



## CHAPTER 5

# Configuring Mutation Mapping

---

This chapter describes how to configure the mutation of packet values used to define traffic classes.

This chapter includes the following sections:

- [Information About Mutation Mapping, page 5-1](#)
  - [Licensing Requirements for Mutation Mapping, page 5-2](#)
  - [Prerequisites for Mutation Mapping, page 5-2](#)
  - [Guidelines and Limitations, page 5-2](#)
  - [Configuring Mutation Mapping, page 5-3](#)
  - [Verifying the Mutation Mapping Configuration, page 5-5](#)
  - [Example Configuration, page 5-5](#)

## Information About Mutation Mapping

Mutation mapping is a method of modifying a QoS field in all packets on an interface. On ingress, mutation mapping occurs before traffic classification and all other actions. On egress, mutation mapping occurs after traffic classification and before the other actions. You can apply mutation mapping to packet fields CoS, DSCP, or IP precedence, or to the internal field discard class.

You use a hierarchical policy map to configure mutation mapping. In the mutation mapping policy map you specify the field to mutate and the policy map to apply with the mutation.



Note

## Mutation Mapping in Sequence of Traffic Actions

- 1.
- 2.
- 3.
- 4.
- 5.

- 1.
- 2.
- 3.
- 4.
- 5.



Note

## Licensing Requirements for Mutation Mapping

Product	License Requirement
NX-OS	QoS requires no license. Any feature not included in a license package is bundled with the Cisco NX-OS system images and is provided at no extra charge to you. For a complete explanation of the NX-OS licensing scheme, see the <i>Cisco Nexus 7000 Series NX-OS Licensing Guide, Release 4.0</i>

However, using VDCs requires an Advanced Services license.

## Prerequisites for Mutation Mapping

Mutation mapping has the following prerequisites:

- You must be familiar with [Chapter 2, “Using Modular QoS CLI.”](#)  
You are logged on to the switch.  
You are in the correct virtual device context (VDC). A VDC is a logical representation of a set of system resources. You can use the **switchto vdc**

## Guidelines and Limitations

- 
- 
- You can configure up to 14 table maps for use in ingress interfaces and up to 15 table maps for use in egress interfaces.
- Before you delete a referenced policy map, you must first remove all references to that policy map.

# Configuring Mutation Mapping

**class-default  
service-policy**

---

## Step 1

[Chapter 6, “Configuring Policing”](#) or [Chapter 7, “Configuring Queuing and Scheduling.”](#)

Create the table map to use in the mutation mapping hierarchical policy. For information about configuring table maps, see the [“Configuring Marking Using Table Maps” section on page 4-13.](#)

Configure the mutation mapping hierarchical policy as described in this section.

Apply the service policy to the interface. For information about attaching policies to interfaces, see [Chapter 2, “Using Modular QoS CLI.”](#)

---

## SUMMARY STEPS

### 1. **config t**

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

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

```
    policy-map-name
```

6. *policy-map-name*

7.

## DETAILED STEPS

	Command	Purpose
Step 1	<b>config t</b>  <b>Example:</b> switch# config t switch(config)#	
	<b>policy-map [type qos] [match-first policy-map-name]</b>  switch(config)# policy-map policy1 switch(config-pmap-qos)#	is case sensitive, and can be up to 40 characters.
	<b>class-default</b>  <b>Example:</b> class-default switch(config-pmap-c-qos)#	
	<pre>           {                         } {                         } <b>table</b> table-map-name         </pre>	
	table dscp_mutation switch(config-pmap-c-qos)#	map dscp_mutation.
	<b>service-policy type qos policy-map-name</b>  service-policy testpolicy switch(config-pmap-c-qos)#	
<b>show policy-map [type {qos   queuing}] [ ]</b>  <b>Example:</b> switch(config-pmap-c-qos)# show policy-map policy1		
<b>copy running-config startup-config</b>  <b>Example:</b> switch(config-pmap-c-qos)# copy running-config startup-config		

# Verifying the Mutation Mapping Configuration


*Series NX-OS Quality of Service Command Reference, Release 4.0*

## Example Configuration

```
class-map type qos match-all dscp0-12
  match dscp0-12
class-map type qos match-all dscp13-60
  match dscp13-60
table-map mutate_dscp
  default 11
  from 0 to 0
  from 1 to 1
  from 2 to 1
  from 63 to 46
policy-map type qos child_policy
  class dscp0-12
    police cir 10 mbps bc 200 ms pir 20 mbps be 200 ms conform transmit exceed set dscp
dscp table cir-markdown-map violate drop
  markdown-map violate drop
  rop
  class dscp13-63
    police cir 20 mbps bc 200 ms pir 40 mbps be 200 ms conform transmit exceed set dscp
dscp table cir-markdown-map violate drop
  markdown-map violate drop
  rop
  class class-default
    police cir 5 mbps bc 200 ms conform transmit violate drop
policy-map type qos parent_policy_for_mutation
  class class-default
    set dscp dscp table mutate_dscp
  service-policy type qos child_qos_policy
```

