S Commands

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

service-policy

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

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

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

Syntax Description

input	Applies this policy map to packets coming into this interface.
type	Specifies whether the policy map is of type qos or queuing.
qos	Specifies a policy map of type qos.
queuing	Specifies a policy map of type queuing.
output	Applies this policy map to packets going out of this interface.
policy-map-name	Name of the policy map to attach to this interface. Only one policy map can be attached to the input and one to the output of a given interface for each of the policy type qos and queuing. The policy map name can be a maximum of 40 alphanumeric characters.

Command Default

None

Command Modes

Interface configuration mode
Subinterface configuration mode
Vlan configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

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

Beginning with Cisco NX-OS Release 5.0(3)N1(1), you can use this command on a Layer 3 routed interface or subinterfaces.

Examples

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

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

This example shows how to attach qos type policy maps to the incoming packets of a Layer 2 interface:

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

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

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

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

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

Related Commands

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

service-policy (control-plane)

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

service-policy input *policy-map-name*

Syntax Description

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

Command Default

None

Command Modes

Control-plane configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

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

Related Commands

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

service-policy (system qos)

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

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

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

Syntax Description

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

Command Default

None

Command Modes

System QoS configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Examples

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

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

Related Commands

Command	Description
show policy-map	Displays policy maps.
system qos	Configures a system policy.

service-policy (virtual Ethernet interface)

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

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

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

Syntax Description

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

Command Default

None

Command Modes

Virtual Ethernet interface configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

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

Note For more information on using service policies, see the *Cisco Nexus 5000 Series NX-OS Quality of Service Configuration Guide*.

Examples

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

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

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

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

Related Commands

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

set cos (policy map type network-qos)

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

set cos *cos-value*

no set cos *cos-value*

Syntax Description

cos-value	CoS value to assign for this class of traffic. The range is from 0 to 7.

Command Default

None

Command Modes

Policy map type network-qos class configuration

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

You can use this command only on type network-qos policies that are attached to egress ports.

Examples

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

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

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

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

Related Commands

Command	Description
show policy-map	Displays policy maps.

set dscp

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

set dscp *dscp-value*

no set dscp *dscp-value*

Syntax Description

dscp-value	DSCP value or parameter to assign for this class of traffic. Valid values are from 0 to 63. For a list of standard DSCP values, see Table 1.

Command Default

None

Command Modes

Policy map type qos configuration

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

Note This command is supported only on a Cisco Nexus 5548 switch.

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

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

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

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

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

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

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

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

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

Examples

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

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

Related Commands

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

set precedence

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

set precedence *precedence-value*

no set precedence *precedence-value*

Syntax Description

precedence-value	IP precedence value to assign for this class of traffic. Valid values are from 0 to 7. For a list of standard precedence values, see Table 2.

Command Default

None

Command Modes

Policy map type qos configuration

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

Note This command is supported only on a Cisco Nexus 5548 switch.

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

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

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

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

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

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

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

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

Examples

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

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

Related Commands

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

set qos-group

To assign the QoS group identifier for a class of traffic in a type qos policy map, use the **set qos-group** command. To remove the assigned value from the class, use the **no** form of this command.

set qos-group *qos-group-value*

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

Syntax Description

qos-group-value	QoS group value to assign for this class of traffic. The range is from 2 to 5 for a Cisco Nexus 5020 switch, 1 to 5 for a Cisco Nexus 5548 switch, and 0 to 5 for all other Cisco Nexus 5000 Series switches. **Note** On a Cisco Nexus 5548 switch, the default is 1.

Command Default

1 on a Cisco Nexus 5548 switch.

Command Modes

Policy map type qos class configuration

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

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

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

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

Examples

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

```
switch(config)# policy-map my_policy
switch(config-pmap-qos)# class my_class
switch(config-pmap-c-qos)# set qos-group 3
switch(config-pmap-c-qos)#
```

Related Commands

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

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

shape (virtual Ethernet interface)

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

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

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

Syntax Description

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

Command Default

None

Command Modes

Policy map type queuing class configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Usage Guidelines

Traffic shaping is supported only on virtual Ethernet interfaces.

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

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

This command does not require a license.

Examples

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

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

Related Commands

Command	Description
service-policy (virtual Ethernet interface)	Applies a policy map to a virtual Ethernet interface.
show policy-map	Displays the policy map information.

system jumbomtu

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

system jumbomtu [**value**]

Syntax Description

value	Jumbomtu value. The range is from 2158 to 9216.

Command Default

9216 bytes

Command Modes

Global configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Examples

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

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

Related Commands

Command	Description
show interface	Displays the jumbo MTU frames sent and received on the specified interface.

system qos

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

system qos

Syntax Description

This command has no arguments or keywords.

Command Default

None

Command Modes

Global configuration mode

Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

Examples

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

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

Related Commands

Command	Description
service-policy	Associates the system class policy-map to the service policy for the system.