

## QoS Downstream Rate Application Overview

You can associate the QoS downstream rate (**qos-downstream-rate**) application with a parameter definition. The QoS downstream rate application enables you to shape the downstream rate of VLANs and ATM VCs based on parameter instances that are created dynamically by the Access Node Control Protocol (ANCP), also known as the layer 2 control (L2C) protocol, or the Actual-Data-Rate-Downstream [26-130] DSL Forum vendor-specific attribute (VSA). The values of the parameter instances track the bandwidth of the local loop that is communicated by ANCP or the [26-130] VSA.

### Downstream Rate and the Shaping Mode

After you configure a parameter definition with the QoS downstream rate application, you can configure the shaping mode for the VLAN or ATM VC. For ATM VCs, use the **qos-shaping-mode** command.

For VLANs, you can use the QoS cell mode application with QoS parameters to perform a cell mode adjustment. ANCP creates instances of the parameter based on the DSL type of the local loop associated with the VLAN.

VLANs configured on the ES2 4G LM on the E120 and E320 Broadband Services routers use an internal cell-taxing mechanism to perform the cell mode adjustment. For VLANs configured on all other E Series Broadband Services Routers, you must also configure a parameter expression to configure the cell mode adjustment.

### QoS Adaptive Mode and Downstream Rate

After you create the parameter definition, you must enable QoS adaptive mode for ANCP by issuing the **qos-adaptive-mode** command. ANCP uses this setting to dynamically create the parameter instances for the QoS downstream rate application and, if applicable, the QoS cell mode application. It also uses the setting to determine the value that the system uses when recalculating the shaping rate.

For example, if you created a parameter definition with the QoS cell mode application, ANCP configures parameter instances associated with a value of 0 to indicate a frame-oriented DSL types such as VDSL2. ANCP configures cell-oriented DSL types such as ADSL with a value of 1.

Table 1 lists the DSL types, interface type, and resultant shaping modes that ANCP configures when creating a parameter instance for the QoS cell mode application.

**Table 1: Access Loop Types and Resultant Shaping Mode**

Access Loop Type	Access Loop Interface Type	Shaping Mode
ADSL1	ATM	Cell
ADSL2	ATM	Cell
ADSL2 +	ATM	Cell

**Table 1: Access Loop Types and Resultant Shaping Mode** *(continued)*

Access Loop Type	Access Loop Interface Type	Shaping Mode
VDSL1	ATM	Cell
VDSL2	Ethernet	Frame
SDSL/SHDSL	ATM	Cell

### **Obtaining Downstream Rates from a DSL Forum VSA**

You can configure the QoS downstream rate application to shape VLANs or ATM VCs based on downstream rates obtained from the Actual-Data-Rate-Downstream [26-130] DSL Forum vendor-specific attribute (VSA).

- Related Topics**
- Configuring a Parameter Definition for QoS Downstream Rate
  - Example: QoS Parameter Configuration for QoS Downstream Rate
  - For more information about configuring the shaping mode for Ethernet interfaces, see [QoS Shaping Mode for Ethernet Interfaces Overview](#) and [Cell Shaping Mode Using QoS Parameters Overview](#)
  - For more information about configuring byte adjustment for downstream rates, see [Byte Adjustment for ADSL and VDSL Traffic Overview](#)
  - For information about configuring the shaping mode for ATM interfaces, see [Configuring the QoS Shaping Mode for ATM Interfaces](#)
  - For more information about DSL Forum VSAs, see *JUNOS Broadband Access Configuration Guide*

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