

Downstream Rate Shaping with TOS Bits for the Cisco uBR7200 Series Cable Router

Feature Overview

The Cisco uBR7200 series cable router currently supports downstream data rate shaping on a per modem basis. This feature extends that capability by also allowing users to configure the type of service (TOS) byte to calculate the data rate for a specified flow.

Benefits

This feature allows users to configure multiple data rates for a given modem. These multiple data rates are defined by the value of the IP precedence bits in the downstream TOS byte. Also, by specifying a maximum data rate for a particular TOS, users can override the common maximum downstream data rate. Packets that contain TOS bytes that have not been configured for downstream data rates continue to use the common data rate limits.

Related Documents

- *QoS Profile Enforcement for the Cisco uBR7200 Series Router*
- *Cisco uBR7246 Universal Broadband Router Feature Enhancements*

Supported Platforms

uBR7200 series

Supported Standards, MIBs, and RFCs

None

Configuration Tasks

None

Configuration Examples

None

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.0 command reference publications.

- **cable qos profile**

cable qos profile

To configure a QoS profile, enter the **cable qos profile** global configuration command. To either set default values for profile group numbers (other than profile 1 or 2), or to remove the QoS profile if no specific parameters remain, enter the **no** form of this command.

```
cable qos profile { groupnum | ip-precedence | guaranteed-upstream | max-burst | max-upstream | max-downstream | priority | tos-overwrite | value }
```

```
no cable qos profile { groupnum | ip-precedence | guaranteed-upstream | max-burst | max-upstream | max-downstream | priority | tos-overwrite | value }
```

Syntax Description

<i>groupnum</i>	QoS profile group number. QoS profiles 1 and 2 are required by the system. QoS profile 1 is used during registration, and QoS profile 2 is the default QoS profile. Both profiles are preconfigured and cannot be removed nor modified.
<i>ip-precedence</i>	Bits in the TOS byte that enable you to configure individual data rate limits on a per modem basis. Valid values are from 0 to 7.
<i>guaranteed-upstream</i>	Guaranteed minimum upstream rate in kilobytes per second. Valid values are from 0 to 100000. Default value is 0 (no reserved rate).
<i>max-burst</i>	Maximum upstream transmit burst size in bytes that the modem can send for any single transmit burst. Valid values are from 0 to 255. Default value is 0 (no limit).
<i>max-upstream</i>	Maximum upstream data rate in kilobytes per second that a modem using this QoS profile will receive. Valid values are from 0 to 255. Default value is 0 (no upstream rate limit).
<i>max-downstream</i>	Maximum downstream data rate in kilobytes per second that a modem using this QoS profile will receive. Valid values are from 0 to 100000. Default value is 0 (no downstream rate limit).
<i>priority</i>	Relative priority number assigned to upstream traffic by this QoS profile. Valid values are from 0 to 7, with 7 being the highest priority. Default value is 0.
<i>tos-overwrite</i>	Overwrite the Type of Service (TOS) field in the IP datagrams received on the upstream before forwarding them downstream (or IP backbone). This parameter sets the hexadecimal mask bits to a hexadecimal value. This helps the CMTS identify datagrams for QoS on the backbone.
<i>value</i>	The value substituted for the TOS value. See <i>tos_overwrite</i> .

Default

No default behavior or values.

Command Mode

Global configuration

Command History

Release	Modification
11.3 NA	This command was first introduced.
12.0(5)T	The ip-precedence keyword was added and the max-downstream range was increased.

Example

The following example configures QoS profile 4 with guaranteed upstream of 2 kbps, maximum transmission burst of 2, an IP precedence of 7, a maximum downstream rate of 300 kbps, with a priority of 4, cable baseline privacy set, and a *tos-overwrite* mask and value byte (in hex) of 0x7:

```
Router(config)# cable qos profile 4 guaranteed-upstream 2
Router(config)# cable qos profile 4 max-burst 2
Router(config)# cable qos profile 4 ip-precedence 7 max-downstream 300
Router(config)# cable qos profile 4 priority 4
Router(config)# cable qos profile 4 tos-overwrite 0x7
```

Related Commands

Command	Description
cable qos permission	Configures permissions for updating the QoS table.
show cable qos profile	Displays QoS profiles.