



# Configuring Burst Size in Low Latency Queueing

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This feature module describes the Configuring Burst Size in Low Latency Queueing feature. This document includes the following sections:

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## Feature Overview

This feature extends the functionality available with low latency queueing (LLQ). This feature allows customers to specify the Committed Burst (Bc) size in LLQ and, therefore, configure the network to accommodate temporary bursts of traffic.

## Benefits

With this new functionality, the network can now accommodate temporary bursts of traffic and handle network traffic more efficiently.

## Supported Platforms

The Configuring Burst Size in Low Latency Queueing feature runs on all platforms that support LLQ.

## Supported Standards, MIBs, and RFCs

### Standards

No new or modified standards are supported by this feature.

### MIBs

No new or modified MIBs are supported by this feature.

For descriptions of supported MIBs and how to use MIBs, see the Cisco MIB web site on CCO at <http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>.

### RFCs

No new or modified RFCs are supported by this feature.

## Configuration Tasks

See the following sections for configuration tasks for the Configuring Burst Size in Low Latency Queueing feature. Each task in the list is identified as optional or required.

- Configuring the LLQ Bandwidth (Required)
- Configuring the LLQ Burst Size (Required)
- Verifying the LLQ Burst Size (Optional)

## Configuring the LLQ Bandwidth

To configure the LLQ bandwidth, use the following command in policy-map class configuration mode:

Command	Purpose
Router# <b>priority</b> <i>bandwidth</i>	Specifies the maximum amount of bandwidth (in kpbs) for the priority traffic.

## Configuring the LLQ Burst Size

To configure the LLQ burst size, use the following command in policy-map class configuration mode:

Command	Purpose
Router# <b>priority</b> <i>bandwidth burst</i>	Specifies the burst size in bytes. The range is 32 to 2 million.

## Verifying the LLQ Burst Size

To verify the LLQ burst size, use one of the following commands in EXEC mode:

Command	Purpose
Router# <code>show policy-map</code>	Displays the configuration of all classes comprising the specified service policy map or all classes for all existing policy maps.
Router# <code>show policy-map interface</code>	Displays the configuration of classes configured for service polices on the specified interface or permanent virtual circuit (PVC).

## Configuration Examples

This section provides the following configuration example:

- Burst Size Configuration Example

### Burst Size Configuration Example

The following example configures the burst parameter to 1250 bytes for the class called Voice. The class called Voice has an assigned bandwidth of 1000 kbps.

```
policy policy1
 class Voice
  priority 1000 1250
```

## Command Reference

This section documents the modified **priority** command. All other commands used with this feature are documented in the Cisco IOS Release 12.1 command reference publications.

# priority

To give priority to a class within a policy map, use the **priority** policy-map class configuration command. To disable the strict priority queue, use the **no** form of this command.

**priority** *bandwidth* *burst*

**no priority** [*bandwidth*] [*burst*]

## Syntax Description

<i>bandwidth</i>	Guaranteed allowed bandwidth (in kbps) for the priority traffic. Beyond the guaranteed bandwidth, the priority traffic will be dropped in the event of congestion to ensure that the nonpriority traffic is not starved.
<i>burst</i>	Burst size in bytes. The range is 32 to 2 million.

## Defaults

There are no default behaviors or values for the *bandwidth* argument.

The default burst size is calculated based on a 200-millisecond interval and the bandwidth configured for low latency queueing (LLQ).

## Command Modes

Policy-map class configuration

## Command History

Release	Modification
12.0(6)T	This command was introduced.
12.1(3)T	The <i>burst</i> argument was added.

## Usage Guidelines

This command configures LLQ, providing strict priority queueing for class-based weighted fair queueing (CBWFQ). Strict priority queueing allows delay-sensitive data such as voice to be dequeued and sent before packets in other queues are dequeued, giving delay-sensitive data preferential treatment over other traffic.

The **priority** command allows you to set up classes based on a variety of criteria (not just User Datagram Protocol (UDP) ports) and assign priority to them, and is available for use on serial interfaces and ATM permanent virtual circuits (PVCs). A similar command, **ip rtp priority**, allows you to stipulate priority flows based only on UDP port numbers and is not available for ATM PVCs.

The *bandwidth* argument is used to specify the maximum amount of bandwidth allocated for packets belonging to a class configured with the **priority** command. The bandwidth parameter both guarantees bandwidth to the priority class and restrains the flow of packets from the priority class.

When the device is not congested, the priority class traffic is allowed to exceed its allocated bandwidth. When the device is congested, the priority class traffic above the allocated bandwidth is discarded.

The *burst* argument is used to specify the burst size and, therefore, configure the network to accommodate temporary bursts of traffic.

Remember the following guidelines when using the **priority** command:

- Layer 2 encapsulations are accounted for in the amount of bandwidth specified with the **priority** command. However, the amount of bandwidth does not include other headers such as ATM cell tax overheads. You must also allow bandwidth for possible jitter introduced by the routers in the voice path.
- The **priority** command can be used for Voice over IP (VoIP) on serial links and ATM PVCs. The **priority** command does not support VoIP over Frame Relay links.
- The **random-detect**, **queue-limit**, and **bandwidth** commands cannot be used while the **priority** command is configured.
- The **priority** command can be configured in multiple classes, but it should only be used for voice-like, constant bit rate (CBR) traffic.

## Examples

The following example configures strict priority queueing with a guaranteed bandwidth of 50 kbps for the policy map called policy1:

```
policy-map policy1
  class voice
    priority 50
```

Configuring the **priority** command in multiple classes provides the ability to police the priority classes individually. For an example, refer to the following configuration:

```
policy-map policy1
  class voice1
    priority 24
  class voice2
    priority 48
  class data
    bandwidth 20
```

In the example, voice1 and voice2 classes of traffic are served in a strict priority manner. The voice1 and voice2 classes are rate-limited to 24 kbps and 48 kbps individually. The class data is guaranteed a bandwidth of 20 kbps.

In the following example, the Voice class is limited to 1000 kbps of traffic but the Voice class can accommodate temporary traffic bursts of up to 1250 bytes. The Voice class is provided strict priority.

```
policy policy1
  class Voice
    priority 1000 1250
```

Related Commands	Command	Description
	<b>ip rtp priority</b>	Reserves a strict priority queue for a set of RTP packet flows belonging to a range of UDP destination ports.
	<b>ip rtp reserve</b>	Reserves a special queue for a set of RTP packet flows belonging to a range of UDP destination ports.
	<b>max-reserved-bandwidth</b>	Changes the percent of interface bandwidth allocated for CBWFQ, LLQ, and IP RTP Priority.
	<b>show policy-map interface</b>	Displays the configuration of classes configured for service policies on the specified interface or PVC.
	<b>show queue</b>	Displays the contents of packets inside a queue for a particular interface or VC.