Configuration Commands

Generic Commands

description

Syntax **description** *description-string*
no description

Context config>qos>slope-policy

Description This command creates a text description stored in the configuration file for a configuration context.

The **description** command associates a text string with a configuration context to help identify the context in the configuration file.

The **no** form of this command removes any description string from the context.

Default No description is associated with the configuration context.

Parameters *description-string* — A text string describing the entity. Allowed values are any string up to 80 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

Operational Commands

copy

Syntax **copy slope-policy** *src-name dst-name* [**overwrite**]

Context config>qos

Description This command copies existing QoS policy entries for a QoS policy-id to another QoS policy-id.

The **copy** command is a configuration level maintenance tool used to create new policies using existing policies. It also allows bulk modifications to an existing policy with the use of the **overwrite** keyword.

Parameters **slope-policy —** Indicates that the source policy ID and the destination policy ID are slope policy IDs. Specify the source policy ID that the copy command will attempt to copy from and specify the destination policy ID to which the command will copy a duplicate of the policy.

overwrite — Specifies to replace the existing destination policy. Everything in the existing destination policy will be overwritten with the contents of the source policy. If **overwrite** is not specified, an error will occur if the destination policy ID exists.

```
ALA-7>config>qos# copy slope-policy default sp1
MINOR: CLI Destination "sp1" exists - use {overwrite}.
ALA-7>config>qos#overwrite
```

Slope Policy QoS Commands

slope-policy

Syntax [**no**] **slope-policy** *name*

Context config>qos

Description This command enables the context to configure a QoS slope policy.

Default slope-policy "default"

Parameters *name* — The name of the slope policy.

Values Valid names consist of any string up to 32 characters long composed of printable, 7-bit ASCII characters. If the string contains special characters (#, $, spaces, etc.), the entire string must be enclosed within double quotes.

time-average-factor

Syntax **time-average-factor** *value*
no time-average-factor

Context config>qos>slope-policy

Description This command sets a weighting factor to calculate the new shared buffer average utilization after assigning buffers for a packet entering a queue. To derive the new shared buffer average utilization, the buffer pool takes a portion of the previous shared buffer average and adds it to the inverse portion of the instantaneous shared buffer utilization.

The **time-average-factor** command sets the weighting factor between the old shared buffer average utilization and the current shared buffer instantaneous utilization when calculating the new shared buffer average utilization

The TAF value applies to all high and low priority RED slopes for ingress and egress access buffer pools controlled by the slope policy.

The **no** form of this command restores the default setting.

Default **7** - Weighting instantaneous shared buffer utilization is 0.8%.

Parameters *value* — Represents the Time Average Factor (TAF), expressed as a decimal integer. The value specified for TAF affects the speed at which the shared buffer average utilization tracks the instantaneous shared buffer utilization. A low value weights the new shared buffer average utilization calculation more to the shared buffer instantaneous utilization, zero using it exclusively.

A high value weights the new shared buffer average utilization calculation more to the previous shared buffer average utilization value.

Values 0 — 15

Slope Policy QoS Policy Commands

high-slope

Syntax [**no**] **high-slope**

Context config>qos>slope-policy

Description The **high-slope** context contains the commands and parameters for defining the high priority Random Early Detection (RED) slope graph. Each buffer pool supports a high priority RED slope for managing access to the shared portion of the buffer pool for high priority or in-profile packets.

The **high-slope** parameters can be changed at any time and the affected buffer pool high priority RED slopes will be adjusted appropriately.

The **no** form of this command restores the high slope configuration commands to the default values. If the commands within **high-slope** are set to the default parameters, the **high-slope** node will not appear in save config and show config output unless the detail parameter is present.

low-slope

Syntax [**no**] **low-slope**

Context config>qos>slope-policy

Description The **low-slope** context contains the commands and parameters for defining the low priority Random Early Detection (RED) slope graph. Each buffer pool supports a low priority RED slope for managing access to the shared portion of the buffer pool for low priority or out-of-profile packets.

The **low-slope** parameters can be changed at any time and the affected buffer pool low priority RED slopes must be adjusted appropriately.

The **no** form of this command restores the low slope configuration commands to the default values. If the leaf commands within **low-slope** are set to the default parameters, the **low-slope** node will not appear in save config and show config output unless the detail parameter is present.

RED Slope Commands

max-avg

Syntax **max-avg** *percent*
no max-avg

Context config>qos>slope-policy>high-slope
config>qos>slope-policy>low-slope

Description Sets the low priority or high priority Random Early Detection (RED) slope position for the shared buffer average utilization value where the packet discard probability rises directly to one. The percent parameter is expressed as a percentage of the shared buffer size.

The **no** form of this command restores the max-avg value to the default setting. If the current **start-avg** setting is larger than the default, an error will occur and the max-avg setting will not be changed to the default.

Default **max-avg 90** — High slope default is 90% buffer utilization before discard probability is 1.
max-avg 75 — Low slope default is 75% buffer utilization before discard probability is 1.

Parameters *percent* — The percentage of the shared buffer space for the buffer pool at which point the drop probability becomes 1. The value entered must be greater or equal to the current setting of **start-avg**. If the entered value is smaller than the current value of **start-avg**, an error will occur and no change will take place.

Values 0 — 100

max-prob

Syntax **max-prob** *percent*
no max-prob

Context config>qos>slope-policy>high-slope
config>qos>slope-policy>low-slope

Description Sets the low priority or high priority Random Early Detection (RED) slope position for the maximum non-one packet discard probability value before the packet discard probability rises directly to one. The percent parameter is expressed as a percentage of packet discard probability where always discard is a probability of 1. A **max-prob** value of 80 represents 80% of 1, or a packet discard probability of 0.8.

The **no** form of this command restores the **max-prob** value to the default setting.

Default **max-prob 80** — 80% maximum drop probability corresponding to the **max-avg.**

Parameters *percent* — The maximum drop probability percentage corresponding to the **max-avg,** expressed as a decimal integer.

Values 0 — 100

shutdown

Syntax [**no**] **shutdown**

Context config>qos>slope-policy>high-slope
config>qos>slope-policy>low-slope

Description This command enables or disables the administrative status of the Random Early Detection slope.

By default, all slopes are shutdown and have to be explicitly enabled (**no shutdown**).

The **no** form of this command administratively enables the RED slope.

Default **shutdown** - RED slope disabled implying a zero (0) drop probability

start-avg

Syntax **start-avg** *percent*
no start-avg

Context config>qos>slope-policy>high-slope
config>qos>slope-policy>low-slope

Description This command sets the low priority or high priority Random Early Detection (RED) slope position for the shared buffer average utilization value where the packet discard probability starts to increase above zero. The percent parameter is expressed as a percentage of the shared buffer size.

The **no** form of this command restores the start-avg value to the default setting. If the max-avg setting is smaller than the default, an error will occur and the start-avg setting will not be changed to the default.

queue

Syntax **queue** *queue-id* **drop-rate** *num*
no queue *queue-id*

Context config>qos>slope-policy>high-slope
config>qos>slope-policy>low-slope

Description Sets the low priority or high priority Random Early Detection (RED) slope drop-rate for the shared buffer per queue.

The **no** form of this command restores the drop-rate value to the default setting.

Default drop-rate 1 — High slope default is 1 (6.25 drop-rate) for all the queues, this implies that once the shared buffer utilization reaches the start-threshold level then packets egressing out from a particular queue would be dropped at 6.25% rate.

drop-rate 0 — Low slope default is 0 (100% drop-rate) for all the queues, this implies that once the shared buffer utilization reaches the start-threshold level then packets egressing out from a particular queue would be dropped at 100% rate.

Parameters *queue-id* — Specifies the ID of the queue for which the drop-rate is to be configured.

Values 1 — 8

drop-rate *num* **—** Specifies the drop rate to be configured.

Values 0 — 7

Show Commands

slope-policy

Syntax **slope-policy** [*slope-policy-name*] [**detail**]

Context show>qos

Description This command displays slope policy information.

Parameters *slope-policy-name* — The name of the slope policy.

detail — Displays detailed information about the slope policy.

Output **Slope QoS Policy Output Fields —** The following table describes slope QoS policy output fields.

Table 46: Show QoS Slope Policy Output Fields

Label	Description
`Policy`	The ID that uniquely identifies the policy.
`Description`	A string that identifies the policy's context in the configuration file.
`Time Avg`	The weighting between the previous shared buffer average utilization result and the new shared buffer utilization.
Slope Parameters	
`Start Avg`	Specifies the low priority or high priority RED slope position for the shared buffer average utilization value where the packet discard probability starts to increase above zero.
`Max Avg`	Specifies the percentage of the shared buffer space for the buffer pool at which point the drop probability becomes 1, expressed as a decimal integer
`Admin State`	`Up` – The administrative status of the RED slope is enabled. `Down` – The administrative status of the RED slope is disabled. Specifies the low priority or high priority RED slope position for the maximum non-one packet discard probability value before the packet discard probability rises directly to one.
`Max Prob.`	Specifies the high priority RED slope position for the maximum non-one packet discard probability value before the packet discard probability rises directly to one.

Sample Output

```
A:C# show qos slope-policy 2
===============================================================================
QoS Slope Policy
===============================================================================
Policy         : 2
Time Avg       : 7
-------------------------------------------------------------------------------
High Slope Parameters
-------------------------------------------------------------------------------
Start Avg      : 70                            Admin State  : Enabled
Max Avg        : 90                            Max Prob.    : 100
-------------------------------------------------------------------------------
Low Slope Parameters
-------------------------------------------------------------------------------
Start Avg      : 30                            Admin State  : Enabled
Max Avg        : 40                            Max Prob.    : 100
===============================================================================

A:C# show qos slope-policy 2 detail
===============================================================================
QoS Slope Policy
===============================================================================
Policy         : 2
Time Avg       : 7
-------------------------------------------------------------------------------
High Slope Parameters
-------------------------------------------------------------------------------
Start Avg      : 70                            Admin State  : Enabled
Max Avg        : 90                            Max Prob.    : 100
-------------------------------------------------------------------------------
Low Slope Parameters
-------------------------------------------------------------------------------
Start Avg      : 30                            Admin State  : Enabled
Max Avg        : 40                            Max Prob.    : 100
-------------------------------------------------------------------------------
Associations
-------------------------------------------------------------------------------
Object Type Object Id     Application          Pool
-------------------------------------------------------------------------------
Port        1/1/1         Acc-Egr              default
===============================================================================
A:C#
```