



Configuring Marking

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Information About Marking

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

You can use marking commands in traffic classes that are referenced in a policy map. The marking features that you can configure are listed below:

- DSCP
- IP precedence
- CoS

Configuring Marking

Configuring DSCP Marking

For Cisco Nexus devices, 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, in addition to the standard DSCP values shown in the table below:



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

Table 1: Standard DSCP Values

Value	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
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

Procedure

	Command or Action	Purpose
Step 1	<code>config t</code>	Enters configuration mode.
Step 2	<code>policy-map type qos qos-policy-map-name</code>	Creates or accesses the policy map named policy-map-name, and then enters policy-map mode. The policy-map name can contain

	Command or Action	Purpose
		alphabetic, hyphen, or underscore characters, is case sensitive, and can be up to 40 characters.
Step 3	class [type qos] {class-map-name class-default}	Creates a reference to class-map-name, and enters policy-map class configuration mode. Use the class-default keyword to select all traffic that is not currently matched by classes in the policy map.
Step 4	set dscp dscp-value	Sets the DSCP value to dscp-value. See the Standards DSCP Values table.
Step 5	set qos-group y	Specifies the qos-group. The group value can be from 1 to 5.

Example

This example shows how to set the DSCP value to 10 and specify the qos-group to 2.

```
policy-map type qos test-bulkdata
  class type qos bulkdata
    set dscp 10
    set qos-group 2
```

Configuring IP Precedence Marking

You can set the value of the IP precedence field in bits 0 to 2 of the IPv4 type of service (ToS) field or the equivalent Traffic Class field for IPv6 of the IP header. The following table shows the precedence values:



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

Table 2: Precedence Values

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)

Value	List of Precedence Values
priority	Priority precedence (1)
routine	Routine precedence (0)

Procedure

	Command or Action	Purpose
Step 1	<code>config t</code>	Enters configuration mode.
Step 2	<code>policy-map [type qos] qos-policy-map-name</code>	Creates or accesses the policy map named <code>policy-map-name</code> , and then enters policy-map mode. The policy-map name can contain alphabetic, hyphen, or underscore characters, is case sensitive, and can be up to 40 characters.
Step 3	<code>class [type qos] {class-map-name class-default}</code>	Creates a reference to <code>class-map-name</code> , and enters policy-map class configuration mode. Use the class-default keyword to select all traffic that is not currently matched by classes in the policy map.
Step 4	<code>set precedence precedence-value</code>	Sets the IP precedence value to <code>precedence-value</code> . You can enter one of the values shown in the Precedence Values table.

Example

```
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)#
```

Configuring CoS Marking

The value of the CoS field is recorded in the high-order three bits of the VLAN ID Tag field in the IEEE 802.1Q header.

Procedure

	Command or Action	Purpose
Step 1	<code>switch# configure terminal</code>	Enters global configuration mode.
Step 2	<code>switch(config) # policy-map [type network-qos] policy-map name</code>	Creates or accesses the policy map named <code>policy-map-name</code> and enters policy-map mode. The policy-map name can contain alphabetic, hyphen, or underscore characters, is case sensitive, and can be up to 40 characters.

	Command or Action	Purpose
Step 3	switch(config-pmap-nq) # class [type network-qos] {class-map name class-default}	Creates a reference to the <i>class-map-name</i> and enters policy-map class configuration mode. Use the class-default keyword to select all traffic that is not currently matched by classes in the policy map.
Step 4	switch(config-pmap-c-nq) # set cos cos-value	Specifies the CoS value to cos-value. The <i>cos-value</i> can range from 0 to 7. Note This command is supported only for egress policies.

Verifying the Marking Configuration

Use one of the following commands to verify the configuration:

Command	Purpose
show class-map	Displays the class maps defined on the switch.
show policy-map [name]	Displays the policy maps defined on the switch. Optionally, you can display the named policy only.
running-config ipqos	Displays information about the running configuration for QoS.
startup-config ipqos	Displays information about the startup configuration for QoS.

