CHAPTER 43

Configuring PFC QoS Statistics Data Export

This chapter describes how to configure PFC QoS statistics data export on Catalyst 6500 series switches.

Note For complete syntax and usage information for the commands used in this chapter, refer to the *Cisco IOS Master Command List*, Release 12.2SX at this URL:

http://www.cisco.com/en/US/docs/ios/mcl/allreleasemcl/all_book.html

This chapter contains these sections:

Tip For additional information about Cisco Catalyst 6500 Series Switches (including configuration examples and troubleshooting information), see the documents listed on this page:

http://www.cisco.com/en/US/products/hw/switches/ps708/tsd_products_support_series_home.html

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Understanding PFC QoS Statistics Data Export

The PFC QoS statistics data export feature generates per-LAN-port and per-aggregate policer utilization information and forwards this information in UDP packets to traffic monitoring, planning, or accounting applications. You can enable PFC QoS statistics data export on a per-LAN-port or on a per-aggregate policer basis. The statistics data generated per port consists of counts of the input and output packets and bytes. The aggregate policer statistics consist of counts of allowed packets and counts of packets exceeding the policed rate.

The PFC QoS statistics data collection occurs periodically at a fixed interval, but you can configure the interval at which the data is exported. PFC QoS statistics collection is enabled by default, and the data export feature is disabled by default for all ports and all aggregate policers configured on the Catalyst 6500 series switch.

Note The PFC QoS statistics data export feature is completely separate from NetFlow Data Export and does not interact with it.

PFC QoS Statistics Data Export Default Configuration

Table 43-1 shows the PFC QoS statistics data export default configuration.

Table 43-1 PFC QoS Default Configuration

Feature	Default Value
PFC QoS Data Export	
Global PFC QoS data export	Disabled
Per port PFC QoS data export	Disabled
Per named aggregate policer PFC QoS data export	Disabled
Per class map policer PFC QoS data export	Disabled
PFC QoS data export time interval	300 seconds
Export destination	Not configured
PFC QoS data export field delimiter	Pipe character (|)

Configuring PFC QoS Statistics Data Export

These sections describe how to configure PFC QoS statistics data export:

- Enabling PFC QoS Statistics Data Export Globally, page 43-2
- Enabling PFC QoS Statistics Data Export for a Port, page 43-3
- Enabling PFC QoS Statistics Data Export for a Named Aggregate Policer, page 43-4
- Enabling PFC QoS Statistics Data Export for a Class Map, page 43-5
- Setting the PFC QoS Statistics Data Export Time Interval, page 43-7
- Configuring PFC QoS Statistics Data Export Destination Host and UDP Port, page 43-8
- Setting the PFC QoS Statistics Data Export Field Delimiter, page 43-9

Enabling PFC QoS Statistics Data Export Globally

To enable PFC QoS statistics data export globally, perform this task:

	Command	Purpose
Step 1	`Router(config)# mls qos statistics-export`	Enables PFC QoS statistics data export globally.
	`Router(config)# no mls qos statistics-export`	Disables PFC QoS statistics data export globally.

	Command	Purpose
Step 2	`Router(config)# end`	Exits configuration mode.
Step 3	`Router# show mls qos statistics-export info`	Verifies the configuration.

This example shows how to enable PFC QoS statistics data export globally and verify the configuration:

```
Router# configure terminal
Router(config)# mls qos statistics-export
Router(config)# end
% Warning: Export destination not set.
% Use 'mls qos statistics-export destination' command to configure the export destination
Router# show mls qos statistics-export info
QoS Statistics Data Export Status and Configuration information
---------------------------------------------------------------
Export Status : enabled
Export Interval : 300 seconds
Export Delimiter : |
Export Destination : Not configured
Router#
```

Note You must enable PFC QoS statistics data export globally for other PFC QoS statistics data export configuration to take effect.

Enabling PFC QoS Statistics Data Export for a Port

To enable PFC QoS statistics data export for a port, perform this task:

	Command	Purpose
Step 1	`Router(config)# interface` *type*[1] *slot/port*	Selects the interface to configure.
Step 2	`Router(config-if)# mls qos statistics-export`	Enables PFC QoS statistics data export for the port.
	`Router(config-if)# no mls qos statistics-export`	Disables PFC QoS statistics data export for the port.
Step 3	`Router(config)# end`	Exits configuration mode.
Step 4	`Router# show mls qos statistics-export info`	Verifies the configuration.

1. *type* = **ethernet**, **fastethernet**, **gigabitethernet**, or **tengigabitethernet**

This example shows how to enable PFC QoS statistics data export on FastEthernet port 5/24 and verify the configuration:

```
Router# configure terminal
Router(config)# interface fastethernet 5/24
Router(config-if)# mls qos statistics-export
Router(config-if)# end
Router# show mls qos statistics-export info
QoS Statistics Data Export Status and Configuration information
---------------------------------------------------------------
Export Status : enabled
Export Interval : 300 seconds
Export Delimiter : |
Export Destination : Not configured

QoS Statistics Data Export is enabled on following ports:
---------------------------------------------------------
FastEthernet5/24
```

```
Router#
```

When enabled on a port, PFC QoS statistics data export contains the following fields, separated by the delimiter character:

- Export type (“1” for a port)
- Slot/port
- Number of ingress packets
- Number of ingress bytes
- Number of egress packets
- Number of egress bytes
- Time stamp

Enabling PFC QoS Statistics Data Export for a Named Aggregate Policer

To enable PFC QoS statistics data export for a named aggregate policer, perform this task:

	Command	Purpose
Step 1	`Router(config)# mls qos statistics-export aggregate-policer` *aggregate_policer_name*	Enables PFC QoS statistics data export for a named aggregate policer.
	`Router(config)# no mls qos statistics-export aggregate-policer` *aggregate_policer_name*	Disables PFC QoS statistics data export for a named aggregate policer.
Step 2	`Router(config)# end`	Exits configuration mode.
Step 3	`Router# show mls qos statistics-export info`	Verifies the configuration.

This example shows how to enable PFC QoS statistics data export for an aggregate policer named aggr1M and verify the configuration:

```
Router# configure terminal
Router(config)# mls qos statistics-export aggregate-policer aggr1M
Router(config)# end
Router# show mls qos statistics-export info
QoS Statistics Data Export Status and Configuration information
---------------------------------------------------------------
Export Status : enabled
Export Interval : 300 seconds
Export Delimiter : |
Export Destination : Not configured

QoS Statistics Data Export is enabled on following ports:
---------------------------------------------------------
FastEthernet5/24

QoS Statistics Data export is enabled on following shared aggregate policers:
-----------------------------------------------------------------------------
aggr1M
Router#
```

When enabled for a named aggregate policer, PFC QoS statistics data export contains the following fields, separated by the delimiter character:

- Export type (“3” for an aggregate policer)

- Aggregate policer name
- Direction (“in”)
- PFC or DFC slot number
- Number of in-profile bytes
- Number of bytes that exceed the CIR
- Number of bytes that exceed the PIR
- Time stamp

Enabling PFC QoS Statistics Data Export for a Class Map

To enable PFC QoS statistics data export for a class map, perform this task:

	Command	Purpose
Step 1	`Router(config)# mls qos statistics-export class-map` *classmap_name*	Enables PFC QoS statistics data export for a class map.
	`Router(config)# no mls qos statistics-export class-map` *classmap_name*	Disables PFC QoS statistics data export for a class map.
Step 2	`Router(config)# end`	Exits configuration mode.
Step 3	`Router# show mls qos statistics-export info`	Verifies the configuration.

This example shows how to enable PFC QoS statistics data export for a class map named class3 and verify the configuration:

```
Router# configure terminal
Router(config)# mls qos statistics-export class-map class3
Router(config)# end
Router# show mls qos statistics-export info
QoS Statistics Data Export Status and Configuration information
---------------------------------------------------------------
Export Status : enabled
Export Interval : 300 seconds
Export Delimiter : |
Export Destination : Not configured

QoS Statistics Data Export is enabled on following ports:
---------------------------------------------------------
FastEthernet5/24

QoS Statistics Data export is enabled on following shared aggregate policers:
-----------------------------------------------------------------------------
aggr1M

QoS Statistics Data Export is enabled on following class-maps:
--------------------------------------------------------------
class3
Router#
```

When enabled for a class map, PFC QoS statistics data export contains the following fields, separated by the delimiter character:

- For data from a physical port:
  - Export type (“4” for a classmap and port)

  - Class map name
  - Direction (“in”)
  - Slot/port
  - Number of in-profile bytes
  - Number of bytes that exceed the CIR
  - Number of bytes that exceed the PIR
  - Time stamp
- For data from a VLAN interface:
  - Export type (“5” for a class map and VLAN)
  - Classmap name
  - Direction (“in”)
  - PFC or DFC slot number
  - VLAN ID
  - Number of in-profile bytes
  - Number of bytes that exceed the CIR
  - Number of bytes that exceed the PIR
  - Time stamp
- For data from a port channel interface:
  - Export type (“6” for a class map and port channel)
  - Class map name
  - Direction (“in”)
  - PFC or DFC slot number
  - Port channel ID
  - Number of in-profile bytes
  - Number of bytes that exceed the CIR
  - Number of bytes that exceed the PIR
  - Time stamp

Setting the PFC QoS Statistics Data Export Time Interval

To set the time interval for the PFC QoS statistics data export, perform this task:

	Command	Purpose
Step 1	`Router(config)# mls qos statistics-export interval` *interval_in_seconds*	Sets the time interval for the PFC QoS statistics data export. **Note** The interval needs to be short enough to avoid counter wraparound with the activity in your configuration, but because exporting PFC QoS statistic creates a significant load on the switch, be careful when decreasing the interval.
	`Router(config)# no mls qos statistics-export interval` *interval_in_seconds*	Reverts to the default time interval for the PFC QoS statistics data export.
Step 2	`Router(config)# end`	Exits configuration mode.
Step 3	`Router# show mls qos statistics-export info`	Verifies the configuration.

This example shows how to set the PFC QoS statistics data export interval and verify the configuration:

```
Router# configure terminal
Router(config)# mls qos statistics-export interval 250
Router(config)# end
Router# show mls qos statistics-export info
QoS Statistics Data Export Status and Configuration information
---------------------------------------------------------------
Export Status : enabled
Export Interval : 250 seconds
Export Delimiter : |
Export Destination : Not configured

QoS Statistics Data Export is enabled on following ports:
---------------------------------------------------------
FastEthernet5/24

QoS Statistics Data export is enabled on following shared aggregate policers:
-----------------------------------------------------------------------------
aggr1M

QoS Statistics Data Export is enabled on following class-maps:
--------------------------------------------------------------
class3
Router#
```

Configuring PFC QoS Statistics Data Export Destination Host and UDP Port

To configure the PFC QoS statistics data export destination host and UDP port number, perform this task:

	Command	Purpose
Step 1	`Router(config)# mls qos statistics-export destination {host_name | host_ip_address} {port port_number | syslog [facility facility_name] [severity severity_value]}`	Configures the PFC QoS statistics data export destination host and UDP port number.
	`Router(config)# no mls qos statistics-export destination`	Clears configured values.
Step 2	`Router(config)# end`	Exits configuration mode.
Step 3	`Router# show mls qos statistics-export info`	Verifies the configuration.

Note When the PFC QoS data export destination is a syslog server, the exported data is prefaced with a syslog header.

Table 43-2 lists the supported PFC QoS data export facility and severity parameter values.

Table 43-2 Supported PFC QoS Data Export Facility Parameter Values

Name	Definition	Name	Definition
kern	kernel messages	cron	cron/at subsystem
user	random user-level messages	local0	reserved for local use
mail	mail system	local1	reserved for local use
daemon	system daemons	local2	reserved for local use
auth	security/authentication messages	local3	reserved for local use
syslog	internal syslogd messages	local4	reserved for local use
lpr	line printer subsytem	local5	reserved for local use
news	netnews subsytem	local6	reserved for local use
uucp	uucp subsystem	local7	reserved for local use

Table 43-3 lists the supported PFC QoS data export severity parameter values.

Table 43-3 Supported PFC QoS Data Export Severity Parameter Values

Severity Parameter		
Name	**Number**	**Definition**
emerg	0	system is unusable
alert	1	action must be taken immediately
crit	2	critical conditions
err	3	error conditions
warning	4	warning conditions

Table 43-3 Supported PFC QoS Data Export Severity Parameter Values (continued)

Severity Parameter		
Name	**Number**	**Definition**
notice	5	normal but significant condition
info	6	informational
debug	7	debug-level messages

This example shows how to configure 172.20.52.3 as the destination host and syslog as the UDP port number and verify the configuration:

```
Router# configure terminal
Router(config)# mls qos statistics-export destination 172.20.52.3 syslog
Router(config)# end
Router# show mls qos statistics-export info
QoS Statistics Data Export Status and Configuration information
---------------------------------------------------------------
Export Status : enabled
Export Interval : 250 seconds
Export Delimiter : |
Export Destination : 172.20.52.3, UDP port 514 Facility local6, Severity debug

QoS Statistics Data Export is enabled on following ports:
---------------------------------------------------------
FastEthernet5/24

QoS Statistics Data export is enabled on following shared aggregate policers:
-----------------------------------------------------------------------------
aggr1M

QoS Statistics Data Export is enabled on following class-maps:
--------------------------------------------------------------
class3
```

Setting the PFC QoS Statistics Data Export Field Delimiter

To set the PFC QoS statistics data export field delimiter, perform this task:

	Command	Purpose
Step 1	`Router(config)# mls qos statistics-export delimiter` *delimiter_character*	Sets the PFC QoS statistics data export field delimiter.
	`Router(config)# no mls qos statistics-export delimiter`	Reverts to the default PFC QoS statistics data export field delimiter
Step 2	`Router(config)# end`	Exits configuration mode.
Step 3	`Router# show mls qos statistics-export info`	Verifies the configuration.

This example shows how to set the PFC QoS statistics data export field delimiter and verify the configuration:

```
Router# configure terminal
Router(config)# mls qos statistics-export delimiter ,
Router(config)# end
```

```
Router# show mls qos statistics-export info
QoS Statistics Data Export Status and Configuration information
---------------------------------------------------------------
Export Status : enabled
Export Interval : 250 seconds
Export Delimiter : ,
Export Destination : 172.20.52.3, UDP port 514 Facility local6, Severity debug

QoS Statistics Data Export is enabled on following ports:
--------------------------------------------------------
FastEthernet5/24

QoS Statistics Data export is enabled on following shared aggregate policers:
----------------------------------------------------------------------------
aggr1M

QoS Statistics Data Export is enabled on following class-maps:
-------------------------------------------------------------
class3
```

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