H Commands

This chapter describes the Cisco NX-OS quality of service (QoS) commands that begin with H.

hardware pq-drain

To configure the proxy-queue drain rate settings, use the **hardware pq-drain** command in global confiiguration mode. To disable proxy-queue drain settings, use the **no** form of this command.

> **hardware pq-drain 10g** *10g-drain-rate* **40g** *40g-drain-rate*

> **no hardware pq-drain 10g** *10g-drain-rate* **40g** *40g-drain-rate*

Syntax Description

10g *10g-drain-rate*	Proxy Queue drain rate for the 10 G interface. The range is from 1 Mbps to 20000 Mbps.
40g *40g-drain-rate*	Proxy Queue drain rate for the 40 G interface. The range is from 1 Mbps to 80000 Mbps.

Command Default   Disabled

Command Modes   Global configuration mode

Command History

Release	Modification
7.0(0)N1(1)	This command was introduced.

Usage Guidelines

Note   This command is applicable to only Cisco Nexus 6000 switches.

When the proxy queue reaches a threshold that indicates congestion, Explicit Congestion Notification (ECN) marking is performed so that the receiver of the packet echoes the congestion indication to the sender. The proxy-queue drain rate is configured to ensure that during congestion at egress ports only a certain amount of packets are drained.

Examples   This example shows how to configure proxy-queue settings to drain 9900 Mbps of traffic from 10 Gigabait interfaces and 39900 Mpbs of traffic from 40 Gigabit interfaces:

```
switch(config)# hardware pq-drain 10g 9900 40g 39900
```

Related Commands

Command	Description
hardware random-detect	Configures ECN for a QoS group.

hardware profile latency monitor base

To specify the histogram base-value time to construct switch latency monitoring histograms, use the **hardware profile latency monitor base** command in global configuration mode. To remove switch latency monitoring base values, use the **no** form of this command.

hardware profile latency monitor base *base-value*

no hardware profile latency monitor base

Syntax Description	*base-value*	Histogram base value used to construct switch latency monitoring histograms. Valid values are multiples of 8 in the range 8 to 2147483640 nanoseconds.

Command Default   Disabled

Command Modes   Global configuration mode

Command History	Release	Modification
	7.0(0)N1(1)	This command was introduced.

Usage Guidelines

Note   This command is applicable to Cisco Nexus 6000 switches only.

If you enter a base value that is not a multiple of 8, the system automatically modifies the base value to the nearest (lower) number that is a multiple of 8.

Note   All previous histogram statistics are lost when you configure, update or delete the base value.

Examples   This example shows how to configure a histogram base value of 800 nanoseconds:

```
switch(config)# hardware profile latency monitor base 800
```

Related Commands	Command	Description
	clear hardware profile latency monitor	Clears switch latency monitoring statistics.
	hardware profile latency monitor	Specifies the histogram base value to construct switch latency monitoring histograms.

Command	Description
packet latency interface	Enables switch latency histogram monitoring.
show hardware profile latency monitor	Displays switch latency statistics for egress and ingress port pairs.

hardware profile tcam feature interface-qos limit

To configure the QoS TCAM limit, use the **hardware profile tcam feature interface-qos limit** command.

hardware profile tcam feature interface-qos limit *tcam-size*

Syntax Description	*tcam-size*	Interface QoS TCAM limit. The TCAM size can be from 7- 446 entries.

Command Default None

Command Modes Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines No interface policy entry should be present after the interface_qos limit in the QoS region of any TCAM.

Examples This example shows how to set the interface QoS TCAM limit to 20 entries:

```
switch(config)# configue terminal
switch(config)# hardware profile tcam feature interface-qos limit 20
switch(config)# show hardware profile tcam feature qos
Feature               Limit
--------------------------------------------------------------------------------
Interface             20
vlan-qos + global-qos  428

switch(config)# copy running-config startup-config
```

Related Commands

Command	Description
show hardware profile tcam feature qos	Displays the limits of the QoS TCAMs.

hardware random-detect

To configure Explicit Congestion Notification (ECN) for a Quality of Service (QoS) group, use the **hardware random-detect** command in global configuration mode. To disable ECN, use the **no** form of this command.

> **hardware random-detect min-thresh 10g** *10g-min-theshold* **40g** *40g-min-threshold* **max-thresh 10g** *10g-max-threshold* **40g** *40g-max-threshold* **ecn qos-group** *group-number*

> **no hardware randon-detect 10g** *10g-min-theshold* **40g** *40g-min-threshold* **max-thresh 10g** *10g-max-threshold* **40g** *40g-max-threshold* **ecn qos-group** *group-number*

Syntax Description		
min-thresh	Minimum threshold.
10g *10g-min-theshold*	Minimum threshold for 10 Gigabit interfaces. The range is from 1 to 67108863 bytes.
40g *40g-min-threshold*	Minimum threshold for 40 Gigabit interfaces. The range is from 1 to 67108863 bytes.
max-thresh	Maximum threshold.
10g *10g-max-threshold*	Maximum threshold for 10 Gigabit interfaces. The range is from 1 to 67108863 bytes.
40g *40g-max-threshold*	Maximum threshold for 40 Gigabit interfaces. The range is from 1 to 67108863 bytes.
ecn	Enables ECN for the specified QoS group.
qos-group *group-number*	Specifies the QoS group that is being configured.

Command Default   Disabled

Command Modes   Global configuration mode

Command History

Release	Modification
7.0(0)N1(1)	This command was introduced.

Usage Guidelines

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Note   This command is applicable to only Cisco Nexus 6000 switches.

To implement Weighted Random Early Detection (WRED) Explicit Congestion Notification (ECN) on proxy queues you use the **hardware random-detect** command to configure minimum and maximum threshold values per QoS group. Then you use the **hardware pq-drain** command to configure the proxy-queue drain rate.

Examples   This example shows how to enable ECN threshold values for the class-default QoS group:

```
switch(config)# hardware random-detect min-thresh 10g 64000 40g 4000 max-thresh 10g 128000
40g 246000 ecn qos-group 0
```

Related Commands

Command	Description
hardware pq-drain	Configures proxy queue drain rate.

hardware unicast voq-limit

To enable the virtual output queuing (VOQ) limit for unicast traffic on a switch, use the **hardware unicast voq-limit** command. To disable the VOQ limit, use the **no** form of this command.

hardware unicast voq-limit

no hardware unicast voq-limit

Syntax Description	This command has no arguments or keywords.

Command Default	Disabled

Command Modes	Global configuration mode

Command History

Release	Modification
6.0(2)N1(1)	This command was introduced.

Usage Guidelines To alleviate congestion and blocking, you can use virtual output queuing (VOQ) to prevent one blocked receiver from affecting traffic that is being sent to other noncongested receivers (head-of-line blocking).

Examples This example shows how to enable the VOQ limits for unicast packets on a switch:

```
switch(config)# hardware unicast voq-limit
switch(config)#
```

Related Commands

Command	Description
hardware multicast disable-slow-port-pruning	Disables slow port pruning on the switch.
show running-config	Displays the running configuration on a switch.