



# Configuring Fabric QoS Policies and Classes on Cisco IOS XR Software

This module provides the conceptual and configuration information for fabric QoS.

## Feature History for Configuring Fabric Quality of Service Policies and Classes on Cisco IOS XR Software

Release	Modification
Release 3.3.0	The Fabric QoS Policies and Classes feature was introduced.

## Contents

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## Prerequisites for Configuring Fabric Quality of Service Policies and Classes on Cisco IOS XR Software

The following prerequisites are required for configuring modular fabric QoS on your network:

- You must be in a user group associated with a task group that includes the proper task IDs. The command reference guides include the task IDs required for each command. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

# Information About Configuring Fabric Quality of Service Policies and Classes on Cisco IOS XR Software

To implement fabric QoS features in this document, you must understand the following concepts:

- [Overview, page 120](#)
- [Ingress Policy and Fabric QoS Policy Interaction, page 120](#)

## Overview

The fabricq queue selection mechanism is known as Fabric QoS. To provide class of service to the traffic under fabric congestion scenarios, configure Fabric QoS. The platform-independent user interface allows you to configure an MQC policy on the switch fabric queues. This policy is global for all line cards on the router.

A maximum of six classes can be specified within the fabric QoS policy. Only one class can have priority. Each class has 16 queues. The only applicable actions that can be assigned to a class are:

- priority
- bandwidth remaining percent

Fabric QoS policy class maps are restricted to matching a subset of the following classification options:

- precedence ipv4
- mpls experimental

## Ingress Policy and Fabric QoS Policy Interaction

Be careful when applying ingress QoS policies when they must interact with a fabric QoS policy. Fabric QoS classification is independent of ingress QoS classification. The fabric QoS policy overrides any traffic classification conducted by the ingress policy when determining which traffic should be placed into which fabric QoS queue.

Fabric QoS is constrained to a subset of the possible **match** criteria that can be used in its class maps. This approach enables multiple ingress QoS policies to interact in the expected manner with a fabric QoS policy.

## How to Configure Fabric Quality of Service Policies and Classes on Cisco IOS XR Software

This section contains instructions for the following tasks:

- [Creating a Traffic Class, page 121](#) (required)
- [Creating a Fabric QoS Service Policy, page 121](#) (required)

## Creating a Traffic Class

See the “Creating a Traffic Class” section in the “Configuring Modular Quality of Service Packet Classification on Cisco IOS XR Software” module.

## Creating a Fabric QoS Service Policy

This configuration task explains how to configure a fabric QoS policy.


### Restrictions

- A maximum of six classes can be specified within the fabric QoS policy.
- Only one class can have priority.
- The only applicable actions that can be assigned to a class are:
  - priority
  - bandwidth remaining percent
- Fabric QoS policy class maps are restricted to matching a subset of the following classification options:
  - precedence ipv4
  - mpls experimental

### SUMMARY STEPS

1. **configure**
2. **class-map** *class-map-name*
3. **match precedence ipv4** *precedence-value*
4. **policy-map** *policy-name*
5. **class** *class-name*
6. **priority**
7. **switch-fabric service-policy**
8. **end**  
or  
**commit**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><b>configure</b></p> <p><b>Example:</b> RP/0/0/CPU0:router# configure</p>	Enters global configuration mode.
Step 2	<p><b>class-map</b> <i>class-map-name</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config)# class-map class201</p>	<p>Enters class map configuration mode.</p> <ul style="list-style-type: none"> <li>Creates a class map to be used for matching packets to the class whose name you specify.</li> <li>If you specify <b>match-any</b>, one of the match criteria must be met for traffic entering the traffic class to be classified as part of the traffic class. This is the default.</li> </ul>
Step 3	<p><b>match precedence ipv4</b> <i>precedence value</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-cmap)# match precedence ipv4 5</p>	<p>Specifies a precedence value that is used as the match criteria against which packets are checked to determine if they belong to the class specified by the class map.</p> <p> <b>Note</b> Fabric QoS is supported for IPv4 only.</p>
Step 4	<p><b>policy-map</b> <i>policy-name</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-cmap)# policy-map policy1</p>	<p>Enters policy map configuration mode.</p> <ul style="list-style-type: none"> <li>Creates or modifies a policy map that can be attached to one or more interfaces to specify a service policy.</li> </ul>
Step 5	<p><b>class</b> <i>class-name</i></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-pmap)# class class1</p>	Specifies the name of the class whose policy you want to create or change.
Step 6	<p><b>priority</b></p> <p><b>Example:</b> RP/0/0/CPU0:router(config-pmap-c)# priority</p>	Specifies priority to a class of traffic belonging to a policy map.
Step 7	<p><b>switch-fabric service-policy</b></p> <p><b>Example:</b> RP/0/0/CPU0:router(config)# switch-fabric service-policy policy1</p>	Configures a service policy for the switch fabric.

	Command or Action	Purpose
Step 8	<pre>end or commit</pre> <p><b>Example:</b></p> <pre>RP/0/0/CPU0:router(config)# end or RP/0/0/CPU0:router(config)# commit</pre>	<p>Saves configuration changes.</p> <ul style="list-style-type: none"> <li>When you issue the <b>end</b> command, the system prompts you to commit changes: <pre>Uncommitted changes found, commit them before exiting (yes/no/cancel)? [cancel]:</pre> <ul style="list-style-type: none"> <li>Entering <b>yes</b> saves configuration changes to the running configuration file, exits the configuration session, and returns the router to EXEC mode.</li> <li>Entering <b>no</b> exits the configuration session and returns the router to EXEC mode without committing the configuration changes.</li> <li>Entering <b>cancel</b> leaves the router in the current configuration session without exiting or committing the configuration changes.</li> </ul> </li> <li>Use the <b>commit</b> command to save the configuration changes to the running configuration file and remain within the configuration session.</li> </ul>

## Configuration Examples for Configuring Fabric Quality of Service Policies and Classes on Cisco IOS XR Software

This section contains the following examples:

- [Configuring Fabric Quality of Service Policies and Classes: Example, page 123](#)

### Configuring Fabric Quality of Service Policies and Classes: Example

The following example shows a fabric QoS configuration:

```
class-map match-any fab_1
match precedence ipv4 priority

class-map match-any fab_2
match precedence ipv4 immediate

class-map match-any fab_3
match precedence ipv4 flash

class-map match-any fab_4
match precedence ipv4 flash-override

class-map match-any fab_5
match precedence ipv4 critical

class-map match-any fab_6
match precedence ipv4 internet

policy-map fab
```

```
class fab_1
bandwidth remaining percent 5
!
class fab_2
bandwidth remaining percent 25
!
class fab_3
bandwidth remaining percent 30
!
class fab_4
bandwidth remaining percent 20
!
class fab_5
bandwidth remaining percent 20
!
class fab_6
priority
!

switch-fabric service-policy fab
commit
```

# Additional References

The following sections provide references related to implementing fabric QoS policies and classes.

## Related Documents

Related Topic	Document Title
Initial system bootup and configuration	<i>Cisco IOS XR Getting Started Guide for the Cisco XR 12000 Series Router</i>
Master command reference	<i>Cisco XR 12000 Series Router Master Command Listing</i>
QoS commands	<i>Cisco IOS XR Modular Quality of Service Command Reference for the Cisco XR 12000 Series Router</i>
User groups and task IDs	“Configuring AAA Services on Cisco IOS XR Software” module of <i>Cisco IOS XR System Security Configuration Guide</i>

## Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

## MIBs

MIBs	MIBs Link
—	To locate and download MIBs using Cisco IOS XR software, use the Cisco MIB Locator found at the following URL and choose a platform under the Cisco Access Products menu: <a href="http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml">http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml</a>

## RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

## Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	<a href="http://www.cisco.com/techsupport">http://www.cisco.com/techsupport</a>