



Congestion Management Commands

This chapter describes the commands used to manage congestion.

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bandwidth remaining

To specify how to allocate leftover bandwidth to various classes, use the **bandwidth remaining** command in policy map class configuration mode. To return to the system defaults, use the **no** form of this command.

bandwidth remaining [**percent** *percentage-value* | **ratio** *ratio-value*]
no bandwidth remaining [**percent** *percentage-value* | **ratio** *ratio-value*]

Syntax Description

percent <i>percentage-value</i>	Specifies the amount of guaranteed bandwidth, based on an absolute percentage of the available bandwidth. Range is from 1 to 100.
ratio <i>ratio-value</i>	Specifies the amount of guaranteed bandwidth, based on a bandwidth ratio value. Range is 1 to 127.

Command Default

No bandwidth is specified.

Command Modes

Policy map class configuration

Command History

Release Modification

Release 6.0 This command was introduced.

Usage Guidelines

The **bandwidth remaining** command is used to proportionally allocate bandwidth to the particular classes, but there is no reserved bandwidth capacity.

The bandwidth remaining ratio or percentage directly translates to weights of the egress queue.

The bandwidth remaining ratio and bandwidth remaining percentage cannot be configured together.



Note

The egress policies must have eight class maps including the default. This command is supported only in the egress direction.

Task ID

Task Operations ID

qos read,
 write

Examples

This example shows the remaining bandwidth for the all classes on egress policy:

```
RP/0/RP0/CPU0:router show run policy-map qos
Wed Nov 25 12:13:33.250 UTC
policy-map qos
  class qos1
    bandwidth remaining ratio 20
  !
```

```
class qos2
  bandwidth remaining ratio 10
!
class qos3
  bandwidth remaining ratio 10
!
class qos4
  bandwidth remaining ratio 30
!
class qos5
  bandwidth remaining ratio 10
!
class qos6
  bandwidth remaining ratio 10
!
class qos7
  bandwidth remaining ratio 10
!
class class-default
  bandwidth remaining ratio 5
!
end-policy-map
```

police rate

To configure traffic policing and enter policy map police configuration mode, use the **police rate** command in policy map class configuration mode. To remove traffic policing from the configuration, use the **no** form of this command.

no police rate *value* [*units*] | **percent** *percentage* | **per-thousand** *value* | **per-million** *value* [**burst** *burst-size* [*burst-units*]]

Syntax Description		
	<i>value</i>	Committed information rate (CIR). Range is from 1 to 4294967295.
	<i>units</i>	(Optional) Unit of measurement for the CIR. Values can be: <ul style="list-style-type: none"> • bps —bits per second (default) • gbps —gigabits per second • kbps —kilobits per second • mbps —megabits per second • pps —packets per second
	percent <i>percentage</i>	Specifies the police rate as a percentage of the CIR. Range is from 1 to 100. See the Usage Guidelines for information on how to use this keyword.
	per-thousand <i>value</i>	Specifies the committed information rate in per thousand of the link bandwidth.
	per-million <i>value</i>	Specifies the committed information rate in per million of the link bandwidth.
	burst <i>burst-size</i>	(Optional) Specifies the burst size (in the specified <i>burst-units</i>). Range is from 1 to 4294967295.
	<i>burst-units</i>	(Optional) Unit of measurement for the burst values. Values can be: <ul style="list-style-type: none"> • bytes —bytes (default) • gbytes —gigabytes • kbytes —kilobytes • mbytes —megabytes • ms —milliseconds • us —microseconds • packets —packets

Command Default No restrictions on the flow of data are applied to any interface.

Command Modes Policy map class configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The **police rate** can set the DSCP, the outer cos and qos -group for IP packets.

Policing can be applied only in ingress direction.

The parameters set by the action keywords are rounded by the hardware. To check the actual values programmed in the hardware use the **show qos interface** command.

For **police rate** commands, interpret the **percent** keyword in this way:

- For a one-level policy, the **percent** keyword specifies the CIR as a percentage of the link rate. For example, the command **police rate percent 35** configures the CIR as 35% of the link rate.



Note Configured values take into account the Layer 2 encapsulation applied to traffic. This applies to ingress policing.

If the burst value is not configured, it is automatically set to 100 msec-worth of the CIR value. For example, if a CIR value of 1,000,000 kbps is entered, the burst value is calculated to be 12,500,000 bytes.

When you define policers, for optimum performance use these formulas to calculate the burst values:

Committed Burst (Bc) = CIR bps * (1 byte / 8 bits) * 100 ms

For example, if CIR = 2,000,000 bps, the calculated burst value is 2,000,000 bps * (1/8) * 100 ms *(1/1000) = 25000 bytes.

For more information, see the Committed Bursts and Excess Bursts section in the *Modular QoS Configuration Guide for Cisco NCS 5000 Series Routers*.

Task ID	Task ID	Operations
	qos	read, write

In this example for MPLS, traffic policing is configured with the average rate at 250 kbps, and the normal burst size at 50 bytes for all packets leaving TenGigE interface 0/1/0/9:

```
RP/0/RP0/CPU0:router(config)# class-map class1
RP/0/RP0/CPU0:router(config-cmap)# match mpls experimental topmost 0
RP/0/RP0/CPU0:router(config-cmap)# exit

RP/0/RP0/CPU0:router(config)# policy-map policy1
RP/0/RP0/CPU0:router(config-pmap)# class class1...
RP/0/RP0/CPU0:router(config-pmap-c)# police rate 250 kbps burst 50
RP/0/RP0/CPU0:router(config-pmap-c-police)# conform-action set qos-group 4
RP/0/RP0/CPU0:router(config-pmap-c)# exit
RP/0/RP0/CPU0:router(config-pmap)# exit

RP/0/RP0/CPU0:router(config)# interface TenGigE 0/1/0/9
RP/0/RP0/CPU0:router(config-if) service-policy input policy1
```

In this example, traffic policing is configured with an average rate of 200 pps, and a normal burst size of 50 packets, for all packets in class-map class1, leaving TenGigE interface 0/1/0/9:

```
RP/0/RP0/CPU0:router(config)# policy-map pps-1r2c
RP/0/RP0/CPU0:router(config-pmap)# class class1
RP/0/RP0/CPU0:router(config-pmap-c)# police rate 200 pps burst 50 packets
```

```
RP/0/RP0/CPU0:router(config-pmap-c)# exit  
RP/0/RP0/CPU0:router(config-pmap)# exit  
  
RP/0/RP0/CPU0:router(config)# interface TenGigE 0/1/0/9  
RP/0/RP0/CPU0:router(config-if) service-policy input policy1
```

policy-map

To create or modify a policy map that can be attached to one or more interfaces to specify a service policy, use the **policy-map** command in XR Config mode. To delete a policy map, use the **no** form of this command.

```
policy-map [type qos] policy-name
no policy-map [type qos] policy-name
```

Syntax Description		
	type qos	(Optional) Specifies type of the service policy.
	qos	(Optional) Specifies a quality-of-service (QoS) policy map.
	<i>policy-name</i>	Name of the policy map.

Command Default A policy map does not exist until one is configured. Because a policy map is applied to an interface, no restrictions on the flow of data are applied to any interface until a policy map is created.

Type is QoS when not specified.

Command Modes XR Config mode

Command History	Release	Modification
	Release 6.0	This command was introduced.

Usage Guidelines Use the **policy-map** command to specify the name of the policy map to be created, added to, or modified before you can configure policies for classes whose match criteria are defined in a class map. Entering the **policy-map** command enables policy map configuration mode in which you can configure or modify the class policies for that policy map.

For egress classification, you must configure all 8 classes including class-default.

You can configure class policies in a policy map only if the classes have match criteria defined for them. Use the **class-map** and **match** commands to configure the match criteria for a class. Because you can configure a maximum of 2048 classes in one policy map, no policy map can contain more than 2048 class policies. The maximum number of 2048 classes per policy includes the implicit default class. The maximum number of policy maps supported is 2048.

A single policy map can be attached to multiple interfaces concurrently.

Task ID	Task ID	Operations
	qos	read, write

Examples

These examples show how to create a policy map called `policy-in` and configures two class policies included in that policy map. The policy map is defined to contain policy specification for `class1` and the default class (called `class-default`) to which packets that do not satisfy configured match criteria are directed. `Class1` specifies policy for traffic that matches access control list 136.

```
RP/0/RP0/CPU0:router(config)# class-map class1
RP/0/RP0/CPU0:router(config-cmap)# match access-group ipv4 136

RP/0/RP0/CPU0:router(config)# policy-map policy-in
RP/0/RP0/CPU0:router(config-pmap)# class class1...
RP/0/RP0/CPU0:router(config-pmap-c)# police rate 250 mbps
RP/0/RP0/CPU0:router(config-pmap-c-police)# exit
RP/0/RP0/CPU0:router(config-pmap-c)# exit
```


priority (QoS)

To assign priority to a traffic class based on the amount of available bandwidth within a traffic policy, use the **priority** command in policy map class configuration mode. To remove a previously specified priority for a class, use the **no** form of this command.

priority [**level** *priority-level*]
no priority

Syntax Description	level <i>priority-level</i> (Optional) Sets priority level to a traffic class. Only Level 1 is supported.
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Command Default	No default action.
------------------------	--------------------

Command Modes	Policy map class configuration
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Command History	Release	Modification
	Release 6.0	This command was introduced.

Usage Guidelines	The priority command configures low-latency queueing (LLQ), providing strict priority queueing (PQ). Strict PQ allows delay-sensitive data such as voice to be dequeued and sent before packets in other queues are dequeued.
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Egress queuing actions supports priority-level 1 for one of the eight class-maps. Policer is not supported in the egress direction, so the priority queue can take all the egress port bandwidth starving other queues. If priority traffic has to be policed, user can police it in the ingress direction where policer is supported.

The **bandwidth** and **priority** commands cannot be used in the same class, within the same policy map. These commands can be used together in the same policy map.

Task ID	Task ID	Operations
	qos	read, write

Examples

This example shows how to configure priority queueing for the policy map named policy-out :

```
RP/0/RP0/CPU0:router(config)# policy-map policy-out
RP/0/RP0/CPU0:router(config-pmap)# class class1...
RP/0/RP0/CPU0:router(config-pmap-c)# priority level 1
```

The egress policy-out should have all the eight classes.

shape average

To shape traffic to the indicated bit rate according to the algorithm specified, use the **shape average** command in policy map class configuration mode. To remove traffic shaping, use the **no** form of this command.

```
shape average percent percentage rate [units] | | per-thousand value | | per-million
value
no shape average
```

Syntax Description

percent <i>percentage</i>	Specifies the interface bandwidth in percentage. Values can be from 1 to 100.
<i>rate</i>	Average shaping rate in the specified units. Values can be from 1 to 4294967295.
<i>units</i>	(Optional) Units for the bandwidth. Values can be: <ul style="list-style-type: none"> • bps—bits per second (default) • gbps—gigabits per second • kbps—kilobits per second • mbps—megabits per second
per-thousand <i>value</i>	Specifies shape rate as parts per thousand of the available bandwidth.
per-million <i>value</i>	Specifies shape rate as parts per million of the available bandwidth.

Command Default

units: **bps**

Command Modes

Policy map class configuration

Command History

Release	Modification
Release 6.0	This command was introduced.
Release 6.6.25	Added absolute rate units for shaper on bundle and link aggregation (LAG) interfaces.

Usage Guidelines

The **shape average** command is supported only in the egress direction.

When you use the **shape average** command, egress shaping is done at the Layer 1 level and includes the Layer 1 header in the rate calculation. If you have both shape and bandwidth configured for a class, ensure that the shape percent value is always greater than the percent value for bandwidth. For bundled interfaces, **shape average** can be configured only as a percentage.

The **priority** and **shape average** commands must not be configured together in the same class.

Task ID	Task ID	Operations
	qos	read, write

Examples

This example sets traffic shaping to 50 percent of the :
port bandwidth:

```
RP/0/RP0/CPU0:router(config)# policy-map policy-out
RP/0/RP0/CPU0:router(config-pmap)# class class1...
RP/0/RP0/CPU0:router(config-pmap-c)# shape average percent 50
```

This example shows how to set traffic shaping to 100000 kbps:

```
RP/0/RP0/CPU0:router(config)# policy-map policy-out
RP/0/RP0/CPU0:router(config-pmap)# class class1...
RP/0/RP0/CPU0:router(config-pmap-c)# shape average 100000 kbps
```

This example shows how to set traffic shaping to 100000 kbps and peak burst for egress shaping to 1000:

```
RP/0/RP0/CPU0:router(config)# policy-map policy-out
RP/0/RP0/CPU0:router(config-pmap)# class class1...
RP/0/RP0/CPU0:router(config-pmap-c)# shape average 100000 kbps 1000
```

show policy-map interface

To display policy information and statistics for all classes configured for all service policies on the specified interface, use the **show policy-map interface** command in XR EXEC mode.

show policy-map [**interface** *interface type* | **all** *interface-path-id*] [**input** | **output**]

Syntax Description		
	<i>interface type</i>	Interface type. For more information, use the question mark (?) online help function.
	all	Specifies all interfaces.
	<i>interface-path-id</i>	Physical interface or bundle interface.
		Note Use the show interfaces command to see a list of all interfaces currently configured on the router.
		For more information about the syntax for the router, use the question mark (?) online help function.
	input	(Optional) Displays per class statistics on inbound traffic for the specified policy map and interface.
	output	(Optional) Displays per class statistics on outbound traffic for the specified policy map and interface.

Command Default None

Command Modes XR EXEC mode

Command History	Release	Modification
	Release 6.0	This command was introduced.

Usage Guidelines The **show policy-map interface** command displays the statistics for classes in the service policy attached to an interface.

The **show policy-map interface** command displays the statistics for shared and referred classes separately. To determine the policer action, an aggregate of the shared policer statistics should be collected.

The per-class statistics for a shaper action do not reflect the Layer 1 header and the overhead bytes (if any configured) even though the shaper includes them in the rate calculation.

Task ID	Task ID	Operations
	qos	read

Examples

This sample output shows how to display policy statistics information for all classes on the **interface TenGigE0/1/0/0 nv** that are in the output direction:

```
RP/0/RP0/CPU0:router# show policy-map interface TenGigE0/1/0/0 nv
Wed Nov 18 12:38:46.372 UTC
TenGigE0/0/0/0 output: egress_policy_shaper1

Class group_1
  Classification statistics          (packets/bytes)    (rate - kbps)
  Matched                          : 720175703/46091244992    0
  Transmitted                       : 720175703/46091244992    0
  Total Dropped                     : 0/0                    0
  Queueing statistics
  Queue ID                          : 9
  High watermark                    : N/A
  Inst-queue-len (cells)            : 0
  Avg-queue-len                     : N/A
  Taildropped (packets/bytes)       : 0/0
  Queue (conform)                   : 720175703/46091244992    0
  RED random drops (packets/bytes)  : 0/0

Class group_2
  Classification statistics          (packets/bytes)    (rate - kbps)
  Matched                          : 720169263/46090832832    0
  Transmitted                       : 720153475/46089822400    0
  Total Dropped                     : 15788/1010432          0
  Queueing statistics
  Queue ID                          : 10
  High watermark                    : N/A
  Inst-queue-len (cells)            : 0
  Avg-queue-len                     : N/A
  Taildropped (packets/bytes)       : 15788/1010432
  Queue (conform)                   : 720153475/46089822400    0
  RED random drops (packets/bytes)  : 0/0

Class group_3
  Classification statistics          (packets/bytes)    (rate - kbps)
  Matched                          : 720175701/46091244864    0
  Transmitted                       : 720175701/46091244864    0
  Total Dropped                     : 0/0                    0
  Queueing statistics
  Queue ID                          : 11
  High watermark                    : N/A
  Inst-queue-len (cells)            : 0
  Avg-queue-len                     : N/A
  Taildropped (packets/bytes)       : 0/0
  Queue (conform)                   : 720175701/46091244864    0
  RED random drops (packets/bytes)  : 0/0

Class group_4
  Classification statistics          (packets/bytes)    (rate - kbps)
  Matched                          : 720175701/46091244864    0
  Transmitted                       : 720175701/46091244864    0
  Total Dropped                     : 0/0                    0
  Queueing statistics
  Queue ID                          : 12
  High watermark                    : N/A
  Inst-queue-len (cells)            : 2
  Avg-queue-len                     : N/A
  Taildropped (packets/bytes)       : 0/0
```

show policy-map interface

```

Queue(conform)      :          720175701/46091244864      0
RED random drops (packets/bytes) : 0/0

Class group_5
Classification statistics      (packets/bytes)      (rate - kbps)
  Matched      :          720169263/46090832832      0
  Transmitted  :          720152985/46089791040      0
  Total Dropped :          16278/1041792      0
Queueing statistics
  Queue ID      : 13
  High watermark : N/A
  Inst-queue-len (cells) : 1
  Avg-queue-len : N/A
  Taildropped (packets/bytes) : 16278/1041792
  Queue(conform) :          720152985/46089791040      0
  RED random drops (packets/bytes) : 0/0

Class group_6
Classification statistics      (packets/bytes)      (rate - kbps)
  Matched      :          720169439/46090844096      0
  Transmitted  :          720155056/46089923584      0
  Total Dropped :          14383/920512      0
Queueing statistics
  Queue ID      : 14
  High watermark : N/A
  Inst-queue-len (cells) : 6438
  Avg-queue-len : N/A
  Taildropped (packets/bytes) : 14383/920512
  Queue(conform) :          720155056/46089923584      0
  RED random drops (packets/bytes) : 0/0

Class group_7
Classification statistics      (packets/bytes)      (rate - kbps)
  Matched      :          720175701/46091244864      0
  Transmitted  :          720175701/46091244864      0
  Total Dropped :          0/0      0
Queueing statistics
  Queue ID      : 15
  High watermark : N/A
  Inst-queue-len (cells) : 2
  Avg-queue-len : N/A
  Taildropped (packets/bytes) : 0/0
  Queue(conform) :          720175701/46091244864      0
  RED random drops (packets/bytes) : 0/0

Class class-default
Classification statistics      (packets/bytes)      (rate - kbps)
  Matched      :          720175701/46091244864      0
  Transmitted  :          720175584/46091237376      0
  Total Dropped :          117/7488      0
Queueing statistics
  Queue ID      : 8
  High watermark : N/A
  Inst-queue-len (cells) : 0
  Avg-queue-len : N/A
  Taildropped (packets/bytes) : 117/7488
  Queue(conform) :          720175701/46091244864      0
  RED random drops (packets/bytes) : 0/0

```



Note In the **show policy-map interface** command output, displayed police rate and actual police rate for an interface varies.

This table describes the significant fields shown in the display.

Table 1: show policy-map interface Field Descriptions

Field	Description
Classification statistics	
Matched	Number of packets or bytes that matched this class.
Transmitted	Number of packets or bytes transmitted for this class.
Total Dropped	Number of packets or bytes dropped for this class.
Policing statistics	
Policed(conform)	Number of packets or bytes that conformed to the police rate for this class.
Policed(exceed)	Number of packets or bytes that exceeded the police rate for this class.
Policed(violate)	Number of packets or bytes that violated the police rate for this class.
Policed and dropped	Number of packets or bytes dropped by the policer of this class.
Queuing statistics	
Queue ID	Queue number of the packet in this class.
High watermark (bytes)/(ms)	Maximum length of the queue.
Inst-queue-len (bytes)/(ms)	Instantaneous length of the queue.
Avg-queue-len (bytes)/(ms)	Average length of the queue.
Taildropped (bytes)	Number of bytes taildropped for this queue.
Compression Statistics	
Sent Total	Total number of packets sent.
Sent Compressed	Number of compressed packets sent.
Sent full header	Number of packets sent with a full header.
Saved	Number of bytes saved.
Sent	Number of bytes sent.
Efficiency improvement factor	Ratio of the packet's original full size to the packet's compressed size.
Queue (conform)	Number of packets or bytes that conformed to the queue rate for this class.

Field	Description
Queue (exceed)	Number of packets or bytes that exceeded the queue rate for this class.

show policy-map targets

To display information about the interfaces on which policy maps are applied, use the **show policy-map targets** command in XR EXEC mode.

```
show policy-map targets [location node-id | pmap-name name | type qos [location node-id |
pmap-name name]]
```

Syntax Description	
location <i>node-id</i>	(Optional) Displays information about the interfaces on which policy maps are applied for the specified location. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
pmap-name <i>name</i>	(Optional) Displays information about the interfaces on which the specified policy map is applied.
type qos	(Optional) Displays information about the interfaces on which QoS policy maps are applied. This is the default type.

Command Default The default QoS policy type is QoS.

Command Modes XR EXEC mode

Command History	Release	Modification
	Release 6.0	This command was introduced.

Usage Guidelines For a short period of time while a QoS policy is being modified, there might not be any policy in effect on the interfaces in which the modified policy is used. For this reason, modify QoS policies that affect the fewest number of interfaces at a time. Use the **show policy-map targets** command to identify the number of interfaces that will be affected during policy map modification.

When an unsupported policy-map is offloaded, a warning message stating 'policy is not offloaded' is shown. But the **show policy-map targets** command shows the unsupported policy-map entry for an interface.

Task ID	Task ID	Operations
	qos	read

Examples

In this example, the TenGigabit Ethernet interface has one policy map attached as a main policy. Outgoing traffic on this interface will be affected if the policy is modified:

```
RP/0/RP0/CPU0:router# show policy-map targets

Wed Nov 18 12:39:08.829 UTC
1) Policymap: egress_policy_shaper1    Type: qos
   Targets (applied as main policy):
     TenGigE0/0/0/0 output
     TenGigE0/0/0/8 output
```

```
show policy-map targets
```

```
Total targets: 2
```

```
Targets (applied as child policy):
```

```
Total targets: 0
```

show qos-ea interface

To display internal programming information for an interface, use the **show qos-ea interface** command in XR EXEC mode.

```
show qos-ea interface type interface-path-id{ input | output}detail interface-type
interface-path-id [locationinterface-path-id]
```

Syntax Description	
<i>type</i>	Interface type. The range is from 1 to 32768.
<i>interface-path-id</i>	Physical interface or bundle interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
input	Refers to policy applied in ingress direction.
output	Refers to policy applied egress direction.
detail	Displays detailed output.
location	(Optional) Specifies the location of the node.

Command Default None.

Command Modes XR EXEC mode

Command History	Release	Modification
	Release 6.0	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	qos	read

Examples

This is the sample output which shows the QoS information on a TenGigabit Ethernet interface:

```
RP/0/RP0/CPU0:router # show qos-ea interface tenGigE 0/0/0/0 output
Wed Nov 18 12:36:36.130 UTC
Interface: TenGigE0_0_0_0 output policy: egress_policy_shaper1
Total number of classes: 8
Total number of UBRL classes: 0
```

show qos-ea interface

```

Total number of CAC classes: 0
-----
Policy name: egress_policy_shaper1
Hierarchical depth 1
Interface type TenGigE
Interface rate 10000000 kbps
Port Shaper rate 0 kbps
Interface handle 0x08000038
ul_ifh 0x00000000, ul_id 0x00000080
uidb index 0x0006
qos_ifh 0x108000800006
Local port 0, NP 0
Policy map id 0x0000, format 0, uidb index 0x0006
-----
Index 0 Level 0 Class name group_1 service_id 0x0 Policy name egress_policy_shaper1
Node flags: LEAF Q_LEAF
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/20
Queue limit 250000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC000009
Queue: Q-ID 0x00000009 Stat ID(Commit/Excess/Drop): 0xF0000009/0x00000000/0xF8000009
-----
Index 1 Level 0 Class name group_2 service_id 0x0 Policy name egress_policy_shaper1
Node flags: LEAF Q_LEAF
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/2
Queue limit 25000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC00000A
Queue: Q-ID 0x0000000a Stat ID(Commit/Excess/Drop): 0xF000000A/0x00000000/0xF800000A
-----
Index 2 Level 0 Class name group_3 service_id 0x0 Policy name egress_policy_shaper1
Node flags: LEAF Q_LEAF
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/12
Queue limit 150000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC00000B
Queue: Q-ID 0x0000000b Stat ID(Commit/Excess/Drop): 0xF000000B/0x00000000/0xF800000B
-----
Index 3 Level 0 Class name group_4 service_id 0x0 Policy name egress_policy_shaper1
Node flags: LEAF Q_LEAF
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/30
Queue limit 375000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC00000C
Queue: Q-ID 0x0000000c Stat ID(Commit/Excess/Drop): 0xF000000C/0x00000000/0xF800000C
-----
Index 4 Level 0 Class name group_5 service_id 0x0 Policy name egress_policy_shaper1
Node flags: LEAF Q_LEAF
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/2
Queue limit 25000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC00000D
Queue: Q-ID 0x0000000d Stat ID(Commit/Excess/Drop): 0xF000000D/0x00000000/0xF800000D
-----
Index 5 Level 0 Class name group_6 service_id 0x0 Policy name egress_policy_shaper1
Node flags: LEAF Q_LEAF
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/2

```

```
Queue limit 25000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC00000E
Queue: Q-ID 0x0000000e Stat ID(Commit/Excess/Drop): 0xF000000E/0x00000000/0xF800000E
-----
Index 6 Level 0 Class name group_7 service_id 0x0 Policy name egress_policy_shaper1
Node flags: LEAF Q_LEAF
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/26
Queue limit 325000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC00000F
Queue: Q-ID 0x0000000f Stat ID(Commit/Excess/Drop): 0xF000000F/0x00000000/0xF800000F
-----
Index 7 Level 0 Class name class-default service_id 0x0 Policy name egress_policy_shaper1

Node flags: LEAF Q_LEAF DEFAULT DEFAULT-ALL
Stats flags: Queuing enabled
Node Config:
WFQ: BW/Sum of BW/Excess ratio: 0kbps/0kbps/6
Queue limit 75000 Guarantee 0
Node Result: Class-based stats:Stat ID 0xCC000008
Queue: Q-ID 0x00000008 Stat ID(Commit/Excess/Drop): 0xF0000008/0x00000000/0xF8000008
```

show qos interface

To display QoS information for a specific interface, use the **show qos interface** command in the XR EXEC mode.

show qos interface *interface-name* **input** | **output**[**location** *node-id*]

Syntax Description

interface-name

Interface name. For more information about the syntax for the router, use the question mark (?) online help function.

Note Use the **show interfaces** command to see a list of all interfaces currently configured on the router.

input

Attaches the specified policy map to the input interface.

output

Attaches the specified policy map to the output interface.

location *node-id*

(Optional) Displays detailed QoS information for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release

Release 6.0

Modification

This command was introduced.

Usage Guidelines

The **show qos interface** command displays configuration for all classes in the service policy that is attached to an interface.

Use this command to check the actual values programmed in the hardware from the action keywords in the **police rate** command.

Task ID

Task ID	Operations
qos	read

Examples

This is the sample output shows the QoS information on a TenGigE interface:

```
RP/0/RP0/CPU0:router# show qos interface tenGigE 0/0/0/0 output
```

```
Wed Nov 18 12:40:49.404 UTC
```

```

Interface: TenGigE0_0_0_0 output
Bandwidth configured: 10000000 kbps Bandwidth programed: 10000000 kbps
ANCP user configured: 0 kbps ANCP programed in HW: 0 kbps
Port Shaper programed in HW: 0 kbps
Policy: egress_policy_shaper1 Total number of classes: 8
-----
Level: 0 Policy: egress_policy_shaper1 Class: group_1
QueueID: 9 (Priority Normal)
Committed Weight: 0 Excess Weight: 20
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 20
-----
Level: 0 Policy: egress_policy_shaper1 Class: group_2
QueueID: 10 (Priority Normal)
Committed Weight: 0 Excess Weight: 2
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 2
-----
Level: 0 Policy: egress_policy_shaper1 Class: group_3
QueueID: 11 (Priority Normal)
Committed Weight: 0 Excess Weight: 12
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 12
-----
Level: 0 Policy: egress_policy_shaper1 Class: group_4
QueueID: 12 (Priority Normal)
Committed Weight: 0 Excess Weight: 30
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 30
-----
Level: 0 Policy: egress_policy_shaper1 Class: group_5
QueueID: 13 (Priority Normal)
Committed Weight: 0 Excess Weight: 2
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 2
-----
Level: 0 Policy: egress_policy_shaper1 Class: group_6
QueueID: 14 (Priority Normal)
Committed Weight: 0 Excess Weight: 2
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 2
-----
Level: 0 Policy: egress_policy_shaper1 Class: group_7
QueueID: 15 (Priority Normal)
Committed Weight: 0 Excess Weight: 26
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 26
-----
Level: 0 Policy: egress_policy_shaper1 Class: class-default
QueueID: 8 (Priority Normal)
Committed Weight: 0 Excess Weight: 6
Bandwidth: 0 kbps, BW sum for Level 0: 0 kbps, Excess Ratio: 6
    
```

This table describes the significant fields shown in the display.

Table 2: show QoS interface Field Descriptions

Field	Description
Level 0 class	Level 0 class identifier in hexadecimal format.
Level 1 class	Level 1 class identifier in hexadecimal format.
class name	Name that was assigned to this class with the class command.
Conform	Number of conform packets transmitted.

Field	Description
Burst	Configured burst size, expressed in bytes, gigabytes (GB), kilobytes (KB), megabytes (MB), milliseconds (ms), or microseconds (us).
Queue ID	Queue identifier.
Weight	Bandwidth weight.