



Punt Policing and Monitoring

Punt policing protects the Route Processor (RP) from having to process noncritical traffic, which increases the CPU bandwidth available to critical traffic. Traffic is placed into different CPU queues based on various criteria. The Punt Policing and Monitoring feature allows you to police the punt rate on a per-queue basis.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About Punt Policing and Monitoring

Overview of Punt Policing and Monitoring

Packets received on an interface are punted to the Router Processor (RP) for various reasons. Some examples of these various reasons include, unicast and multicast control plane traffic that are destined for a routing protocol process running on the RP, and IP packets that generate Internet Control Message Protocol (ICMP) exceptions such as a Time to live (TTL) expiration. The RP has a limited capacity to process the punted packets, and while some of them are critical for the router operation and should not be dropped, some can be dropped without impacting the router operation.

Punt policing frees the RP from having to process noncritical traffic. Traffic is placed in queues based on various criteria, and you can configure the maximum punt rate for each queue which allows you to configure the system so that packets are less likely to be dropped from queues that contain critical traffic.



Note Traffic on certain CPU queues could still be dropped, regardless of the configured punt rate, based on other criteria such as the queue priority, queue size, and traffic punt rate.

How to Configure Punt Policing and Monitoring

Configuring Punt Policing



Note Traffic on a specific CPU queue may be dropped irrespective of the configured maximum punt rate, based on the queue priority, queue size, and the configured traffic punt rate.

Perform this task to specify the maximum punt rate on the specified queue.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **platform qos-policer queue *queue-id* cir**
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example:	Enables privileged EXEC mode. <ul style="list-style-type: none">• Enter your password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	platform qos-policer queue <i>queue-id</i> cir Example: Device(config)# platform punt-police queue 20 9000 10000	Enables punt policing on a queue, and specifies the maximum punt rate on a per-queue basis.
Step 4	end Example: Device(config)# end	(Optional) Returns to privileged EXEC mode.

Configuring Punt Policing on an Interface



Note At an interface level, punt control can be enabled or disabled by the **no punt-control enable** command. You can configure the rate, however, by default, it uses the global configuration if the rate is not configured.

Perform this task to enable or disable punt control on an interface:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **platform punt-interface raterate**
4. **punt-control enable rate**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none">• Enter your password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	platform punt-interface raterate Example: Device(config)# platform punt-interface rate 10	Sets the global punt-interface policer rate.
Step 4	punt-control enable rate Example: Device(config)# interface Port-channel 1.2 Device(config-if)# punt-control enable	Punt control is enabled at an interface level.
Step 5	end Example:	(Optional) Returns to privileged EXEC mode.

How to Configure Punt Policing and Monitoring

Verifying Punt Policing

Verifying Queue-Based Punt Policing

Use the `show platform software infrastructure punt statistics` to display punt police statistics:

```
Router# show platform software infrastructure punt statistics
UEA Punt Statistics
```

```
Global drops : 0
```

Queue Name	Rx count	Drop count
SW FORWARDING Q	0	0
ROUTING PROTOCOL Q	0	0
ICMP Q	0	0
HOST Q	57115	0
ACL LOGGING Q	0	0
STP Q	0	0
L2 PROTOCOL Q	6571	0
MCAST CONTROL Q	208839	0
BROADCAST Q	4	0
REP Q	0	0
CFM Q	0	0
CONTROL Q	0	0
IP MPLS TTL Q	0	0
DEFAULT MCAST Q	0	0
MCAST ROUTE DATA Q	0	0
MCAST MISMATCH Q	0	0
RPF FAIL Q	0	0
ROUTING THROTTLE Q	87	0
MCAST Q	0	0
MPLS OAM Q	0	0
IP MPLS MTU Q	0	0
PTP Q	0	0
LINUX ND Q	0	0
KEEPALIVE Q	0	0
ESMC Q	0	0
FPGA BFD Q	0	0
FPGA CCM Q	0	0
FPGA CFE Q	0	0
L2PT DUP Q	0	0

Verifying Punt Policing Statistics

Use the `show platform hardware pp active infrastructure pi npd rx policer` command to display the punt policing statistics for all queues.

Ring	Queue Name	Punt rate	Burst rate
0	SW FORWARDING Q	500	1000
1	ROUTING PROTOCOL Q	500	1000
2	ICMP Q	500	1000
3	HOST Q	1000	2000
4	ACL LOGGING Q	500	1000

5		STP Q		3000		6000
6		L2 PROTOCOL Q		1000		2000
7		MCAST CONTROL Q		1000		2000
8		BROADCAST Q		1000		2000
9		REP Q		3000		6000
10		BGP LDP Q		3000		6000
11		CONTROL Q		1000		2000
12		IP MPLS TTL Q		1000		2000
13		DEFAULT MCAST Q		500		1000
14		MCAST ROUTE DATA Q		500		1000
15		MCAST HIGH PRI Q		1000		2000
16		RPF FAIL Q		500		1000
17		ROUTING THROTTLE Q		500		1000
18		MCAST Q		500		1000
19		MPLS OAM Q		1000		2000
20		IP MPLS MTU Q		500		1000
21		PTP Q		3000		6000
22		LINUX ND Q		500		1000
23		KEEPALIVE Q		1000		2000
24		ESMC Q		3000		6000
25		FPGA BFD Q		4000		8000
26		FPGA CCM Q		4000		8000
27		FPGA CFE Q		1000		2000
28		L2PT DUP Q		4000		8000
29		TDM CTRL Q		3000		6000
30		ICMP UNREACHABLE Q		500		1000
31		SSFPD Q		6000		12000

Use the **show platform hardware pp active feature qos policer cpu all 1** command to clear the statistics of all the CPU queues.

Use the **show platform hardware pp active feature qos policer cpu all 0** command to clear the statistics of a particular CPU queue.

```
##### Stats for CPU queue 0 #####
Internal Qnum: 1      Queue Name: SW FORWARDING Q
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
RM Drops: 0 (packets) 0 (bytes)
Policer commit rate is: 1000000, Policer burst commit is 100000

##### Stats for CPU queue 1 #####
Internal Qnum: 2      Queue Name: ROUTING PROTOCOL Q
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
RM Drops: 0 (packets) 0 (bytes)
Policer commit rate is: 1000000, Policer burst commit is 100000

##### Stats for CPU queue 30 #####
Internal Qnum: 31     Queue Name: ICMP UNREACHABLE Q
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
RM Drops: 0 (packets) 0 (bytes)
Policer commit rate is: 1000000, Policer burst commit is 100000

##### Stats for CPU queue 31 #####
Internal Qnum: 32     Queue Name: SSFPD Q
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
RM Drops: 0 (packets) 0 (bytes)
Policer commit rate is: 1000000, Policer burst commit is 100000
```

Use **show platform hardware pp active feature qos policer cpu 3 0** to display the queue specific statistics.

```
##### Stats for CPU queue 3 #####
Internal Qnum: 4          Queue Name: HOST Q
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
RM Drops: 0 (packets) 0 (bytes)
Policer commit rate is: 12000000, Policer burst commit is 3000000
```

3 — queueId of CPU and 0 — show stats

Use the **show platform hardware pp active feature qos policer cpu all 0** to display the output after adding the drop cause. Following commands are applicable only for RSP3 module:

```
##### Stats for CPU queue 0 #####
Internal Qnum: 8000CPU
Port num: 0
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
Policer commit rate is: 500000 bps, Policer burst commit is 16000 bytes
##### Stats for CPU queue 1 #####
Internal Qnum: 8008CPU
Port num: 0
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
Policer commit rate is: 1000000 bps, Policer burst commit is 100000 bytes
##### Stats for CPU queue 2 #####
Internal Qnum: 8016CPU
Port num: 0
Policer conform: 0 (packets) 0 (bytes)
Policer exceed: 0 (packets) 0 (bytes)
Policer commit rate is: 1000000 bps, Policer burst commit is 100000 bytes
```



Note When a packet is dropped by per interface punt policer, a log including the source interface is displayed as follows (the log shows one log in 30 seconds):

```
*Jun 6 08:25:35.893: %IOSXE-5-PLATFORM: F0: cpp_cp: QFP:0.0
Thread:046 TS:00000000400859588264 %PUNT_INJECT-5-DROP_PUNT_INTF:
punt interface policer drop packet from GigabitEthernet2/3/1.726
```

Configuration Examples for Punt Policing and Monitoring

Example: Configuring Punt Policing

The following example shows how to enable punt-policing:

```
Router# enable
Router# configure terminal
Router(config)# platform qos-policer queue 3 64000
```

Additional References

Related Documents

Related Topic	Document Title
QoS commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	<i>Cisco IOS Quality of Service Solutions Command Reference</i>
Traffic marking	“Marking Network Traffic” module
Traffic policing	“Traffic Policing” module
Traffic policing and shaping concepts and overview information	“Policing and Shaping Overview” module
Modular quality of service command-line interface (MQC)	“Applying QoS Features Using the MQC” module

Standards

Standard	Title
None	—

MIBs

MIB	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS XE Software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
None	

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Punt Policing and Monitoring

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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Table 1: Feature Information for Punt Policing and Monitoring

Feature Name	Releases	Feature Information
Punt Policing and Monitoring	Cisco IOS XE Release 3.5S	<p>The Punt Policing and Monitoring feature allows you to specify a maximum punt rate on a per-queue basis.</p> <p>For Cisco IOS XE Release 3.5S, this feature was implemented on Cisco ASR 903 Router.</p> <p>The following command was introduced: platform punt-police queue</p>