



# Configuring 8 Queues per Interface on the 1-Port Channelized OC12/STM-1 to DS1/E1 and 4-port Gigabit Ethernet Line Cards on Cisco 12000 Series Routers

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## Feature History

Release	Modification
12.0(26)S	This feature was introduced on the 4-port Gigabit Ethernet line card on Cisco 12000 series routers.
12.0(32)S	This feature was introduced on the 1-port Channelized OC12/STM-1 to DS1/E1 line card on Cisco 12000 series routers.

This feature module contains the following sections:

- [8 Queues per Interface Feature Overview](#)
- [Supported Platforms](#)
- [Supported Standards, MIBs, and RFCs](#)
- [Prerequisites](#)
- [Configuration Tasks](#)
- [Configuration Examples](#)
- [Command Reference](#)
- [Glossary](#)

## 8 Queues per Interface Feature Overview

The Integrated Services Engine (ISE) line cards running Cisco IOS Release 12.0(32)S can now have up to 8 queues per interface.

ISE line cards support two modes for configure queues on an interface:

- Mode 1 (default)—Allows 4 queues per interface. When 4 queues per interface are in operation, 1008 interfaces are possible.

- Mode 2—Allows 8 queues per interface. When 8 queues per port are in operation, only half the number of interfaces are possible (504).

The default is 4 queues. To switch to 8 queues per port, use the **hw-mod slot <slot num> qos interfaces queues 8** command. You are prompted to reset the line card. To reset the line card, use the **hw-mod slot <slot num> reload** command. When the line card comes up, 8 queues are assigned to each interface.

To revert to 4 queues per interface, use the **no** form of the **hw-mod slot <slot num> qos interfaces queues 8** command. You are prompted to reset the line card. To reset the line card, use the **hw-mod slot <slot num> reload** command. When the line card comes up, 4 queues are assigned to each interface.

## Benefits

Customers can now choose between configuring 4 queues per interface with 1008 interfaces or 8 queues per interface with 504 interfaces.

## Restrictions

Using 8 queues per interface restricts the number of possible interfaces to 504, which is half the amount of interfaces that are possible in 4 queue mode.

## Related Features and Technologies

Cisco IOS Quality of Service (QoS) Solutions for Cisco 12000 series routers

## Related Documents

For information on configuring multicast traffic, refer to:

- *Cisco 12000 Series Router Configuration Guide for Cisco IOS Release 12.0S*

Also refer to the Installation and Configuration Guide for a specific Cisco 12000 series router.

## Supported Platforms

The QoS on 8 Queues per Port feature is supported on the following Engine 5 SPAs and line cards on Cisco IOS Release 12.0(26)S on Cisco 12000 series routers:

- 4-port Gigabit Ethernet

The QoS on 8 Queues per Port feature is supported on the following Engine 5 SPAs and line cards on Cisco IOS Release 12.0(32)S on Cisco 12000 series routers:

- 1-port Channelized OC12/STM-1 to DS1/E1

# Supported Standards, MIBs, and RFCs

## Standards

No new or modified standards are supported, and support for existing standards has not been modified.

## MIBs

No new or modified MIBs are supported, and support for existing MIBs has not been modified.

## RFCs

No new or modified RFCs are supported, and support for existing RFCs has not been modified.

## Prerequisites

For 4-port Gigabit Ethernet, Cisco IOS Release 12.0(26)S software running with 4 queues per interface.

For 1-port Channelized OC12/STM-1 to DS1/E1, Cisco IOS Release 12.0(32)S software running with 4 queues per interface.

## Configuration Tasks

The following sections contain configuration tasks for the 8 Queues per Interface feature. Each task in the list is identified as either required or optional.

- [Switching to 8 Queues per Interface—Optional](#)
- [Switching Back to Default of 4 Queues per Interface—Optional](#)
- [Verifying the Number of Queues per Interface](#)

### Switching to 8 Queues per Interface—Optional

Use the following configuration procedure to switch from the default of 4 queues per interface to 8 queues per interface.

	Command	Purpose
Step 1	Router(config)# <b>confi g t</b>	Enter configuration mode.
Step 2	Router(config-if)# <b>hw-mod slot &lt;slot num&gt;</b> <b>qos interfaces queues 8</b>	Switch to 8 queues per interface mode.
Step 3	Router(config-if)# <b>hw-mod slot &lt;slot num&gt;</b> <b>reload</b>	Reload the line card.

### Switching Back to Default of 4 Queues per Interface—Optional

Use the following configuration procedure to switch from 8 queues per interface back to the default of 4 queues per interface.

	Command	Purpose
Step 1	Router(config)# <b>config t</b>	Enter configuration mode.
Step 2	Router(config-if)# <b>no hw-mod slot &lt;slot num&gt; qos interfaces queues 8</b>	Switch to the default of 4 queues per interface mode.
Step 3	Router(config-if)# <b>hw-mod slot &lt;slot num&gt; reload</b>	Reload the line card.

## Verifying the Number of Queues per Interface

Use the following **show** commands to verify the number of queues per interface on the line card.

Command	Purpose
Router# <b>show controller frfab queues</b>	Displays the number of queues on all interfaces.
Router# <b>show controller frfab queues &lt;ifNum&gt;</b>	Displays the number of queues on the specified interface ( <i>ifNum</i> ) and information about each queue.

## Configuration Examples

This section provides the following configuration examples:

- [Example of Switching to 8 Queues per Interface](#)
- [Example of Switching to 4 Queues per Interface](#)
- [Example of Verifying the Number of Queues per Interface](#)

### Example of Switching to 8 Queues per Interface

This example shows how to switch to 8 queues per interface.

```
Router(config)#config t
Router(config-if)#hw-mod slot 6 qos interfaces queues 8
Router(config-if)#hw-mod slot 6 reload
```

### Example of Switching to 4 Queues per Interface

This example shows how to switch back to the default of 4 queues per interface.

```
Router(config)#config t
Router(config-if)#no hw-mod slot 6 qos interfaces queues 8
Router(config-if)#hw-mod slot 6 reload
```

### Example of Verifying the Number of Queues per Interface

This example shows how to verify the number of queues per interface.

```
Router#show controller frfab queues 1022
FrFab Queue
```

```

Interface 1022
Queue#  Head    Tail    Length  Threshold  Enabled/Port
          pkts   pkts   pkts     pkts
=====
4088    0         0         0        500        Y/1022
4089    0         0         0        500        Y/1022
4090    0         0         0        500        Y/1022
4091    0         0         0        500        Y/1022
    
```

```

Port 1022 queue-map configuration:
MinQ 4088      MaxQ 4091
HPR Enabled Y
    
```

Now, the cfg is

```

Serial6/0.1/1:1      unassigned      YES manual down      down
Serial6/0.1/2:1      unassigned      YES manual down      down
Serial6/0.1/3:1      unassigned      YES manual down      down
Serial6/0.1/4:1      unassigned      YES manual down      down
Serial6/0.1/5:1      unassigned      YES manual down      down
Serial6/0.1/6:1      unassigned      YES manual down      down
Serial6/0.1/7:1      unassigned      YES NVRAM  down      down
Serial6/0.1/8:1      unassigned      YES NVRAM  down      down
    
```

Interfaces with mfrs:

```

Serial6/0.1/2:1 MFR2
Serial6/0.1/3:1 MFR3
Serial6/0.1/4:1 MFR4
Serial6/0.1/7:1 MFR1
    
```

## Command Reference

No new or modified commands were introduced for the 8 Queues per Interface feature for Cisco IOS Release 12.0(26)S or Cisco IOS Release 12.0(32)S.

# Glossary

ISE	Integrated Services Engine
MIB	Management Information Base. Database of network management information that is used and maintained by a network management protocol, such as SNMP or CMIP. The value of a MIB object can be changed or retrieved using SNMP or CMIP commands, usually through a GUI network management system. MIB objects are organized in a tree structure that includes public (standard) and private (proprietary) branches.

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