Slope QoS Policies

In This Section

This section provides information to configure slope QoS policies using the command line interface.

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Overview

Default buffer pools exist (logically) at the port, MDA and node levels. Each physical port has three associated pool objects:

- Access ingress pool
- Access egress pool
- Network egress pool

Each MDA has three associated pool objects:

- Access egress pool
- Access ingress pool
- Network egress pool

The overall node has one associated pool object:

- Network ingress pool
- By default, each pool is associated with slope-policy default which disables the high-slope and low-slope parameters within the pool.

For information about the tasks and commands necessary to access the command line interface and to configure and maintain your router, refer to CLI Usage chapter in the Basic System Configuration Guide.

Basic Configurations

A basic slope QoS policy must conform to the following:

- Each slope policy must have a unique policy ID.
- High slope and low slope are shut down (default).
- Default values can be modified but parameters cannot be deleted.

Create a Slope QoS Policy

Configuring and applying slope policies is optional. If no slope policy is explicitly applied to a SAP or IP interface, a default slope policy is applied.

To create a new slope policy, define the following:

- A slope policy ID value. The system will not dynamically assign a value.
- Include a description. The description provides a brief overview of policy features.
- The high slope for the high priority Random Early Detection (RED) slope graph.
- The low slope for the low priority Random Early Detection (RED) slope graph.
- The time average factor (TAF), a weighting exponent used to determine the portion of the shared buffer instantaneous utilization and shared buffer average utilization used to calculate the new shared buffer average utilization.

Use the following CLI syntax to configure a slope policy:

CLI Syntax: `config>qos#`
```
    slope-policy name
        description description-string
        high-slope
            start-avg percent
            max-avg percent
            max-prob percent
            no shutdown
        low-slope
            start-avg percent
            max-avg percent
            max-prob percent
            no shutdown
        time-average-factor taf
```

The following displays the slope policy configuration:

```
ALA-7>config>qos# info
#----------------------------------------
echo "QoS Slope/Queue Policies Configuration"
#----------------------------------------
...
        slope-policy "slopePolicy1" create
            description "Test"
            high-slope
                no shutdown
            exit
            low-slope
                no shutdown
            exit
        exit
...
#----------------------------------------
ALA-7>config>qos#
```

Applying Slope Policies

Apply slope policies to the following entities:

- Global
- MDA
- MDA Ports

Global

Use the following CLI syntax to apply slope policies to network egress and ingress pools.

CLI Syntax: `config> card 1 mda 1 network ingress pool slope-policy name port`

MDA

The following CLI syntax examples may be used to apply slope policies to MDAs:

CLI Syntax: `config>card>mda>access>ingress>pool>slope-policy name`
`config>card>mda>network>egress>pool>slope-policy name`

The following CLI syntax example configures the PPP multilink pool:

CLI Syntax: `config>card>mda>access>egress>pool>slope-policy name`

MDA Ports

The following CLI syntax examples may be used to apply slope policies to MDA ports:

CLI Syntax: `config>port>access>egress>pool>slope-policy name`
`config>port>network>egress>pool>slope-policy name`

Default Slope Policy Values

The default access ingress and egress policies are identified as policy-id 1. The default policies cannot be edited or deleted. The following displays default policy parameters:

Table 40: Slope Policy Defaults

Field	Default
description	"Default slope policy"
high-slope	
shutdown	shutdown
start-age	70
max-avg	90
max-prob	80
low-slope	
shutdown	shutdown
start-age	50
max-avg	75
max-prob	80
time-average-factor	7

The following output displays the default configuration:

```
ALA-7>config>qos>slope-policy# info detail
----------------------------------------------
        description "Default slope policy."
        high-slope
            shutdown
            start-avg 70
            max-avg 90
            max-prob 80
        exit
        low-slope
            shutdown
            start-avg 50
            max-avg 75
            max-prob 80
        exit
        time-average-factor 7
----------------------------------------------
ALA-7>config>qos>slope-policy#
```

Deleting QoS Policies

A slope policy is associated by default with MDAs and port access and network egress pools. A default policy may be replaced with a non-default policy, but a policy cannot be entirely removed from the configuration. When a non-default policy is removed, the policy association reverts to the default slope **policy** *policy-id* **default**. A QoS policy cannot be deleted until it is removed from all MDAs or ports where it is applied.

```
ALA-7>config>qos# no slope-policy slopePolicy1
MINOR: QOS #1902 Slope policy has references
ALA-7>config>qos#
```

Global

Use the following CLI syntax to remove slope policies from network egress and ingress pools.

CLI Syntax: `config> card 1 mda 1 network ingress pool` **no** `slope-policy name port`

MDA

The following CLI syntax examples can be used to remove slope policies from MDAs:

CLI Syntax: `config>card>mda>access>ingress>pool#` **no** `slope-policy name`
`config>card>mda>network>egress>pool#` **no** `slope-policy name`

The following CLI syntax example configures the PPP multilink pool:

CLI Syntax: `config>card>mda>access>egress>pool#` **no** `slope-policy name`

MDA Ports

The following CLI syntax examples can be used to remove slope policies from MDA ports:

CLI Syntax: `config>port>access>egress>pool#` **no** `slope-policy name`
`config>port>network>egress>pool#` **no** `slope-policy name`

Remove a Policy from the QoS Configuration

To delete a slope policy, enter the following command:

CLI Syntax: `config>qos# no slope-policy` *policy-id*

Example: `config>qos# no slope-policy slopePolicy1`

Copying and Overwriting QoS Policies

You can copy an existing slope policy, rename it with a new policy ID value, or overwrite an existing policy ID. The `overwrite` option must be specified or an error occurs if the destination policy ID exists.

CLI Syntax: `config>qos>` `copy {slope-policy}` *`source-policy-id dest-policy-id`* `[overwrite]`

The following output displays the copied policies:

```
ALA-7>config>qos# info
-------------------------------------------
...
        slope-policy "default" create
            description "Default slope policy."
            high-slope
                shutdown
                start-avg 70
                max-avg 90
                max-prob 80
            exit
            low-slope
                shutdown
                start-avg 50
                max-avg 75
                max-prob 80
            exit
            time-average-factor 7
        exit
        slope-policy "slopePolicy1" create
            description "Default slope policy."
            high-slope
                shutdown
                start-avg 70
                max-avg 90
                max-prob 80
            exit
            low-slope
                shutdown
                start-avg 50
                max-avg 75
                max-prob 80
            exit
            time-average-factor 7
        exit
        slope-policy "slopePolicy2" create
            description "Default slope policy."
            high-slope
                shutdown
                start-avg 70
                max-avg 90
                max-prob 80
            exit
            low-slope
```

```
                shutdown
                start-avg 50
                max-avg 75
                max-prob 80
            exit
            time-average-factor 7
        exit
#----------------------------------------
ALA-7>config>qos#
```

Editing QoS Policies

You can change existing policies and entries in the CLI or NMS. The changes are applied immediately to all services where this policy is applied. To prevent configuration errors copy the policy to a work area, make the edits, and then write over the original policy.