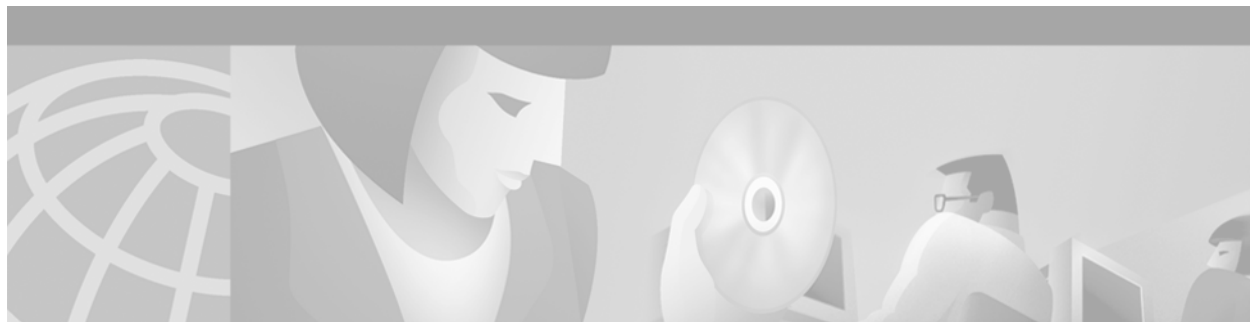




Modular Quality of Service Command-Line Interface Overview

This chapter provides a high-level overview of the Modular Quality of Service (QoS) Command-Line Interface (CLI), a feature that allows users to specify a traffic class independently of QoS policies.

For information on how to configure the Modular QoS CLI, see the chapter [“Configuring the Modular Quality of Service Command-Line Interface”](#) in this book.

About the Modular QoS CLI

The Modular QoS CLI is a CLI structure that allows users to create traffic polices and attach these polices to interfaces. A traffic policy contains a traffic class and one or more QoS features. A traffic class is used to classify traffic, while the QoS features in the traffic policy determine how to treat the classified traffic.

Modular QoS CLI configuration includes contains the following three steps, which are detailed more thoroughly in the [“Configuring the Modular Quality of Service Command-Line Interface”](#) of this book:

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| Step 1 | Define a traffic class with the class-map command. |
| Step 2 | Create a traffic policy by associating the traffic class with one or more QoS features (using the policy-map command). |
| Step 3 | Attach the traffic policy to the interface with the service-policy command. |
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The **class-map** command is used to define a traffic class. The purpose of a traffic class is to classify traffic.

A traffic class contains three major elements: a name, a series of **match** commands, and, if more than one **match** command exists in the traffic class, an instruction on how to evaluate these **match** commands. The traffic class is named in the **class-map** command line; for example, if you enter the **class-map cisco** command while configuring the traffic class in the CLI, the traffic class would be named cisco.

The **match** commands are used to specify various criteria for classifying packets. Packets are checked to determine whether they match the criteria specified in the **match** commands; if a packet matches the specified criteria, that packet is considered a member of the class and is forwarded according to the QoS specifications set in the traffic policy. Packets that fail to meet any of the matching criteria are classified as members of the default traffic class. The default traffic class is detailed more thoroughly in the [“Configuring the Modular Quality of Service Command-Line Interface”](#) chapter of this book.

The instruction on how to evaluate these **match** commands needs to be specified if more than one match criterion exists in the traffic class. The evaluation instruction is specified with one of the following two options: **class-map match-any** or **class-map match-all**. If **match-any** is specified as the evaluation instruction, the traffic being evaluated by the traffic class must match one of the specified criteria. If **match-all** is specified as the evaluation instruction, the traffic being evaluated by the traffic class must match all of the specified criteria. The functionality of these options is detailed more thoroughly in the [“Configuring the Modular Quality of Service Command-Line Interface”](#) chapter of this book.

The **policy-map** command is used to create a traffic policy. The purpose of a traffic policy is to configure the QoS features that should be associated with the traffic that has been classified in a user-specified traffic class or classes. A traffic policy contains three elements: a name, a traffic class (specified with the **class** command), and the QoS policies (which are detailed in the [“Configuring the Modular Quality of Service Command-Line Interface”](#) chapter of this book). The name of a traffic policy is specified in the **policy-map** CLI (for example, issuing the **policy-map class1** command would create a traffic policy named class1). The traffic class that is used to classify traffic to the specified traffic policy is defined in policy map configuration mode, which is the automatic mode after naming the traffic policy. After choosing the traffic class that is used to classify traffic to the traffic policy, the user can enter the QoS features to apply to the classified traffic. This is done in policy-map class configuration mode. The QoS feature options are detailed more thoroughly in the [“Configuring the Modular Quality of Service Command-Line Interface”](#) chapter of this book.

The Modular QoS CLI does not necessarily require that users associate only one traffic class to one traffic policy. When packets match to more than one match criterion, multiple traffic classes can be associated with a single traffic policy.

Similarly, the Modular QoS CLI allows multiple traffic classes (nested traffic classes, which are also called nested class maps) to be configured as a single traffic class. This nesting can be achieved with the use of the **match class-map** command. The only method of combining match-any and match-all characteristics within a single traffic class is with the **match class-map** command. An example of a nested traffic class configuration using both **match-all** and **match-any** is provided in the [“Configuring the Modular Quality of Service Command-Line Interface”](#) chapter of this book.

**Note**

A packet can match only *one* traffic class within a traffic policy. If a packet matches more than one traffic class in the traffic policy, the *first* traffic class defined in the policy will be used.

The **service-policy** command is used to attach the traffic policy, as specified with the **policy-map** command, to an interface. Because the elements of the traffic policy can be applied to packets entering and leaving the interface, users are required to specify whether the traffic policy characteristics should be applied to incoming or outgoing packets. For instance, the **service-policy output class1** command would attach all the characteristics of the traffic policy named class1 to the specified interface. All packets leaving the specified interface are evaluated according to the criteria specified in the traffic policy named class1. For information on using the **service-policy** command, see the [“Configuring the Modular Quality of Service Command-Line Interface”](#) chapter of this book.

**Note**

The MQC does not support Internetwork Packet Exchange (IPX) packets.

Supported MIB

The Class-Based Quality of Service Management Information Base (Class-Based QoS MIB) provides read access to QoS configurations. This MIB also provides QoS statistics information based on the Modular QoS CLI, including information regarding class map and policy map parameters.

This Class-Based QoS MIB is actually two MIBs: CISCO-CLASS-BASED-QOS-MIB and CISCO-CLASS-BASED-QOS-CAPABILITY-MIB.

Use the Cisco Network Management Toolkit for MIBs tool on Cisco.com to locate MIBs.

