Fabric Management and Control Network Commands on Cisco IOS XR Software

This chapter describes the Cisco IOS XR software commands used to monitor and control application-specific integrated circuit (ASIC) fabric queues for the Cisco XR 12000 Series Router line cards or Cisco CRS-1 modular services cards running Cisco IOS XR software.

clear controller fabric statistics

To clear fabric plane statistics from the counters information table, use the **clear controller fabric statistics** command in administration EXEC mode.

clear controller fabric statistics plane [*plane-id* | **all**]

Syntax Description

plane *plane-id*	(Optional) The fabric plane and plane ID. Range is from 0 to 7.
plane all	(Optional) Specifies fabric statistics for all planes.

Defaults

Information for all planes is cleared

Command Modes

Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **clear controller fabric statistics** command clears the fabric statistics for the specified fabric plane or all planes.

Task ID

Task ID	Operations
root-system	read, write, execute
fabric	read, write

Examples

The following example shows how to clear all fabric plane statistics from the router:

```
RP/0/RP0/CPU0:router(admin)# clear controller fabric statistics plane all
```

clear controller fabricq statistics

To clear application-specific integrated circuit (ASIC) statistics for specific fabric queues, use the **clear controller fabricq statistics** command in EXEC mode.

clear controller fabricq statistics [instance *asic_instance*] [**location** *node-id*]

Syntax Description

instance *asic_instance*	(Optional) Identifies the fabric queue instance whose ASIC statistics you want to clear. Range is from 1 through 3.
location *node-id*	(Optional) Identifies a node on which to clear ASIC statistics for a specific fabric queue, or for all fabric queues. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is to enter the **clear controller fabricq statistics** command without any optional keyword arguments to clear ASIC statistics for all fabric queues on the router.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Only locations that contain a fabric queue ASIC can be specified for the **location** *node-id*.

This command is intended for use while performing special maintenance, test, or debugging procedures. It should not be necessary to use this command when fabric connectivity is performing normally.

Task ID

Task ID	Operations
root-system	execute
drivers	read, write

Examples

The following example shows how to clear ASIC statistics on all fabric queues on the node located in 0/1/CPU0:

```
RP/0/RP0/CPU0:router# clear controller fabricq statistics location 0/1/CPU0
```

The following example shows how to clear ASIC statistics for a specific fabric queue on all nodes that are installed in the router:

```
RP/0/RP0/CPU0:router# clear controller fabricq statistics instance 2
```

The following example shows how to clear ASIC statistics for a specific fabric queue on a specific node:

```
RP/0/RP0/CPU0:router# clear controller fabricq statistics instance 2 location 0/1/CPU0
```

Related Commands

Command	Description
show controllers fabricq statistics	Displays statistics about packet flow through the fabric queue ASIC.

clear controller ingressq statistics

To clear application-specific integrated circuit (ASIC) statics from the ingress fabric queue on a specific node, or on all nodes installed in the router, use the **clear controller ingressq statistics** command in EXEC mode.

clear controller ingressq statistics [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Identifies the node whose ASIC statistics you want to clear from the ingress fabric queue. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

Enter the **clear controller ingressq statistics** command without the optional **location** *node-id* keyword argument to clear the ASIC statistics from the ingress queues on all nodes that are installed in the router.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Only locations that contain a fabric queue ASIC can be specified for the **location** *node-id.*

The **clear controller ingressq statistics** command is intended for use while performing special maintenance, test, or debugging procedures. It should not be necessary to use this command when fabric connectivity is performing normally.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to use the **clear controller ingressq statistics** command to clear all ASIC statistics in the ingress fabric queue from the location 0/1/CPU0:

```
RP/0/RP0/CPU0:router# clear controller ingressq statistics location 0/1/CPU0
```

Related Commands

Command	Description
show controllers ingressq statistics	Displays statistical information for the ingress queue ASIC.

clear controller switch

To clear the statistics for the Broadcom switches for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card, use the **clear controller switch** command in administration EXEC mode.

clear controller switch {*instance*} {**statistics**} {**all** {**location** *node-id*} | **location** *node-id* | **ports** *number*{**location** *node-id*}}

Syntax Description

instance	Switch instance identifier. The switch number is either 0 or 1.
statistics	Clears statistics for packets transmitted/received on switch ports.
all	Clears statistics for all ports.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.
ports *number*	Clears statistics for a specific switch port.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was updated on the Cisco CRS-1 to include inter-rack switches.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **clear controller switch** command is used to specify intra-rack switches.

Task ID

Task ID	Operations
root-system	execute

Examples

:The following example shows how to clear the statistics for the Broadcom switches:

```
RP/0/0/CPU0:router(admin)# clear controller switch 1 statistics all location f0/sc0/cpu0
```

clear controller switch errdisable

To clear the err-disable state of the switch port for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card, use the **clear controller switch errdisable** command in administration EXEC mode.

clear controller switch errdisable {**port** {**FE** | **GE**} {**0** | **1**}} {**location** *node-id*}}

Syntax Description

port	Specifies the port.
FE	Specifies the ports for the Fast Ethernet (FE).
GE	Specifies the ports for the Gigabit Ethernet (GE).
0	Specifies port number 0 for the backplane FE.
1	Specifies port number 1 for the backplane FE.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was updated on the Cisco CRS-1 to include inter-rack switches.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
root-system	execute

Examples

The following example shows how to clear the error disable state for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)## clear controller switch errdisable port GE 1 location
f0/sc0/cpu0
```

clear controller switch inter-rack

To clear the ISC switch counters, use the **clear controller switch inter-rack** command in administration EXEC mode.

clear controller switch inter-rack {**errdisable** {**ports** {*number* | **all**} | **statistics** {**all** | **ports** *number*}} {**location** *node-id*}

Syntax Description

errdisable	Clears the err-disabled state of the port if the port was brought down by Unidirectional Link Detection (UDLD).
ports	Specifies the port.
number	Number for the port. The range is from 0 to 21.
all	Specifies all ports for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card.
statistics	Clears the statistics for the switch.
all	Specifies all of the ports.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The c**lear controller switch inter-rack** command is used to specify inter-rack switches.

Task ID

Task ID	Operations
root-system	execute

Examples

The following example shows how to clear statistics for all the ports for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# clear controller switch inter-rack statistics all location
f0/sc0/cpu0
```

clear fabricq counters

To clear to fabric or from fabric counters associated with the fabric queue driver, use the **clear fabricq counters** command in administration EXEC mode.

clear fabricq counters {**frfab | tofab**} [**all | error | packet] location** *node-id*

Syntax Description

frfab	Clears the from fabric queue counters.
tofab	Clears to fabric queue counters.
all	(Optional) Clears all counters.
error	(Optional) Clears error counters.
packet	(Optional) Clears packet counters.
location *node-id*	Identifies the node whose fabric counters you want to clear. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

All fabric queue driver counters are cleared

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read
root-system	read

Examples

The following example shows how to clear all to fabric queue counters for the location 0/1/CPU0:

```
RP/0/0/CPU0:router(admin)# clear fabricq counters tofab location 0/1/CPU0
```

The following example shows how to clear all fabricq counters for the location 0/1/CPU0:

```
RP/0/0/CPU0:router(admin)# clear fabricq counters all location 0/1/CPU0
```

Related Commands

Command	Description
show controllers fabricq frfab	Displays from fabric statistics.
show controllers fabricq tofab	Displays to fabric statistics.

controllers fabric plane

To configure optical interface module (OIM) fabric plane properties, use the **controllers fabric plane** command in administration configuration mode. To return the OIM fabric plane properties to their default configuration, use the **no** form of this command.

controllers fabric plane *plane-id* **oim** {**count** {**1** | **3**} | **width** {**1** | **2**} | **instance** *oim-instance* **location** *node-id*}

no controllers fabric plane *plane-id* **oim** {**count** {**1** | **3**} | **width** {**1** | **2**} | **instance** *oim-instance* **location** *node-id*}

Syntax Description

plane-id	Identifies the fabric plane. Range is from 0 to 7.
count {**1** | **3**}	Configures the number of OIMs used in this plane. Enter **1** to configure all cables in the plane to connect to the same OIM. Enter **3** to configure the cables from each fabric card to connect to different OIMs.
width {**1** | **2**}	Width of OIMs) in the current fabric plane. Enter **1** to indicate a single-width OIM that covers one slot only. Enter **2** to indicate a dual-width OIM that covers two slots.
instance {*oim-instance*}	Specifies the properties a specific OIM. Range is from 0 through 2.
location *node-id*	Identifies the node whose OIM fabric plane properties you want to configure. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	• The **topology** keyword was removed from the **controllers fabric plane** command syntax. • The **oim**, **count**, **width**, and **instance** keywords were added to the **controllers fabric plane** command syntax.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read, write

Examples

The following example shows how to configure all cables in the fabric plane to connect to the same OIM:

```
RP/0/RP0/CPU0:router(admin-config)# controllers fabric plane 3 oim count 1
```

controllers fabric plane shutdown

To shut down the state of a fabric plane, use the **controllers fabric plane shutdown** command in administration configuration mode. To disable the state of a fabric plane, use the **no** form of this command.

controllers fabric plane *plane-id* **shutdown**

no controllers fabric plane *plane-id* **shutdown**

Syntax Description

plane-id	Fabric plane identifier. Range is from 0 to 7.

Defaults

The controller fabric plane is not shut down, and data continues to flow through the plane.

Command Modes

Administration configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **controllers fabric plane shutdown** command to perform a graceful shutdown of the fabric plane before a fabric reconfiguration or fabric plane migration. This ensures that data is not flowing through the plane.

Task ID

Task ID	Operations
fabric	read, write

Examples

The following example shows fabric plane 3 being shut down:

```
RP/0/RP0/CPU0:router(admin-config)# controllers fabric plane 3 shutdown
```

controllers fabric rack

To put the rack into installation mode so that no traffic is sent over the switch fabric, use the **controllers fabric rack** command in administration configuration mode. To reenable traffic to be sent over the switch fabric, use the **no** form of this command.

controllers fabric rack *rack_number* **install-mode**

no controllers fabric rack *rack_number* **install-mode**

Syntax Description

rack_number	Rack number. Range is from 0 through 17.
install-mode	Puts the specified rack into installation mode, so that no traffic is sent over the switch fabric.

Defaults

No default behavior or values

Command Modes

Administration configuration

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read, write

Examples

The following example shows how to put the rack into installation mode so that no traffic is sent over the switch fabric:

```
RP/0/RP0/CPU0:router # admin
RP/0/RP0/CPU0:router (config)# configure
RP/0/RP0/CPU0:router (admin-config)# controllers fabric rack 1 install-mode
```

controllers fabric statistics collection

To enable the collection of fabric statistics data and configure the interval at which statistics are collected, use the **controllers fabric statistics collection** command in administration configuration mode. To return the system to the default interval setting, use the **no** form of this command.

controllers fabric statistics collection {**control** [**refresh**] | **interval** *seconds*}

no controllers fabric statistics collection {**control** [**refresh**] | **interval** *seconds*}

Syntax Description

control	Enables fabric statistics data collection.
refresh	(Optional) Causes the system to collect data immediately.
interval *seconds*	Specifies the interval, in seconds, between collection of data for fabric statistics. Range is from 10 to 180 seconds. Default is 30 seconds.

Defaults

Control of fabric statistics data collection = enabled
Interval= 30 seconds.

Command Modes

Administration configuration

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read, write

Examples

The following example shows statistic data collection on the fabric being disabled:

```
RP/0/RP0/CPU0:router(admin-config)# controllers fabric statistics collection control
disable
```

show controllers fabric

To display fabric card information, use the **show controllers fabric** command in administration EXEC mode.

show controllers fabric [clock | csc-fpga | fab-clk | fab-control | sca | xbar]

Syntax Description

clock	(Optional) Displays which fabric clock each slot is synchronized to and whether the clock is redundant or not.
csc-fpga	(Optional) Displays registers associated with the csc-fpga on each fabric card (FC).
fab-clk	(Optional) Displays registers associated with the fabric clock FPGA on all route processors (RPs), line cards (LCs), and FCs.
fab-control	(Optional) Displays the state of all RPs, LCs, and FCs in the chassis from a fabric control software perspective.
sca	(Optional) Displays registers associated with Scheduler Control ASIC on the CSC cards.
xbar	(Optional) Displays registers associated with the Cross Bar (XBAR) ASIC on the clock scheduler card (CSC) and switch fabric card (SFC).

Defaults

All fabric card information is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric** command to display various registers associated with the fabric cards and state information associated with the fabric control software.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers fabric clock** command:

```
RP/0/0/CPU0:router(admin)# show controllers fabric clock

The Primary Clock for system is CSC_0
System Fabric Clock is Redundant

Slot #  Primary Clock   Mode

3          CSC_0        Redundant
4          CSC_0        Redundant
5          CSC_0        Redundant
11         CSC_0        Redundant
12         CSC_0        Redundant
15         CSC_0        Redundant
16         CSC_0        Redundant
17         CSC_0        Redundant
18         CSC_0        Redundant
19         CSC_0        Redundant
20         CSC_0        Redundant
```

show controllers fabric bundle

To display fabric card bundle information, use the **show controllers fabric bundle** command in administration EXEC mode.

show controllers fabric bundle {*node-id* [**brief** | **detail**] | **all** [**brief** | **detail**] | **port** *port-id* [**brief** | **detail** | **statistics**] | **summary**}

Syntax Description

node-id	Identifies a node whose fabric bundle information you want to display. The *node-id* argument is entered in the *rack/slot/module* notation. Follow the *node-id* argument with one of the following optional keywords to display the data a specific format: • **brief**—Displays brief information about the fabric bundle. • **detail** —Displays detailed information about the fabric bundle.
brief	(Optional) Displays brief information about the specified fabric bundle port or ports. This is the default.
detail	(Optional) Displays detailed information about the specified fabric bundle port or ports.
all	Displays bundle information for all fabric bundles. Follow the **all** keyword with one of the following optional keywords to display the data a specific format: • **brief**—Displays brief information about the fabric bundles. • **detail** —Displays detailed information about the fabric bundles.
port *port-id*	Identifies a port whose fabric bundle information you want to display. The *port-id* argument is entered in the *rack/slot/module/port* notation. Follow the *port-id* argument with one of the following optional keywords to display the data a specific format: • **brief**—Displays brief information about the fabric bundle. • **detail** —Displays detailed information about the fabric bundle. • **statistics** —Displays fabric bundle statistics for the specified port.
statistics	Displays fabric bundle statistics.
summary	Displays summarized fabric bundle information.

Defaults

Information is displayed for all fabric bundle ports on the router.

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read

Examples

The following is sample output from the **show controllers fabric bundle** command:

```
RP/0/0/CPU0:router(admin)# show controllers fabric bundle all
```

show controllers fabric connectivity

To display controller fabric connectivity information, use the **show controllers fabric connectivity** command in administration EXEC mode.

show controllers fabric connectivity {**all** | *node-id*} [**brief** | **detail**]

Syntax Description

all	Specifies all controller fabric ports.
node id	Specifies the fabric port associated with the designated node. The *node-id* argument is entered in the *rack/slot/module* notation.
brief	(Optional) Specifies brief information about controller fabric connectivity. This is the default.
detail	(Optional) Specifies detailed information about controller fabric connectivity.

Defaults

Brief information about controller fabric connectivity is displayed.

Command Modes

Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric connectivity** command to monitor a modular services card as it sends data to the fabric or receives data from the fabric.

Task ID

Task ID	Operations
fabric	read

Examples

The following is sample output from the **show controllers fabric connectivity** command that displays fabric connectivity information in brief form for all resources:

```
RP/0/RP0/CPU0:router(admin)# show controllers fabric connectivity all brief
```

```
 Card       In  Tx Planes  Rx Planes  Monitored        Total
Percent
 R/S/M      Use 01234567   01234567   For (s)          Uptime (s)
Uptime
-------------------------------------------------------------------------------
0/2/CPU0    1   .1......   .1......   20913            20913
100.0000
0/RP0/CPU0  1   .1......   .1......   20913            20913
```

The following is sample output from the **show controllers fabric connectivity** command that displays detailed fabric connectivity information for all resources:

```
RP/0/RP0/CPU0:router(admin)# show controllers fabric connectivity all

Card       In  Tx Planes  Rx Planes  Monitored        Total            Percent
 R/S/M      Use 01234567   01234567   For (s)          Uptime (s)       Uptime
-------------------------------------------------------------------------------
0/1/CPU0    1   .1......   .1......   8561             8561             100.0000
0/2/CPU0    1   .1......   .1......   8561             8561             100.0000
0/RP1/CPU0  1   .1......   .1......   8561             8561             100.0000
```

The following is sample output from the **show controllers fabric connectivity** command that displays fabric connectivity information for the modular services card on node 0/0/CPU0:

```
RP/0/RP0/CPU0:router(admin)# show controller fabric connectivity 0/0/CPU0

 Card       In  Tx Planes  Rx Planes  Monitored        Total            Percent
 R/S/M      Use 01234567   01234567   For (s)          Uptime (s)       Uptime
-------------------------------------------------------------------------------
0/0/CPU0    1   .1......   .1......   8805             8805             100.0000
```

Table 26 describes the significant fields shown in the display.

Table 26 show controllers fabric connectivity Field Descriptions

Field	Description
Card R/S/M	Identifies the fabric card, in the format *rack*/*slot*/*module*.
In Use	Indicates the number of fabric ports that are in use on the card.
Tx Planes	Indicates activity on the transmit fabric plane.
Rx Planes	Indicates activity on the receive fabric plane.
Monitored For (s)	Elapsed time in seconds since monitoring began.
Total Uptime	Total uptime expressed in seconds.
Percent Uptime	Percentage of time the card has been up since monitoring began.

show controllers fabric fgid resource

To display information about the fabric resources that are allocated to specific Secure Domain Router (SDR) fabric group IDs (FGIDs), use the **show controllers fabric fgid resource** command in administration EXEC mode.

show controllers fabric fgid resource {**all** | **sdr** {**Owner** | *sdr_name*} {**all** | **application** {**CLI** | **GSP** | **LPTS**} **id** *fabric_fgid* [**elements** *number_of_fgids*]}}

Syntax Description

all	Displays FGID resource information for all Secure Domain Routers (SDRs) on the current system.
sdr	Specifies an individual Secure Domain Router (SDR).
sdr_name	Identifies a specific SDR that is configured on the router.
{**Owner** | *sdr_name*} **all**	Displays information for all resources allocated to the specified Secure Domain Routers (SDRs).
Owner	Specifies the owner SDR.
application	Displays information for a specific resource allocated to the owner Secure Domain Routers (SDRs). follow the sdr Owner application keywords with one of the following keywords to specify a particular resource application: • **CLI** • **GSP** • **LPTS**
CLI	Displays command line interface (CLI) information for the owner SDR.
GSP	Displays Gateway Service Protocol (GSP) information for the owner SDR.
LPTS	Displays Local Packet Transport Services (LPTS) information for the owner SDR.
id *fabric_fgid*	Fabric FGID whose SDR resource information you want to display. Replace with an FGID. Range is from 0 through 1000000
elements *number_of_fgids*	(Optional) Number of fabric FGIDs to display in the command output. Replace *number_of_fgids* with the number of FGIDs to list in the command output. Range is from 1 through 1000000.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric fgid resource** command to verify the multicast resource ID for the fabric card multicast bit set.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows sample output from the show controllers fabric fgid resource command. In this example, LPTS information is displayed for the SDR owner FGID 1000:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# show controllers fabric fgid resource sdr Owner application
lpts id 1000 elements 1

==================================================
Displaying FGID Info for:
SDR: Owner APPLICATION : LPTS
**** No FGID's allocated ****
RP/0/RP0/CPU0:P1_CRS-8(admin)#show controllers fabric fgid resource sdr Owner $

==================================================
Displaying FGID Info for:
SDR: Owner APPLICATION : LPTS
**** No FGID's allocated ****

The following example shows sample output from the show controllers fabric fgid resource
command. In this example, fabric resource information is displayed for all SDRs in the
system:
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# show controllers fabric fgid resource all

==================================================
Displaying FGID Info for:
SDR: Owner APPLICATION : CLI
**** No FGID's allocated ****

==================================================
Displaying FGID Info for:
SDR: Owner APPLICATION : GSP
1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033
1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043
1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053
1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063
1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073
1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083
1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093
1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103
1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113
1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123
1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133
1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143
1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153
1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163
1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173
```

show controllers fabric fgid statistics

To display resource statistical information for the fabric group ID (FGID), use the **show controllers fabric fgid statistics** command in administration EXEC mode.

show controllers fabric fgid statistics {**all** | **pool** | **sdr** | **system**} [**brief** | **detail**]

Syntax Description

all	Specifies all FGID resource statistical information for the logical router and FGID resource pools.
sdr	Specifies FGID resource statistics about the secure domain router (SDR).
pool	Specifies FGID statistical information about the resource pool.
system	Specifies FGID resource statistics for the entire physical router.
brief	(Optional) Specifies brief information about FGIDs. This is the default.
detail	(Optional) Specifies detailed information about FGIDs.

Defaults

Brief information is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric fgid statistics** command to monitor FGID resource usage based on a system, pool, or client view.

Task ID

Task ID	Operations
fabric	read
root-system	read, execute

Examples

The following is sample output from the **show controllers fabric fgid statistics** command that displays resource statistics for the fabric FGID in detailed form with all resources activated:

```
RP/0/RP0/CPU0:router(admin)# show controllers fabric fgid statistics all detail

Fabric FGID Resource Statistics Information:

System wide Fabric multicast resource statistics:

        Total number of FGIDs in the system is 1000000
        Current number of InUse FGIDs in the system is 500
        High Water Mark of InUse FGIDs in the system is 500

Per SDR basis Fabric multicast resource statistics:


        Secure Domain Router Name is Owner
        InUse FGIDs is 500
        High Water Mark InUse FGIDs is 500

        Per client basis FGID resource utilization:

                             Appl Appl Pool      Current       HighWater Mark
                             Name  ID   ID      InUse FGIDs      InUse FGIDs
------------------------------------------------------------------------------
                              CLI   0   2                0                 0
                             LPTS   1   1                0                 0
                              GSP   2   0              500               500

Per Pool basis Fabric multicast resource statistics:

        Pool Identifier is 0
        Pool Name is GSP
        Pool type is Dedicated
        The starting FGID of this pool is 1024
        Total FGIDs of this pool is 10240
        InUse FGIDs of this pool is 500
        High Water Mark InUse FGIDs of this pool is 500

        Pool Identifier is 1
        Pool Name is LPTS
        Pool type is Dedicated
        The starting FGID of this pool is 11264
        Total FGIDs of this pool is 32768
        InUse FGIDs of this pool is 0
        High Water Mark InUse FGIDs of this pool is 0

        Pool Identifier is 2
        Pool Name is COMMON
        Pool type is Shared
        The starting FGID of this pool is 44032
        Total FGIDs of this pool is 955968
        InUse FGIDs of this pool is 0
        High Water Mark InUse FGIDs of this pool is 0
```

Table 27 describes the significant fields shown in the display.

Table 27 show controllers fabric fgid statistics Field Descriptions

Field	Description
Total number of FGIDs in the system	Total number of fabric FGIDs in the system.
Current number of Inused FGIDs in the system	Total number of fabric FGIDs in use in the system.
High Water Mark of Inused FGIDs in the system	Number of in-use fabric FGIDs at the highest point within the system.
Secure Domain Router Name	Name of the SDR.
Inused FGIDs	Inused (in-use) fabric FGID.
High Water Mark inused FGIDs	Number of inused (in-use) FGIDs since monitoring started.
Appl Name	Application name.
Appl ID	Application ID.
Pool ID	Pool ID.
Current InUsed FGIDs	Current number of inused (in-use) FGIDs.
Pool Identifier	Group pool identifier number.
Pool Name	Group pool name.
Pool type	Group pool type.
Total FGIDs of this pool	Number of FGIDs in the pool.
Inused FGIDs of this pool	Number of FGIDs inused (in-use) in the pool.
High Water Mark inused FGIDs of this pool	Number of FGIDs in the pool since the start of monitoring.

show controllers fabric fsdb-pla all

To display plane availability status information for all racks in the system, use the **show controllers fabric fsdb-pla all** command in administration EXEC mode.

show controllers fabric fsdb-pla all

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.3.1	This command was introduced on the Cisco CRS-1.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric fsdb-pla all** command to verify line card connectivity to the fabric planes.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows sample output from the show controllers fabric fsdb-pla all command:

```
RP/0/RP0/CPU0:router# admin

RP/0/RP0/CPU0:router (admin)# show controllers fabric fsdb-pla all

Rack 0:
=======

SrcGrp:0
01234567
Multicast Mask 11111111
Unicast Mask 11111111

Destination S3-Fabricq Reachability Mask Downloaded Mask
Address Mask SrcGrp:0 SrcGrp:0
01234567 01234567 01234567
------------------------------------------------------------------------
```

```
4 11111111 11111111 11111111
5 11111111 11111111 11111111
12 11111111 11111111 11111111
13 11111111 11111111 11111111
24 11111111 11111111 11111111
25 11111111 11111111 11111111
30 11111111 11111111 11111111
31 11111111 11111111 11111111:
```

show controllers fabric link port

To display link information for a specific fabric port, use the **show controllers fabric link port** command in administration EXEC mode.

show controllers fabric link port {**fabricqrx | ingressqtx | s1ro | s1rx | s1tx | s2rx | s2tx | s3rx | s3tx**} {*port* | **all**} [**brief | detail**]

Syntax Description

fabricqrx	Displays information for the fabric queue receive port.
ingressqtx	Displays information for the ingress queue transmit port.
s1ro	Displays information for the S1 Out-of-Band receive port. The out of band ports connect the fabric planes together so that the flow control information collected within a fabric plane is distributed across all fabric planes. This is essential in controlling fabric congestion and the congestion location within fabric.
s1rx	Displays information for the Stage 1 (S1) receive port. The S1 receive port distributes incoming traffic.
s1tx	Displays information for the Stage 1 (S1) transmit port. The S1 transmit port distributes outgoing traffic.
s2rx	Displays information for the Stage 2 (S2) receive port. The S2 receive port forwards incoming cells to Stage 3 (S3) port.
s2tx	Displays information for the Stage 2 (S2) transmit port. The S2 transmit port forwards outgoing cells to Stage 3 (S3) transmit port.
s3rx	Displays information about S3 receive port. The S3 receive port performs switching for incoming traffic.
s3tx	Displays information about S3 transmit port. The S3 receive port performs switching for outgoing traffic.
port	Specifies the port whose fabric link information you want to display. Replace *port* with a port identifier. The *port* naming notation is in the *rack*/*slot*/*module*/*asic*/*port* format. **Note** A slash mark between values is required as part of the *port* naming notation.
all	Displays fabric link information for all specified ports.
brief	(Optional) Displays summarized fabric link information.
detail	(Optional) Specifies that the command output includes detailed fabric link information.

Defaults

Enter the **show controllers fabric link port** command without specifying any of the optional parameters to display summarized fabric link information. This is the same information that is displayed when you include the **brief** option in the **show controllers fabric link port** command string.

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric link port** command to check the health of fabric internal connections.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows partial sample output from the show controllers fabric link port command for all S1RO ports in the system:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router (admin)# show controllers fabric link port s1ro all

Flags: P - plane admin down, p - plane oper down
C - card admin down, c - card oper down
L - link port admin down, l - linkport oper down
A - asic admin down, a - asic oper down
B - bundle port admin Down, b - bundle port oper down
I - bundle admin down, i - bundle oper down
N - node admin down, n - node down
o - other end of link down d - data down
f - failed component downstream
m - plane multicast down
Sfe Port Admin Oper Down Other Near-end Far-end
R/S/M/A/P State State Flags End Bport Bport
--------------------------------------------------------------------------------
0/SM0/SP/0/0 UP UP 0/SM0/SP/1/15
0/SM0/SP/0/1 UP UP 0/SM1/SP/0/33
0/SM0/SP/0/2 UP UP 0/SM1/SP/1/33
0/SM0/SP/0/3 UP UP 0/SM2/SP/0/33
0/SM0/SP/0/4 UP UP 0/SM2/SP/1/33
0/SM0/SP/0/5 UP UP 0/SM3/SP/0/33
0/SM0/SP/0/6 UP UP 0/SM3/SP/1/33
0/SM0/SP/1/0 UP UP 0/SM0/SP/0/15
0/SM0/SP/1/1 UP DOWN l Unused
0/SM0/SP/1/2 UP UP Unused
0/SM0/SP/1/3 UP DOWN l Unused
0/SM0/SP/1/4 UP DOWN l Unused
0/SM0/SP/1/5 UP DOWN l Unused
0/SM0/SP/1/6 UP DOWN l Unused
0/SM1/SP/0/0 UP UP 0/SM1/SP/1/15
0/SM1/SP/0/1 UP UP 0/SM0/SP/0/33
0/SM1/SP/0/2 UP UP 0/SM0/SP/1/33
0/SM1/SP/0/3 UP UP 0/SM2/SP/0/51
--More--
```

The following example shows partial sample output from the show controllers fabric link port command with the detail keyword included in the command string:

```
RP/0/RP0/CPU0:router# admin

RP/0/RP0/CPU0:router (admin)# show controllers fabric link port fabricqrx all detail

Flags: P - plane admin down, p - plane oper down
C - card admin down, c - card oper down
L - link port admin down, l - linkport oper down
A - asic admin down, a - asic oper down
B - bundle port admin Down, b - bundle port oper down
I - bundle admin down, i - bundle oper down
N - node admin down, n - node down
o - other end of link down d - data down
f - failed component downstream
m - plane multicast down

Sfe Port Admin Oper Down Sfe BP Port BP Other
R/S/M/A/P State State Flags Role Role End
------------------------------------------------------------------
0/1/CPU0/0/0 UP UP A A 0/SM0/SP/0/15
--------------------------------------------------
Link Type Pin1 Name Pin2 Name
--------------------------------------------------
CHASSIS G5 A4

Sfe Port Admin Oper Down Sfe BP Port BP Other
R/S/M/A/P State State Flags Role Role End
------------------------------------------------------------------
0/1/CPU0/0/1 UP UP A B 0/SM0/SP/0/39
--------------------------------------------------
Link Type Pin1 Name Pin2 Name
--------------------------------------------------
CHASSIS G19 A34

Sfe Port Admin Oper Down Sfe BP Port BP Other
R/S/M/A/P State State Flags Role Role End
------------------------------------------------------------------
0/1/CPU0/0/2 UP UP A A 0/SM0/SP/0/14
--More--
```

show controllers fabric plane

To display system fabric plane information, use the **show controllers fabric plane** command in administration EXEC mode.

show controllers fabric plane {*plane-id* | **all**} [**brief** | **detail** | **statistics** {**brief** | **detail**}]

Syntax Description

plane-id	Plane number. Range is from 0 to 7.
all	Specifies that all information about system fabric planes is displayed.
brief	(Optional) Specifies brief information about the system fabric plane. This is the default.
detail	(Optional) Specifies detailed information about the system fabric plane.
statistics	(Optional) Specifies statistical information for cell activity within the plane.

Defaults

Brief information is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric plane** command to monitor the fabric plane status, and the cell traffic and error statistics to or from the fabric plane.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers fabric plane** command that displays system fabric plane information from all fabric planes:

```
RP/0/RP0/CPU0:router(admin)# show controllers fabric plane all

Plane  Admin   Oper       Down       Total     Down
 Id     State   State      Flags      Bundles   Bundles
 ------------------------------------------------------
 0      UP      DOWN       p          0         0
 1      UP      UP                    0         0
 2      UP      DOWN       p          0         0
 3      UP      DOWN       p          0         0
 4      UP      DOWN       p          0         0
 5      UP      DOWN       p          0         0
 6      UP      DOWN       p          0         0
 7      UP      DOWN       p          0         0
```

The following is sample output from the **show controllers fabric plane** command that displays system fabric plane statistics from fabric plane 1 in brief form:

```
RP/0/RP0/CPU0:router(admin)# show controllers fabric plane 1 statistics brief

                      In                 Out       CE        UCE       PE
Plane                Cells              Cells     Cells     Cells     Cells
-------------------------------------------------------------------------------
  1                     0                  0         0         0         0
```

The following is sample output from the **show controllers fabric plane** command that displays system fabric plane statistics from fabric plane 1 in detailed form:

```
RP/0/RP0/CPU0:router(admin)# show controllers fabric plane 1 statistics detail

The fabric plane number is 1
  Total number of providers for the statistics: 0
  Total received data cells: 0
  Total transmitted data cells: 0
  Total received correctable errored cells: 0
  Total received uncorrectable errored cells: 0
  Total received parity error cells: 0
  Total unicast lost cells: 0
  Total multicast lost cells: 0
  Last clearing of "show controller fabric plane" counters never
```

The following is sample output from the **show controllers fabric plane** command that displays system fabric plane statistics from the fabric for all planes in detailed form:

```
RP/0/RP0/CPU0:router(admin)# show controllers fabric plane all statisitics detail

The fabric plane number is 0
  Total number of providers for the statistics: 0
  Total received data cells: 0
  Total transmitted data cells: 0
  Total received correctable errored cells: 0
  Total received uncorrectable errored cells: 0
  Total received parity error cells: 0
  Total unicast lost cells: 0
  Total multicast lost cells: 0
  Last clearing of "show controller fabric plane" counters never

The fabric plane number is 1
  Total number of providers for the statistics: 0
  Total received data cells: 0
  Total transmitted data cells: 0
  Total received correctable errored cells: 0
```

```
  Total received uncorrectable errored cells: 0
  Total received parity error cells: 0
  Total unicast lost cells: 0
  Total multicast lost cells: 0
  Last clearing of "show controller fabric plane" counters never

The fabric plane number is 2
  Total number of providers for the statistics: 0
  Total received data cells: 0
  Total transmitted data cells: 0
  Total received correctable errored cells: 0
  Total received uncorrectable errored cells: 0
  Total received parity error cells: 0
  Total unicast lost cells: 0
  Total multicast lost cells: 0
  Last clearing of "show controller fabric plane" counters never

The fabric plane number is 3
  Total number of providers for the statistics: 0
  Total received data cells: 0
  Total transmitted data cells: 0
  Total received correctable errored cells: 0
  Total received uncorrectable errored cells: 0
  Total received parity error cells: 0
  Total unicast lost cells: 0
  Total multicast lost cells: 0
  Last clearing of "show controller fabric plane" counters never

The fabric plane number is 4
  Total number of providers for the statistics: 0
  Total received data cells: 0
  Total transmitted data cells: 0
  Total received correctable errored cells: 0
  Total received uncorrectable errored cells: 0
  Total received parity error cells: 0
  Total unicast lost cells: 0
  Total multicast lost cells: 0
  Last clearing of "show controller fabric plane" counters never

The fabric plane number is 5
  Total number of providers for the statistics: 0
  Total received data cells: 0
  Total transmitted data cells: 0
  Total received correctable errored cells: 0
  Total received uncorrectable errored cells: 0
  Total received parity error cells: 0
  Total unicast lost cells: 0
  Total multicast lost cells: 0
  Last clearing of "show controller fabric plane" counters never
```

Table 28 describes the significant fields shown in the display.

Table 28 show controllers fabric plane Field Descriptions

Field	Description
The fabric plane number is 1	Fabric plane ID number.
Total number of providers for the statistics	Number of providers (sources) from which statistics were extracted.
Total received data cells	Total of data cells that have been received.

Table 28 show controllers fabric plane Field Descriptions (continued)

Field	Description
Total received correctable errored cells	Total number of cells with errors that can be corrected.
Total received uncorrectable errored cells	Total number of cells with errors that cannot be corrected.
Total received parity error cells	Total number of cells that have parity errors.
Total unicast lost cells	Number of lost unicast cells.
Last clearing of "show controller fabric plane" counters	Indicates when the fabric plane counters were last cleared.

Related Commands

Command	Description
show controllers fabric connectivity	Displays controller fabric connectivity information.

show controllers fabric rack all

To display information about the fabric racks in the current system, use the **show controllers fabric rack all** command in administration EXEC mode.

show controllers fabric rack all [**brief** | **detail**]

Syntax Description

brief	(Optional) Displays summarized fabric rack information.
detail	(Optional) Specifies that the command output includes detailed fabric rack information.

Defaults

Use the **show controllers fabric rack all** command without including any of the optional syntax to display detailed information about all fabric card racks in the current system.

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabric rack all** command to display fabric rack topology information.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows sample output from the **show controllers fabric rack all** command:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:P1_CRS-8(admin)# show controllers fabric rack all

Rack Rack Server
Num Status Status
---- ------ ------

0 NORMAL PRESENTRP/0/RP0/CPU0:router(admin)#
```

show controllers fabric sfe

To display information about a specific switch fabric element, use the **show controllers fabric sfe** command in administration EXEC mode.

show controllers fabric sfe {**fabricq** | **ingressq** | **s1** | **s2** | **s3**} {*port* | **all**} [**backpressure** | **brief** | **detail**]

Syntax Description

fabricq	Displays information from the fabric queue for the switching fabric element.
ingressq	Displays information from the ingress queue for the switching fabric element.
s1	Displays information about Stage 1 (S1) switch fabric elements. S1 elements distribute traffic.
s2	Displays information about Stage 2 (S2) switch fabric elements. S2 elements forward cells to Stage 3 (S3) elements.
s3	Displays information about S3 switch fabric elements. S3 elements perform switching.
port	Specifies the port that owns the switch fabric element you want to display. Replace *port* with the port number, in the *rack*/*slot*/*module*/*ASIC*/*port* format. **Note** A slash mark between values is required as part of the *port* notation.
all	Displays information about the switch fabric elements on all ports in the system.
backpressure	(Optional) Displays backpressure information for the specified switch fabric elements.
brief	(Optional) Displays summarized information for the specified switch fabric elements.
detail	(Optional) Includes detailed information about the specified switch fabric elements in the command output.

Defaults

Use the **show controllers fabric sfe** command without specifying any of the optional parameters to display detailed information about a specified switch fabric element.

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows sample output from the **show controllers fabric sfe** command:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router (admin)# show controllers fabric sfe fabricq all

Flags: P - plane admin down, p - plane oper down
C - card admin down, c - card oper down
L - link port admin down, l - linkport oper down
A - asic admin down, a - asic oper down
B - bundle port admin Down, b - bundle port oper down
I - bundle admin down, i - bundle oper down
N - node admin down, n - node down
o - other end of link down d - data down
f - failed component downstream
m - plane multicast down


Sfe Admin Oper
R/S/M/A State State
----------------------------
0/1/CPU0/0 UP UP
0/1/CPU0/1 UP UP
0/3/CPU0/0 UP UP
0/3/CPU0/1 UP UP
0/6/CPU0/0 UP UP
0/6/CPU0/1 UP UP
0/RP0/CPU0/0 UP UP
0/RP1/CPU0/0 UP UP
```

show controllers fabricq drop

To display the number of packets dropped to the fabric or from the fabric on a per slot basis in the fabric queue driver, use the **show controllers fabricq drop** command in administration EXEC mode.

show controllers fabricq drop [**detail**] [**location** *node-id*]

Syntax Description

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

Defaults

Information about packet drops for all route processors (RPs) on the router is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabricq drop** command to display statistics about packet drops. Specifying a location displays information only if that location is an RP. Use the **detail** keyword to display detailed output.

Note The **show controllers fabricq drop** command is typically used for debugging purposes.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is detailed sample output from the **show controllers fabricq drop** command for location 0/1/CPU0:

```
RP/0/0/CPU0:router(admin)# show controllers fabricq drop detail location 0/1/CPU0

Location 0/1/0:

To Fabric dropped packets:
```

```
--------------------------
 Slot Tx-OVS Tx-NHB Tx-NPB  Tx-QF  Tx-LP  Tx-DS  Tx-MB Tx-DIS Tx-Total
Low Priority:
    0      0      0      0      0      0      0      0      0         0
    1      0      0      0      0      0      0      0      0         0
    2      0      0      0      0      0      0      0      0         0
    3      0      0      0      0      0      0      0      0         0
    4      0      0      0      0      0      0      0      0         0
    5      0      0      0      0      0      0      0      0         0
    6      0      0      0      0      0      0      0      0         0
    7      0      0      0      0      0      0      0      0         0
    8      0      0      0      0      0      0      0      0         0
    9      0      0      0      0      0      0      0      0         0
   10      0      0      0      0      0      0      0      0         0
   11      0      0      0      0      0      0      0      0         0
   12      0      0      0      0      0      0      0      0         0
   13      0      0      0      0      0      0      0      0         0
   14      0      0      0      0      0      0      0      0         0
   15      0      0      0      0      0      0      0      0         0
mcast      0      0      0      0      0      0      0      0         0
High Priority:
    0      0      0      0      0      0      0      0      0         0
    1      0      0      0      0      0      0      0      0         0
    2      0      0      0      0      0      0      0      0         0
    3      0      0      0      0      0      0      0      0         0
    4      0      0      0      0      0      0      0      0         0
    5      0      0      0      0      0      0      0      0         0
    6      0      0      0      0      0      0      0      0         0
    7      0      0      0      0      0      0      0      0         0
    8      0      0      0      0      0      0      0      0         0
    9      0      0      0      0      0      0      0      0         0
   10      0      0      0      0      0      0      0      0         0
   11      0      0      0      0      0      0      0      0         0
   12      0      0      0      0      0      0      0      0         0
   13      0      0      0      0      0      0      0      0         0
   14      0      0      0      0      0      0      0      0         0
   15      0      0      0      0      0      0      0      0         0
mcast      0      0      0      0      0      0      0      0         0
Legend:
   Tx-OVS: Drops due to oversized packets
   Tx-NHB: Drops due to missing packet header buffer
   Tx-NPB: Drops due to missing packet payload buffer
   Tx-QF:  Drops because the queue is full
   Tx-LP:  Drops because the packet is low priority
   Tx-DS:  Drops because the destination slot is dead
   Tx-MB:  Drop counter for packets transmitted over MBUS (Not supported)
   Tx-DIS: Drops because the tofab transmission is disabled

From Fabric dropped packets:
---------------------------
 Slot Rx-REF Rx-PKT Rx-DEC Rx-Total
    0      0      0      0        0
    1      0      0      0        0
    2      0      0      0        0
    3      0      0      0        0
    4      0      0      0        0
    5      0      0      0        0
    6      0      0      0        0
    7      0      0      0        0
    8      0      0      0        0
    9      0      0      0        0
   10      0      0      0        0
   11      0      0      0        0
   12      0      0      0        0
```

```
   13      0       0       0         0
   14      0       0       0         0
   15      0       0       0         0
Legend:
   Rx-REF: Drops in the FPGA reassembly
   Rx-PKT: Drops due to invalid packet
   Rx-DEC: Drops due to decoding the packet
```

Table 29 describes the significant fields shown in the display.

Table 29 show controllers fabricq drop Field Descriptions

Field	Description
To Fabric dropped packets	Displays statistics about the transmitted packets that were dropped.
Slot	Slot that contains the fabric card whose statistics are displayed.
Tx-OVS	Number of transmitted packets that were dropped because they were oversized.
Tx-NHB	Number of transmitted packets that were dropped because they were missing a packet header buffer.
Tx-NPB	Number of transmitted packets that were dropped because they were missing a packet payload buffer.
Tx-QF	Number of transmitted packets that were dropped because the queue is full.
Tx-LP	Number of transmitted packets that were dropped because they were low priority.
Tx-DS	Number of transmitted packets that were dropped because the destination slot is dead.
Tx-MB	Number of dropped transmitted packets that were sent over the Mbus.
Tx-DIS	Number of transmitted packets that were dropped because the tofab transmission is disabled.
Tx-Total	Total number of packets transmitted.
From Fabric dropped packets	Displays statistics about the received packets that were dropped.
Slot	Slot that contains the fabric card whose statistics are displayed.
Rx-REF	Number of received packets that were dropped in the FPGA reassembly.
Rx-PKT	Number of received packets that were dropped because they were invalid.
Rx-DEC	Number of received packets that were dropped due to decoding.
Rx-Total	Total number of received packets that were dropped.

1. Optimized Voice Service

Related Commands

Command	Description
show controllers fabricq errors	Displays information about errors.
show controllers fabricq frfab	Displays from fabric statistics.
show controllers fabricq output	Displays information about to fabric output service.
show controllers fabricq queue	Displays information about packet queues.
show controllers fabricq registers	Displays information about chopper and assembler registers.
show controllers fabricq tofab	Displays to fabric statistics.

show controllers fabricq errors

To display the count of hardware errors associated with the fabric queue driver, use the **show controllers fabricq errors** command in administration EXEC mode.

show controllers fabricq errors [**location** *node-id*]

Syntax Description

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

Defaults

Information about errors for all route processors (RPs) on the router is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabricq errors** command to display statistics about hardware errors. Specifying a location displays information only if that location is a RP.

The **show controllers fabricq errors** command is intended for use while performing debugging procedures.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers fabricq errors** command for location 0/1/CPU0:

```
RP/0/0/CPU0:router(admin)# show controllers fabricq errors location 0/1/CPU0

Location 0/1/0:

ToFab Errors:

Error Type      Error Count Max Rate Rate Exceeded Count
------------------------------------------------------------
SRAM Parity               0        2                   0
```

```
DMA Address                0       100                 0
DMA Size                   0       100                 0
Fusilli Parity             0         2                 0
PCI TRANS64                0         2                 0
PCI Address                0         2                 0
```

Table 30 describes the significant fields shown in the display.

Table 30 show controllers fabricq errors Field Descriptions

Field	Description
Error Count	Number of errors of each type.
Max Rate	Maximum number of errors of that type that can be received per second.
Rate Exceeded Count	Number of times that error has exceeded the Max Rate. When the rate is exceeded, the software may try to restart the fabric queue driver and associated ASICs or FPGAs to correct the problem.

Related Commands

Command	Description
show controllers fabricq drop	Displays information about packet drops.
show controllers fabricq frfab	Displays from fabric statistics.
show controllers fabricq output	Displays information about to fabric output service.
show controllers fabricq queue	Displays information about packet queues.
show controllers fabricq registers	Displays information about chopper and assembler registers.
show controllers fabricq tofab	Displays to fabric statistics.

show controllers fabricq fabric-backpressure

To display back pressure information for the fabric queue ASICs, use the **show controllers fabricq fabric-backpressure** command in EXEC and administration EXEC mode.

show controllers fabricq fabric-backpressure [**summary**] [**instance** *asic_instance*] [**location** *node-id*]

Syntax Description

summary	(Optional) Displays summarized backpressure information about all fabric queue ASICS in the system.
instance *asic_instance*	(Optional) Displays backpressure information for a specific fabric queue ASIC. Replace *asic_instance* with the instance that identifies the ASIC whose backpressure information you want to display. **Note** Enter the **show controllers fabricq fabric-backpressure** command without including any of the optional keywords or arguments to display all fabric queue ASIC instances in the system.
location *node*	Displays back pressure information for the fabric queue ASICs on a particular node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation. **Note** Use the **show platform** command to see a list of all nodes currently installed in your system.

Defaults

Enter the **show controllers fabricq fabric-backpressure** command without including any of the optional keywords or arguments to display detailed back pressure information about all fabric queue ASICS in the system.

Command Modes

EXEC

Administration EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read
interface	read
drivers	read

Examples

The following example shows sample output from the **show controllers fabricq fabric-backpressure** command when it is entered with the **summary** keyword:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# show controllers fabricq fabric-backpressure summary

Rack 0: All Groups Received? : Yes
```

The following example shows sample output from the **show controllers fabricq fabric-backpressure** command when it is entered without any of the optional keywords:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# show controllers fabricq fabric-backpressure

Location: 0/1/CPU0
Asic Instance: 0
Fabric Destination Address: 4
BP global Configuration Register: 0xff07

Cluster Number: 0
Primary Link: 0
Secondary Link: 9
Number of Backup links: 14
Backup Links: 8 1 2 10 3 11 27 16 26 17 25 18 24 19
BP enable Mask: 0x4
BP EC: 0
BP IM: 0x1ffe
+-------------------------------------------------------------+
|BP Engine| Enabled |Current Link |Rx group |P Link |S Link |
+-------------------------------------------------------------+
| 0 | No |Secondary | 255 | 0 | 9 |
+-------------------------------------------------------------+
| 1 | No |Secondary | 255 | 0 | 9 |
+-------------------------------------------------------------+
| 2 | Yes |Primary | 0 | 0 | 9 |
+-------------------------------------------------------------+

Location: 0/1/CPU0
Asic Instance: 1
Fabric Destination Address: 5
BP global Configuration Register: 0xff07

Cluster Number: 0
Primary Link: 0
Secondary Link: 9
Number of Backup links: 14
Backup Links: 8 1 2 10 3 11 27 16 26 17 25 18 24 19
BP enable Mask: 0x4
BP EC: 0
BP IM: 0x1ffe
+-------------------------------------------------------------+
|BP Engine| Enabled |Current Link |Rx group |P Link |S Link |
+-------------------------------------------------------------+
| 0 | No |Secondary | 255 | 0 | 9 |
+-------------------------------------------------------------+
| 1 | No |Secondary | 255 | 0 | 9 |
+-------------------------------------------------------------+
| 2 | Yes |Primary | 0 | 0 | 9 |
+-------------------------------------------------------------+

Location: 0/3/CPU0
Asic Instance: 0
Fabric Destination Address: 12
```

```
BP global Configuration Register: 0xff07

Cluster Number: 0
--More--
```

show controllers fabricq frfab

To display from fabric statistics associated with the fabric queue driver, use the **show controllers fabricq frfab** command in administration EXEC mode.

show controllers fabricq frfab [**detail**] [**location** *node-id*]

Syntax Description

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

Defaults

From fabric statistics are displayed for all route processors (RPs) on the router

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabricq frfab** command to display from fabric statistics. Specifying a location displays information only if that location is an RP. Use the **detail** keyword to display detailed output.

Note The **show controllers fabricq frfab** command is typically used for debugging purposes.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers fabricq frfab** command for location 0/1/CPU0:

```
RP/0/RP0/CPU0:router(admin)## show controllers fabricq frfab location 0/1/CPU0

Location 0/1/0:

From Fabric Stats:
------------------
```

```
Slot   Rx-pkts    Rx-TH-pkts Rx-dropped
1      0          3928       0
2      0          37309      0
3      0          43306      0
4      0          42681      0
5      0          35063      0

From Fabric Packet per Queue Stats:
-----------------------------------
Packets received in queue 0 - 0
Packets received in queue 1 - 3928
Packets received in queue 2 - 150069
Packets received in queue 3 - 8290

From Fabric Error Stats:
------------------------
Bigger than MTU pkts       - 0
Corrupted pkts             - 0
SPD pkt count              - 0
No IDB drops               - 0
IDB queue tail drops       - 0
Chan corrupted pkts        - 0
First/Last err pkts        - 0
Sequence err pkts          - 0
Unknown Rx type            - 0
Output queue 0 full drops  - 0
Output queue 1 full drops  - 0
Output queue 2 full drops  - 0
Output queue 3 full drops  - 0
Output queue unmatch drops - 0
OQ 0 drops because FQ below threshold - 0
OQ 1 drops because FQ below threshold - 0
OQ 2 drops because FQ below threshold - 0
OQ 3 drops because FQ below threshold - 0

From Fabric Error Events:
-------------------------
Fusilli parity errors- 0
Fusilli interface errors - 0
Free queue drop threshold events - 0
Free queue empty events - 0
Bad descriptors events - 0
Output queue 0 almost empty events - 0
Output queue 1 almost empty events - 0
Output queue 2 almost empty events - 0
Output queue 3 almost empty events - 0
OQ 0 drops because of ptr - 0 (Not implemented)
OQ 1 drops because of ptr - 0 (Not implemented)
OQ 2 drops because of ptr - 0 (Not implemented)
OQ 3 drops because of ptr - 0 (Not implemented)
Interrupt throttle events - 0
Spurious interrupt events - 0

Assembler memory statistics:
----------------------------
Bufs enqueued to free queue    - 163311
Bufs rxed from OQ              - 162287
Bufs copied to public pool     - 0 (Not implemented)
Bufs returned to the pool      - 162287
Bufs returned by driver        - 0 (Not implemented)
Bufs from driver to OS         - 0 (Not implemented)
```

Table 31 describes the significant fields shown in the display.

Table 31 show controllers fabricq frfab Field Descriptions

Field	Description
Rx-pkts	Number of packets received from the fabric.
Rx-TH-pkts	Number of “think hard” packets received from the fabric.
Rx-dropped	Number of packets received from the fabric that had to be dropped.

Related Commands

Command	Description
show controllers fabricq drop	Displays information about packet drops.
show controllers fabricq errors	Displays information about errors.
show controllers fabricq output	Displays information about to fabric output service.
show controllers fabricq queue	Displays information about packet queues.
show controllers fabricq registers	Displays information about chopper and assembler registers.
show controllers fabricq tofab	Displays to fabric statistics.

show controllers fabricq output

To display to fabric output service statistics associated with the fabric queue driver, use the **show controllers fabricq output** command in administration EXEC mode.

show controllers fabricq output [**location** *node-id*]

Syntax Description

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

Defaults

Information is displayed for all route processors (RPs) on the router

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabricq output** command to display to fabric output service statistics. Specifying a location displays information only if that location is an RP.

The service time is the time from when the RP CPU has made the packet ready to be sent to the slot to when the FPGA has put the packet on the queue to that particular slot.

Note The **show controllers fabricq output** command is typically used for debugging purposes.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers fabricq output** command for location 0/1/CPU0:

```
RP/0/RP0/CPU0:router(admin)## show controllers fabricq output location 0/1/CPU0

Location 0/1/0:

To Fabric servicing time statistics:
```

```
-------------------------------------
  Slot     Minimum     Maximum     Average   Timeouts
Low Priority:
     0           0           0           0          0
     1           0           0           0          0
     2           0          10           0          0
     3           0          21           0          0
     4           0           0           0          0
     5           0           0           0          0
     6           0           0           0          0
     7           0           0           0          0
     8           0           0           0          0
     9           0           0           0          0
    10           0           0           0          0
    11           0           0           0          0
    12           0           0           0          0
    13           0           0           0          0
    14           0           0           0          0
    15           0           0           0          0
 mcast           0           0           0          0
High Priority:
     0           0           0           0          0
     1           0          22           0          0
     2           0          96           0          0
     3           0          13           0          0
     4           0          12           0          0
     5           0          14           0          0
     6           0           0           0          0
     7           0           0           0          0
     8           0           0           0          0
     9           0           0           0          0
    10           0           0           0          0
    11           0           0           0          0
    12           0           0           0          0
    13           0           0           0          0
    14           0           0           0          0
    15           0           0           0          0
 mcast           0           6           0          0
```

Table 32 describes the significant fields shown in the display.

Table 32 show controllers fabricq output Field Descriptions

Field	Description
Slot	Slot to which the packets are sent.
Minimum	Lowest service time of all the packets sent to that slot.
Maximum	Highest service time of all the packets sent to that slot.
Average	Average service time of all the packets sent to that slot.
Timeouts	Number of times a packet's service time has exceeded a threshold of 200 milliseconds (the packet is dropped).

Related Commands

Command	Description
show controllers fabricq drop	Displays information about packet drops.
show controllers fabricq errors	Displays information about errors.
show controllers fabricq frfab	Displays from fabric statistics.

Command	Description
show controllers fabricq queue	Displays information about packet queues.
show controllers fabricq registers	Displays information about chopper and assembler registers.
show controllers fabricq tofab	Displays to fabric statistics.

show controllers fabricq statistics

To display statistics about packet flow through the fabric queue application-specific integrated circuit (ASIC), use the **show controllers fabricq statistics** command in EXEC mode.

show controllers fabricq statistics [**instance** *instance*] [**location** *node-id*]

Syntax Description

instance *instance*	(Optional) Specifies instance and number for a single fabric queue ASIC. The *instance* argument is a number from 0 to 4.
location *node-id*	(Optional) Specifies statistical packet flow information for the designated node. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

Information for all fabric queue ASICs for all locations is displayed

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	The **show controllers fabricq packet-stats** command was replaced by the **show controllers fabricq statistics** command.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabricq statistics** command to track the number of unicast and multicast packets that are sent from the fabric to the specified node.

Task ID

Task ID	Operations
interface	read
drivers	read

Examples

The following is sample output from the **show controllers fabricq statistics** command that displays statistics about fabric queue packets that have passed through ASIC 0 on node 0/1/CPU0:

```
RP/0/RP0/CPU0:router# show controllers fabricq statistics instance 0 location 0/1/CPU0

  Fabric Queue Manager Packet Statistics
```

```
====================================

Location: 0/1/CPU0
Asic Instance: 0
Fabric Destination Address:    32

Input Cell counters:
+-------------------------------------------------------------+
Data cells           :            42356 (+              22 )
Control cells        :         29877224 (+           36372 )
Idle    cells        :     219947284936 (+       267358842 )
BP Asserted Count    :                0 (+               0 )
MC BP Asserted Count :                0 (+               0 )

Reassembled packet counters
+-------------------------------------------------------------+
Ucast pkts           :                0 (+               0 )
Mcast pkts           :                0 (+               0 )
Cpuctrlcast pkts     :            21159 (+              11 )

Dropped packets
+-------------------------------------------------------------+
Ucast pkts           :                0 (+               0 )
Mcast pkts           :                0 (+               0 )
Cpuctrlcast pkts     :                0 (+               0 )
Vital denied pkts    :                0 (+               0 )
NonVital denied pkts :                0 (+               0 )
Unicast lost pkts    :                0 (+               0 )
Ucast partial pkts   :                0 (+               0 )
PSM OOR Drops        :                0 (+               0 )
```

Table 33 describes the significant fields shown in the display.

Table 33 show controllers fabricq statistics Field Descriptions

Field	Description
Input Cell counters	Number of cells that have reached the fabric queue ASIC.
Reassembled packet counters	Number of packets the fabric queue ASIC has reassembled after transmission over the fabric.
Dropped packets	Number of packets the fabric queue ASIC has had to drop.

show controllers fabricq queue

To display information about the hardware queues of the performance route processor chopper and assembler FPGAs, use the **show controllers fabricq queue** command in administration EXEC mode.

show controllers fabricq queue [**detail**] [**location** *node-id*]

Syntax Description

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

Defaults

Information for all performance route processors on the router is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabricq queue** command to display information about packet queues. Specifying a location displays information only if that location is an RP.

This command is intended for use while performing debugging procedures.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is detailed sample output from the **show controllers fabricq queue** command for the location 0/1/CPU0:

```
RP/0/0/CPU0:router(admin)# show controllers fabricq queue detail location 0/1/CPU0

Location 0/1/0:

To Fabric Queue Stats:
----------------------
  Slot   EnQueued   DeQueued Cur-Entrys Max-Entrys    Blocked   BP count
Low Priority:
```

```
     0          0          0          0          0          No         0
     1          0          0          0          0          No         0
     2        300        300          0          2          No         0
     3       8428       8428          0         12          No         0
     4          0          0          0          0          No         0
     5          0          0          0          0          No         0
     6          0          0          0          0          No         0
     7          0          0          0          0          No         0
     8          0          0          0          0          No         0
     9          0          0          0          0          No         0
    10          0          0          0          0          No         0
    11          0          0          0          0          No         0
    12          0          0          0          0          No         0
    13          0          0          0          0          No         0
    14          0          0          0          0          No         0
    15          0          0          0          0          No         0
 mcast          0          0          0          0          No         0
High Priority:
     0          0          0          0          0          No         0
     1       7882       7882          0          2          No         0
     2      62330      62330          0         36          No         0
     3      60752      60752          0        100          No         0
     4      72588      72588          0         36          No         0
     5      60876      60876          0        100          No         0
     6          0          0          0          0          No         0
     7          0          0          0          0          No         0
     8          0          0          0          0          No         0
     9          0          0          0          0          No         0
    10          0          0          0          0          No         0
    11          0          0          0          0          No         0
    12          0          0          0          0          No         0
    13          0          0          0          0          No         0
    14          0          0          0          0          No         0
    15          0          0          0          0          No         0
 mcast      19562      19562          0        200          No         0
Free packet header buffers 7680

From Fabric Queue Stats:
------------------------
 Queue  Allocated       Free
     0          0        512
     1          0        512
     2          0        512
     3          0        512
   F/Q         87        937
```

Table 34 describes the significant fields shown in the display.

Table 34 show controllers fabricq queue Field Descriptions

Field	Description
Slot	Slot or queue to which the packets are sent.
EnQueued	Number of entries enqueued for that queue.
DeQueued	Number of entries dequeued for that queue.
Cur-Entrys	Number of entries currently for that queue.
Max-Entrys	Highest number of entries for that queue.
Blocked	Yes or No if that queue is blocked.
BP count	Backpressure count, which is the number of times the queue got full.

Table 34 show controllers fabricq queue Field Descriptions (continued)

Field	Description
Queue	Priority queues receiving packets; 0 is the highest priority. The F/Q entry is the software free packet queue.
Allocated	Number of packets in that queue.
Free	Number of packets available for that queue.

Related Commands

Command	Description
show controllers fabricq drop	Displays information about packet drops.
show controllers fabricq errors	Displays information about errors.
show controllers fabricq frfab	Displays from fabric statistics.
show controllers fabricq output	Displays information about to fabric output service.
show controllers fabricq registers	Displays information about chopper and assembler registers.
show controllers fabricq tofab	Displays to fabric statistics.

show controllers fabricq registers

To display the hardware registers of the chopper and assembler FPGAs, use the **show controllers fabricq registers** command in administration EXEC mode.

show controllers fabricq registers [**detail**] [**location** *node-id*]

Syntax Description

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

Defaults

Information for all route processors (RPs) on the router is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs.

Use the **show controllers fabricq registers** command to display the hardware registers of the chopper and assembler FPGAs. Specifying a location displays information only if that location is an RP.

This command is intended for use while performing debugging procedures.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers fabricq registers** command for location 0/1/CPU0:

```
RP/0/0/CPU0:router(admin)# show controllers fabricq registers location 0/1/CPU0

Location 0/1/0:

Chopper Registers:
------------------
FPGA Version                          00020012
HP Descriptor fetch enable            00010000
Descriptor array size                 000003FF
```

```
Interrupt cause                           00000000
Interrupt mask                            FC01FFFF
LP Descriptor fetch enable                00000008
HP Interrupt desc afull                   00000000
LP Interrupt desc afull                   00000000
Discovery low control reg base address  F1000840
Discovery next desc reg base address    F1000830
Chopper PCI base address                  F0000000
HP Descriptor queue empty status          0001FFFF
HP Descriptor queue almost full           00000000
Data queue empty status                   0001FFFF
Data queue almost full                    00000000
LP Descriptor queue empty status          0001FFFF
LP Descriptor queue almost full           00000000
SRAM Descriptor threshold                 000003F0
SRAM Data threshold                       000007F0
DMA Control                               000000DD
Back pressure status                      00000000
Fusilli Tx Enable                         0001FFFF
Cell count                                0030CDA1
Reset VOQ                                 00000000
DMA Busy Status                           00000000
DMA Done Status                           000000DD
HP Descriptor start addr for queue  0   0B448000
HP Descriptor start addr for queue  1   0B44A000
HP Descriptor start addr for queue  2   0B44C000
HP Descriptor start addr for queue  3   0B44E000
HP Descriptor start addr for queue  4   0B450000
HP Descriptor start addr for queue  5   0B452000
HP Descriptor start addr for queue  6   0B454000
HP Descriptor start addr for queue  7   0B456000
HP Descriptor start addr for queue  8   0B458000
HP Descriptor start addr for queue  9   0B45A000
HP Descriptor start addr for queue  10  0B45C000
HP Descriptor start addr for queue  11  0B45E000
HP Descriptor start addr for queue  12  0B460000
HP Descriptor start addr for queue  13  0B462000
HP Descriptor start addr for queue  14  0B464000
HP Descriptor start addr for queue  15  0B466000
HP Descriptor start addr for queue  16  0B468000
LP Descriptor start addr for queue  0   0B426000
LP Descriptor start addr for queue  1   0B428000
LP Descriptor start addr for queue  2   0B42A000
LP Descriptor start addr for queue  3   0B42C000
LP Descriptor start addr for queue  4   0B42E000
LP Descriptor start addr for queue  5   0B430000
LP Descriptor start addr for queue  6   0B432000
LP Descriptor start addr for queue  7   0B434000
LP Descriptor start addr for queue  8   0B436000
LP Descriptor start addr for queue  9   0B438000
LP Descriptor start addr for queue  10  0B43A000
LP Descriptor start addr for queue  11  0B43C000
LP Descriptor start addr for queue  12  0B43E000
LP Descriptor start addr for queue  13  0B440000
LP Descriptor start addr for queue  14  0B442000
LP Descriptor start addr for queue  15  0B444000
LP Descriptor start addr for queue  16  0B446000

Assembler Registers:
--------------------
Version                    0002000D
Chip Config                0000000F
Int Mask                   00000000
Output Queue Threshold     00000033
```

```
Low Pri Req level          00000030
High Pri Req level         00000060
Free Queue Size            00001000
Free Queue Base            0B3A6000
Free Queue Rd Pointer      0B3A6380
Free Queue Wr Pointer      0B3A61C0
Output Queue Size          00001000
Output Queue 0 Base Addr   0B3A8000
Output Queue 0 Write Addr  0B3A8000
Output Queue 0 Read Addr   0B3A8000
Output Queue 0 Match       C0000200
Output Queue 0 Mask        00003E00
Output Queue 1 Base Addr   0B3AA000
Output Queue 1 Write Addr  0B3AAB58
Output Queue 1 Read Addr   0B3AAB58
Output Queue 1 Match       C0000C00
Output Queue 1 Mask        00003E00
Output Queue 2 Base Addr   0B3AC000
Output Queue 2 Write Addr  0B3AC4D0
Output Queue 2 Read Addr   0B3AC4D0
Output Queue 2 Match       C0000400
Output Queue 2 Mask        00003C00
Output Queue 3 Base Addr   0B3AE000
Output Queue 3 Write Addr  0B3AE360
Output Queue 3 Read Addr   0B3AE360
Output Queue 3 Match       C0000000
Output Queue 3 Mask        00000000
Discard Buffer Addr        0A1AC700
REFIM config               00000000
REFIM Max Packet Len       000000C1
```

Related Commands

Command	Description
show controllers fabricq drop	Displays information about packet drops.
show controllers fabricq errors	Displays information about errors.
show controllers fabricq frfab	Displays from fabric statistics.
show controllers fabricq output	Displays information about to fabric output service.
show controllers fabricq queue	Displays information about packet queues.
show controllers fabricq tofab	Displays to fabric statistics.

show controllers fabricq tofab

To display to fabric statistics associated with the fabric queue driver, use the **show controllers fabricq tofab** command in administration EXEC mode.

show controllers fabricq tofab [**detail**] [**location** *node-id*]

Syntax Description

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

Defaults

Information for all route processors (RPs) on the router is displayed

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers fabricq tofab** command to display to fabric statistics. Specifying a location displays information only if that location is an RP.

The **show controllers fabricq tofab** command is intended for use while performing debugging procedures.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers fabricq tofab** command for location 0/1/CPU0:

```
RP/0/0/CPU0:router(admin)# show controllers fabricq tofab location 0/1/CPU0

Location 0/1/0:

To Fabric Stats:
---------------
Slot   Tx-pkts    Tx-TH-pkts Tx-dropped Tx-DMA
```

```
Low Priority:
3       0           446         0           446
High Priority:
1       0           248         0           248
2       0           13696       0           13696
3       0           14347       0           14347
4       0           15889       0           15889
5       0           14351       0           14351
mcast   0           2182        0           2182

To Fabric Errors:
----------------
Failed sends because of no header bufs - 0
Failed sends because of no payload bufs - 0
SRAM parity errors - 0
DMA errors - 0
Fusilli Parity errors - 0
```

Table 35 describes the significant fields shown in the display.

Table 35 show controllers fabricq tofab Field Descriptions

Field	Description
Tx-pkts	Number of packets sent to that slot.
Tx-TH-pkts	Number of “think hard” packets sent to that slot.
Tx-dropped	Number of dropped packets sent to that slot.
Tx-DMA	Number of direct memory accesses (DMA) to send the packet to that slot.

Related Commands

Command	Description
show controllers fabricq drop	Displays information about packet drops.
show controllers fabricq errors	Displays information about errors.
show controllers fabricq frfab	Displays from fabric statistics.
show controllers fabricq output	Displays information about to fabric output service.
show controllers fabricq queue	Displays information about packet queues.
show controllers fabricq registers	Displays information about chopper and assembler registers.

show controllers ingressq statistics

To display statistical information for the ingress queue application-specific integrated circuit (ASIC), use the **show controllers ingressq statistics** command in EXEC mode.

show controllers ingressq statistics [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies statistical ingress queue information for the designated node. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

Information for all locations is displayed

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show controllers ingressq statistics** command to track the number of unicast and multicast packets that are sent to the fabric from the specified node.

Task ID

Task ID	Operations
root-system	read, write

Examples

The following is sample output from the **show controllers ingressq statistics** command that displays packet and cell flow statistics through an ingress queue on node 0/1/CPU0:

```
RP/0/RP0/CPU0:router# show controllers ingressq statistics location 0/1/CPU0

Ingressq Rx Statistics.
------------------------------------------------------------------------
rx pkts : 278770 ( 44473109 bytes)
rx pkts from cpu : 263548 ( 36239661 bytes)
rx control pkts from cpu : 263548 ( 36239661 bytes)
rx data pkts from cpu : 0 ( 0 bytes)
```

```
Ingressq Tx Statistics.
------------------------------------------------------------------------
tx pkts : 278768 ( 48162158 bytes)
tx pkts to cpu : 15222 ( 8233448 bytes)
tx control pkts to cpu : 15222 ( 8233448 bytes)
tx data pkts to cpu : 0 ( 0 bytes)
tx pkts shaped : 263546 ( 39928710 bytes)
tx cells to fabric : 529664
Ingressq Drops.
------------------------------------------------------------------------
length error drops : 0
crc error drops : 0
OOR error drops : 0
backpressure discard drops : 0
tail drops : 0
cell drops : 2
```

Table 36 describes the significant fields shown in the display.

Table 36 show controllers ingressq statistics Field Descriptions

Field	Description
Ingressq Rx Statistics	Receive side statistics, which include Rx packets from metro and Rx packets from the CPU.
Ingressq Tx Statistics	Transmit side statistics, which include Tx packets sent out and the number of cells sent to the fabric.
Ingressq Drops	Count of various packet and cell drops within the ingress queue.

show controllers switch

To display the control Ethernet connection in the route processor (RP), use the **show controllers switch** command in administration EXEC mode.

show controllers switch *instance* {**ports** | **statistics**} **location** *node-id*

Syntax Description

instance	Two intra-rack switches are present on the RP/SC. The instance is from 0 to 1 that identifies the specific switch.
ports	Displays the port states as up, down, or err-disabled. The **ports** keyword displays control Ethernet switches, port states, statistics, and Spanning Tree Protocol (STP) information.
statistics	Displays switch port statistics.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **show controllers switch** command is used to specify intra-rack switches.

Task ID

Task ID	Operations
fabric	read
root-system	read

Examples

The following sample output shows how to verify the control Ethernet connection on the RP:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch 0 ports location 0/rp0/Cpu0

RP/0/RP0/CPU0:router(admin)#show controllers switch 0 ports location 0/rp0/CPu0
FE Port  0 : Up, STP State : FORWARDING (Connects to - 0/RP0)
 FE Port  1 : Up, STP State : FORWARDING (Connects to - 0/RP1)
 FE Port  2 : Down                       (Connects to - 0/FC0)
```

```
 FE Port  3 : Down                       (Connects to - 0/FC1)
 FE Port  4 : Down                       (Connects to - 0/AM0)
 FE Port  5 : Down                       (Connects to - 0/AM1)
 FE Port  6 : Down                       (Connects to - )
 FE Port  7 : Down                       (Connects to - )
 FE Port  8 : Down                       (Connects to - 0/SM0)
 FE Port  9 : Up, STP State : FORWARDING (Connects to - 0/SM1)
 FE Port 10 : Down                       (Connects to - 0/SM2)
 FE Port 11 : Down                       (Connects to - 0/SM3)
 FE Port 12 : Down                       (Connects to - 0/SM4)
 FE Port 13 : Down                       (Connects to - 0/SM5)
 FE Port 14 : Down                       (Connects to - 0/SM6)
 FE Port 15 : Down                       (Connects to - 0/SM7)
 GE Port  0 : Up, STP State : FORWARDING (Connects to - GE_0)
 GE Port  1 : Up, STP State : FORWARDING (Connects to - Switch 1)
```

The following sample output shows how to verify the control Ethernet connection on intra-rack switches for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch 0 ports location f0/sc0/Cpu0

FE Port  0 : Up, STP State : FORWARDING (Connects to - F0/SC0)
 FE Port  1 : Up, STP State : FORWARDING (Connects to - F0/SC1)
 FE Port  2 : Down                       (Connects to - F0/FC0)
 FE Port  3 : Down                       (Connects to - F0/FC1)
 FE Port  4 : Down                       (Connects to - F0/AM0)
 FE Port  5 : Down                       (Connects to - F0/AM1)
 FE Port  6 : Down                       (Connects to - F0/LM0)
 FE Port  7 : Down                       (Connects to - F0/LM1)
 FE Port  8 : Down                       (Connects to - F0/SM0)
 FE Port  9 : Down                       (Connects to - F0/SM1)
 FE Port 10 : Down                       (Connects to - F0/SM2)
 FE Port 11 : Down                       (Connects to - F0/SM3)
 FE Port 12 : Down                       (Connects to - F0/SM4)
 FE Port 13 : Down                       (Connects to - F0/SM5)
 FE Port 14 : Down                       (Connects to - F0/SM6)
 FE Port 15 : Down                       (Connects to - F0/SM7)
 GE Port  0 : Up, STP State : FORWARDING (Connects to - GE_0)
 GE Port  1 : Up, STP State : FORWARDING (Connects to - Switch 1)
```

Table 37 describes the significant fields shown in the display.

Table 37 show controllers switch Field Descriptions

Field	Description
FE Port	Fast Ethernet (FE) port.
STP State	Spanning Tree Protocol (STP) state of the port.
GE Port	Gigabit Ethernet (GE) port.

show controllers switch inter-rack ports

To display the inter-rack switch port states for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card, use the **show controllers switch inter-rack ports** command in administration EXEC mode.

show controllers switch inter-rack ports {**all**} {**location** *node-id*}

Syntax Description

all	Displays all the ports for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The port numbers, which range from 0 to 21, correspond to those on the front panel.

Note The **show controllers switch inter-rack ports** command is applied only to the 22-port SCGE. When you use the **all** and **location** keywords, all other supported cards are displayed including the route processor (RP).

Task ID

Task ID	Operations
fabric	read
root-system	read
admin	read

Examples

The following example shows sample output of the control Ethernet connection for inter-rack switches on the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch inter-rack ports all location
f0/sc0/CPU0

GE_Port_0 : Down
 GE_Port_1 : Down
 …
 …
 GE_Port_13 : Up
 GE_Port_14 : Up
 …
 …
 GE_Port_20 : Down
 GE_Port_21 : Down
 To_5618  :  Up
 Stacking : Up
```

show controllers switch inter-rack statistics

To display the statistics on the ports of the inter-rack switches for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card, use the **show controllers switch inter-rack statistics** command in administration EXEC mode.

show controllers switch inter-rack statistics {*interface number* | **all**} {**brief** | **detail**} **location** *node-id*

Syntax Description

interface number	Number for the Gigabit Ethernet interface. The range is from 0 to 21. The interface number identifies the specific front panel GE port on the 22-port SCGE.
all	Displays statistics of all ports for inter-rack switches.
brief	Displays transmit and receive statistics on the GE ports.
detail	Displays MIB like detailed switch port statistics that include transmit, receive, and error packet counts.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read
root-system	read
admin	read

Examples

The following example shows sample output on the port statistics counters for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch inter-rack statistics all brief
location f0/sc0/cpu0

Port          Tx Frames   Tx Errors   Rx Frames   Rx Errors
------------------------------------------------------------
GE_Port_0 :      374423           0     1776848           0
GE_Port_1 :      251232           0      170742           0
GE_Port_2 :      857923           0      414409           0
GE_Port_3 :      239437           0      152772           0
GE_Port_4 :      166166           0       82031           0
GE_Port_5 :           0           0           0           0
GE_Port_6 :           0           0           0           0
…
…
GE_Port_16 :          0           0           0           0
GE_Port_17 :          0           0           0           0
GE_Port_18 :          0           0           0           0
GE_Port_19 :          0           0           0           0
GE_Port_20 :          0           0           0           0
GE_Port_21 :          0           0           0           0
To_5618    :     522072           0      293720           0
Stacking   :       1482           0           0           0
Stacking   :          0           0           0           0
```

The following example shows sample output for the detailed statistics per port for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch inter-rack statistics 0 detail
location f0/sc0/cpu0

GE_Port_0

 Rx fragment            :          0    Tx fragment            :          0
 Rx unicast             :    1642337    Tx unicast             :     379927
 Rx multicast           :      51619    Tx multicast           :     205950
 Rx broadcast           :      91436    Tx broadcast           :     150357
 Rx FCS error           :          0    Tx FCS error           :          0
 Rx Pause               :          0    Tx Pause               :          0
 Rx Undersize           :          0    Tx Oversize            :          0
 Rx FFP drop            :          0    Tx CFI drop            :          0
 Rx Control frame       :          0    Tx Cell error          :          0
                                        Tx Jabber              :          0
                                        Tx excessive collision:          0
                                        Tx tagged vlan         :          0
                                        Tx abort               :          0
```

Table 38 describes the significant fields shown in the display.

Table 38 show controllers switch inter-rack statistics Field Descriptions

Field	Description
Port	Logical port number. The range is from 0 to 21 and corresponds to the ports on the front panel.
Tx Frames	Transmit frame counter.
Tx Errors	Transmit cell error counter.
Rx Frames	Receive frame counter.
Rx Errors	Receive code error counter.
Rx fragment	Receive fragment counter.

Table 38 show controllers switch inter-rack statistics Field Descriptions (continued)

Field	Description
Rx unicast	Receive unicast frame counter.
Rx multicast	Receive multicast frame counter.
Rx broadcast	Receive broadcast frame counter.
Rx FCS error	Receive FCS error frame counter.
Rx Pause	Receive pause frame counter.
Rx Undersize	Receive undersize frame counter.
Rx FFP drop	Packets dropped by FFP counter.
Rx Control frame	Receive control frame counter.
Tx fragment	Transmit fragment counter.
Tx unicast	Transmit unicast frame counter.
Tx multicast	Transmit multicast frame counter
Tx broadcast	Transmit broadcast frame counter
Tx FCS error	Transmit FCS error frame counter
Tx Pause	Transmit pause control frame counter.
Tx Oversize	Transmit oversize packet counter.
Tx CFI drop	Number of CFI packets dropped for this port.
Tx Cell error	Transmit cell error counter.
Tx Jabber	Transmit jabber counter.
Tx excessive collision	Transmit excessive collision frame counter.
Tx tagged vlan	Transmit tagged VLAN packet counter.
Tx abort	Transmit aborted packet counter.

show controllers switch inter-rack stp

To display information for the spanning tree protocol (STP) of inter-rack switches for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card, use the **show controllers switch inter-rack stp** command in administration EXEC mode.

show controllers switch inter-rack stp {**location** *node-id* | **ports** *interface number* {**location** *node-id*} | **region** {**location** *node-id*}}

Syntax Description

location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.
ports *interface number*	Displays the number for the Gigabit Ethernet interface. The range is from 0 to 21. The interface number that identifies the specific front panel GE port on the 22-port SCGE.
region	Displays MST region configuration information that includes MST revision number, instance to VLAN mapping, and MST region name.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read
root-system	read
admin	read

Examples

The following sample output displays information for STP:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch inter-rack stp location f0/sc0/cpu0

##### MST   0 vlans mapped:   2-4094
Bridge        address 5246.48f0.20ff  priority      32768 (32768 sysid 0)
Root          this switch for the CIST
```

```
Operational   hello time  1, forward delay  6, max age  8, txholdcount  6
Configured    hello time  1, forward delay  6, max age  8, max hops     4

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------

##### MST   1 vlans mapped:   1
Bridge        address 5246.48f0.20ff  priority      32769 (32768 sysid 1)
Root          this switch for MST1

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------
           GE_13 Desg  FWD    20000 128.  14 P2p
           GE_14 Desg  FWD    20000 128.  15 P2p
           GE_15 Desg  FWD    20000 128.  16 P2p
           GE_17 Desg  FWD    20000 128.  18 P2p
           GE_22 Desg  FWD    20000 128.  23 P2p
```

Table 39 describes the significant fields shown in the display.

Table 39 show controllers switch inter-rack stp Field Descriptions

Field	Description
MST	Multiple Spanning Tree (MST).
vlans mapped	Number of VLANs mapped.
Bridge	Part of the bridge identifier and is taken as the most significant part of the bridge ID comparisons.
Root	MAC address of Root and Priority.
Operational	Operational STP parameters.
Configured	STP configured parameters.
Interface	Interface running STP.
Role	MSTP role that includes designated, alternate, root, and backup.
Sts	Spanning tree state (STS) that includes forwarding, blocking, and learning.
Cost	Cost associated with the port.
Prio.	Priority associated with the port.

show controllers switch inter-rack udld

To display the inter-rack connection for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card, use the **show controllers switch inter-rack udld** command in administration EXEC mode.

show controllers switch inter-rack udld {*interface number* | **all**} **location** *node-id*

Syntax Description

interface number	Number for the Gigabit Ethernet interface. The range is from 0 to 21. The interface number identifies the specific front panel GE port on the 22-port SCGE.
all	Displays statistics of all ports for inter-rack switches.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read
root-system	read
admin	read

Examples

The following sample output shows who is connected to the inter-rack on the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch inter-rack udld all location
f0/sc0/cpu0

Interface Gig port# 13
---
…
Current bidirectional state: Bidirectional
Current operational state: Advertisement - Single neighbor detected
```

```
…
…
    Entry 1
    ---
    …
    Device name: 0_RP0_CPU0_Switch
    Port ID: GE_Port_0
    Neighbor echo 1 device: nodeF0_SC0_CPU0
    Neighbor echo 1 port: Gig port# 13
```

Table 40 describes the significant fields shown in the display.

Table 40 show controllers switch inter-rack udld Field Descriptions

Field	Description
Interface Gig port	Interface number that identifies the specific front panel GE port on the 22-port SCGE.
Current bidirectional state	Current bidirectional state of the port is undetermined, bidirectional, or unidirectional.
Current operational state	Port operational status that includes up or error-disabled.
Device name	Connected device or neighbor.
Port ID	Port ID.
Neighbor echo 1 device	Device ID of neighbor.
Neighbor echo 1 port	Port ID of neighbor.

show controllers switch stp location

To display the STP information for intra-rack switches, use the **show controllers switch stp location** command in administration EXEC mode.

show controllers switch stp location *node-id*

Syntax Description

node-id	The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The spanning tree protocol (STP) runs on links between RPs and SCs.

Task ID

Task ID	Operations
fabric	read
root-system	read

Examples

The following sample output shows how to verify information for the spanning tree for location 0/rp0/CPU0 on the RP:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch stp location 0/rp0/Cpu0

##### MST   0 vlans mapped:   2-4094
Bridge        address 0011.93ef.e392  priority      36864 (36864 sysid 0)
Root          address 5246.48f0.20ff  priority      32768 (32768 sysid 0)
              port       GE_Port_0    path cost             0
Regional Root address 5246.48f0.20ff  priority      32768 (32768 sysid 0)
                                      internal cost     20000 rem hops  3
Operational   hello time  1, forward delay  6, max age  8, txholdcount  6
Configured    hello time  1, forward delay  6, max age  8, max hops     4

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- --------------------------

##### MST   1 vlans mapped:   1
```

```
Bridge        address 0011.93ef.e392  priority      36865 (36864 sysid 1)
Root          address 5246.48f0.20ff  priority      32769 (32768 sysid 1)
              port       GE_Port_0    cost              20000 rem hops  3

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- ----------------------------
       FE_Port_1 Desg  FWD   200000 128.   2 P2p
       GE_Port_0 Root  FWD    20000 128.  49 P2p
```

The following sample output shows how to verify the connection on intra-rack switches for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch stp location f0/sc0/CPU0

##### MST   0 vlans mapped:   2-4094
Bridge        address 0800.453e.469a  priority      36864 (36864 sysid 0)
Root          address 5246.48f0.20ff  priority      32768 (32768 sysid 0)
              port       GE_Port_0    path cost            0
Regional Root address 5246.48f0.20ff  priority      32768 (32768 sysid 0)
                                      internal cost     20000 rem hops  3
Operational   hello time  1, forward delay  6, max age  8, txholdcount  6
Configured    hello time  1, forward delay  6, max age  8, max hops     4

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- ----------------------------

##### MST   1 vlans mapped:   1
Bridge        address 0800.453e.469a  priority      36865 (36864 sysid 1)
Root          address 5246.48f0.20ff  priority      32769 (32768 sysid 1)
              port       GE_Port_0    cost              20000 rem hops  3

Interface        Role Sts Cost      Prio.Nbr Type
---------------- ---- --- --------- -------- ----------------------------
       FE_Port_1 Desg  FWD   200000 128.   2 P2p
       GE_Port_0 Root  FWD    20000 128.  49 P2p
```

Table 41 describes the significant fields shown in the display.

Table 41 show controllers switch stp location Field Descriptions

Field	Description
MST	Multiple Spanning Tree Protocol (MST).
vlans mapped	VLANs mapped to MST instance.
Bridge	MAC address of Bridge and Priority.
Root	MAC address of Root and Priority.
Regional Root	Root of the MST region.
Operational	Operational STP parameters.
Configured	STP configured parameters.
Interface	Interface running STP.
Role	MSTP role that includes designated, alternate, root, and backup.
Sts	Spanning tree state (STS) that includes forwarding, blocking, and learning.

Table 41 show controllers switch stp location Field Descriptions (continued)

Field	Description
Cost	Cost of path to root.
Prio.Nbr Type	Priority of switch port.

show controllers switch stp ports

To display the Spanning Tree Protocol (STP) information for intra-rack switches, use the **show controllers switch stp ports** command in administration EXEC mode.

show controllers switch stp ports {**FE** {**0** | **1**} | **GE** {**0** | **1**}} **location** *node-id*

Syntax Description

FE {**0** | **1**}	Displays information for the Fast Ethernet (FE) port. Choose one of the following values: • 0—FE port number 0. • 1—FE port number 1.
GE {**0** | **1**}	Displays information for the Gigabit Ethernet (GE) port. Choose one of the following values: • 0—GE port number 0. • 1—GE port number 1.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Note The port numbers must match the port numbers that are displayed on the front panel of the 22-port SCGE card.

Task ID

Task ID	Operations
fabric	read
root-system	read

Examples

The following example shows the remote-end point that is connected to the GE link even if the remote endpoint is on a different chassis:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch stp ports FE 1 location 0/rp0/CPU0

FE_Port_1 of MST1 is designated forwarding
Edge port:             no        (default) port guard :    none     (default)
Link type: point-to-point           (auto) bpdu filter: disable     (default)
Boundary : internal                        bpdu guard : disable     (default)
Bpdus (MRecords) sent 9190, received 3

Instance Role Sts Cost      Prio.Nbr Vlans mapped
-------- ---- --- --------- -------- --------------------------------
       1 Desg  FWD   200000 128.   2 1
```

Table 42 describes the significant fields shown in the display.

Table 42 show controllers switch stp ports Field Descriptions

Field	Description
GE Port	Gigabit Ethernet (GE) port.
STP State	Spanning Tree Protocol (STP) state of the port

show controllers switch stp region

To display information for the spanning tree for the Multiple Spanning Tree (MST) region, use the **show controllers switch stp region** command in administration EXEC mode.

show controllers switch stp region location *node-id*

Syntax Description

location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
fabric	read
root-system	read

Examples

The following example displays sample output from the **show controllers switch stp region** command:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch stp region location 0/rp0/CPU0

Name      [STP_1]
Revision      1
Instances configured 2

--------  ------------------------------------------------------------------------
   0      2-4094
   1      1
--------------------------------------------------------------------------------
```

show controllers switch udld location

To display the Unidirectional Link Detection (UDLD) information for intra-rack switches., use the **show controllers switch udld location** command in administration EXEC mode.

show controllers switch udld location*node-id*

Syntax Description		
	node-id	The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults No default behavior or values

Command Modes Administration EXEC

Command History	Release	Modification
	Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

UDLD runs on links between RPs and SCs.

Task ID	Task ID	Operations
	fabric	read
	root-system	read

Examples The following sample output shows who is connected on the RP:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch udld location 0/rp0/CPU0

Interface GE_Port_0
…
…
Current bidirectional state: Bidirectional
Current operational state: Advertisement - Single neighbor detected
…
    Entry 1
    ---
    Device name: nodeF0_SC0_CPU0
    Port ID: Gig port# 13
    Neighbor echo 1 device: 0_RP0_CPU0_Switch
    Neighbor echo 1 port: GE_Port_0
```

The following sample output shows an intra-rack connection for the 22-port Shelf Controller Gigabit Ethernet (22-port SCGE) card:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch udld location f0/sc0/CPU0

Interface GE_Port_0
---
…
Current bidirectional state: Bidirectional
Current operational state: Advertisement - Single neighbor detected
…

    Entry 1
    ---
    …
    Current neighbor state: Bidirectional
    Device name: nodeF0_SC0_CPU0
    Port ID: Gig port# 22
    Neighbor echo 1 device: F0_SC0_CPU0_Switch
    Neighbor echo 1 port: GE_Port_0
```

Table 43 describes the significant fields shown in the display.

Table 43 show controllers switch udld location Field Descriptions

Field	Description
Current bidirectional state	Current bidirectional state of the port is undetermined, bidirectional, or unidirectional.
Current operational state	Port operational status that includes up or error-disabled.
Current neighbor state	Neighbor state states that the link state is observed from the neighbor (undetermined, bidirectional, or unidirectional).
Device name	Connected device or neighbor.
Port ID	Port ID.
Neighbor echo 1 device	Device ID of neighbor.
Neighbor echo 1 port	Port ID of neighbor.

show controllers switch udld ports

To display the information for Unidirectional Link Detection (UDLD) for a specified location, use the **show controllers switch udld ports** command in administration EXEC mode.

show controllers switch udld ports {**FE** {**0** | **1**} | **GE** {**0** | **1**}} **location** *node-id*

Syntax Description

FE {**0** | **1**}	Displays information for the Fast Ethernet (FE) port. Choose one of the following values: • 0—FE port number 0. • 1—FE port number 1.
GE {**0** | **1**}	Displays information for the Gigabit Ethernet (GE) port. Choose one of the following values: • 0—GE port number 0. • 1—GE port number 1.
location *node-id*	Specifies the specific RP/SC in the system in which the switches are present. This applies to location descriptions for the *node-id* argument as entered in the *rack/slot/module* notation.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.4.1	This command was introduced on the Cisco CRS-1.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

UDLD runs on links between RPs and SCs.

Task ID

Task ID	Operations
fabric	read
root-system	read

Examples

The following example displays sample output from the **show controllers switch udld ports** command:

```
RP/0/RP0/CPU0:router(admin)# show controllers switch udld ports FE 1 location 0/rp0/CPU0
```

```
Interface FE_PORT_1
---
Port enable administrative configuration setting: Enabled
Port enable operational state: Enabled
Current bidirectional state: Bidirectional
Current operational state: Advertisement - Single neighbor detected
Message interval: 7
Time out interval: 5

    Entry 1
    ---
    Expiration time: 16
    Device ID: 1
    Current neighbor state: Bidirectional
    Device name: 0_RP1_CPU0_Switch
    Port ID: FE_PORT_0
    Neighbor echo 1 device: 0_RP0_CPU0_Switch
    Neighbor echo 1 port: FE_PORT_1

    Message interval: 7
    Time out interval: 5
    CDP Device name: BCM_SWITCH
```