

Chapter 23

QoS Parameter Overview

This chapter provides information about quality of service (QoS) parameters.

QoS parameters are discussed in the following sections:

- QoS Parameter Overview on page 219
- QoS Parameter Audience on page 220
- QoS Parameter Terms on page 220
- Relationship Among QoS Parameters, Scheduler Profiles, and QoS Profiles on page 221

QoS Parameter Overview

Using QoS parameters, you can configure a queuing architecture without specifying the numeric subscriber rates and weights in scheduler profiles. You then use the same QoS and scheduler profiles across all subscribers who use the same services but at different bandwidths, reducing the total number of QoS profiles and scheduler profiles required.

Using QoS parameters, you can specify the following attributes of a scheduler node or queue without specifying the numeric value explicitly in the scheduler profile:

- Shaping rate
- Shared-shaping rate
- Assured rate
- Scheduler weight

QoS Parameter Audience

This topic collection contains QoS parameter configuration information for two types of QoS users: QoS administrators and QoS clients.

QoS administrators are responsible for implementing a QoS queuing architecture by defining the scheduler profiles and referencing them from QoS profiles. QoS administrators also configure parameter definitions that control the parameters, interfaces, and ranges of values that QoS clients, using QoS parameters, can assign.

QoS clients are responsible for configuring services for individual subscribers by creating parameter instances. The parameter instances that QoS clients create depend on the settings that the QoS administrator defined in parameter definitions. QoS clients can use the CLI, Session and Resource Control (SRC), IP multicast bandwidth adjustment, RADIUS, or Service Manager to manage these services.

Related Topics

- QoS Parameter Overview on page 219
- Relationship Among QoS Parameters, Scheduler Profiles, and QoS Profiles on page 221

QoS Parameter Terms

Table 21 defines terms used in this discussion of QoS parameters.

Table 21: QoS Parameter Terminology Used in This Chapter

| Term | Description |
|-----------------------------|---|
| Downreference | QoS feature that controls a node or queue lower in the scheduler hierarchy. For example, a QoS profile that is attached to an ATM virtual circuit (ATM VC) modifies QoS settings on ATM virtual path (VP) nodes. You cannot configure downreferences for QoS parameters. We also recommend that you do not configure downreferences for QoS profiles. |
| Explicit parameter instance | Hierarchical parameter instance whose value is explicitly specified by a client. This term is meaningful only when referring to hierarchical parameter instances; non-hierarchical parameter instances are always explicit. |
| Hierarchical parameter | Parameter with both explicit instances that are configured by a QoS client, and with implicit instances that are automatically generated for all controlled interfaces. The value for the implicit instance is the sum of the explicit instances for interfaces stacked above the controlled interface. |
| Implicit parameter instance | Hierarchical parameter instance where the value is the sum of explicit parameter instances on scheduler nodes and queues stacked above them in the scheduler hierarchy. |
| Parameter definition | Definition of a parameter name and attributes that a QoS administrator creates. |
| Parameter expression | Parameters used in conjunction with operators. Scheduler profiles reference a parameter definition name within a parameter expression. |

Table 21: QoS Parameter Terminology Used in This Chapter (continued)

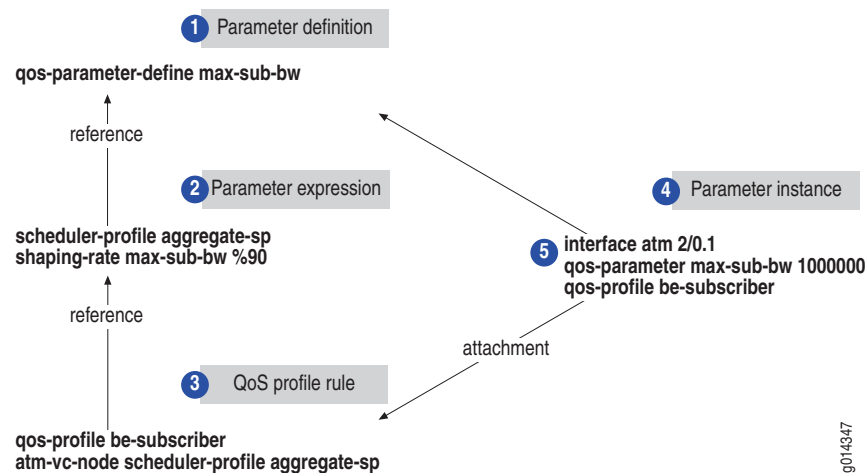
| Term | Description |
|--------------------|---|
| Parameter instance | Parameter name and value that a QoS client associates with a logical interface. |
| Parameter value | 32-byte unsigned integer value associated with a parameter instance. |
| QoS administrator | Person responsible for implementing a QoS queuing architecture by configuring QoS profiles, scheduler profiles, and parameter definitions. |
| QoS client | Person responsible for configuring services for individual subscribers and setting rates for those services by using the parameter definitions and QoS profiles that the QoS administrator configures. QoS clients can use the CLI, SRC, Service Manager, IP multicast bandwidth adjustment, or RADIUS. |

Related Topics

- For definitions of other common QoS terms, see *QoS Terms* on page 5

Relationship Among QoS Parameters, Scheduler Profiles, and QoS Profiles

Figure 57 shows the relationship among the parameter definitions, scheduler profiles, and QoS profiles that QoS administrators create. It also indicates how these profiles control the parameter instances that QoS clients create.

Figure 57: Relationship of Parameter Definitions, Scheduler Profiles, and QoS Profiles

The following sections describe the steps displayed in Figure 57, based on the tasks that the QoS administrator performs and those the QoS client performs.

QoS Administrator Tasks

Before the QoS client can specify settings for subscribers by using the QoS parameters feature:

1. The QoS administrator defines the attributes that the QoS client can modify by configuring a parameter definition.
2. The QoS administrator specifies the parameter definition name in a scheduler profile.
3. The QoS administrator references the scheduler profile in a QoS profile rule.

QoS Client Tasks

After the QoS administrator defines parameter definitions:

1. The QoS client creates a parameter instance and associates it with a logical interface.
2. The QoS client attaches a QoS profile to the logical interface.

Related Topics

- [QoS Parameter Audience on page 220](#)