlan configuration mode

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

You can attach one ingress and one egress type queuing policy map to an interface of type port, and port channel. Only one policy map can be attached to the input of a given interface for each of the policy type qos and queuing.

## Examples

This example shows how to attach a queuing policy map to the ingress packets of a Layer 2 port interface:

```
switch# configure terminal
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 attach qos type policy maps to the incoming packets of a Layer 2 interface:

```
switch# configure terminal
switch(config)# system qos
```



```
switch(config-sys-qos)# service-policy type qos input my_policy1
switch(config-sys-qos)#
```

This example shows how to attach a qos type policy map named set-dscp to the incoming packets of a Layer 2 interface:

```
switch# configure terminal
switch(config)# policy-map type qos set-dscp
switch(config-pmap-qos)# class class-0
switch(config-pmap-c-qos)# set dscp ef
switch(config-pmap-c-qos)# exit
switch(config-pmap-qos)# class class-1-2
switch(config-pmap-c-qos)# set precedence 4
switch(config-pmap-c-qos)# exit
switch(config-pmap-qos)# exit
switch(config)# interface ethernet 2/1
switch(config-if)# service-policy type qos input set-dscp
switch(config-if)#
```

This example shows how to attach a queuing policy map to a Layer 3 interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# service-policy type queuing input my_input_q_policy
switch(config-if)#
```

#### Related Commands

Command	Description
<b>no switchport</b>	Configures an interface as a Layer 3 routed interface.
<b>show policy-map interface brief</b>	Displays all interfaces and VLANs with attached service policies in a brief format.
<b>system qos</b>	Configures a system policy.

# service-policy (control-plane)

To attach a policy map to a control plane for aggregate control plane services, use the **service-policy** command.

**service-policy input** *policy-map-name*

Syntax Description	input	Applies the specified service policy to packets that are entering the control plane.
	<i>policy-map-name</i>	Name of the control plane policy map to be attached. The name can be a maximum of 64 alphanumeric characters.

**Command Default** None

**Command Modes** Control-plane configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** After using the **control-plane** command, you should use the **service-policy** command to configure a quality of service (QoS) policy. This policy is attached to the control plane interface for aggregate control plane services, which can control the number or rate of packets that are going to the process level.

**Examples** This example shows how to attach a control-plane policy map to the control plane:

```
switch# configure terminal
switch(config)# ip access-list ipv4-acl-telnet
switch(config-acl)# permit tcp 10.23.0.0/16 10.176.0.0/16
switch(config-acl)# exit
switch(config)# class-map type control-plane telnet-class
switch(config-cmap)# match access-group name ipv4-acl-telnet
switch(config-cmap)# exit
switch(config)# policy-map type control-plane copp-system-policy
switch(config-pmap)# class telnet-class
switch(config-pmap-c)# police 1000
switch(config-pmap-c)# exit
switch(config-pmap)# exit
switch(config)# control-plane
switch(config-cp)# service-policy input copp-system-policy
switch(config-cp)# exit
switch(config)#
```

Related Commands	Command	Description
	<b>control-plane</b>	Enters control-plane configuration mode.
	<b>policy-map type control-plane</b>	Creates or modifies a control plane policy map.
	<b>show policy-map control-plane</b>	Displays the configuration of a class or all classes for the policy map of a control plane.

# service-policy (system qos)

To attach a policy map to a system policy, use the **service-policy** command. To remove a service policy from a system policy, use the **no** form of this command.

```
service-policy { input | type { network-qos | qos input | queuing { input | output } } }
    policy-map-name
```

```
no service-policy { input | type { network-qos | qos input | queuing { input | output } } }
    policy-map-name
```

Syntax Description	Parameter	Description
	<b>input</b>	Applies this policy map to packets coming into this interface.
	<b>type</b>	Specifies whether the policy map is of type network-qos, qos, or queuing.
	<b>network-qos</b>	Specifies a policy map of type network-qos.
	<b>qos</b>	Specifies a policy map of type qos.
	<b>queuing</b>	Specifies a policy map of type queuing.
	<b>output</b>	Applies this policy map to packets going out of this interface.
	<i>policy-map-name</i>	Name of the policy map to attach to this interface. The policy map name can be a maximum of 40 alphanumeric characters.

**Command Default** None

**Command Modes** System QoS configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Examples** This example shows how to attach a queuing policy map to the system policy:

```
switch# configure terminal
switch(config)# system qos
switch(config-sys-qos)# service-policy type queuing input my_input_q_policy
switch(config-sys-qos)#
```

Related Commands	Command	Description
	<b>show policy-map</b>	Displays policy maps.
	<b>system qos</b>	Configures a system policy.

# service-policy (virtual Ethernet interface)

To attach a policy map to a virtual Ethernet interface, use the **service-policy** command. To remove a service policy from a virtual Ethernet interface, use the **no** form of this command.

```
service-policy {input | type {qos input | queuing {input | output}}} policy-map-name
```

```
no service-policy {input | type {qos input | queuing {input | output}}} policy-map-name
```

Syntax Description		
<b>input</b>	Applies this policy map to packets coming into this virtual interface.	
<b>type</b>	Specifies the policy map of type qos.	
<b>qos</b>	Specifies a policy map of type qos.	
<b>queuing</b>	Specifies a policy map of type queuing.	
<b>input</b>	Applies the policy map to packets coming into this interface.	
<b>output</b>	Applies the policy map to packets going out of this interface.	
<i>policy-map-name</i>	Name of the policy map to attach to this interface. Only one policy map can be attached to the input of a given interface for the policy type qos.	
	The policy map name can be a maximum of 40 alphanumeric characters.	

**Command Default** None

**Command Modes** Virtual Ethernet interface configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** You can attach one ingress and one egress type queuing policy map to an interface of type port and port channel. Only one policy map can be attached to the input of a given interface for each of the policy type qos and queuing.



**Note** For more information on using service policies, see the Quality of Service Guide for your platform.

**Examples** This example shows how to attach a qos policy map to the ingress packets of a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# interface vethernet 12
switch(config-if)# service-policy type qos input my_veth_policy
switch(config-if)#
```

This example shows how to attach a queuing policy that is configured for traffic shaping to the incoming packets of a virtual Ethernet interface:

## service-policy (virtual Ethernet interface)

```

switch(config)# policy-map type queuing p2
switch(config-pmap-que)# class type queuing class-default
switch(config-pmap-c-que)# shape 30 kbps 3000
switch(config-pmap-c-que)# exit
switch(config-pmap-que)# exit
switch(config)# interface vethernet 1
switch(config-if)# service-policy type queuing input p2
switch(config-if)#

```

### Related Commands

Command	Description
<b>interface vethernet</b>	Configures a virtual Ethernet interface.
<b>policy-map type queuing</b>	Configures a queuing policy map.
<b>show policy-map interface brief</b>	Displays all interfaces and VLANs with attached service policies in a brief format.
<b>system qos</b>	Configures a system policy.

# set cos (policy map type network-qos)

To assign a class of service (CoS) value for a class of traffic in a type network-qos 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
```

```
no set cos cos-value
```

<b>Syntax Description</b>	<i>cos-value</i>	CoS value to assign for this class of traffic. The range is from 0 to 7.
---------------------------	------------------	--

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

<b>Command Modes</b>	Policy map type network-qos class configuration
----------------------	---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	<p>You can use this command only on type network-qos policies that are attached to egress ports.</p> <p>Layer 3 topologies you must configure each qos-group in the network-qos policy with a unique cos value.</p>
-------------------------	---

<b>Examples</b>	<p>This example shows how to assign a CoS value for a class of traffic in a type network-qos policy map:</p>
-----------------	--

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

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

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

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show policy-map</b>	Displays policy maps.

# set dscp

To assign a Differentiated Services Code Point (DSCP) value for a traffic class in a type qos policy map on a Cisco Nexus 5548 switch, use the **set dscp** command. To remove a previously set DSCP value, use the **no** form of this command.

**set dscp** *dscp-value*

**no set dscp** *dscp-value*

## Syntax Description

<i>dscp-value</i>	DSCP value or parameter to assign for this class of traffic. Valid values are from 0 to 63. For a list of standard DSCP values, see <a href="#">Table 1</a> .
-------------------	--

## Command Default

None

## Command Modes

Policy map type qos configuration

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

Marking is a method that you use to modify the QoS fields of the incoming and outgoing packets.

You can set the value of standard QoS fields IP precedence, DSCP, and Class of Service (CoS), and internal labels that can be used in subsequent actions. Marking is used to identify the traffic type for use in policing, queuing, and scheduling traffic (only CoS is used in scheduling).

Use this command to classify the traffic based on the DSCP packet header field (either IPv4 or IPv6). When you set the DSCP value for a packet, make sure that you use a traffic class other than the class-default system class. For example, qos-group *x*, where *x* is any value from 1 to 5.



### Note

You cannot set the DSCP packet header field (either IPv4 or IPv6) if the traffic is in the class-default system class (qos-group 0).

You can set the DSCP value in the six most significant bits of the DiffServ field of the IP header to a specified value. You can enter numeric values from 0 to 63, as well as the standard DSCP values shown in [Table 1](#).

If you set the values for more than two IP header fields (either IPv4 or IPv6), an error similar to the following appears:

```
ERROR: Only 2 sets out of qos-group/cos/dscp/precedence/discard-class are allowed. Please
remove other set action before applying this one.
```



**Note**

You can set DSCP or IP precedence but you cannot set both values because they modify the same field in the IP packet.

After you set the DSCP value, for the QoS policy map to work correct and create the specified QoS groups, make sure that you attach the QoS policy map to a system policy, then define a network-qos policy map and attach it to the system policy. Make sure that the QoS group of the QoS policy map matches that of the of the network-qos policy.

**Examples**

This example shows how to set the DSCP value for a QoS policy:

```
switch(config)# policy-map type qos my_policy
switch(config-pmap-qos)# class type qos my_class
switch(config-pmap-c-qos)# set dscp cs6
switch(config-pmap-c-qos)# set qos-group 2
switch(config-pmap-c-qos)# exit
switch(config-pmap-qos)# exit
switch(config)# system qos
switch(config-sys-qos)# service-policy type qos input my_policy
switch(config-sys-qos)# exit
switch(config)# class-map type network-qos nqos_class
switch(config-cmap-nq)# match qos-group 2
switch(config-cmap-nq)# exit
switch(config)# policy-map type network-qos nqos_policy
switch(config-pmap-nq)# class type network-qos nqos_class
switch(config-pmap-nq-c)# exit
switch(config-pmap-nq)# exit
switch(config)# system qos
switch(config-sys-qos)# service-policy type network-qos nqos_policy
switch(config-sys-qos)# exit
switch(config)#
```

**Related Commands**

Command	Description
<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration file.
<b>show policy-map type qos</b>	Displays the QoS policy maps.
<b>show running-config ipqos</b>	Displays the QoS running configuration.

# set precedence

To set the precedence value in an IP header (either IPv4 or IPv6) for a class of traffic in a type qos policy map on a Cisco Nexus 5548 switch, use the **set precedence** command. To leave the precedence value unchanged for the class, use the **no** form of this command.

**set precedence** *precedence-value*

**no set precedence** *precedence-value*

## Syntax Description

<i>precedence-value</i>	IP precedence value to assign for this class of traffic. Valid values are from 0 to 7. For a list of standard precedence values, see <a href="#">Table 2</a> .
-------------------------	---

## Command Default

None

## Command Modes

Policy map type qos configuration

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

Marking is a method that you use to modify the QoS fields of the incoming and outgoing packets.

You can set the value of standard QoS fields IP precedence, DSCP, and Class of Service (CoS), and internal labels that can be used in subsequent actions. Marking is used to identify the traffic type for use in policing, queuing, and scheduling traffic (only CoS is used in scheduling).

Use this command to classify the traffic based on the IP precedence packet header field. When you set the IP precedence value for a packet, make sure that you use a traffic class other than the class-default system class. For example, qos-group *x*, where *x* is any value from 1 to 5.



### Note

You cannot set the IP precedence packet header field if the traffic is in the class-default system class (qos-group 0).

If you set the values for more than two IP header fields, you see the following error message:

```
ERROR: Only 2 sets out of qos-group/cos/dscp/precedence/discard-class are allowed. Please remove other set action before applying this one.
```



### Note

You can set DSCP or IP precedence but you cannot set both values because they modify the same field in the IP packet.

After you set the IP precedence value, for the QoS policy map to work correct and create the specified QoS groups, make sure that you attach the QoS policy map to a system policy, then define a network-qos policy map and attach it to the system policy. Make sure that the QoS group of the QoS policy map matches that of the of the network-qos policy.

### Examples

This example shows how to set the IP precedence value for a QoS policy:

```
switch(config)# policy-map type qos my_policy
switch(config-pmap-qos)# class type qos my_class
switch(config-pmap-c-qos)# set precedence 5
switch(config-pmap-c-qos)# set qos-group 2
switch(config-pmap-c-qos)# exit
switch(config-pmap-qos)# exit
switch(config)# system qos
switch(config-sys-qos)# service-policy type qos input my_policy
switch(config-sys-qos)# exit
switch(config)# class-map type network-qos nqos_class
switch(config-cmap-nq)# match qos-group 2
switch(config-cmap-nq)# exit
switch(config)# policy-map type network-qos nqos_policy
switch(config-pmap-nq)# class type network-qos nqos_class
switch(config-pmap-nq-c)# exit
switch(config-pmap-nq)# exit
switch(config)# system qos
switch(config-sys-qos)# service-policy type network-qos nqos_policy
switch(config-sys-qos)# exit
switch(config)#
```

### Related Commands

Command	Description
<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration file.
<b>show policy-map type qos</b>	Displays the QoS policy maps.
<b>show running-config ipqos</b>	Displays the QoS running configuration.
<b>show startup-config ipqos</b>	Displays the QoS configuration stored in the startup file.

# 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*

<b>Syntax Description</b>	<i>qos-group-value</i>	QoS group value to assign for this class of traffic. The range is from 1 to 5 for a Cisco Nexus device. On a Cisco Nexus device, the default is 1.
---------------------------	------------------------	--

<b>Command Default</b>	1 on a Cisco Nexus 5548 switch.
------------------------	---------------------------------

<b>Command Modes</b>	Policy map type qos class configuration
----------------------	---

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** You can set the QoS group identifier value only in ingress policies. You can set a maximum of 5 QoS groups in ingress policies.

If you set the values for more than two IP header fields in a policy map class, an error message similar to the following appears:

```
ERROR: Only 2 sets out of qos-group/cos/dscp/precedence/discard-class are allowed. Please
remove other set action before applying this one.
```

**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_policy
switch(config-pmap-qos)# class my_class
switch(config-pmap-c-qos)# set qos-group 3
switch(config-pmap-c-qos)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
		<b>copy running-config startup-config</b>
	<b>show policy-map type qos</b>	Displays the QoS policy maps.

<b>Command</b>	<b>Description</b>
<b>show running-config ipqos</b>	Displays the QoS running configuration.
<b>show startup-config ipqos</b>	Displays the QoS configuration stored in the startup file.

# shape (virtual Ethernet interface)

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** *target-rate* {**kbps** | **mbps** | **gbps**} *burst-size*

**no shape** *target-rate* {**kbps** | **mbps** | **gbps**} *burst-size*

## Syntax Description

<i>target-rate</i>	Traffic rate. The range is from 1 to 10,000,000,000.
<b>kbps</b>	Specifies the units of 1000 bits per second.
<b>mbps</b>	Specifies the units of megabits per second.
<b>gbps</b>	Specifies the units of gigabits per second.
<i>burst-size</i>	Burst size in bytes. The range is from 1500 to 65535.

## Command Default

None

## Command Modes

Policy map type queuing class configuration mode

## Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

## Usage Guidelines

Traffic shaping is supported only on virtual Ethernet interfaces.

Shaping rate limits the traffic with a specified rate. You can configure shaping only in the ingress direction. All traffic on the virtual Ethernet interface is rate limited to the given shaping rate.



### Note

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

This command does not require a license.

## Examples

This example shows how to configure shaping on a queuing policy map and apply the policy to a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# policy-map type queuing p2
switch(config-pmap-que)# class type queuing class-default
switch(config-pmap-c-que)# shape 30 kbps 3000
switch(config-pmap-c-que)# exit
switch(config-pmap-que)# exit
switch(config)# interface vethernet 1
switch(config-if)# service-policy type queuing input p2
switch(config-if)#
```

Related Commands	Command	Description
	<b>service-policy (virtual Ethernet interface)</b>	Applies a policy map to a virtual Ethernet interface.
	<b>show policy-map</b>	Displays the policy map information.

# system jumbomtu

To define the upper bound of any maximum transmission unit (MTU) in the system, use the **system jumbomtu** command.

**system jumbomtu** [*value*]

<b>Syntax Description</b>	<i>value</i>	Jumbomtu value. The range is from 2158 to 9216.
---------------------------	--------------	---

<b>Command Default</b>	9216 bytes
------------------------	------------

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

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Examples** This example shows how to define the upper bound of any MTU in the system:

```
switch(config)# system jumbomtu 9216
switch(config)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show interface</b>	Displays the jumbo MTU frames sent and received on the specified interface.



# system qos

To configure a system policy, use the **system qos** command.

**system qos**

---

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

---

**Command Default** None

---

**Command Modes** Global configuration mode

---

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

---

---

**Examples** This example shows how to configure a system qos to apply a queuing policy to all interfaces in the system:

```
switch(config)# system qos  
switch(config-sys-qos)#
```

---

Related Commands	Command	Description
	<b>service-policy</b>	Associates the system class policy-map to the service policy for the system.

---





## Show Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) **show** commands.

# show class-map type control-plane

To display control plane class map information, use the **show class-map type control-plane** command.

**show class-map type control-plane** [*class-map-name*]

<b>Syntax Description</b>	<i>class-map-name</i>	(Optional) Name of the control plane class map. The name is alphanumeric and case sensitive. The maximum length is 64 characters.
---------------------------	-----------------------	---

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

<b>Command Modes</b>	Any command mode
----------------------	------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	This command does not require a license.
-------------------------	--

**Examples** This example shows how to display control plane class map information:

```
switch# show class-map type control-plane

class-map type control-plane match-any copp-system-class-arp
  match protocol arp

class-map type control-plane match-any copp-system-class-bgp
  match protocol bgp

class-map type control-plane match-any copp-system-class-bridging
  match protocol bridging

class-map type control-plane match-any copp-system-class-cdp
  match protocol cdp

class-map type control-plane match-any copp-system-class-default
  match protocol default

<--Output truncated-->
switch#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>class-map type control-plane</b>	Creates or configures a control plane class map.

# 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 [class-map-name]
```

<b>Syntax Description</b>	<i>class-map-name</i>	Name of the class map. The name can be a maximum of 40 alphanumeric characters.
---------------------------	-----------------------	---

**Command Default** Displays all type network-qos class maps if no class map name is specified.

**Command Modes** Any command mode

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** If you do not specify the type, the command displays all the class maps configured in the system.

**Examples** This example shows how to display all type network-qos class maps:

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

```
Type network-qos class-maps
=====

class-map type network-qos s1
  match qos-group 2

class-map type network-qos s2
  match qos-group 3

class-map type network-qos s3
  match qos-group 4

class-map type network-qos s4
  match qos-group 5

class-map type network-qos cu1
  match qos-group 2

class-map type network-qos cu2
  match qos-group 3

class-map type network-qos cu3
  match qos-group 4

class-map type network-qos cu4
```

## show class-map type network-qos

```

    match qos-group 5

class-map type network-qos new
  match qos-group 2

class-map type network-qos class7
  match qos-group 5

class-map type network-qos class-0
  match qos-group 2

class-map type network-qos ip-based
  match qos-group 5

class-map type network-qos class-1-2
  match qos-group 3

class-map type network-qos class-4-7
  match qos-group 4

class-map type network-qos cos-based
  match qos-group 2

class-map type network-qos class-fcoe
  match qos-group 1

class-map type network-qos class-flood
  match qos-group 2

class-map type network-qos cos-based-3
  match qos-group 3

class-map type network-qos cos-based-4
  match qos-group 4

class-map type network-qos class-default
  match qos-group 0

class-map type network-qos class-multicast

class-map type network-qos class-ip-multicast
  match qos-group 5

switch(config)#

```

### Related Commands

Command	Description
<b>class-map</b>	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*]

<b>Syntax Description</b>	<i>class-map-name</i>	Named class map. The name <i>class-default</i> is reserved. The name can be a maximum of 40 alphanumeric characters.
---------------------------	-----------------------	--

<b>Command Default</b>	Displays all type qos class maps if no class map name is specified.
------------------------	---

<b>Command Modes</b>	Any command mode
----------------------	------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
		6.0(2)N1(1)

**Examples** This example shows how to display all type qos class maps on a switch:

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

```
Type qos class-maps
=====

class-map type qos s1
  match cos 0

class-map type qos s2
  match protocol ldp
  match ip rtp 2000
  match protocol dhcp
  match protocol arp

class-map type qos s3
  match access-group name mac

class-map type qos s4
  match access-group name ipv4

class-map type qos cp1
  match precedence 4-5
  match cos 0,4
  match dscp 4
  match protocol ldp
  match protocol arp

class-map type qos cp2
  match ip rtp 2000
  match cos 0
```

```
class-map type qos cp3
  match access-group name mac

class-map type qos cp5

class-map type qos cq1
  match protocol ldp
  match precedence 7
  match cos 0

class-map type qos cq2
  match protocol ldp
  match cos 1-2

class-map type qos cq3
  match access-group name mac

class-map type qos cq4
  match access-group name ipv4-1

class-map type qos cq5
  match access-group name ipv6-based

class-map type qos p1.1
  match cos 7

class-map type qos p1.2
  match protocol ldp
  match ip rtp 2000-6001,10000-20000,60000-65535
  match dscp 1
  match protocol dhcp
  match protocol arp
  match precedence 0-7

class-map type qos p1.3
  match access-group name mac

class-map type qos p1.4
  match access-group name ipv4

class-map type qos p2.1
  match cos 0,7

class-map type qos p2.2
  match protocol ldp
  match ip rtp 2000-6000,6002,10000-20000,60000-65535
  match dscp 2
  match protocol dhcp
  match protocol arp
  match precedence 0-7

class-map type qos p2.3
  match access-group name mac

class-map type qos p2.4
  match access-group name ipv4

class-map type qos p3.1
  match cos 0,7

class-map type qos p3.2
  match protocol ldp
  match ip rtp 2000-6000,6003,10000-20000,60000-65535
  match dscp 3
```



```
    match protocol dhcp
    match protocol arp
    match precedence 0-7

class-map type qos p3.3
    match access-group name mac

class-map type qos p3.4
    match access-group name ipv4

class-map type qos p4.1
    match cos 0,7

class-map type qos p4.2
    match protocol ldp
    match ip rtp 2000-6000,6004,10000-20000,60000-65535
    match dscp 4
    match protocol dhcp
    match protocol arp
    match precedence 0-7

class-map type qos p4.3
    match access-group name mac

class-map type qos p4.4
    match access-group name ipv4

class-map type qos p5.1
    match cos 0,7

class-map type qos p5.2
    match protocol ldp
    match ip rtp 2000-6000,6005,10000-20000,60000-65535
    match dscp 5
    match protocol dhcp
    match protocol arp
    match precedence 0-7

class-map type qos p5.3
    match access-group name mac

class-map type qos p5.4
    match access-group name ipv4

class-map type qos p6.1
    match cos 0,7

class-map type qos p6.2
    match protocol ldp
    match ip rtp 2000-6000,6006,10000-20000,60000-65535
    match dscp 6
    match protocol dhcp
    match protocol arp
    match precedence 0-7

class-map type qos p6.3
    match access-group name mac

class-map type qos p6.4
    match access-group name ipv4

class-map type qos p7.1
    match cos 0,7
```

```
class-map type qos p7.2
  match protocol ldp
  match ip rtp 2000-6000,6007,10000-20000,60000-65535
  match dscp 7
  match protocol dhcp
  match protocol arp
  match precedence 0-7

class-map type qos p7.3
  match access-group name mac

class-map type qos p7.4
  match access-group name ipv4

class-map type qos p8.1
  match cos 0,7

class-map type qos p8.2
  match protocol ldp
  match ip rtp 2000-6000,6008,10000-20000,60000-65535
  match dscp 8
  match protocol dhcp
  match protocol arp
  match precedence 0-7

class-map type qos p8.3
  match access-group name mac

class-map type qos p8.4
  match access-group name ipv4

class-map type qos p9.1
  match cos 0,7

class-map type qos p9.2
  match protocol ldp
  match ip rtp 2000-6000,6009,10000-20000,60000-65535
  match dscp 9
  match protocol dhcp
  match protocol arp
  match precedence 0-7

class-map type qos p9.3
  match access-group name mac

class-map type qos p9.4
  match access-group name ipv4

class-map type qos class-0
  match cos 0

class-map type qos class-6
  match cos 6

class-map type qos class-7
  match cos 7

class-map type qos clsas-0

class-map type qos cos-6-7
  match cos 7

class-map type qos ip-based
  match access-group name ip-based
```

```
class-map type qos acl-based
  match access-group name ipPacl

class-map type qos class-1-2
  match cos 1-2

class-map type qos class-4-5
  match cos 4-5

class-map type qos class-4-6
  match cos 5

class-map type qos class-4-7
  match cos 5,7

class-map type qos class-405

class-map type qos cos-based

class-map type qos mac-based
  match access-group name foo

class-map type qos udp-based
  match access-group name ip-based

class-map type qos class-fcoe
  match cos 3

class-map type qos class-flood

class-map type qos class-default
  match any

class-map type qos class-all-flood
  match all flood

class-map type qos class-ip-multicast
  match ip multicast
```

```
switch(config)#
```

This example shows how to display a specific class map:

```
switch# show class-map type qos class-4-6
```

```
Type qos class-maps
=====

class-map type qos class-4-6
  match cos 5
```

```
switch#
```

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

```
switch# show class-map type qos
```

```
Type qos class-maps
=====

class-map type qos match-any class-fcoe
```

## ■ show class-map type qos

```
        match cos 3

class-map type qos match-any class-default
    match any

class-map type qos match-any class-all-flood
    match all flood

class-map type qos match-any class-ip-multicast
    match ip multicast

switch#
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>class-map</b>	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*]

<b>Syntax Description</b>	<i>class-map-name</i>	Named class map. The name can be a maximum of 40 alphanumeric characters.
---------------------------	-----------------------	---

<b>Command Default</b>	Displays all type queuing class maps if no class map name is specified.
------------------------	---

<b>Command Modes</b>	Any command mode
----------------------	------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Examples** This example shows how to display all type queuing class maps on a switch:

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

```
Type queuing class-maps
=====

class-map type queuing s1
  match qos-group 2

class-map type queuing s2
  match qos-group 3

class-map type queuing s3
  match qos-group 4

class-map type queuing s4
  match qos-group 5

class-map type queuing cq1
  match qos-group 2

class-map type queuing cq2
  match qos-group 3

class-map type queuing cq3
  match qos-group 4

class-map type queuing cq4
  match qos-group 5

class-map type queuing pq1
```

```

class-map type queuing cqe1
  match qos-group 2

class-map type queuing cqe2
  match qos-group 3

class-map type queuing cqe3
  match qos-group 4

class-map type queuing cqe4
  match qos-group 5

class-map type queuing p1.1
  match qos-group 2

class-map type queuing p1.2
  match qos-group 3

class-map type queuing p1.3
  match qos-group 4

class-map type queuing p1.4
  match qos-group 5

class-map type queuing p2.1
  match qos-group 2

class-map type queuing p2.2
  match qos-group 3

class-map type queuing p2.3
  match qos-group 4

class-map type queuing p2.4
  match qos-group 5

class-map type queuing p3.1
  match qos-group 2

class-map type queuing p3.2
  match qos-group 3

```

```

<--Output truncated-->
switch(config)#

```

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

```
switch# show class-map type queuing
```

```

Type queuing class-maps
=====

class-map type queuing class-fcoe
  match qos-group 1

class-map type queuing class-default
  match qos-group 0

class-map type queuing class-all-flood
  match qos-group 2

class-map type queuing class-ip-multicast
  match qos-group 2

```

```
switch#
```

**Related Commands**

Command	Description
<b>class-map</b>	Creates or modifies a class map.

# show copp status

To display the Control Plane Policing (CoPP) configuration status, use the **show copp status** command.

## show copp status

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

**Command Default** None

**Command Modes** Any configuration mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** This command does not require a license.

**Examples** This example shows how to display the CoPP configuration status information:

```
switch# show copp status
Last Config Operation: class class-default
Last Config Operation Timestamp: 05:06:14 UTC Jan  1 2013
Last Config Operation Status: Success
Policy-map attached to the control-plane: copp-system-policy-default

switch#
```

Related Commands	Command	Description
	<b>clear copp statistics</b>	Clears the CoPP statistics.
	<b>show running-config copp</b>	Displays CoPP configuration information in the running configuration.



# show interface flowcontrol

To display the detailed listing of the flow control settings on all interfaces, use the **show interface flowcontrol** command.

**show interface flowcontrol** [*module number*]

<b>Syntax Description</b>	<b>module</b> <i>number</i>	(Optional) Displays flow control settings on all interfaces on a specified module. The module <i>number</i> range is from 1 to 3.
---------------------------	-----------------------------	---

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

<b>Command Modes</b>	EXEC mode
----------------------	-----------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** You can use this command to display the flow control information for the following interfaces:

- Layer 2 interface
- Layer 3 interface



**Note** Use the **no switchport** command to configure an interface as a Layer 3 interface, and then use the **flowcontrol** command to configure flow control for the interface.

**Examples** This example shows how to display the flow control settings on all interfaces on a switch:

```
switch# show interface flowcontrol
```

```
-----
Port          Send FlowControl  Receive FlowControl  RxPause TxPause
              admin    oper              admin    oper
-----
Eth1/1        off     off              off     off          0         0
Eth1/2        off     off              off     off          0         0
Eth1/3        off     off              off     off          0         0
Eth1/4        off     off              off     off          0         0
Eth1/5        off     off              off     off          0         0
Eth1/6        off     off              off     off          0         0
Eth1/7        off     off              off     off          0         0
-----
```

## ■ show interface flowcontrol

```
Eth1/8      off      off      off      off      0          0
Eth1/9      off      off      off      off      0          0
Eth1/10     off      off      off      off      0          0
Eth1/11     off      off      off      off      0          0
--More--
switch#
```

# show hardware profile tcam feature qos

To display the the limits of the QoS TCAMs, use the **show hardware profile tcam feature-qos** command.

```
show hardware profile tcam feature qos tcam-size
```

<b>Syntax Description</b>	<i>tcam-size</i>	Interface QoS TCAM limit. The <i>tcam-size</i> can be from 7- 446 entries.
<b>Command Default</b>	None	
<b>Command Modes</b>	Global configuration mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.
<b>Usage Guidelines</b>	No interface policy entry should be present after the interface_qos limit in the QoS region of any TCAM.	
<b>Examples</b>	<p>This example shows how to set the interface QoS TCAM limit to 20 entries:</p> <pre>switch(config)# <b>configure terminal</b> switch(config)# <b>hardware profile tcam feature interface-qos limit 20</b> switch(config)# <b>show hardware profile tcam feature qos</b> Feature                Limit ----- Interface              20 vlan-qos + global-qos 428  switch(config)# <b>copy running-config startup-config</b></pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>hardware profile tcam feature interface-qos limit</b>	Configures the QoS TCAM limit

# show policy-map

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

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

Syntax Description	type	(Optional) Specifies the component type to display.
	<b>network-qos</b>	Displays policy maps of type network-qos.
	<b>qos</b>	Displays policy maps of type qos only.
	<b>queuing</b>	Displays policy maps of type queuing only.
	<i>policy-map-name</i>	(Optional) Named policy map. The name can be a maximum of 40 alphanumeric characters.

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

Command Modes	Any command mode
---------------	------------------

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

Usage Guidelines	When you enter the <b>show policy-map</b> command with no arguments or keywords, the system also displays the Control Plane Policing (CoPP) information.
------------------	--

Examples	This example shows how to display a named network-qos policy map:
----------	---

```
switch# show policy-map type network-qos my_pnq
```

```
Type network-qos policy-maps
=====

policy-map type network-qos my_pnq
  class type network-qos cl_nq
    multicast-optimize
    queue-limit 20480 bytes
    mtu 1500
  class type network-qos class-fcoe
    pause no-drop
    mtu 2158
  class type network-qos class-default
    mtu 1500
switch#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>policy-map</b>	Creates or modifies a policy map.

# show policy-map interface

To display the service policy maps configured on the interfaces, use the **show policy-map interface** command.

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

Syntax	Description
<b>ethernet</b>	(Optional) Displays policy maps assigned to Ethernet interfaces.
<i>slot</i> [/ <i>QSFP-module</i> ]/ <i>port</i>	Ethernet interface slot number and port number. The <i>slot</i> number is from 1 to 255. The <i>QSFP-module</i> number is from 1 to 199. The <i>port</i> number is from 1 to 128.
<b>port-channel</b>	(Optional) Displays policy maps assigned to EtherChannels.
<i>channel-number</i>	EtherChannel number. The number is from 1 to 4096.
<b>input</b>	(Optional) Displays policy maps assigned to input traffic only.
<b>output</b>	(Optional) Displays policy maps assigned to output traffic only.
<b>type</b>	(Optional) Specifies the component type to display.
<b>qos</b>	Displays policy maps of type qos only.
<b>queuing</b>	Displays policy maps of type queuing only.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** Statistics are on by default.

## Examples

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

```
switch(config)# show policy-map interface ethernet 2/10
```

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

```
switch# show policy-map interface ethernet 3/1 type qos
```

```
Global statistics status : disabled
```

```
Ethernet3/1
```

```
Service-policy (qos) input: s
policy statistics status: disabled
```

```
bandwidth percent 50
  shape 30 kbps

switch#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>policy-map</b>	Creates or modifies a policy map.
<b>service-policy (virtual Ethernet interface)</b>	Attaches a policy map to a virtual Ethernet interface.

# 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
	6.0(2)N1(1)	This command was introduced.

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

```
switch(config)# show policy-map interface brief
```

```

Interface      [Status]:INP QOS      INP QUE      OUT QUE
=====
port-channel1  [Active]:p1           pqe1         pqe1
port-channel3  [Active]:s            pqe1         pqe1
port-channel5  [Active]:s            pqe1         pqe1
port-channel6  [Active]:s            pqe1         pqe1
port-channel12 [Active]:p12         p12-in      p12-out
port-channel15 [Active]:s            pqe1         pqe1
port-channel20 [Active]:s            pqe1         pqe1
port-channel24 [Active]:p4           pqe1         pqe1
port-channel25 [Active]:p4           pqe1         pqe1
port-channel33 [Active]:s            pqe1         pqe1
port-channel41 [Active]:s            pqe1         pqe1
port-channel44 [Active]:s            pqe1         pqe1
port-channel48 [Active]:s            pqe1         pqe1
port-channel101 [Active]:s           pqe1         pqe1
port-channel102 [Active]:p4
port-channel103 [Active]:p4
port-channel104 [Active]:p4
port-channel105 [Active]:p4
port-channel106 [Active]:p4
port-channel107 [Active]:p4
--More--
switch(config)#
```

This example shows how to display assigned policy maps in a brief format on a switch that runs Cisco NX-OS Release 5.0(3)N1(1):

```
switch# show policy-map interface brief
S3(config-if)# show policy-map interface brief
```



# show policy-map interface control-plane

To display the control-plane policy maps applied to interfaces, use the **show policy-map interface control-plane** command.

## show policy-map interface control-plane

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

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

## Examples

This example shows how to display assigned control-plane policy maps:

```
switch# show policy-map interface control-plane
control Plane

service-policy input: copp-system-policy-default

class-map copp-system-class-igmp (match-any)
  match protocol igmp
  police cir 1024 kbps , bc 65535 bytes
    conformed 0 bytes; action: transmit
    violated 0 bytes; action: drop

class-map copp-system-class-pim-hello (match-any)
  match protocol pim
  police cir 1024 kbps , bc 4800000 bytes
    conformed 0 bytes; action: transmit
    violated 0 bytes; action: drop

class-map copp-system-class-bridging (match-any)
  match protocol bridging
  police cir 20000 kbps , bc 4800000 bytes
    conformed 0 bytes; action: transmit
    violated 0 bytes; action: drop

class-map copp-system-class-arp (match-any)
  match protocol arp
<--Output truncated-->
switch(config)#
```

■ show policy-map interface control-plane

Related Commands	Command	Description
	<b>policy-map</b>	Creates or modifies a policy map.
	<b>show policy-map</b>	Displays policy maps.

# show policy-map system

To display all active policy maps in the system, use the **show policy-map system** command.

**show policy-map system** [**type** { **network-qos** | **qos** [**input**] | **queuing** [**input** | **output**]}]

Syntax Description	type	(Optional) Specifies the component type to display.
	<b>network-qos</b>	Displays policy maps of type network-qos only.
	<b>qos</b>	Displays policy maps of type qos only.
	<b>input</b>	(Optional) Displays policy maps assigned to input traffic.
	<b>queuing</b>	Displays policy maps of type queuing only.
	<b>output</b>	(Optional) Displays policy maps assigned to output traffic.

**Command Default** All policy maps

**Command Modes** EXEC mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** If you do not specify a policy map type and name, the system displays all the active policy maps in the system.

**Examples** This example shows how to display all active policy maps in the system:

```
switch# show policy-map system

Type network-qos policy-maps
=====

policy-map type network-qos s
  class type network-qos s2      match qos-group 3

  mtu 4000
  class type network-qos s1      match qos-group 2

  mtu 5000
  set cos 0
  multicast-optimize
  pause no-drop
  class type network-qos s3      match qos-group 4

  mtu 9216
  class type network-qos s4      match qos-group 5
```

```

    mtu 9216
class type network-qos class-fcoe      match qos-group 1

    pause no-drop
    mtu 2158
class type network-qos class-default  match qos-group 0

    mtu 1500

Service-policy (qos) input:  s
policy statistics status:  disabled

Class-map (qos):  s1 (match-any)
Match: cos 0
set qos-group 2

Class-map (qos):  class-1-2 (match-any)
Match: cos 1-2
set qos-group 3

Class-map (qos):  class-4-5 (match-any)
Match: cos 4-5
set qos-group 4

Class-map (qos):  class-6 (match-any)
Match: cos 6
set qos-group 5

Class-map (qos):  class-fcoe (match-any)
Match: cos 3
set qos-group 1

Class-map (qos):  class-default (match-any)
Match: any
set qos-group 0

Service-policy (queuing) input:  pqe1
policy statistics status:  disabled

Class-map (queuing):  cqe1 (match-any)
Match: qos-group 2
bandwidth percent 20

Class-map (queuing):  cqe2 (match-any)
Match: qos-group 3
priority

Class-map (queuing):  cqe3 (match-any)
Match: qos-group 4
bandwidth percent 20

Class-map (queuing):  cqe4 (match-any)
Match: qos-group 5
bandwidth percent 40

Class-map (queuing):  class-fcoe (match-any)
Match: qos-group 1
bandwidth percent 10

Class-map (queuing):  class-default (match-any)
Match: qos-group 0
bandwidth percent 5

```

```

Service-policy (queuing) output:  pqe1
policy statistics status:  disabled

Class-map (queuing):  cqe1 (match-any)
  Match: qos-group 2
  bandwidth percent 20

Class-map (queuing):  cqe2 (match-any)
  Match: qos-group 3
  priority

Class-map (queuing):  cqe3 (match-any)
  Match: qos-group 4
  bandwidth percent 20

Class-map (queuing):  cqe4 (match-any)
  Match: qos-group 5
  bandwidth percent 40

Class-map (queuing):  class-fcoe (match-any)
  Match: qos-group 1
  bandwidth percent 10

Class-map (queuing):  class-default (match-any)
  Match: qos-group 0
  bandwidth percent 5

switch#

```

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

```

switch# show policy-map system type network-qos

Type network-qos policy-maps
=====

policy-map type network-qos s
  class type network-qos s2      match qos-group 3

    mtu 4000
  class type network-qos s1      match qos-group 2

    mtu 5000
    set cos 0
    multicast-optimize
    pause no-drop
  class type network-qos s3      match qos-group 4

    mtu 9216
  class type network-qos s4      match qos-group 5

    mtu 9216
  class type network-qos class-fcoe      match qos-group 1

    pause no-drop
    mtu 2158
  class type network-qos class-default      match qos-group 0

    mtu 1500
switch#

```

■ show policy-map system

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show policy-map</b>	Displays all policy maps.

# show policy-map type control-plane

To display control plane policy map information, use the **show policy-map type control-plane** command.

**show policy-map type control-plane** [**expand**] [**name** *policy-map-name*]

Syntax Description	expand	(Optional) Displays expanded control plane policy map information.
	<b>name</b> <i>policy-map-name</i>	(Optional) Specifies the name of the control plane policy map. The name is case sensitive and can be a maximum of 64 alphanumeric characters.

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** This command does not require a license.

**Examples** This example shows how to display control plane policy map information:

```
switch# show policy-map type control-plane

policy-map type control-plane copp-system-policy-customized
  class copp-system-class-igmp
    police cir 1024 kbps bc 65535 bytes
  class copp-system-class-pim-hello
    police cir 1024 kbps bc 4800000 bytes
  class copp-system-class-bridging
    police cir 20000 kbps bc 4800000 bytes
  class copp-system-class-arp
    police cir 1024 kbps bc 3600000 bytes
  class copp-system-class-dhcp
    police cir 1024 kbps bc 4800000 bytes
  class copp-system-class-mgmt
    police cir 12000 kbps bc 4800000 bytes
  class copp-system-class-lacp
    police cir 1024 kbps bc 4800000 bytes
  class copp-system-class-lldp
    police cir 2048 kbps bc 4800000 bytes
  class copp-system-class-udld
    police cir 2048 kbps bc 4800000 bytes
<--Output truncated-->
switch#
```

This example shows how to display control plane policy map information in expanded format:

## ■ show policy-map type control-plane

```
switch# show policy-map type control-plane expand
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>policy-map type control-plane</b>	Creates or configures a control plane policy map.

---



# show policy-map vlan

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

**show policy-map vlan** [*vlan-number*]

<b>Syntax Description</b>	<i>vlan-number</i>	Displays the QoS policies configured on the specified VLAN.
<b>Command Default</b>	None	
<b>Command Modes</b>	Any command mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** You must configure the interface QoS limit and policy map before using the **show policy-map vlan** command. The TCAM must have enough free entries to configure the service policy on the VLAN.

**Examples** This example shows how to display the QoS policies configured on the specified VLAN:

```
switch# show policy-map vlan 101

Service-policy (qos) input: vpq1
=====

policy status statistics: disabled
  class-map (qos): vcq2 (match-any)
    match: cos 2
    match: precedence 1
    set cos-group 2
    set prec 2

  class-map (qos): vcq4 (match-any)
    match: access-group ipacl1-vq
    match: prec 7
    set cos-group 4

  class-map (qos): vcq4 (match-any)
    match: cos 1
    set cos-group 3

  class-map (qos): vcq4 (match-any)
    match: any
    set cos-group 0
switch#
```

■ show policy-map vlan

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>policy-map</b>	Creates or modifies a policy map.

# show queuing interface

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

**show queuing interface** [**ethernet** *slot*[/*QSFP-module*]/*port*]

Syntax Description	ethernet	(Optional) Specifies that queuing information to be displayed for an Ethernet interface.
	<i>slot</i> [/ <i>QSFP-module</i> ]/ <i>port</i>	(Optional) The <i>slot</i> number is from 1 to 255. The <i>QSFP-module</i> number is from 1 to 199. The <i>port</i> number is from 1 to 128.

**Command Default** Displays the queuing information for all interfaces.

**Command Modes** EXEC mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Examples** This example shows how to display the queuing information for all interfaces:

```
switch# show queuing interface
Ethernet1/1 queuing information:
  TX Queuing
    qos-group sched-type oper-bandwidth
      0      WRR      100
      1      WRR      0
      2      WRR      0
      3      WRR      0

  RX Queuing
    qos-group 0
    q-size: 100160, HW MTU: 1500 (1500 configured)
    drop-type: drop, xon: 0, xoff: 0
    Statistics:
      Pkts received over the port : 0
      Ucast pkts sent to the cross-bar : 0
      Mcast pkts sent to the cross-bar : 0
      Ucast pkts received from the cross-bar : 0
      Pkts sent to the port : 150
      Pkts discarded on ingress : 0
      Per-priority-pause status : Rx (Inactive), Tx (Inactive)

    qos-group 1
    q-size: 100160, HW MTU: 1500 (1500 configured)
    drop-type: drop, xon: 0, xoff: 0
    Statistics:
      Pkts received over the port : 0
      Ucast pkts sent to the cross-bar : 0
      Mcast pkts sent to the cross-bar : 0
      Ucast pkts received from the cross-bar : 0
```

```

Pkts sent to the port : 0
Pkts discarded on ingress : 0
Per-priority-pause status : Rx (Inactive), Tx (Inactive)

qos-group 2
q-size: 100160, HW MTU: 1500 (1500 configured)
drop-type: drop, xon: 0, xoff: 0
Statistics:
  Pkts received over the port : 0
  Ucast pkts sent to the cross-bar : 0
  Mcast pkts sent to the cross-bar : 0
  Ucast pkts received from the cross-bar : 0
  Pkts sent to the port : 0
  Pkts discarded on ingress : 0
  Per-priority-pause status : Rx (Inactive), Tx (Inactive)

qos-group 3
q-size: 100160, HW MTU: 1500 (1500 configured)
drop-type: drop, xon: 0, xoff: 0
Statistics:
  Pkts received over the port : 0
  Ucast pkts sent to the cross-bar : 0
  Mcast pkts sent to the cross-bar : 0
  Ucast pkts received from the cross-bar : 0
  Pkts sent to the port : 0
  Pkts discarded on ingress : 0
  Per-priority-pause status : Rx (Inactive), Tx (Inactive)
switch#

```

This example shows how to display the queuing information on Ethernet interface 1/2:

```

switch# show queuing interface ethernet 1/2
Ethernet1/2 queuing information:
  TX Queuing
    qos-group  sched-type  oper-bandwidth
    0           WRR        73
    1           WRR        0
    2           WRR        1
    3           WRR        6
    4           WRR        20
    5           priority   0

  RX Queuing
    qos-group 0
    q-size: 25600, HW MTU: 9280 (9216 configured)
    drop-type: drop, xon: 0, xoff: 160
    Statistics:
      Pkts received over the port : 0
      Ucast pkts sent to the cross-bar : 0
      Mcast pkts sent to the cross-bar : 0
      Ucast pkts received from the cross-bar : 1851526994
      Pkts sent to the port : 1851527000
      Pkts discarded on ingress : 0
      Per-priority-pause status : Rx (Inactive), Tx (Inactive)

    qos-group 1
    q-size: 76800, HW MTU: 2240 (2158 configured)
    drop-type: no-drop, xon: 128, xoff: 240
    Statistics:
      Pkts received over the port : 0
      Ucast pkts sent to the cross-bar : 0
      Mcast pkts sent to the cross-bar : 0
      Ucast pkts received from the cross-bar : 0

```

```

Pkts sent to the port                : 0
Pkts discarded on ingress            : 0
Per-priority-pause status           : Rx (Inactive), Tx (Inactive)

qos-group 2
q-size: 20480, HW MTU: 9280 (9216 configured)
drop-type: drop, xon: 0, xoff: 128
Statistics:
  Pkts received over the port        : 0
  Ucast pkts sent to the cross-bar   : 0
  Mcast pkts sent to the cross-bar   : 0
  Ucast pkts received from the cross-bar : 0
  Pkts sent to the port              : 0
  Pkts discarded on ingress          : 0
  Per-priority-pause status         : Rx (Inactive), Tx (Inactive)

--More--
switch#

```

Table 1 describes the significant fields shown in the display.

**Table 1** *show queuing interface Field Descriptions*

Field	Description
Ethernet ...	Ethernet interface information.
qoS-group	Information about QoS groups configured on the switch.
sched-type	Type of schedule.
WRR	Weighted round robin(WRR). Queue eight for scheduling.
Priority	Priority of the queue.
q-size	Queue size.
drop-type	Queue drop type can be either drop or no-drop.
MTU	Maximum transmit unit (MTU) for the queue.
Xon	Transmission on at this threshold.
Xoff	Transmission off at this threshold.

#### Related Commands

Command	Description
<b>hardware buffer-threshold</b>	Configures the hardware buffer threshold.
<b>hardware queue-limit</b>	Configures the hardware queue limit.
<b>show fex</b>	Displays all configured Fabric Extender chassis connected to the switch.

# show running-config copp

To display Control Plane Policing (CoPP) configuration information in the running configuration, use the **show running-config copp** command.

**show running-config copp [all]**

<b>Syntax Description</b>	<b>all</b> (Optional) Displays configured and default information.
---------------------------	--

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

<b>Command Modes</b>	Any command mode
----------------------	------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	This command does not require a license.
-------------------------	--

<b>Examples</b>	This example shows how to display the configured CoPP information in the running configuration on a switch that runs Cisco NX-OS Release 5.1(3)N1(1):
-----------------	---

```
switch# show running-config copp
```

This example shows how to display the configured and default CoPP information in the running configuration:

```
switch# show running-config copp all
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>control-plane</b>	Enters the control-plane configuration mode.
	<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration file.
	<b>show startup-config aclmgr</b>	Displays the ACL startup configuration.
	<b>show startup-config copp</b>	Displays the CoPP configuration information in the startup configuration file.

# 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]**

<b>Syntax Description</b>	<b>all</b> (Optional) Displays configured and default information.				
<b>Command Default</b>	None				
<b>Command Modes</b>	EXEC mode				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>6.0(2)N1(1)</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	6.0(2)N1(1)	This command was introduced.
Release	Modification				
6.0(2)N1(1)	This command was introduced.				

**Usage Guidelines** Use this command to view a list of default and configured class maps and policy maps and the policies attached to interfaces.

**Examples** This example shows how to display QoS information on a switch that runs Cisco NX-OS Release 5.0(2)N1(1):

```
switch# show running-config ipqos

!Command: show running-config ipqos
!Time: Thu Sep  9 06:26:49 2010

version 5.0(2)N1(1)
class-map type qos class-fcoe
  match cos 4
class-map type qos match-all 1
  match cos 1
class-map type qos match-all 2
  match cos 2
class-map type qos match-all 3
  match cos 3
class-map type qos match-all 4
class-map type qos match-any 5
  match cos 5,7
class-map type qos match-all arp
  match protocol dhcp
  match protocol arp
  match cos 3
class-map type qos match-all cos
  match cos 5
class-map type qos match-all dot
  match access-group name dot
```

```

class-map type qos match-all my_class
  match dscp 3
  match precedence 0
  match protocol dhcp
class-map type qos match-all new
  match protocol netbios
:
<snip>
class-map type queuing my_qclass
  match qos-group 3
class-map type queuing Video-Signalling
  match qos-group 4
class-map type queuing class-ip-multicast
  match qos-group 4
policy-map type qos 5
  class 5
    set qos-group 2
  class Video
    set qos-group 3
policy-map type qos my_policy
  class my_class
    set precedence 5
    set dscp 5
  class myQAll
    set precedence 3
    set dscp 48
:
<snip>
policy-map type network-qos my_policy1
  class type network-qos my_class1
    pause no-drop buffer-size 143680 pause-threshold 58860 resume-threshold 3840
  class type network-qos class-fcoe
    pause no-drop
    mtu 2158
  class type network-qos class-default
:
<snip>
system qos
  service-policy type qos input voice
  service-policy type network-qos Network
  service-policy type queuing output Queu
  service-policy type queuing input Queue

<--output truncated-->
switch#

```

This example shows how to display QoS information on a switch that runs Cisco NX-OS Release 5.0(3)N1(1):

```

switch# show running-config ipqos

!Command: show running-config ipqos
!Time: Sun Apr 20 07:22:36 2008

version 5.0(3)N1(1)
class-map type qos class-fcoe
class-map type qos match-all c1
  match cos 3-5
class-map type queuing class-fcoe
  match qos-group 1
class-map type queuing class-all-flood
  match qos-group 2
class-map type queuing class-ip-multicast
  match qos-group 2

```



```

policy-map type qos p1
  class c1
    set qos-group 3
class-map type network-qos n1
  match qos-group 1
class-map type network-qos class-fcoe
  match qos-group 1
class-map type network-qos class-all-flood
  match qos-group 2
class-map type network-qos class-ip-multicast
  match qos-group 2
policy-map type network-qos n2
  class type network-qos n1
  class type network-qos class-default
    multicast-optimize

interface Ethernet1/5
  priority-flow-control mode on
  untagged cos 3

switch#

```

The above display shows the QoS information for Layer 3 interfaces (Ethernet 1/5 configured as a Layer 3 interface).

#### Related Commands

Command	Description
<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration file.
<b>show class-map</b>	Displays information about class maps.
<b>show policy-map</b>	Displays information about policy maps.

# show startup-config copp

To display the Control Plane Policing (CoPP) configuration information in the startup configuration, use the **show startup-config copp** command.

**show startup-config copp**

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

**Command Default** None

**Command Modes** Any command mode

Command History	Release	Modification
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** This command does not require a license.

**Examples** This example shows how to display the CoPP information in the startup configuration:

```
switch# show startup-config copp
```

Related Commands	Command	Description
	<b>control-plane</b>	Enters the control-plane configuration mode.
	<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration file.
	<b>show running-config copp</b>	Displays the CoPP configuration information in the running configuration.

# show startup-config ipqos

To display quality of service (QoS) configuration information in the startup configuration, use the **show startup-config ipqos** command.

**show startup-config ipqos [all]**

<b>Syntax Description</b>	<b>all</b> (Optional) Displays configured and default information.				
<b>Command Default</b>	None				
<b>Command Modes</b>	EXEC mode				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>6.0(2)N1(1)</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	6.0(2)N1(1)	This command was introduced.
Release	Modification				
6.0(2)N1(1)	This command was introduced.				

## Examples

This example shows how to display the QoS information in the startup configuration file:

```
switch# show startup-config ipqos

!Command: show startup-config ipqos
!Time: Thu Sep  9 07:42:33 2010
!Startup config saved at: Tue Sep  7 08:45:03 2010

version 5.0(2)N1(1)
class-map type qos class-fcoe
  match cos 4
class-map type qos match-all 1
  match cos 1
class-map type qos match-all 2
  match cos 2
class-map type qos match-all 3
  match cos 3
class-map type qos match-all 4
class-map type qos match-any 5
  match cos 5,7
class-map type qos match-all arp
  match protocol dhcp
  match protocol arp
  match cos 3
class-map type qos match-all cos
  match cos 5
class-map type qos match-all dot
  match access-group name dot
class-map type qos match-all new
  match protocol netbios
class-map type qos match-all rtp
  match ip rtp 2000-40000
class-map type qos match-all dscp
  match dscp 46
```

## ■ show startup-config ipqos

```

    match precedence 7
    match protocol arp
class-map type qos match-all Video
    match dscp 34
class-map type qos match-all Voice
    match dscp 40,46
class-map type qos match-all class1
    match ip rtp 2000
class-map type qos match-all class2
    match cos 1
class-map type qos match-all class3
    match protocol arp
class-map type qos match-all class4
    match protocol dhcp
class-map type qos match-all class5
    match protocol ldp
:
:
<--output truncated--

switch#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>copy running-config startup-config</b>	Copies the running configuration to the startup configuration file.
<b>show class-map</b>	Displays information about class maps.
<b>show policy-map</b>	Displays information about policy maps.

# show wrr-queue cos-map

To display the mapped class of service (CoS) values to egress queues, use the **show wrr-queue cos-map** command.

**show wrr-queue cos-map**

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

**Command Default** None

**Command Modes** EXEC mode

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Examples** This example shows how to display the CoS values that are mapped to the egress queue:

```
switch# show wrr-queue cos-map
MCAST Queue ID      Cos Map
0                    0 1
1                    2
2                    3 4 5
3                    6 7
switch#
```

■ show wrr-queue cos-map



## U Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with U.

# untagged cos

To override the class of service (CoS) value for the selected interface, use the **untagged cos** command. To revert to the defaults, use the **no** form of this command.

**untagged cos** *cos-value*

**no untagged cos** *cos-value*

<b>Syntax Description</b>	<i>cos-value</i>	Class of service (CoS) value for untagged frames. Values can range from 1 to 7.
---------------------------	------------------	---

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

<b>Command Modes</b>	Interface configuration mode Subinterface configuration mode Virtual Ethernet interface configuration mode
----------------------	--

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	6.0(2)N1(1)	This command was introduced.

**Usage Guidelines** You can use this command on the following interfaces:

- Layer 2 interface
- Layer 3 interface



**Note** Use the **no switchport** command to configure an interface as a Layer 3 interface.

- Virtual Ethernet interface



**Note** Use the **feature-set virtualization** command to enable the Cisco Adapter Fabric Extender (Adapter-FEX) on the switch. Use the **interface vethernet** command to configure a virtual Ethernet interface.

Ethernet frames received with no CoS value are given a CoS value of 0.

On a Cisco Nexus 5548 switch, you can configure a type qos policy map and untagged CoS on the same interface.

**Examples** This example shows how to set the CoS value to 4 for untagged frames received on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/2
```



```
switch(config-if)# untagged cos 4
```

This example shows how to set the CoS value to 3 for untagged frames received on a Layer 3 interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# untagged cos 3
switch(config-if)#
```

This example shows how to set the CoS value to 5 for untagged frames received on a virtual Ethernet interface:

```
switch# configure terminal
switch(config)# feature adapter-fex
Virtualization Plugin license checked out successfully
Virtualization Plugin extracted successfully
All Virtualization processes enabled successfully
switch(config)# interface vethernet 10
switch(config-if)# untagged cos 5
switch(config-if)#
```

#### Related Commands

Command	Description
<b>feature-set virtualization</b>	Enables the Cisco Virtual Machine features on the switch.
<b>interface vethernet</b>	Configures a virtual Ethernet interface.
<b>match cos</b>	Sets the CoS value to match for the selected class.
<b>no switchport</b>	Configures an interface as a Layer 3 routed interface.
<b>show interface untagged-cos</b>	Displays the untagged CoS values for interfaces.





## W Commands

---

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with W.

## wrr-queue cos-map

To map assigned class of service (CoS) values to select one of the egress queues, use the **wrr-queue cos-map** command. To return the CoS map to the default setting, use the **no** form of this command.

```
wrr-queue cos-map queue-id cos1 ... cos8
```

```
no wrr-queue cos-map queue-id cos1 ... cos8
```

### Syntax Description

<i>queue-id</i>	ID of the egress queue. The range is from 0 to 3.
<i>cos1... cos8</i>	CoS values that are mapped to select a queue. Enter up to eight CoS values. Separate each value with a space. The range is from 0 to 7.

### Command Default

The defaults are as follows:

- Receive queue 0 and transmit queue 0: CoS 0 and 1.
- Receive queue 1 and transmit queue 1: CoS 2 and 3.
- Receive queue 2 and transmit queue 2: CoS 4 and 5.
- Receive queue 3 and transmit queue 3: CoS 6 and 7.

### Command Modes

Global configuration mode

### Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

### Usage Guidelines



#### Note

This command is applicable only to Layer 3 multicast traffic.

You can use this command to distribute traffic into different queues, where each queue is configured with different weighted round robin (WRR) parameters.

You can configure a maximum of four multicast queues for Layer 3 multicast traffic. We recommend that you configure at least one class of service (CoS) value for each multicast queue.

### Examples

This example shows how to map CoS values 0 and 1 to queue 1:

```
switch(config)# wrr-queue cos-map 1 0 1
switch(config)#
```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>show wrr-queue cos-map</b>	Displays the weighted round-robin (WRR) queue information.

