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## **Cisco Nexus 7000 Series NX-OS Quality of Service Commands**

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

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## bandwidth (QoS)

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

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

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

### Syntax Description

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

### Defaults

None

### Command Modes

Policy map type queuing class configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

You can use the system-defined ingress or egress queue class for the type of module to which you want to apply the policy map. For more information about system-defined type queuing class maps, see [Table 1](#).

**Table 1** System-Defined Type queuing Class Maps

Class Map Queue Name	Description	Default CoS Values
<b>1 Gigabit Module Ingress: 2 queues with 4 thresholds per queue</b>		
2q4t-in-q1	Ingress queue 1 of 2q4t type	5-7
2q4t-in-q-default	Ingress default queue of 2q4t type	0-4
<b>1 Gigabit Module Egress: 1 strict priority queue and 3 normal queues with 4 thresholds per queue</b>		

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**Table 1** System-Defined Type queuing Class Maps (continued)

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

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



**Note**

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

This command does not require a license.

**Examples**

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

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

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

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

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```
switch(config-pmap-que)# class type queuing lp7q4t-out-pq1  
switch(config-pmap-c-que)# no bandwidth 10 mbps
```

---

**Related Commands**

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

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## bandwidth remaining

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

**bandwidth remaining percent** {percent}

**no bandwidth remaining percent** {percent}

<b>Syntax Description</b>	<i>percent</i>	Percentage of remaining bandwidth on the underlying link. Valid values are from 0 to 100.
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<b>Defaults</b>	None
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<b>Command Modes</b>	Policy map type queuing class configuration
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<b>SupportedUserRoles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0	This command was introduced.

**Usage Guidelines** You can use the system-defined ingress or egress queue class for the type of module to which you want to apply the policy map. For more information about system-defined type queuing class maps, see [Table 1](#). You can use this command with the **priority** command.

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

This command does not require a license.

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

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

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

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

**bandwidth remaining**

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**Related Commands**

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

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## 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 | qos-dynamic | class-default} [insert-before [type qos]
before-class-map-name]
```

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

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

**Defaults** None

**Command Modes** Policy map type qos configuration

**SupportedUserRoles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.
	4.2(1)	The <b>qos-dynamic</b> variable was added.

**Usage Guidelines** Policy actions in the first class that matches the traffic type are performed.  
This command does not require a license.

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

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

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

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

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

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

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

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

**Related Commands**

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



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## class type queuing (policy map type queuing)

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

**class type queuing** *class-map-name*

**no class type queuing** *class-map-name*

<b>Syntax Description</b>	<i>class-map-name</i>	Reference to a system-defined class map. For a list of the system-defined type queuing class maps, see <a href="#">Table 1</a> .
<b>Defaults</b>	None	
<b>Command Modes</b>	policy map type queuing configuration	
<b>Supported User Roles</b>	network-admin vdc-admin	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0	This command was introduced.
<b>Usage Guidelines</b>	Policy actions in the first class that matches the traffic type are performed. This command does not require a license.	

### Examples

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

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

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

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

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

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

■ class type queuing (policy map type queuing)

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

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## class-map type network-qos match-any

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

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

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

### Syntax Description

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

### Defaults

type—qos

### Command Modes

Global configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
5.1(1)	This command was introduced.

### Usage Guidelines

This command does not require a license.

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### Examples

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

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

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

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

### Related Commands

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

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## class-map

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

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

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

### Syntax Description

<b>type qos</b>	(Optional) Specifies the component type qos for the class map. By default, the class map type is qos.
<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.
<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. This is the default action if <b>match-any</b> is not specified.  <b>Note</b> This option does not work. The match criteria is always treated as <i>match-any</i> .
<i>class-map-name</i>	Name assigned to the class map. The name class-default is reserved.
<b>conform-color-in</b>	Specifies the type qos conform color class map in the input direction. This color-aware class map makes a policer color-aware for conform action.
<b>conform-color-out</b>	Specifies the type qos conform color class map in the output direction. This color-aware class map makes a policer color-aware for conform action.
<b>exceed-color-in</b>	Specifies the type qos exceed color class map in the input direction. This color-aware class map makes a policer color-aware for exceed action.
<b>exceed-color-out</b>	Specifies the type qos exceed color class map in the output direction. This color-aware class map makes a policer color-aware for exceed action.

### Defaults

type—qos

### Command Modes

Global configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

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### Usage Guidelines

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



### Note

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

This command does not require a license.

### Examples

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

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

This example shows how to remove a qos class map:

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

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

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

### Related Commands

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

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## class-map type queuing match-any

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

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

Syntax Description		
<i>queuing-class-map-name</i>		System-defined queuing class map name. For the list of system-defined queuing class maps, see <a href="#">Table 1</a> .
<i>WORD</i>		Hierarchical class-map name. It can be a string of 40 alphanumeric characters.

Defaults	None
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Command Modes	Global configuration
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Supported User Roles	network-admin vdc-admin
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Command History	Release	Modification
	5.1(1)	Added the <i>WORD</i> argument.
	4.0	This command was introduced.

Usage Guidelines	<p>The argument <i>WORD</i> is supported only on the F-Series Modules.</p> <p>When a non-8e template is active, it allows you to specify a hierarchical queuing (both ingress and egress) policy.</p> <p>If the packet matches any of the criteria configured for this class map with the <b>match</b> command, this class map is applied to the packet. Class maps of type queuing support only this option.</p> <p>Any modification made to the class maps type queuing changes the configuration for all ports of the specified port type on all VDCs.</p> <p>You cannot delete system-defined queuing class map names. For more information on using the <b>class-map type queuing match-any</b> command, see the <i>Cisco Nexus 7000 Series NX-OS Quality of Service Configuration Guide, Release 5.0</i>.</p> <p>This command does not require a license.</p>
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Examples	This example shows how to modify a queuing class map:
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```
switch(config)# class-map type queuing match-any 2q4t-in-q1
switch(config-cmap-que)#
```

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Related Commands	Command	Description
	<b>show class-map queuing</b>	Displays class maps.
	<b>match cos</b>	Defines the class of traffic in type queuing class maps.



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## clear qos statistics

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

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

### Syntax Description

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

### Defaults

None

### Command Modes

Any command mode

### Supported User Roles

network-admin  
network-operator  
vdc-admin  
vdc-operator

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

If you do not specify the interface or VLAN, the device clears the counters for all VLANs and interfaces. This command does not require a license.

### Examples

This example shows how to clear all the QoS statistics:

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

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

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

**clear qos statistics**

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**Related Commands**

<b>Command</b>	<b>Description</b>
<b>qos statistics</b>	Enables or disables QoS statistics.
<b>show qos statistics</b>	Displays QoS statistics.

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## congestion-control

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

```
congestion-control [random-detect {threshold [burst-optimized | mesh-optimized]} | tail-drop
{threshold [burst-optimized | mesh-optimized}]}
```

```
no congestion-control [random-detect {threshold [burst-optimized | mesh-optimized]} |
tail-drop {threshold [burst-optimized | mesh-optimized}]}
```

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

**Defaults** None

**Command Modes** Policy-map type network qos configuration

**Supported User Roles** network-admin  
vdc-admin

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

**Examples** This example shows how to configure congestion control:

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

This example shows how to configure congestion control:

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

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```
switch(config-pmap-nqos-c)#
```

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

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## default (table map)

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

```
default {value | copy}
```

```
no default {value | copy}
```

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

**Defaults** Copies the input value to the output value.

**Command Modes** Table map configuration  
Default table map configuration

**SupportedUserRoles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.
	4.0(2)	The <i>ignore</i> variable for this command is no longer supported.

**Usage Guidelines** The **copy** keyword is available only in the table map configuration mode. In the default table map configuration mode, the **copy** keyword is not available because all values must be assigned a mapping. This command does not require a license.

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

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

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

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## description

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

**description** *text*

**no description** *text*

### Syntax Description

<i>text</i>	Description for the class map, policy map, or table map. The description has a maximum of 200 characters.
-------------	---

### Defaults

None

### Command Modes

Class map type qos configuration  
 Policy map type qos configuration  
 Policy map type queuing configuration  
 Table map configuration

### Supported User Roles

network-admin  
 vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

This command does not require a license.

### Examples

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

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

### Related Commands

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

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## from (table map)

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

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

### Syntax Description

<i>source-value</i>	Source value in the range from 0 to 63.
<i>dest-value</i>	Destination value in the range from 0 to 63.

### Defaults

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

### Command Modes

Table map configuration  
Default table map configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

This command does not require a license.

### Examples

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

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

### Related Commands

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

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## match access-group

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

**match access-group name** *acl-name*

**no match access-group name** *acl-name*

### Syntax Description

*acl-name* Name of the ACL.

### Defaults

None

### Command Modes

Class-map type qos configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

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

### Usage Guidelines



#### Note

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

This command does not require a license.

### Examples

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

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

### Related Commands

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



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## match class-map

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

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

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

<b>Syntax Description</b>	<b>not</b> (Optional) Negates the specified match result.				
	<i>class-map-name</i> Specified class-map name where the <b>match</b> commands need to be matched.				
<b>Defaults</b>	None				
<b>Command Modes</b>	Class-map type qos configuration				
<b>Supported User Roles</b>	network-admin vdc-admin				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>4.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	4.0	This command was introduced.
Release	Modification				
4.0	This command was introduced.				
<b>Usage Guidelines</b>	This command does not require a license.				
<b>Examples</b>	<p>This example shows how to match on the matches specified in class map named my_test:</p> <pre>switch(config)# class-map my_test switch(config-cmap-qos)# match class-name my_test</pre>				
<b>Related Commands</b>	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>show class-map</td> <td>Displays class maps.</td> </tr> </tbody> </table>	Command	Description	show class-map	Displays class maps.
Command	Description				
show class-map	Displays class maps.				

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## match cos (class map type network-qos)

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

**match cos** *cos-list*

**no match cos** *cos-list*

<b>Syntax Description</b>	<i>cos-list</i>	CoS value or list of specified CoS values. Valid values are from 0 to 7.
---------------------------	-----------------	--

<b>Defaults</b>	None
-----------------	------

<b>Command Modes</b>	Class-map type qos configuration
----------------------	----------------------------------

<b>SupportedUserRoles</b>	network-admin vdc-admin
---------------------------	----------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.1(1)	This command was introduced.

<b>Usage Guidelines</b>	<p>To specify a list of values, use one of the following options:</p> <ul style="list-style-type: none"> <li>Specify a range of values by separating each value with a dash.</li> <li>Specify a noncontiguous list of values by separating each value by a comma.</li> </ul>
-------------------------	--

This command does not require a license.

<b>Examples</b>	This example shows how to match on the CoS value for a type network qos class map:
-----------------	--

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

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

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## match cos (class map type qos)

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

**match [not] cos** *cos-list*

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

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

**Defaults** None

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

**Supported User Roles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

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

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



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

This command does not require a license.

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

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

■ match cos (class map type qos)

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Related Commands	Command	Description
	show class-map	Displays class maps.

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## match cos (class map type queuing)

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

**match cos** *cos-list*

**no match cos** *cos-list*

<b>Syntax Description</b>	<i>cos-list</i>	Specified class of service (CoS) value or list of specified CoS values. Valid values are from 0 to 7.
---------------------------	-----------------	---

<b>Defaults</b>	None
-----------------	------

<b>Command Modes</b>	Class-map type queuing configuration
----------------------	--------------------------------------

<b>SupportedUserRoles</b>	network-admin vdc-admin
---------------------------	----------------------------

Command History	Release	Modification
	4.0	This command was introduced.

<b>Usage Guidelines</b>	<p>To specify a list of values, use one of the following options:</p> <ul style="list-style-type: none"> <li>Specify a range of values by separating each value with a dash.</li> <li>Specify a noncontiguous list of values by separating each value by a comma.</li> </ul> <p>Any modifications that you make to the class map type queuing changes the configuration for all ports of the specified port type on all VDCs.</p>
-------------------------	---



### Note

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

This command does not require a license.

<b>Examples</b>	This example shows how to modify a type queuing class map to match on CoS:
-----------------	--

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

■ match cos (class map type queuing)

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Related Commands	Command	Description
	show class-map	Displays class maps.

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## match discard-class

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

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

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

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

Defaults	None
----------	------

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

Supported User Roles	network-admin vdc-admin
----------------------	----------------------------

Command History	Release	Modification
	4.0	This command was introduced.

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

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

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

This command does not require a license.

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

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

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

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## match dscp

To identify specific Differentiated Services Code Point (DSCP) values 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. For the list of valid DSCP values, see <a href="#">Table 2</a> .

### Defaults

None

### Command Modes

Class-map type qos configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

The standard DSCP values are shown in [Table 2](#).

**Table 2** Standard DSCP Values

	List of DSCP Values
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



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**Table 2 Standard DSCP Values (continued)**

	List of DSCP Values
af42	AF42 dscp (100100)—decimal value 36
af43	AF43 dscp (100110)—decimal value 38
cs1	CS1 (precedence 1) dscp (001000)—decimal value 8
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 by separating each value with a dash.
- Specify a noncontiguous list of values by separating each value by a comma.

This command does not require a license.

### Examples

This example shows how to match on DSCP value af21:

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

### Related Commands

Command	Description
show class-map	Displays class maps.

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## match ip rtp

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

**match [not] ip rtp** *port-list*

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

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

Defaults	None
----------	------

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

Supported User Roles	network-admin vdc-admin
----------------------	----------------------------

Command History	Release	Modification
	4.0	This command was introduced.

Usage Guidelines	To specify a list of values, use one of the following options: <ul style="list-style-type: none"> <li>Specify a range of values by separating each value with a dash.</li> <li>Specify a noncontiguous list of values by separating each value by a comma.</li> </ul> <p>This command does not require a license.</p>
------------------	---

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

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

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

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## match packet length

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

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

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

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

**Defaults** None

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

**Supported User Roles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

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

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

This command does not require a license.

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

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

Related Commands	Command	Description
	show class-map	Displays class maps.

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## match precedence

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

**match** [**not**] **precedence** *precedence-list*

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

### Syntax Description

<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 3</a> .

### Defaults

None

### Command Modes

Class-map type qos configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

For a list of precedence values, see [Table 3](#).

**Table 3** Precedence Values

Precedence Value	List of Precedence Values
<0-7>	IP precedence value
critical	Critical precedence (5)
flash	Flash precedence (3)
flash-override	Flash override precedence (4)
immediate	Immediate precedence (2)
internet	Internet network control precedence (6)
network	Network control precedence (7)
priority	Priority precedence (1)
routine	Routine precedence (0)

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

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

This command does not require a license.

---

**Examples**

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

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

---

**Related Commands**

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

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## 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

<b>not</b>	(Optional) Negates the specified match result.
<i>protocol-name</i>	Specified protocol name. Valid values are shown in <a href="#">Table 4</a> .

### Defaults

None

### Command Modes

Class-map type qos configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

The list of valid protocol names is shown in [Table 4](#).

**Table 4** Protocol Names

Argument	Description
arp	Address Resolution Protocol (ARP)
bridging	Bridging
cdp	Cisco Discovery Protocol (CDP)
clns	Connectionless Network Service (CLNS)
clns_es	CLNS End Systems
clns_is	CLNS Intermediate System
dhcp	Dynamic Host Configuration (DHCP)
isis	Intermediate system to intermediate system (IS-IS)
ldp	Label Distribution Protocol (LDP)
netbios	NetBIOS Extended User Interface (NetBEUI)

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---

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

---

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

This command does not require a license.

---

**Examples**

This example shows how to match on a specified protocol:

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

---

**Related Commands**

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

---

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## 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 0 to 126.

### Defaults

None

### Command Modes

Class-map type qos configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

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

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

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

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

This command does not require a license.

### Examples

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

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



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---

**Related Commands**

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

---

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## mtu

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

```
mtu [mtu_size]
```

Syntax Description	<i>mtu_size</i>	(Optional) MTU size. The range is from 1500 to 9216.
--------------------	-----------------	--

Defaults	None
----------	------

Command Modes	Policy-map type network qos configuration
---------------	---

Supported User Roles	network-admin vdc-admin
----------------------	----------------------------

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

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

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

Related Commands	Command	Description
	<b>congestion-control</b>	Configures congestion control in a network qos policy.
	<b>pause</b>	Configure no-drop per CoS.
	<b>priority</b>	Marks the priority level in a traffic queue.
	<b>shape</b>	Configures the traffic rate for a given traffic profile.

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## pause

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

**pause**

**no pause**

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

**Defaults** no pause

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

**SupportedUserRoles** network-admin  
vdc-admin

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

**Examples** This example shows how to configure no-drop CoS:

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

Related Commands	Command	Description
	<b>congestion-control</b>	Configures congestion control in a network qos policy.

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<b>Command</b>	<b>Description</b>
<b>mtu</b>	Configures the maximum transmission unit (MTU) size in a network qos policy.
<b>priority</b>	Marks the priority level in a traffic queue.

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## police (QoS)

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

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

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

### Syntax Description

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

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<i>be-value</i>	Extended burst rate. If the bc value is not specified, the default is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.
<b>conform</b>	Sets the action to take when the data rate is within bounds.
<b>transmit</b>	Specifies the action of transmitting packets.
<b>set-prec-transmit</b> <i>precedence-value</i>	Sets the IP precedence field to the specified value and transmits the packet. Valid values are from 0 to 7.
<b>set-dscp-transmit</b> <i>dscp-value</i>	Sets the Differentiated Service Code Point (DSCP) field to the specified value and transmits the packet. For a list of valid values for this field, see <a href="#">Table 2</a> .
<b>set-cos-transmit</b> <i>cos-val</i>	Sets the class of service (CoS) field to the specified value and transmits the packet. Valid values are from 0 to 7.
<b>set-discard-class-transmit</b> <i>discard-class-value</i>	Sets the discard class field to the specified value and transmits the packet. Valid values are from 0 to 63.
<b>set-qos-transmit</b> <i>qos-group-value</i>	Sets the qos group field to the specified value and transmits the packet. Valid values are from 0 to 126.
<b>exceed</b>	Sets the action to take when the data rate is exceeded. The default is drop.
<b>drop</b>	Specifies the action of dropping packets.
<b>set dscp dscp table</b> <b>cir-markdown-map</b>	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.
<b>violate</b>	Sets the action to take when the data rate violates the configured rate values. The default is drop.
<b>set dscp dscp table</b> <b>pir-markdown-map</b>	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.

### Defaults

bc default value is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.  
 be default value is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.  
 exceed default action is drop.  
 violate default action is drop.

### Command Modes

Policy map type qos class configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

This command does not require a license.

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### Examples

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

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

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

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

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

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

### Related Commands

Command	Description
<code>show policy-map</code>	Displays policy maps and statistics.

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## police aggregate

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

**police aggregate** *policer-name*

**no police aggregate** *policer-name*

Syntax Description	<i>policer-name</i>	Name of a shared aggregate policer to use.
--------------------	---------------------	--

Defaults	None
----------	------

Command Modes	Policy map type qos class configuration
---------------	---

Supported User Roles	network-admin vdc-admin
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Command History	Release	Modification
	4.0	This command was introduced.

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



Note	For information about configuring a shared policer, see the <a href="#">qos shared-policer</a> command.
------	---

This command does not require a license.

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

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

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

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



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

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## policy-map type network-qos

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

```
policy-map type network-qos {policy-map-name} {default-nq-4e-policy | default-nq-6e-policy | default-nq-7e-policy | default-nq-8e-policy | my_template}
```

```
no policy-map type network-qos {policy-map-name} {default-nq-4e-policy | default-nq-6e-policy | default-nq-7e-policy | default-nq-8e-policy | my_template}
```

### Syntax Description

<i>policy-class-name</i>	Policy-map name. The policy map names can contain alphabetic, hyphen, or underscore characters, are case sensitive, and can be up to 40 characters.
<b>default-nq-4e-policy</b>	Specifies the default 4-ethernet policy (4-drop, 4-nodrop CoS).
<b>default-nq-6e-policy</b>	Specifies the default 6-ethernet policy (6-drop, 2-nodrop CoS).
<b>default-nq-7e-policy</b>	Specifies the default 7-ethernet policy (7-drop, 1-nodrop CoS).
<b>default-nq-8e-policy</b>	Specifies the default 8-ethernet policy (8-drop CoS).
<b>my_template</b>	Specifies the policy map name of the type network qos.

### Defaults

qos

### Command Modes

Global configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
5.1(1)	This command was introduced.

### Usage Guidelines

Use the **service-policy** command to assign policy maps to system qos.  
This command does not require a license.

### Examples

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

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

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

```
switch# configure terminal
```

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

**Related Commands**

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

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## policy-map type qos

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

```
policy-map [type qos] [match-first] {qos-policy-map-name | qos-dynamic}
```

```
no policy-map [type qos] [match-first] {qos-policy-map-name | qos-dynamic}
```

### Syntax Description

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

### Defaults

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

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.
4.2(1)	The <b>qos-dynamic</b> variable was added.

### Usage Guidelines

Use the **service-policy** command to assign policy maps to interfaces.  
This command does not require a license.

### Examples

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

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

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

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

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Related Commands	Command	Description
	<b>service-policy</b>	Attaches a policy map to an interface.
	<b>show policy-map</b>	Displays policy maps and statistics.

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## policy-map type queuing

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

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

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

### Syntax Description

**match-first** (Optional) Specifies the policies associated with the first class that matches the packet characteristics are executed. This is the default action if this option is not specified.

**Note** Because this is the default action, you do not need to enter this variable; it is there to ensure compatibility with other systems.

*queuing-policy-map-name* Name assigned to a type queuing policy map.

**que-dynamic** Specifies already configured policy maps.

### Defaults

None

### Command Modes

Global configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.
4.2(1)	The <b>que-dynamic</b> variable was added.

### Usage Guidelines

Use the **service-policy** command to assign policy maps to interfaces.  
This command does not require a license.

### Examples

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

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

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

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

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**Related Commands**

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

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## priority (queuing)

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

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

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

### Syntax Description

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

### Defaults

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

### Command Modes

Policy map type queuing configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

The priority level can only be 1.

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

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



#### Note

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

This command does not require a license.

### Examples

This example shows how to assign a priority queue:

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

This example shows how to remove a priority queue:



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```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing lp3q4t-out-pq1
switch(config-pmap-c-que)# no priority level 1
switch(config-pmap-c-que)#
```

**Related Commands**

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

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## priority-flow-control mode

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

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

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

**Defaults** auto

**Command Modes** Global configuration

**Supported User Roles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

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

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

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

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

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Related Commands	Command	Description
	<b>show interface priority-flow-control</b>	Displays the status of priority flow control (PFC) on all interfaces.

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## qos copy policy-map

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

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

### Syntax Description

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

### Defaults

None

### Command Modes

Global configuration

### Supported User Roles

network-admin  
network-operator  
vdc-admin  
vdc-operator

### Command History

Release	Modification
5.1(1)	This command was introduced.

### Usage Guidelines

This command does not require a license.

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---

**Examples**

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

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

---

**Related Commands**

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

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## qos shared-policer

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

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

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

### Syntax Description

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

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<i>be-value</i>	Extended burst rate. If the bc value is not specified, the default is 200 milliseconds of traffic at the configured rate. The default data rate units are bytes.
<b>conform</b>	Sets the action to take when the data rate is within bounds.
<b>transmit</b>	Specifies the action of transmitting packets.
<b>set-prec-transmit</b> <i>precedence-value</i>	Sets the IP precedence field to the specified value and transmits the packet. Valid values are from 0 to 7.
<b>set-dscp-transmit</b> <i>dscp-value</i>	Sets the Differentiated Services Code Point (DSCP) field to the specified value and transmits the packet. For a list of valid values for this field, see <a href="#">Table 2</a> .
<b>set-cos-transmit</b> <i>cos-val</i>	Sets the class of service (CoS) field to the specified value and transmits the packet. Valid values are from 0 to 7.
<b>set-discard-class-transmit</b> <i>discard-class-value</i>	Sets the discard class field to the specified value and transmits the packet. Valid values are from 0 to 63.
<b>set-qos-transmit</b> <i>qos-group-value</i>	Sets the qos group field to the specified value and transmits the packet. Valid values are from 0 to 126.
<b>exceed</b>	Sets the action to take when the data rate is exceeded. The default is drop.
<b>drop</b>	Specifies the action of dropping packets.
<b>set dscp dscp table cir-markdown-map</b>	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.
<b>violate</b>	Sets the action to take when the data rate violates the configured rate values. The default is drop.
<b>set dscp dscp table pir-markdown-map</b>	Sets the DSCP field to the corresponding value in the system-defined table map and transmits the packet.

### Defaults

type default value is qos.

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

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

exceed default action is drop.

violate default action is drop.

### Command Modes

Global configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

***Send document comments to [nexus7k-docfeedback@cisco.com](mailto:nexus7k-docfeedback@cisco.com)*****Usage Guidelines**

The interfaces that are attached to the shared policer must be on the same module. For an example of using a shared policer, see the [police aggregate](#) command.

This command does not require a license.

**Examples**

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

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

**Related Commands**

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



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## qos statistics

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

**qos statistics**

**no qos statistics**

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

**Defaults** Enabled

**Command Modes** Global configuration

**SupportedUserRoles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

**Usage Guidelines** On M1 Modules if QoS statistics were disabled it may take up to 90 seconds to show the statistics under "show policy-map interface <num> type queuing" command.  
This command does not require a license.

**Examples** This example shows how to enable QoS statistics:

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

This example shows how to disable QoS statistics:

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

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

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## queue-limit (Tail drop threshold)

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

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

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

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

**Defaults** queue-size is in packets by default.

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

**Supported User Roles** network-admin  
vdc-admin

Command History	Release	Modification
	5.1(1)	Modified the <b>queue-limit</b> command to include Tail drop threshold.
	4.0	This command was introduced.

**Usage Guidelines** The system drops packets that exceed the configured queue-size threshold.  
By default, the queue limit is applied to all packets with a class of service (CoS) value that is not assigned a queue limit.

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The queue limit is not supported on ingress policies on the 10-Gbps interfaces.

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

This command does not require a license.

**Examples**

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

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

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

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

**Related Commands**

Command	Description
<a href="#">random-detect</a>	Configures weighted random early detection (WRED).
<a href="#">show policy-map</a>	Displays policy maps and statistics.

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## queue-limit (queue-size)

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

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

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

### Syntax Description

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

### Defaults

queue-size is in packets by default.

### Command Modes

Policy map type queuing class configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

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

### Usage Guidelines

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

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

The queue limit is not supported on ingress policies on the 10-Gbps interfaces.

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

This command does not require a license.

**Examples**

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

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

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

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

**Related Commands**

Command	Description
<a href="#">random-detect</a>	Configures weighted random early detection (WRED).
<a href="#">show policy-map</a>	Displays policy maps and statistics.

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## random-detect

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

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

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

### Syntax Description

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

### Defaults

Thresholds are in packets by default.

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

### Command Modes

Policy map type queuing class configuration

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**SupportedUserRoles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.

### Usage Guidelines



**Note**

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

The minimum and maximum threshold units must match.

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

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

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

For CoS lists, you can use the following:

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

This command does not require a license.

### Examples

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

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing lp3q4t-out-pq1
switch(config-pmap-c-que)# random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# random-detect cos 5,7 15 mbytes 20 mbytes
switch(config-pmap-c-que)#
```

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

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing lp3q4t-out-pq1
switch(config-pmap-c-que)# random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# random-detect cos 5 percent 5 percent 15
switch(config-pmap-c-que)#
```

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

```
switch(config)# policy-map type queuing match-first my_queue
switch(config-pmap-que)# class type queuing lp3q4t-out-pq1
switch(config-pmap-c-que)# no random-detect cos-based aggregate 10 mbytes 20 mbytes
switch(config-pmap-c-que)# no random-detect cos 5 percent 5 percent 15
switch(config-pmap-c-que)#
```

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<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>random-detect cos-based</b>	Configures WRED.
	<b>queue limit</b>	Configures tail drop.
	<b>show policy-map</b>	Displays policy maps and statistics.



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## random-detect cos-based

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

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

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

### Syntax Description

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

### Defaults

Thresholds are in packets by default.

### Command Modes

Policy map type queuing class configuration

### Supported User Roles

network-admin  
vdc-admin

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### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

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

The minimum and maximum threshold units must match.

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

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



### Note

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

This command does not require a license.

### Examples

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

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

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

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

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

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

### Related Commands

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

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## service-policy

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

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

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

Syntax Description	type	(Optional) 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>input</b>	Applies this policy map to packets coming into this interface.
	<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.
	<b>qos-dynamic</b>	Specifies already configured policy maps.
	<b>no-stats</b>	(Optional) Disables generation of statistics for this policy map.

### Defaults

type default is qos.

No policies of type qos are active on an interface until the **service-policy** command is entered. The system-defined type queuing class maps are attached to each interface unless you specifically attach a different class map. For a list of the system-defined type queuing class maps, see [Table 1](#).

### Command Modes

Interface configuration  
VLAN configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
5.x	Changed the Qos Config on vlan.
4.0	This command was introduced.
4.0(3)	Support for tunnel interfaces is added.
4.2(1)	The <b>qos-dynamic</b> variable was added.

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### Usage Guidelines

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

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

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



### Note

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

This command does not require a license.

### Examples

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

```
switch(config)# vlan configuration 111
switch(config-vlan-config)# service-policy input pmap1
switch(config-vlan-config)# service-policy output pmap1
switch(config-vlan-config)#
```

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

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

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

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

### Related Commands

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

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## service-policy type network-qos

To specify the type of network QoS policy, use the **service-policy type network-qos** command. To remove a service policy type network QoS, use the **no** form of this command.

```
service-policy type network-qos { default-nq-4e-policy | default-nq-6e-policy |
                                default-nq-7e-policy | default-nq-8e-policy }
```

```
no service-policy type network-qos { default-nq-4e-policy | default-nq-6e-policy |
                                    default-nq-7e-policy | default-nq-8e-policy }
```

### Syntax Description

**default-nq-4e-policy** Displays default 4-ethernet policy (4-drop 4-nodrop CoS).

**default-nq-6e-policy** Displays default 6-ethernet policy (6-drop 2-nodrop CoS).

**default-nq-7e-policy** Displays default 7-ethernet policy (7-drop 1-nodrop CoS).

**default-nq-8e-policy** Displays default 8-ethernet policy (8-drop CoS).

### Defaults

Default-nq-8e-policy is used by default.

### Command Modes

Configuration mode.

### Supported User Roles

network-admin

### Related Commands

Release	Modification
5.1(1)	This command was introduced.

### Usage Guidelines

8E template is used if no policies of type network-qos under system qos. The network-qos is applied on all VDC and allows to change the MTU on all F-type modules at system level. It also allows to change the congestion drop algorithm to burst or Mesh optimized.



#### Note

For more information on using service policies, see the Cisco Nexus 7000 Series NX-OS Quality of Service Configuration Guide, Release 5.1(1).

This command does not require a license.

### Examples

This example shows how to display the default 4 Ethernet policy:

```
switch(config)# system qos
switch(config-sys-qos)# service-policy type network-qos default-nq-4e-policy
switch(config-sys-qos)#
```

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Related Commands	Command	Description
	<b>show policy-map system</b>	Displays the configured system Qos template which is currently applied on all VDCs.

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## set cos (policy map type qos)

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

**set cos** *cos-value*

**no set cos** *cos-value*

<b>Syntax Description</b>	<i>cos-value</i>	CoS value to assign for this class of traffic. Valid values are from 0 to 7.
<b>Defaults</b>	None	
<b>Command Modes</b>	Policy map type qos class configuration	
<b>Supported User Roles</b>	network-admin vdc-admin	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0	This command was introduced.
<b>Usage Guidelines</b>	<p>You can use the <b>set cos (policy map type qos)</b> command only on type qos policies that are attached to egress ports.</p> <p>This command does not require a license.</p>	
<b>Examples</b>	<p>This example shows how to remove an assignment of CoS for a class of traffic in a type qos policy map:</p> <pre>switch(config)# policy-map my_policy1 switch(config-pmap-qos)# class traffic_class2 switch(config-pmap-c-qos)# no set cos 3 switch(config-pmap-c-qos)#</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show policy-map</b>	Displays policy maps and statistics.

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## set cos (policy map type queuing)

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

**set cos** *cos-value-queuing*

**no set cos** *cos-value-queuing*

### Syntax Description

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

### Defaults

None

### Command Modes

Policy map type queuing class configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

You can only use this form of the **set cos (policy map type queuing)** command for ingress default type queuing classes. For a table of system-defined queuing class maps, see [Table 1](#).



#### Note

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

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

This command does not require a license.

### Examples

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

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

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

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



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

---

**Related Commands**

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

---

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## set discard-class

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

**set discard-class** *discard-value*

**no set discard-class** *discard-value*

<b>Syntax Description</b>	<i>discard-value</i>	Discard-class value to assign for this class of traffic. Valid values are from 0 to 63.
---------------------------	----------------------	---

<b>Defaults</b>	None
-----------------	------

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

<b>SupportedUserRoles</b>	network-admin vdc-admin
---------------------------	----------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0	This command was introduced.

<b>Usage Guidelines</b>	You can set the discard-class value only in ingress policies.
-------------------------	---



### Note

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

This command does not require a license.

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

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

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

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## set dscp (QoS)

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

```
set dscp [tunnel] dscp-value
```

```
no set dscp [tunnel] dscp-value
```

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

**Defaults** None

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

**Supported User Roles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.
	4.0.3	The <b>tunnel</b> keyword is supported.

**Usage Guidelines** For a list of standard DSCP values, see [Table 2](#).



**Note**

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

This command does not require a license.

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

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

■ set dscp (QoS)

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---

**Related Commands**

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

---

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## set precedence (QoS)

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

**set precedence** [**tunnel**] *precedence-value*

**no set precedence** [**tunnel**] *precedence-value*

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

**Defaults** None

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

**Supported User Roles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0	This command was introduced.
	4.0.3	The <b>tunnel</b> keyword is supported.

**Usage Guidelines** For a list of the IP precedence values, see [Table 3](#).  
The device rewrites the last 3 bits of the Type of Service (ToS) field in the IP header to 0 for packets that match this class.



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

This command does not require a license.

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

```
switch(config)# policy-map policy1
switch(config-pmap-qos)# class class2
switch(config-pmap-c-qos)# set precedence 3
switch(config-pmap-c-qos)#
```

■ set precedence (QoS)

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---

**Related Commands**

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

---

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## 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. Valid values are from 0 to 126.
<b>Defaults</b>	None	
<b>Command Modes</b>	Policy map type qos class configuration	
<b>Supported User Roles</b>	network-admin vdc-admin	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0	This command was introduced.
<b>Usage Guidelines</b>	You can set the QoS group identifier value only in ingress policies. This command does not require a license.	
<b>Examples</b>	This example shows how to assign a QoS group identifier for a class of traffic in a type qos policy map: <pre>switch(config)# policy-map my_policy1 switch(config-pmap-qos)# class traffic_class2 switch(config-pmap-c-qos)# set qos-group 100 switch(config-pmap-c-qos)#</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>show policy-map</b>	Displays policy maps and statistics.

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## set table

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

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

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

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

**Defaults** None

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

**Supported User Roles** network-admin  
vdc-admin

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

**Usage Guidelines** The system-defined table maps used in the **set table** command are shown in [Table 5](#).



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**Table 5** System-Defined Table Maps Used in the set table Command

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



**Note**

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

This command does not require a license.

**Examples**

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

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

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

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

**Related Commands**

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

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## shape

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

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

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

### Syntax Description

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

### Defaults

bps is default data rate.

### Command Modes

Global configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines

You can use the system-defined egress queue class for the type of module to which you want to apply the policy map. For a list of the system-defined type queuing class maps, see [Table 1](#).

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



#### Note

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

This command does not require a license.

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### Examples

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

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

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

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

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

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

### Related Commands

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

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## show class-map type network-qos

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

**show class-map type network-qos**

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

**Defaults** None

**Command Modes** Any

**SupportedUserRoles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

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

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

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```
    Description: 4E No-Drop FCoE CoS map
    match cos 3
    match protocol fcoe
class-map type network-qos match-any c-nq-6e-ndrop-fcoe
    Description: 6E No-Drop FCoE CoS map
    match cos 3
    match protocol fcoe
class-map type network-qos match-any c-nq-7e-ndrop-fcoe
    Description: 7E No-Drop FCoE CoS map
    match cos 3
    match protocol fcoe
```

---

**Related Commands**

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

---

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## show class-map type qos

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

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

<b>Syntax Description</b>	<i>class-map-name</i>	(Optional) Named class map. The name <i>class-default</i> is reserved.
	<i>color-class-map-name</i>	(Optional) System-defined color class map.

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

**Command Modes** Any command mode

**Supported User Roles**

- network-admin
- network-operator
- vdc-admin
- vdc-operator

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
		4.0

**Usage Guidelines** [Table 6](#) displays the list of system-defined class maps that display with this command.

**Table 6** System-Defined Type QoS Class Maps That Display with This Command

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

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

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This command does not require a license.

### Examples

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

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

Type qos class-maps
=====

class-map type qos match-all abc
  match dscp 0-3

class-map type qos conform-color-in
  Description: Conform color map in input direction

class-map type qos conform-color-out
  Description: Conform color map in output direction

class-map type qos exceed-color-in
  Description: Exceed color map in input direction

class-map type qos exceed-color-out
  Description: exceed color map in output direction
```

### Related Commands

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

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## 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> (Optional) Named class map.
---------------------------	---

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

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

<b>SupportedUserRoles</b>	network-admin network-operator vdc-admin vdc-operator
---------------------------	--

Command History	Release	Modification
	4.0	This command was introduced.

<b>Usage Guidelines</b>	For a list of the system-defined type queuing class maps, see <a href="#">Table 1</a> . This command does not require a license.
-------------------------	---

<b>Examples</b>	This example shows how to display all type queuing class maps:
-----------------	--

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

Type queuing class-maps
=====

class-map type queuing match-any 2q4t-in-q1
  Description: Classifier for ingress queue 1 of type 2q4t
  match cos 5-7

class-map type queuing match-any 2q4t-in-q-default
  Description: Classifier for ingress default queue of type 2q4t
  match cos 0-4

class-map type queuing match-any 8q2t-in-q1
  Description: Classifier for ingress queue 1 of type 8q2t
  match cos 5-7

class-map type queuing match-any 8q2t-in-q2
  Description: Classifier for ingress queue 2 of type 8q2t
```



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```

class-map type queuing match-any 8q2t-in-q3
  Description: Classifier for ingress queue 3 of type 8q2t

class-map type queuing match-any 8q2t-in-q4
  Description: Classifier for ingress queue 4 of type 8q2t

class-map type queuing match-any 8q2t-in-q5
  Description: Classifier for ingress queue 5 of type 8q2t

class-map type queuing match-any 8q2t-in-q6
  Description: Classifier for ingress queue 6 of type 8q2t

class-map type queuing match-any 8q2t-in-q7
  Description: Classifier for ingress queue 7 of type 8q2t

class-map type queuing match-any 8q2t-in-q-default
  Description: Classifier for ingress default queue of type 8q2t
  match cos 0-4

class-map type queuing match-any 1p3q4t-out-pq1
  Description: Classifier for egress priority queue of type 1p3q4t
  match cos 5-7

class-map type queuing match-any 1p3q4t-out-q2
  Description: Classifier for egress queue 2 of type 1p3q4t

class-map type queuing match-any 1p3q4t-out-q3
  Description: Classifier for egress queue 3 of type 1p3q4t

class-map type queuing match-any 1p3q4t-out-q-default
  Description: Classifier for egress default queue of type 1p3q4t
  match cos 0-4

class-map type queuing match-any 1p7q4t-out-pq1
  Description: Classifier for egress priority queue of type 1p7q4t
  match cos 5-7

class-map type queuing match-any 1p7q4t-out-q2
  Description: Classifier for egress queue 2 of type 1p7q4t

class-map type queuing match-any 1p7q4t-out-q3
  Description: Classifier for egress queue 3 of type 1p7q4t

class-map type queuing match-any 1p7q4t-out-q4
  Description: Classifier for egress queue 4 of type 1p7q4t

class-map type queuing match-any 1p7q4t-out-q5
  Description: Classifier for egress queue 5 of type 1p7q4t

class-map type queuing match-any 1p7q4t-out-q6
  Description: Classifier for egress queue 6 of type 1p7q4t

class-map type queuing match-any 1p7q4t-out-q7
  Description: Classifier for egress queue 7 of type 1p7q4t

class-map type queuing match-any 1p7q4t-out-q-default
  Description: Classifier for egress default queue of type 1p7q4t
  match cos 0-4

```

---

**Related Commands**

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

---

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## show interface priority-flow-control

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

**show interface priority-flow-control**

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

**Defaults** None

**Command Modes** Any

**SupportedUserRoles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

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

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

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```
Ethernet5/17  Auto  Off
Ethernet5/18  Auto  Off
Ethernet5/19  Auto  Off
Ethernet5/20  Auto  Off
Ethernet5/21  Auto  Off
--More--
```

---

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>priority-flow-control</b>	Configures priority flow control (PFC) on an interface,

---

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## show policy-map

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

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

Syntax Description	Parameter	Description
	<b>type</b>	(Optional) Specifies the component type to display.
	<b>qos</b>	Specifies the policy maps of the type qos only.
	<b>queuing</b>	Specifies the policy maps of the type queuing only.
	<i>policy-map-name</i>	Named policy map.
	<b>qos-dynamic</b>	(Optional) Displays already configured policy maps.

**Defaults** None

**Command Modes** Any command mode

**Supported User Roles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	4.0	This command was introduced.
	4.0(3)	The WRR for the type queuing default-in-policy was changed from 50/50 to 80/20.
	4.2(1)	The <b>qos-dynamic</b> variable was added.

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

This command does not require a license.

**Examples** This example shows how to display a named policy map:

```
switch(config)# show policy-map abc

Type qos policy-maps
=====

policy-map type qos abc
  class abc
    set dscp 3
```

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```

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

```

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

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

```

Type queuing policy-maps
=====

policy-map type queuing q1
  class type queuing 8q2t-in-q-default
    set cos 4
policy-map type queuing default-in-policy
  class type queuing in-q1
    queue-limit percent 50
    bandwidth percent 80
  class type queuing in-q-default
    queue-limit percent 50
    bandwidth percent 20
policy-map type queuing default-out-policy
  class type queuing out-pq1
    priority level 1
    queue-limit percent 16
  class type queuing out-q2
    queue-limit percent 1
  class type queuing out-q3
    queue-limit percent 1
  class type queuing out-q-default
    queue-limit percent 82
    bandwidth remaining percent 25

```

**Related Commands**

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

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## show policy-map interface

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

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

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

**Defaults** None.

**Command Modes** Any command mode

**Supported User Roles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	4.0	This command was introduced.

**Usage Guidelines** By default, statistics are set to On.  
This command does not require a license.

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

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

Global statistics status : enabled
```

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```
Ethernet2/10

Service-policy (queuing) input:  default-in-policy
policy statistics status:  enabled

Class-map (queuing):  in-q1 (match-any)
queue-limit percent 50
bandwidth percent 50
queue dropped pkts : 0

Class-map (queuing):  in-q-default (match-any)
queue-limit percent 50
bandwidth percent 80
queue dropped pkts : 0

Service-policy (queuing) output:  default-out-policy
policy statistics status:  enabled

Class-map (queuing):  out-pq1 (match-any)
priority level 1
queue-limit percent 16
queue dropped pkts : 0

Class-map (queuing):  out-q2 (match-any)
queue-limit percent 1
queue dropped pkts : 0

Class-map (queuing):  out-q3 (match-any)
queue-limit percent 1
queue dropped pkts : 0

Class-map (queuing):  out-q-default (match-any)
queue-limit percent 82
bandwidth remaining percent 25
queue dropped pkts : 0
```

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

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

Global statistics status : enabled

Ethernet2/2

Service-policy (qos) input: pmap
policy statistics status: enabled

Class-map (qos): map (match-all)
1000000 packets
Match: dscp 46
police cir percent 20 bc 200 ms
conformed 78962304 bytes, 2725540 bps action: transmit
violated 49037696 bytes, 1692633 bps action: drop

Class-map (qos): class-default (match-any)
1000000 packets
police cir percent 10 bc 200 ms
conformed 39481856 bytes, 1362794 bps action: transmit
violated 88518144 bytes, 3055378 bps action: drop
```

■ show policy-map interface

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---

**Related Commands**

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

---



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## 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.

**Defaults** None

**Command Modes** Any command mode

**SupportedUserRoles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	4.0	This command was introduced.

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

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

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

Interface/VLAN [Status]:INP QOS      OUT QOS      INP QUE      OUT QUE
=====
port-channel5  [Active]:          default-in-po default-out-p
port-channel20 [Active]:          default-in-po default-out-p
port-channel30 [Active]:          default-in-po default-out-p
port-channel37 [Active]:          default-in-po default-out-p
port-channel50 [Active]:          default-in-po default-out-p

Ethernet2/2    [Active]:          default-in-po default-out-p
Ethernet2/3    [Active]:          default-in-po default-out-p
=====
```

■ show policy-map interface brief

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

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## show policy-map system type network-qos

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

**show policy-map system type network-qos**

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

**Defaults** None

**Command Modes** Any

**SupportedUserRoles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

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

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

■ `show policy-map system type network-qos`

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Related Commands	Command	Description
	<code>show policy-map type network-qos</code>	Displays the type network qos policy maps.
	<code>show policy-map</code>	Displays policy maps and statistics.

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## show policy-map type network-qos

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

```
show policy-map type network-qos { default-nq-4e-policy | default-nq-6e-policy |
  default-nq-7e-policy | default-nq-8e-policy }
```

Syntax	Description
<b>default-nq-4e-policy</b>	Displays default 4-ethernet policy (4-drop 4-nodrop CoS).
<b>default-nq-6e-policy</b>	Displays default 6-ethernet policy (6-drop 2-nodrop CoS).
<b>default-nq-7e-policy</b>	Displays default 7-ethernet policy (7-drop 1-nodrop CoS).
<b>default-nq-8e-policy</b>	Displays default 8-ethernet policy (8-drop CoS).

**Defaults** VDC only

**Command Modes** Any

**Supported User Roles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

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

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

■ **show policy-map type network-qos**

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```

    mtu 1500
  class type network-qos c-nq-6e-ndrop-fcoe
    pause
    mtu 2112
  class type network-qos c-nq-6e-ndrop
    pause
    mtu 1500
policy-map type network-qos default-nq-7e-policy
  class type network-qos c-nq-7e-drop
    congestion-control tail-drop
    mtu 1500
  class type network-qos c-nq-7e-ndrop-fcoe
    pause
    mtu 2112
policy-map type network-qos default-nq-8e-policy
  class type network-qos c-nq-8e
    congestion-control tail-drop
    mtu 1500

```

The following example shows how to display default 4 ethernet policy:

switch# **show policy-map type network-qos default-nq-4e-policy**

```

Type network-qos policy-maps
=====
policy-map type network-qos default-nq-4e-policy
  class type network-qos c-nq-4e-drop
    congestion-control tail-drop
    mtu 1500
  class type network-qos c-nq-4e-ndrop-fcoe
    pause
    mtu 2112
  class type network-qos c-nq-4e-ndrop
    pause
    mtu 2112

switch#

```

#### Related Commands

Command	Description
<b>show policy-map</b>	Displays policy maps and statistics.
<b>show policy</b>	Displays configured network policies.

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## show policy-map vlan

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

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

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

**Defaults** None

**Command Modes** Any command mode

**Supported User Roles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	4.0	This command was introduced.

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

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

```
switch(config)# show policy-map vlan

Global statistics status :   enabled

Vlan 1

  Service-policy (qos) input:   abc
    policy statistics status:   enabled

  Class-map (qos):   abc (match-all)
    Match: dscp 0-3
    set dscp 3
    set qos-group 3
```

■ `show policy-map vlan`

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```

set cos dscp table cos-dscp-map

Class-map (qos):  class-default (match-any)

Service-policy (qos) output:  def
policy statistics status:  enabled

```

---

**Related Commands**

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



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## show qos dcbxp

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

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

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

**Command Default** None

**Command Modes** Any

**SupportedUserRoles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	5.1(1)	This command was introduced.

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

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

```
switch# show qos dcbxp info
Interface      PFC_rcvd/cmptble  PG_rcvd/cmptble  MTU_rcvd/cmptble  FCOE_rcvd/cmptble
-----
Ethernet5/1    No/No              No/No              No/No              No/No
Ethernet5/2    No/No              No/No              No/No              No/No
Ethernet5/3    No/No              No/No              No/No              No/No
Ethernet5/4    No/No              No/No              No/No              No/No
Ethernet5/5    Yes/No             No/No              No/No              No/No
Ethernet5/6    No/No              No/No              No/No              No/No
Ethernet5/7    Yes/No             No/No              Yes/No             No/No
Ethernet5/8    No/No              No/No              No/No              No/No
Ethernet5/9    No/No              No/No              No/No              No/No
Ethernet5/10   No/No              No/No              No/No              No/No
Ethernet5/11   No/No              No/No              No/No              No/No
```

■ show qos dcbxp

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```

Ethernet5/12      No/No      No/No      No/No      No/No
Ethernet5/13      No/No      No/No      No/No      No/No
Ethernet5/14      No/No      No/No      No/No      No/No
Ethernet5/15      No/No      No/No      No/No      No/No
Ethernet5/16      No/No      No/No      No/No      No/No
Ethernet5/17      No/No      No/No      No/No      No/No
Ethernet5/18      No/No      No/No      No/No      No/No
Ethernet5/19      No/No      No/No      No/No      No/No
Ethernet5/20      No/No      No/No      No/No      No/No
Ethernet5/21      No/No      No/No      No/No      No/No
Ethernet5/22      No/No      No/No      No/No      No/No
Ethernet5/23      No/No      No/No      No/No      No/No
Ethernet5/24      No/No      No/No      No/No      No/No
Ethernet5/25      No/No      No/No      No/No      No/No
Ethernet5/26      No/No      No/No      No/No      No/No
Ethernet5/27      No/No      No/No      No/No      No/No
Ethernet5/28      No/No      No/No      No/No      No/No
Ethernet5/29      No/No      No/No      No/No      No/No
Ethernet5/30      No/No      No/No      No/No      No/No
Ethernet5/31      No/No      No/No      No/No      No/No
Ethernet5/32      No/No      No/No      No/No      No/No
switch#

```

---

**Related Commands**

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

---

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## show qos shared-policer

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

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

Syntax Description	
<b>type qos</b>	(Optional) Specifies the type qos policers.
<b>policer-name</b>	(Optional) Specified policer name.

Defaults	None
----------	------

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

SupportedUserRoles	network-admin network-operator vdc-admin vdc-operator
--------------------	--

Command History	Release	Modification
	4.0	This command was introduced.

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

Examples	This example shows how to display all type qos policers: <pre>switch(config)# show qos shared-policer</pre> <pre>switch(config)# qos shared-policer foo cir 300 mbps bc 200 ms conform transmit violate drop</pre>
----------	--

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

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## show queuing interface

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

```
show queuing interface {ethernet slot/port}summary
```

Syntax	Description
<b>ethernet</b>	Specifies the Ethernet interface.
<i>slot/port</i>	Module number and the port number for which you want to display the queuing information.
<b>summary</b>	Specifies the summary.

**Defaults** None

**Command Modes** Any command mode

**Supported User Roles** network-admin  
network-operator  
vdc-admin  
vdc-operator

Command History	Release	Modification
	4.0	This command was introduced.

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

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

```
switch# show queuing interface ethernet 2/9

Interface Ethernet2/9 TX Queuing strategy: Weighted Round-Robin
Port QoS is enabled
Queuing Mode in TX direction: mode-cos
Transmit queues [type = 1p3q4t]
Queue Id                Scheduling    Num of thresholds
-----
1p3q4t-out-q-default    WRR           04
1p3q4t-out-q2          WRR           04
1p3q4t-out-q3          WRR           04
1p3q4t-out-pq1        Priority       04

Configured WRR
WRR bandwidth ratios: 25[1p3q4t-out-q-default] 38[1p3q4t-out-q2] 37[1p3q
4t-out-q3]
WRR configuration read from HW
```

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```
WRR bandwidth ratios: 24[1p3q4t-out-q-default] 37[1p3q4t-out-q2] 37[1p3q4t-out-q3]
```

Configured queue-limit ratios

```
queue-limit ratios: 82[1p3q4t-out-q-default] 1[1p3q4t-out-q2] 1[1p3q4t-out-q3] 16[1p3q4t-out-pq1]
```

queue-limit ratios configuration read from HW

```
queue-limit ratios: 82[1p3q4t-out-q-default] 1[1p3q4t-out-q2] 1[1p3q4t-out-q3] 16[1p3q4t-out-pq1]
```

Thresholds:

COS	Queue	Threshold Type	Min	Max
0	1p3q4t-out-q-default	DT	100	100
1	1p3q4t-out-q-default	DT	100	100
2	1p3q4t-out-q-default	DT	100	100
3	1p3q4t-out-q-default	DT	100	100
4	1p3q4t-out-q-default	DT	100	100
5	1p3q4t-out-pq1	DT	100	100
6	1p3q4t-out-pq1	DT	100	100
7	1p3q4t-out-pq1	DT	100	100

Interface Ethernet2/9 RX Queuing strategy: Weighted Round-Robin

Queuing Mode in RX direction: mode-cos

Receive queues [type = 2q4t]

Port Cos not configured

Queue Id	Scheduling	Num of thresholds
2q4t-in-q-default	WRR	04
2q4t-in-q1	WRR	04

Configured WRR

```
WRR bandwidth ratios: 50[2q4t-in-q-default] 50[2q4t-in-q1]
```

WRR configuration read from HW

```
WRR bandwidth ratios: 50[2q4t-in-q-default] 50[2q4t-in-q1]
```

Configured queue-limit ratios

```
queue-limit ratios: 50[2q4t-in-q-default] 50[2q4t-in-q1]
```

queue-limit ratios configuration read from HW

```
queue-limit ratios: 50[2q4t-in-q-default] 50[2q4t-in-q1]
```

Thresholds:

COS	Queue	Threshold Type	Min	Max
0	2q4t-in-q-default	DT	100	100
1	2q4t-in-q-default	DT	100	100
2	2q4t-in-q-default	DT	100	100
3	2q4t-in-q-default	DT	100	100
4	2q4t-in-q-default	DT	100	100
5	2q4t-in-q1	DT	100	100
6	2q4t-in-q1	DT	100	100
7	2q4t-in-q1	DT	100	100

## Related Commands

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

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## 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>Defaults</b>	None				
<b>Command Modes</b>	Any command mode				
<b>SupportedUserRoles</b>	network-admin vdc-admin				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>4.0</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	4.0	This command was introduced.
Release	Modification				
4.0	This command was introduced.				

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

**Examples** This example shows how to display QoS information:

```
switch(config)# show running-config ipqos

version 4.0(3)
qos statistics
class-map type qos match-all abc
  match dscp 0-3
class-map type qos match-all qqg
class-map type qos match-all class1
class-map type qos match-all cmapdef
class-map type qos match-all my_test
  match cos 5
class-map type qos match-all my_class
  match discard-class 56
class-map type qos match-all class_acl
class-map type qos match-all class_protocol
class-map conform-color-in
class-map conform-color-out
class-map exceed-color-in
class-map exceed-color-out
class-map type queuing match-any 2q4t-in-q1
  match cos 5-7
class-map type queuing match-any 2q4t-in-q-default
  match cos 0-4
```

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```

class-map type queuing match-any 8q2t-in-q1
  match cos 5-7
class-map type queuing match-any 8q2t-in-q2
class-map type queuing match-any 8q2t-in-q3
class-map type queuing match-any 8q2t-in-q4
class-map type queuing match-any 8q2t-in-q5
class-map type queuing match-any 8q2t-in-q6
class-map type queuing match-any 8q2t-in-q7
class-map type queuing match-any 8q2t-in-q-default
  match cos 0-4
class-map type queuing match-any 1p3q4t-out-pq1
  match cos 5-7
class-map type queuing match-any 1p3q4t-out-q2
class-map type queuing match-any 1p3q4t-out-q3
class-map type queuing match-any 1p3q4t-out-q-default
  match cos 0-4
class-map type queuing match-any 1p7q4t-out-pq1
  match cos 5-7
class-map type queuing match-any 1p7q4t-out-q2
class-map type queuing match-any 1p7q4t-out-q3
class-map type queuing match-any 1p7q4t-out-q4
class-map type queuing match-any 1p7q4t-out-q5
class-map type queuing match-any 1p7q4t-out-q6
class-map type queuing match-any 1p7q4t-out-q7
class-map type queuing match-any 1p7q4t-out-q-default
  match cos 0-4
table-map cir-markdown-map
  default copy
  from 10,12 to 12
  from 18,20 to 20
  from 26,28 to 28
  from 34,36 to 36
table-map pir-markdown-map
  default copy
  from 10,12 to 14
  from 18,20 to 22
  from 26,28 to 30
  from 34,36 to 38
table-map cos-dscp-map
  default copy
  from 0 to 2
table-map cos-precedence-map
  default copy
table-map cos-discard-class-map
  default copy
table-map dscp-cos-map
  default copy
table-map dscp-precedence-map
  default copy
table-map dscp-discard-class-map
  default copy
table-map precedence-cos-map
  default copy
table-map precedence-dscp-map
  default copy
table-map precedence-discard-class-map
  default copy
table-map discard-class-cos-map
  default copy
table-map discard-class-dscp-map
  default copy
table-map discard-class-precedence-map
  default copy
table-map t1

```

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```

    default copy
table-map abc
    default copy
table-map my_table1
    default copy
table-map steve_tm2
    default 3
table-map steve_table_map
    default ignore
policy-map type queuing q
policy-map type queuing pq
    class type queuing 8q2t-in-q4
        queue-limit cos 3 1000 packets
        queue-limit cos 4 1000 packets
        queue-limit 10000 packets
policy-map type queuing q1
policy-map type queuing q2
    class type queuing 1p3q4t-out-pq1
policy-map type queuing p_q
    class type queuing 8q2t-in-q4
    class type queuing 8q2t-in-q-default
    set cos 4
policy-map type queuing abcq
    class type queuing 8q2t-in-q4
policy-map type queuing p_q2
    class type queuing 1p7q4t-out-q2
    shape average percent 10
policy-map type queuing steve_q
    class type queuing 1p7q4t-out-pq1
    class type queuing 1p7q4t-out-q4
    class type queuing 1p7q4t-out-q2
policy-map type queuing my_queue
    class type queuing 1p3q4t-out-pq1
policy-map type queuing steve_pq1
    class type queuing 1p3q4t-out-pq1
policy-map type qos abc
    class abc

switch# show running-config ipqos
version 4.0(3)
class-map type qos match-all abc
    match dscp 0-3
class-map type qos match-all qq
class-map type qos match-all class1
class-map type qos match-all cmapdef
class-map type qos match-all my_test
    match cos 5
class-map type qos match-all my_class
    match discard-class 56
class-map type qos match-all class_acl
class-map type qos match-all class_protocol
table-map cos-dscp-map
    default copy
    from 0 to 2
table-map t1
    default copy
table-map abc
    default copy
table-map my_table1
    default copy
table-map steve_tm2
    default 3
table-map steve_table_map

```



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```
default ignore
policy-map type queuing q
policy-map type queuing pq
  class type queuing 8q2t-in-q4
    queue-limit cos 3 1000 packets
    queue-limit cos 4 1000 packets
    queue-limit 10000 packets
policy-map type queuing q1
policy-map type queuing q2
  class type queuing 1p3q4t-out-pq1
policy-map type queuing p_q
  class type queuing 8q2t-in-q4
  class type queuing 8q2t-in-q-default
  set cos 4
policy-map type queuing abcq
  class type queuing 8q2t-in-q4
policy-map type queuing p_q2
  class type queuing 1p7q4t-out-q2
  shape average percent 10
policy-map type queuing steve_q
  class type queuing 1p7q4t-out-pq1
  class type queuing 1p7q4t-out-q4
  class type queuing 1p7q4t-out-q2
policy-map type queuing my_queue
  class type queuing 1p3q4t-out-pq1
policy-map type queuing steve_pq1
  class type queuing 1p3q4t-out-pq1
policy-map type qos abc
  class abc
    set dscp 3
    set qos-group 3
    set cos dscp table cos-dscp-map
  class class-default
policy-map type qos def
policy-map type qos policy1
  class class-default
  class class1
policy-map type qos polilcy1
policy-map type qos my_policy
  class class-default
policy-map type qos my_policy1
policy-map type queuing my_policy1
  class type queuing 1p7q4t-out-q2
policy-map type queuing shape_queue
  class type queuing 1p3q4t-out-pq1
    queue-limit 38984 packets
    random-detect cos-based
policy-map type queuing shape_queues
  class type queuing 1p3q4t-out-pq1
policy-map type queuing 1p3q4t-out-pq1
policy-map type queuing untrusted_port_cos
  class type queuing 2q4t-in-q-default

interface Ethernet2/4
  service-policy type qos input abc
  service-policy type qos output def
  service-policy type queuing output q1
```

■ show running-config ipqos

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

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## show table-map

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

```
show table-map [table-map-name | default-table-map-name]
```

<b>Syntax Description</b>	<i>table-map-name</i> (Optional) User-defined named table map.						
	<i>default-table-map-name</i> (Optional) System-defined default table map.						
<b>Defaults</b>	None						
<b>Command Modes</b>	Global configuration						
<b>Supported User Roles</b>	network-admin vdc-admin						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>4.0</td> <td>This command was introduced.</td> </tr> <tr> <td>4.0.2</td> <td>Display was changed</td> </tr> </tbody> </table>	Release	Modification	4.0	This command was introduced.	4.0.2	Display was changed
Release	Modification						
4.0	This command was introduced.						
4.0.2	Display was changed						

### Usage Guidelines

For a list of the system-defined table maps, see [Table 5](#).

In Cisco NX-OS Release 4.0.2 and later releases, the display shows only one of the following:

- The default copy if you have not configured any changes to the table map.
- The changes you configured to the table map.

This command does not require a license.

### Examples

In the Cisco NX-OS Release 4.0.2 and later releases, the following example shows how to display a system-defined table map:

```
switch(config-pmap-c-qos)# show table-map cos-dscp-map

Table-map cos-dscp-map
  default copy
```

This example shows how to display a system-defined table map:

```
switch(config)# show table-map cos-dscp-map

Table-map cos-dscp-map
  from 0 to 0
  from 1 to 1
  from 2 to 2
```

## ■ show table-map

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```
from 3 to 3
from 4 to 4
from 5 to 5
from 6 to 6
from 7 to 7
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>table-map</b>	Creates or modifies a table map.

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## table-map

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

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

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

### Syntax Description

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

### Defaults

None

### Command Modes

Global configuration

### Supported User Roles

network-admin  
vdc-admin

### Command History

Release	Modification
4.0	This command was introduced.

### Usage Guidelines



#### Note

You cannot modify the system-defined table maps. For a list of the system-defined table maps, see [Table 5](#).

This command does not require a license.

### Examples

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

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

This example shows how to remove a table map:

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

### Related Commands

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

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