

Cell Shaping Mode Using QoS Parameters Overview

You can associate the QoS cell mode application (**qos-cell-mode**) with a parameter definition for Ethernet interfaces configured on any E Series Broadband Services Routers.

Creating a parameter instance with the QoS cell mode application on a VLAN subinterface enables the scheduler to perform cell mode shaping and scheduling for queues and nodes associated with the controlled-interface types above the logical interface on which you create the parameter instance.

Overriding the QoS Shaping Mode

The QoS cell mode application overrides the shaping mode specified at the port using the **qos-shaping-mode** command.

The QoS cell mode application applies the shaping mode to all logical interfaces specified in the controlled-interface type list above the logical interface on which you created the parameter instance.

For example, all of the interfaces stacked above the Gigabit Ethernet interface configured on slot 6, adapter 0, port 2 have cell shaping mode:

```
host1(config)#interface gigabitEthernet 6/0/2
host1(config-if)#qos-shaping-mode cell
```

The QoS administrator then applies frame shaping mode to the Gigabit Ethernet interface configured on slot 6, adapter 0, port 2, subinterface 1 using the QoS cell mode application. This parameter instance overrides the shaping mode configured at the port.

```
host1(config-if)#interface gigabitEthernet 6/0/2.1
host1(config-if)#qos-parameter cell-mode 0
```

Module Types and Capabilities for QoS Cell Mode Application

The QoS cell mode application is supported by all E Series routers. However, different module types support the application.

Table 1 lists the supported modules for the **qos-shaping-mode cell** command and the **qos-cell-mode** application for parameters. It also describes how the cell mode adjustment is performed by each module type.

Table 1: Supported Interfaces for qos-shaping-mode and qos-cell-mode Commands

Module Type	qos-shaping-mode cell Command	qos-cell-mode Application	Adjustment Performed By
Ethernet interfaces on ES2 4G LM and ES2 10G LM (E120 and E320 Broadband Services routers)	✓	✓	Internal cell-taxing mechanism
Ethernet interfaces on GE-2 and GE-HDE line modules (ERX7xx models, ERX14xx models, and ERX310 routers)	✓	✓	Internal cell-taxing mechanism
Ethernet interfaces on ERX7xx models, ERX14xx models, and ERX310 routers	–	✓	Parameter expression associated with qos-cell-mode application (See “Cell Tax Adjustment Using QoS Cell Mode” on page 2.)
ATM interfaces on all E Series routers	✓	–	Internal cell-taxing mechanism
All other interface types on all E Series routers	–	–	–

Cell Tax Adjustment Using QoS Cell Mode

The internal cell-taxing mechanism does not perform the cell mode adjustment on certain interface types. On these interfaces, the system uses a parameter expression associated with the **qos-cell-mode** application to determine whether the cell adjustment is required.



NOTE: Do not use the parameter expression on Ethernet interfaces configured on the ES2 4G LM, GE-2 line module, or the GE-HDE line module.

For example, the subscriber-rate parameter represents the bandwidth of a subscriber. The shaping rate for the parameter is calculated by referencing an expression that represents the cell mode adjustment in a scheduler profile:

```
(config-scheduler-profile)# shaping-rate subscriber-rate - subscriber-rate * cell-mode % 25
```

The subscriber-rate - subscriber-rate * cell-mode % 25 expression provides for an explicit cell-tax factor of 25 percent when the subscriber local loop is transmitting

cells. In cases where the local loop is very-high-bit-rate digital subscriber line (VDSL), the second term in the expression drops to 0.

Relationship with QoS Downstream Rate Application

ANCP dynamically controls the QoS cell mode application when you create parameter instances for VLANs using both the QoS downstream rate application and the QoS cell mode application.

ANCP controls QoS cell mode parameter instances at the VLAN subinterface only; the protocol does not control parameter instances at the major Ethernet interface or S-VLAN subinterface.

- Related Topics**
- [Configuring a Parameter Definition to Shape Ethernet Traffic Using Cell Mode](#)
 - [Example: QoS Parameter Configuration for QoS Cell Mode and Byte Adjustment for Cell Shaping](#)
 - [For more information about configuring the QoS shaping mode, see QoS Shaping Mode for Ethernet Interfaces Overview](#)
 - [For more information about configuring scheduler rates for QoS parameters, see Scheduler Profiles and Parameter Expressions for QoS Administrators](#)
 - [For more information about shaping the downstream rate using QoS parameter instances that were created dynamically by ANCP, see QoS Downstream Rate Application Overview](#)

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