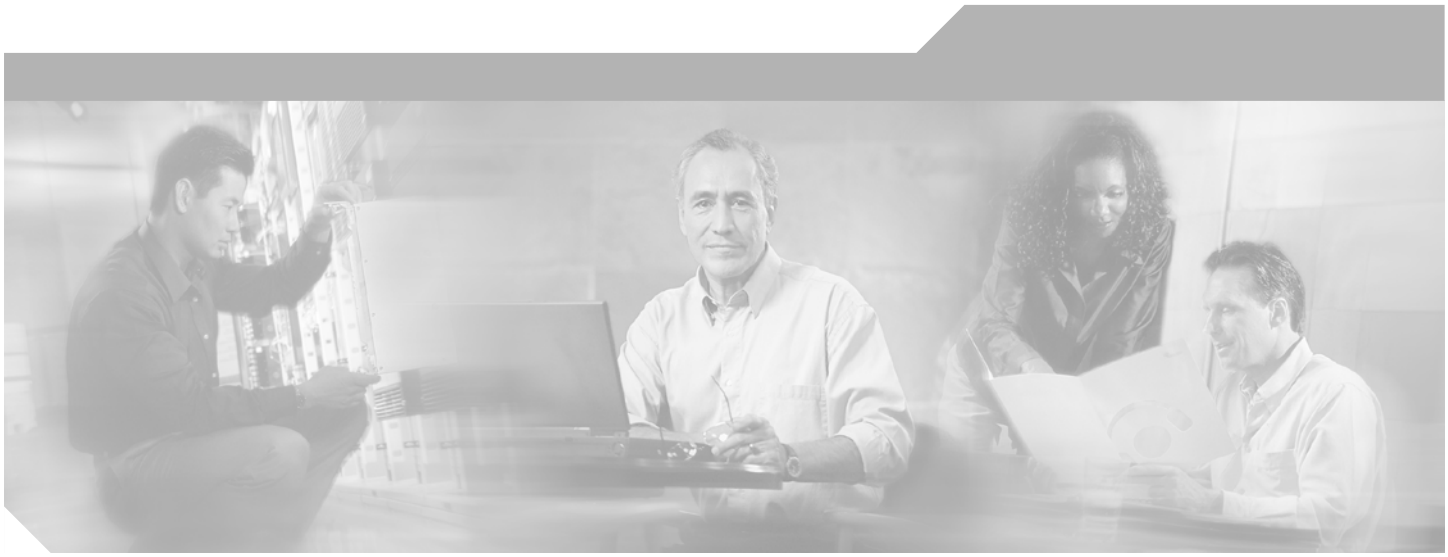

Cisco IOS XR Interface and Hardware Component Debug Command Reference

Cisco IOS XR Software Release 3.4

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Cisco IOS XR Interface and Hardware Component Debug Command Reference
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Preface

This preface contains high-level information about Cisco documentation. It includes the following sections:

- Changes to This Document, page iii
- Obtaining Documentation, page iv
- Documentation Feedback, page iv
- Cisco Product Security Overview, page v
- Product Alerts and Field Notices, page vi
- Obtaining Technical Assistance, page vi
- Obtaining Additional Publications and Information, page viii

Changes to This Document

Table 1 lists the technical changes made to this document since it was first printed.

Table 1 Changes to This Document

Revision	Date	Change Summary
OL-11925-01	November 2006	Initial draft of this document

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. This section explains the product documentation resources that Cisco offers.

Cisco.com

You can access the most current Cisco documentation at this URL:

http://www.cisco.com/techsupport

You can access the Cisco website at this URL:

http://www.cisco.com

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

The Product Documentation DVD is a library of technical product documentation on a portable medium. The DVD enables you to access installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the HTML documentation and some of the PDF files found on the Cisco website at this URL:

http://www.cisco.com/univercd/home/home.htm

The Product Documentation DVD is created and released regularly. DVDs are available singly or by subscription. Registered Cisco.com users can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

Ordering Documentation

You must be a registered Cisco.com user to access Cisco Marketplace. Registered users may order Cisco documentation at the Product Documentation Store at this URL:

http://www.cisco.com/go/marketplace/docstore

If you do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Documentation Feedback

You can provide feedback about Cisco technical documentation on the Cisco Technical Support & Documentation site area by entering your comments in the feedback form available in every online document.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to do the following:

- Report security vulnerabilities in Cisco products
- Obtain assistance with security incidents that involve Cisco products
- Register to receive security information from Cisco

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

http://www.cisco.com/go/psirt

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For emergencies only—security-alert@cisco.com

  An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.
- For nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

Tip We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.*x* through 9.*x*.

Never use a revoked encryption key or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT to find other means of encrypting the data before sending any sensitive material.

Product Alerts and Field Notices

Modifications to or updates about Cisco products are announced in Cisco Product Alerts and Cisco Field Notices. You can receive Cisco Product Alerts and Cisco Field Notices by using the Product Alert Tool on Cisco.com. This tool enables you to create a profile and choose those products for which you want to receive information.

To access the Product Alert Tool, you must be a registered Cisco.com user. (To register as a Cisco.com user, go to this URL: http://tools.cisco.com/RPF/register/register.do) Registered users can access the tool at this URL: http://tools.cisco.com/Support/PAT/do/ViewMyProfiles.do?local=en

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

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http://www.cisco.com/techsupport

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

http://tools.cisco.com/RPF/register/register.do

Note Use the **Cisco Product Identification Tool** to locate your product serial number before submitting a request for service online or by phone. You can access this tool from the Cisco Technical Support & Documentation website by clicking the **Tools & Resources** link, clicking the **All Tools (A-Z)** tab, and then choosing **Cisco Product Identification Tool** from the alphabetical list. This tool offers three search options: by product ID or model name; by tree view; or, for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Tip Displaying and Searching on Cisco.com

If you suspect that the browser is not refreshing a web page, force the browser to update the web page by holding down the Ctrl key while pressing F5.

To find technical information, narrow your search to look in technical documentation, not the entire Cisco.com website. On the Cisco.com home page, click the **Advanced Search** link under the Search box

and then click the **Technical Support & Documentation** radio button.

To provide feedback about the Cisco.com website or a particular technical document, click **Contacts & Feedback** at the top of any Cisco.com web page.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

http://www.cisco.com/techsupport/servicerequest

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411
Australia: 1 800 805 227
EMEA: +32 2 704 55 55
USA: 1 800 553 2447

For a complete list of Cisco TAC contacts, go to this URL:

http://www.cisco.com/techsupport/contacts

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is “down” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The Cisco Online Subscription Center is the website where you can sign up for a variety of Cisco e-mail newsletters and other communications. Create a profile and then select the subscriptions that you would like to receive. To visit the Cisco Online Subscription Center, go to this URL:

  http://www.cisco.com/offer/subscribe

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco channel product offerings. To order and find out more about the *Cisco Product Quick Reference Guide*, go to this URL:

  http://www.cisco.com/go/guide

- Cisco Marketplace provides a variety of Cisco books, reference guides, documentation, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

  http://www.cisco.com/go/marketplace/

- Cisco Press publishes a wide range of general networking, training, and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

  http://www.ciscopress.com

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the *Internet Protocol Journal* at this URL:

  http://www.cisco.com/ipj

- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

  http://www.cisco.com/en/US/products/index.html

- Networking Professionals Connection is an interactive website where networking professionals share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

  http://www.cisco.com/discuss/networking

- “What’s New in Cisco Documentation” is an online publication that provides information about the latest documentation releases for Cisco products. Updated monthly, this online publication is organized by product category to direct you quickly to the documentation for your products. You can view the latest release of “What’s New in Cisco Documentation” at this URL:

  http://www.cisco.com/univercd/cc/td/doc/abtunicd/136957.htm

- World-class networking training is available from Cisco. You can view current offerings at this URL:

  http://www.cisco.com/en/US/learning/index.html

Hardware Redundancy and Node Administration Debug Commands on Cisco IOS XR Software

This chapter describes the administrative platform commands used to debug the hardware redundancy, power, and administrative status of the nodes on a router running Cisco IOS XR software.

debug oird

To debug events related to the OIR daemon (OIRD), use the **debug oird** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug oird {**all** | **event** | **message**}

no debug oird {**all** | **event** | **message**}

Syntax Description

all	Specifies the debug information for both the **event** and **message** keywords.
event	Specifies the debug information for OIRD event interrupts.
message	Specifies the debug information for OIR event triggered messages.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

- A message may consistently appear on the console log. You must have specific hardware knowledge of the Cisco CRS-1 to interpret the debug information.

Task ID

Task ID	Operations
system	read

Examples

The following example shows sample output with the **debug oird** command:

```
RP/0/RP0/CPU0:router# debug oird all
```

```
RP/0/RP0/CPU0:router# oir_daemon[247]:  Card Mask = 400000000000000, Card_present =
fffdc000fffffbfd, Card_intr = fbfffdfffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIROUT : OIR: Node 0/10/SP removed
RP/0/RP0/CPU0:router# oir_daemon[247]:  Card Mask = 400000000000000, Card_present =
fbfdc000fffffbfd, Card_intr = fbfffdfffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIRIN : OIR: Node 0/10/SP inserted
RP/0/RP0/CPU0:router# oir_daemon[247]:  Card Mask = 400000000000000, Card_present =
fffdc000fffffbfd, Card_intr = fbfffdfffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIROUT : OIR: Node 0/10/SP removed
RP/0/RP0/CPU0:router# oir_daemon[247]:  Card Mask = 400000000000000, Card_present =
fbfdc000fffffbfd, Card_intr = fbfffdfffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIRIN : OIR: Node 0/10/SP inserted
```

debug screddrv

To debug the screddrv message, use the **debug screddrv** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug screddrv {**all** | **lwm** | **message** | **state**}

no debug screddrv {**all** | **lwm** | **message** | **state**}

Syntax Description

all	(Optional) Enables debug for **lwm**, **message**, and **state** keywords.
lwm	(Optional) Specifies debug information for **lwm**[1] keyword.
message	(Optional) Enables debug for all message exchanges.
state	(Optional) Enables debug for redundancy driver mastership state information.

1. LWM = light weight message

Defaults

The **debug screddrv** command is off by default.

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*.

- Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
system	read

Examples

The following example shows how to enable debugging information with the **debug screddrv** command:

```
RP/0/RP0/CPU0:router# debug screddrv state
RP/0/RP0/CPU0:router#
```

debug socket

To debug the socket library, use the **debug socket** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug socket{**api** | **error** | **events** | **io**} [**location** *node-id*]

no debug socket {**api** | **error** | **events** | **io**} [**location** *node-id*]

Syntax Description

api	Enables the socket debug for internal application programming interfaces (APIs).
error	Enables the socket debug for errors.
events	Enables the socket debug for events.
io	Enables the socket debug for the input/output (I/O) path.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The **debug socket** command is off by default.

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	This command was 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*.

- Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
transport	read

Examples

The following example shows sample output with the **debug socke**t command:

```
RP/0/RP0/CPU0:router# debug socket udp api location 0/0/CPU0

RP/0/RP0/CPU0:Aug 16 20:58:33.983 : Entering: io_open
RP/0/RP0/CPU0:Aug 16 20:58:33.986 : Entering: io_open_create
RP/0/RP0/CPU0:Aug 16 20:58:33.986 : Entering: socreate (domain 2, type 2, proto 0, app_jid
0, xipcq_number 0
RP/0/RP0/CPU0:Aug 16 20:58:33.986 : Entering: socket_create
RP/0/RP0/CPU0:Aug 16 20:58:33.986 :  Entering: socket_create_mutex (so 0x8067370,
protocol: 0)
RP/0/RP0/CPU0:Aug 16 20:58:33.987 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:33.987 :  Entering: sockbuf_packet_init
RP/0/RP0/CPU0:Aug 16 20:58:33.987 :  Entering: sockbuf_packet_init
RP/0/RP0/CPU0:Aug 16 20:58:33.987 :  Entering: sbe_reserve_packet (maxpak 50)
RP/0/RP0/CPU0:Aug 16 20:58:33.988 :  Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:33.989 :  io_devctl: io_devctl context 8065c50 msg 805d89c ocb
8067370 coid 16
RP/0/RP0/CPU0:Aug 16 20:58:33.989 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:33.989 :  io_devctl: udp -- DCMD_ACME_SOCKET_SEND
RP/0/RP0/CPU0:Aug 16 20:58:33.990 :  Entering: sosend (so 0x8067370, datalen 40)
RP/0/RP0/CPU0:Aug 16 20:58:33.990 :  Entering: sbe_uiomove_packet (elem 0xda3181ff,
uio_elem_offset 0, uio_datalen 40)
RP/0/RP0/CPU0:Aug 16 20:58:33.990 :  Entering: sbe_num_iov_packet (offset 0, len 40
RP/0/RP0/CPU0:Aug 16 20:58:33.991 :  Entering: sbe_set_iov_packet (pak 0xda3181ff, offset
0, len 40, numiovs 1
RP/0/RP0/CPU0:Aug 16 20:58:34.009 :  Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.010 :  Entering: io_notify (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.010 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.011 :  Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.035 :  Entering: sbe_set_name_packet (elem 0xda3181ff, name
0x8057174, len 16)
RP/0/RP0/CPU0:Aug 16 20:58:34.038 :  Entering: sbappendaddr_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.040 :  Entering: sbe_set_control_fsv (pak 0xda3181ff,
control_data 0x7de7c68)
RP/0/RP0/CPU0:Aug 16 20:58:34.041 :  Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.042 :  io_devctl: io_devctl context 8065c50 msg 805e0c4 ocb
8067370 coid 16
RP/0/RP0/CPU0:Aug 16 20:58:34.042 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.042 :  Entering: socket_read_wakeup (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.043 :  io_devctl: udp -- DCMD_ACME_SOCKET_RECEIVE
RP/0/RP0/CPU0:Aug 16 20:58:34.043 :  Entering: soreceive (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.043 :  Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7dc6c00)
RP/0/RP0/CPU0:Aug 16 20:58:34.044 :  Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7dc6c00)

Type escape sequence to abort.
Tracing the route to 171.71.136.54
RP/0/RP0/CPU0:Aug 16 20:58:34.044 :  Entering: sbe_size_packet (pak 0xda3181ff)

RP/0/RP0/CPU0:Aug 16 20:58:34.044 :  Entering: sbe_uiomove_packet (elem 0xda3181ff,
uio_elem_offset 0, uio_datalen 100)
RP/0/RP0/CPU0:Aug 16 20:58:34.044 :  Entering: sbe_num_iov_packet (offset 0, len 100
RP/0/RP0/CPU0:Aug 16 20:58:34.045 :  Entering: sbe_set_iov_packet (pak 0xda3181ff, offset
0, len 100, numiovs 1
 1  15lab-vlan526-hsrp.cisco.com (172.19.72.129) 15 msec RP/0/RP0/CPU0:Aug 16 20:58:34.045
:  Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.045 :  Entering: sbe_get_name_packet (pak 0xda3181ff)
 10 msec RP/0/RP0/CPU0:Aug 16 20:58:34.046 :  Entering: sbe_get_control_fsv (pak
0xda3181ff, control_data 0x7dc6bb0)
RP/0/RP0/CPU0:Aug 16 20:58:34.046 :  Entering: sounlock (so 0x8067370)
 10 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.047 :  Entering: io_close_ocb (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.049 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.070 :  Entering: soclose (so 0x8067370, finish 0)
```

```
 2  sjc15-00lab-gw1.cisco.com (172.24.114.33) 10 msec RP/0/RP0/CPU0:Aug 16 20:58:34.071 :
Entering: socantrcvmore (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.072 :  Entering: socket_read_wakeup (so 0x8067370)
 10 msec RP/0/RP0/CPU0:Aug 16 20:58:34.073 :  Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.156 :  Entering: sofree (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.156 :  Entering: sounlock (so 0x8067370)
 10 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.157 :  Entering: sofree (so 0x8067370)
 3  sjc5-lab4-gw1.cisco.com (172.24.114.89) 3 msec RP/0/RP0/CPU0:Aug 16 20:58:34.157 :
Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.157 :  Entering: socantrcvmore (so 0x8067370)
 11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.157 :  Entering: socket_read_wakeup (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.158 :  Entering: sbflush_packet
 9 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.158 :  Entering: socket_destroy (so 0x8067370)
 4  sjc5-sbb4-gw1.cisco.com (171.71.241.162) 5 msec RP/0/RP0/CPU0:Aug 16 20:58:34.158 :
Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.159 :  Entering: socket_destroy_mutex (tinfo 0x8039360,
mutex 0x804bf70)
 11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.492 :  Entering: io_open
 15 msec RP/0/RP0/CPU0:Aug 16 20:58:34.493 :  Entering: io_open_create

RP/0/RP0/CPU0:Aug 16 20:58:34.493 :  Entering: socreate (domain 2, type 2, proto 0,
app_jid 0, xipcq_number 0
 5  sjc17-dtc-gw2.cisco.com (171.71.241.81) 11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.494 :
Entering: socket_create
RP/0/RP0/CPU0:Aug 16 20:58:34.494 :  Entering: socket_create_mutex (so 0x8067370,
protocol: 0)
 10 msec RP/0/RP0/CPU0:Aug 16 20:58:34.494 :  Entering: solock (so 0x8067370)
 5 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.495 :  Entering: sockbuf_packet_init
RP/0/RP0/CPU0:Aug 16 20:58:34.495 :  Entering: sockbuf_packet_init
RP/0/RP0/CPU0:Aug 16 20:58:34.496 :  Entering: sbe_reserve_packet (maxpak 50)
 6  sjc15-00-gw2.cisco.com (171.71.240.182) 9 msec RP/0/RP0/CPU0:Aug 16 20:58:34.496 :
Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.497 :  io_devctl: io_devctl context 8065c50 msg 805e0c4 ocb
8067370 coid 16
 11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.498 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.498 :  io_devctl: udp -- DCMD_ACME_SOCKET_SEND
 10 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.498 :  Entering: sosend (so 0x8067370, datalen 40)
 7  rajkotia-u10.cisco.com (171.71.136.54) 8 msec RP/0/RP0/CPU0:Aug 16 20:58:34.499 :
Entering: sbe_uiomove_packet (elem 0xda3181ff, uio_elem_offset 0, uio_datalen 40)
RP/0/RP0/CPU0:Aug 16 20:58:34.500 :  Entering: sbe_num_iov_packet (offset 0, len 40
RP/0/RP0/CPU0:Aug 16 20:58:34.500 :  Entering: sbe_set_iov_packet (pak 0xda3181ff, offset
0, len 40, numiovs 1
RP/0/RP0/CPU0:Aug 16 20:58:34.504 :  Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.505 :  Entering: io_notify (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.506 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.507 :  Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.509 :  Entering: sbe_set_name_packet (elem 0xda3181ff, name
0x8057190, len 16)
RP/0/RP0/CPU0:Aug 16 20:58:34.510 :  Entering: sbappendaddr_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.511 :  Entering: sbe_set_control_fsv (pak 0xda3181ff,
control_data 0x7dc6c68)
RP/0/RP0/CPU0:Aug 16 20:58:34.511 :  Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.511 :  Entering: socket_read_wakeup (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.512 :  io_devctl: io_devctl context 8065c50 msg 805d89c ocb
8067370 coid 16
RP/0/RP0/CPU0:Aug 16 20:58:34.513 :  Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.513 :  io_devctl: udp -- DCMD_ACME_SOCKET_RECEIVE
RP/0/RP0/CPU0:Aug 16 20:58:34.514 :  Entering: soreceive (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.514 :  Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7de7c00)
```

```
RP/0/RP0/CPU0:Aug 16 20:58:34.515 :  Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7de7c00)
RP/0/RP0/CPU0:Aug 16 20:58:34.515 :  Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.515 :  Entering: sbe_uiomove_packet (elem 0xda3181ff,
uio_elem_offset 0, uio_datalen 124)
RP/0/RP0/CPU0:Aug 16 20:58:34.516 :  Entering: sbe_num_iov_packet (offset 0, len 124
RP/0/RP0/CPU0:Aug 16 20:58:34.516 :  Entering: sbe_set_iov_packet (pak 0xda3181ff, offset
0, len 124, numiovs 1
RP/0/RP0/CPU0:Aug 16 20:58:34.517 :  Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.518 :  Entering: sbe_get_name_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.518 :  Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7de7bb0)
RP/0/RP0/CPU0:Aug 16 20:58:34.520 :  Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.520 :  Entering: io_close_ocb (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.523 :  Entering: solock (so 0x8067370)
 * RP/0/RP0/CPU0:Aug 16 20:58:34.525 :  Entering: soclose (so 0x8067370, finish 0)
RP/0/RP0/CPU0:Aug 16 20:58:34.526 :  Entering: socantrcvmore (so 0x8067370)
 11 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.526 :  Entering: socket_read_wakeup (so 0x8067370)
RP/0/RP0/CPU0:router# RP/0/RP0/CPU0:Aug 16 20:58:34.527 :  Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.534 :  Entering: sofree (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.540 :  Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.542 :  Entering: sofree (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.544 :  Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.547 :  Entering: socantrcvmore (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.549 :  Entering: socket_read_wakeup (so 0x8067370)
```

Packet-over-SONET User Interface and SONET Layer 1 Debug Commands on Cisco IOS XR Software

This chapter describes the Cisco IOS XR commands used to debug Packet-over-SONET (PoS).

debug pos all

To debug information for all PoS, use the **debug pos all** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos all [**location** *node-id*]

no debug pos all [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to display debug information for all PoS with the **debug pos all** command:

```
RP/0/RP0/CPU0:router# debug pos all location 0/2/CPU0

LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]: pos_port_get_hw_stats, data @
48249c78
LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]: -->
pos_find_owned_im_node_data_by_ifhtype, 251
```

```
LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]:     searching IM data @ 48
24c034
LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]:     searching IM data @ 48
2558c8
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: --> pos_get_port_data_by_im_data,
366
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: pos_get_port_data_by_im_data: type
19 context 482555d4
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: pos_get_port_data_by_ifhandle(),
418: mapped ifhandle: @012800c0 --> pos_port_st: @482555d4
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: --> pos_get_stats, 302: port 1
```

Related Commands

Command	Description
debug pos events	Debugs information for PoS events.
debug pos framer	Debugs information for the PoS framer.
debug pos info	Debugs information for the generic PoS informative events.
debug pos mapping	Debugs information to map the hardware for PoS.
debug pos periodic	Debugs information to periodically process the PoS hardware.
debug pos trace	Debugs information to trace (verbose) PoS.

debug pos events

To debug information for PoS events, use the **debug pos events** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos events [**location** *node-id*]

no debug pos events [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information for PoS events with the **debug pos events** command:

```
RP/0/RP0/CPU0:router# debug pos events location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos all	Debugs information for all PoS.
debug pos framer	Debugs information for the PoS framer.
debug pos info	Debugs information for the generic PoS informative events.
debug pos mapping	Debugs information to map the hardware for PoS.
debug pos periodic	Debugs information to periodically process the PoS hardware.
debug pos trace	Debugs information to trace (verbose) PoS.

debug pos framer

To debug information for the PoS framer, use the **debug pos framer** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos framer [**all** | **events** | **info** | **operations** | **periodic** | **trace**] [**location** *node-id*]

no debug pos framer [**all** | **events** | **info** | **operations** | **periodic** | **trace**] [**location** *node-id*]

Syntax Description

all	(Optional) Specifies debug information for all PoS framers.
events	(Optional) Specifies debug information for the generic hardware events for the PoS framer.
info	(Optional) Specifies debug information for the generic informative messages for the PoS framer.
operations	(Optional) Specifies debug information for the generic hardware operations for the PoS framer.
periodic	(Optional) Specifies debug information to periodically process the generic PoS framer.
trace	(Optional) Specifies debug information to trace (verbose) the PoS framer.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information for the generic hardware events for the PoS framer with the **debug pos framer** command:

```
RP/0/RP0/CPU0:router# debug pos framer events location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos all	Debugs information for all PoS.
debug pos events	Debugs information for PoS events.
debug pos info	Debugs information for the generic PoS informative events.
debug pos mapping	Debugs information to map the hardware for PoS.
debug pos periodic	Debugs information to periodically process the PoS hardware.
debug pos trace	Debugs information to trace (verbose) PoS.

debug pos im

To debug information for the PoS <-> interface manager, use the **debug pos im** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos im [**location** *node-id*]

no debug pos im [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information for the PoS interface manager with the **debug pos im** command:

```
RP/0/RP0/CPU0:router# debug pos im location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos all	Debugs information for all PoS.
debug sonet im	Debugs information for the SONET <-> interface manager.

debug pos info

To debug information for the generic PoS informative events, use the **debug pos info** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos info [**location** *node-id*]

no debug pos info [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information for the generic PoS informative events with the **debug pos info** command:

```
RP/0/RP0/CPU0:router# debug pos info location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos all	Debugs information for all PoS.
debug pos events	Debugs information for PoS events.
debug pos framer	Debugs information for the PoS framer.
debug pos mapping	Debugs information to map the hardware for PoS.
debug pos periodic	Debugs information to periodically process the PoS hardware.
debug pos trace	Debugs information to trace (verbose) PoS.

debug pos mapping

To debug information to map the hardware for PoS, use the **debug pos mapping** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos mapping [**location** *node-id*]

no debug pos mapping [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information to map the hardware for PoS with the **debug pos mapping** command:

```
RP/0/RP0/CPU0:router# debug pos mapping location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos all	Debugs information for all PoS.
debug pos events	Debugs information for PoS events.
debug pos framer	Debugs information for the PoS framer.
debug pos info	Debugs information for the generic PoS informative events.
debug pos periodic	Debugs information to periodically process the PoS hardware.
debug pos trace	Debugs information to trace (verbose) PoS.
debug sonet mapping	Debugs information to map SONET hardware.

debug pos periodic

To debug information to periodically process the PoS hardware, use the **debug pos periodic** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos periodic [**location** *node-id*]

no debug pos periodic [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information to periodically process the PoS hardware with the **debug pos periodic** command:

```
RP/0/RP0/CPU0:router# debug pos periodic location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos all	Debugs information for all PoS.
debug pos events	Debugs information for PoS events.
debug pos framer	Debugs information for the PoS framer.
debug pos info	Debugs information for the generic PoS informative events.
debug pos mapping	Debugs information to map the hardware for PoS.
debug pos trace	Debugs information to trace (verbose) PoS.

debug pos sysdb

To debug information for the PoS <-> system database (SysDB), use the **debug pos sysdb** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos sysdb [**location** *node-id*]

no debug pos sysdb [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information for the PoS SysDB with the **debug pos sysdb** command:

```
RP/0/RP0/CPU0:router# debug pos sysdb location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug sonet sysdb	Debugs information for the SONET <-> SysDB.

debug pos trace

To debug information to trace (verbose) PoS, use the **debug pos trace** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug pos trace [**location** *node-id*]

no debug pos trace [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
pos-dpt	read

Examples

The following example shows how to enable debugging information to trace (verbose) PoS with the **debug pos trace** command:

```
RP/0/RP0/CPU0:router# debug pos trace location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos all	Debugs information for all PoS.
debug pos events	Debugs information for PoS events.
debug pos framer	Debugs information for the PoS framer.
debug pos info	Debugs information for the generic PoS informative events.
debug pos mapping	Debugs information to map the hardware for PoS.
debug pos periodic	Debugs information to periodically process the PoS hardware.

debug sonet all

To debug information for all but periodic SONET, use the **debug sonet all** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet all [**location** *node-id*]

no debug sonet all [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to display debugging information for SONET with the **debug sonet all** command:

```
RP/0/RP0/CPU0:router# debug sonet all location 0/0/CPU0

LC/0/0/CPU0:Jun 28 13:02:04.957 : vpa_1p_oc192[247]: sonet_hw_c2_state_changed:
SonetPath0/0/1/0 state=3
```

```
LC/0/0/CPU0:Jun 28 13:02:05.393 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/1 state=3
LC/0/0/CPU0:Jun 28 13:02:05.393 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/2 state=3
LC/0/0/CPU0:Jun 28 13:02:05.393 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/3 state=3
LC/0/0/CPU0:Jun 28 13:02:05.958 : vpa_1p_oc192[247]: sonet_hw_c2_state_changed:
SonetPath0/0/1/0 state=3
LC/0/0/CPU0:Jun 28 13:02:06.394 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/1 state=3
LC/0/0/CPU0:Jun 28 13:02:06.394 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/2 state=3
LC/0/0/CPU0:Jun 28 13:02:06.394 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/3 state=3
LC/0/0/CPU0:Jun 28 13:02:06.959 : vpa_1p_oc192[247]: sonet_hw_c2_state_changed:
SonetPath0/0/1/0 state=3
LC/0/0/CPU0:Jun 28 13:02:07.395 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/1 state=3
LC/0/0/CPU0:Jun 28 13:02:07.395 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/2 state=3
LC/0/0/CPU0:Jun 28 13:02:07.395 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/3 state=3
```

Related Commands

Command	Description
debug sonet aps	Debugs information for the SONET automatic protection switching (APS).
debug sonet errors	Debugs SONET errors.
debug sonet events	Debugs information for SONET events.
debug sonet info	Debugs generic SONET information.
debug sonet sysdb	Debugs information for the SONET <-> SysDB.

debug sonet aps

To debug information for the SONET APS, use the **debug sonet aps** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet aps [**all** | **errors** | **events** | **info** | **pgp** | **sysdb** | **trace** | **wp-comm**] [**location** *node-id*]

no debug sonet aps [**all** | **errors** | **events** | **info** | **pgp** | **sysdb** | **trace** | **wp-comm**] [**location** *node-id*]

Syntax Description

all	(Optional) Specifies debug information for all SONET APS except PGP.
errors	(Optional) Specifies debug information for nonfatal errors for APS.
events	(Optional) Specifies debug information for APS events.
info	(Optional) Specifies debug information for APS.
location	(Optional) Specifies a location.
pgp	(Optional) Specifies debug information for APS PGP communication.
sysdb	(Optional) Specifies debug information for APS <-> SysDB interaction.
trace	(Optional) Specifies debug information for trace APS in verbose mode.
wp-comm	(Optional) Specifies debug information for APS internal working-protect communication.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information for the SONET APS with the **debug sonet aps** command:

```
RP/0/RP0/CPU0:router# debug sonet aps info location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug sonet all	Debugs information for all but periodic SONET.
debug sonet errors	Debugs SONET errors.
debug sonet events	Debugs information for SONET events.
debug sonet info	Debugs generic SONET information.
debug sonet sysdb	Debugs information for the SONET <-> SysDB.

debug sonet errors

To debug SONET errors, use the **debug sonet errors** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet errors [**location** *node-id*]

no debug sonet errors [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information for SONET errors with the **debug sonet errors** command:

```
RP/0/RP0/CPU0:router# debug sonet errors location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug sonet all	Debugs information for all but periodic SONET.
debug sonet aps	Debugs information for the SONET APS.
debug sonet events	Debugs information for SONET events.
debug sonet info	Debugs generic SONET information.
debug sonet sysdb	Debugs information for the SONET <-> SysDB.

debug sonet events

To debug information for SONET events, use the **debug sonet events** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet events [**location** *node-id*]

no debug sonet events [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information for SONET events with the **debug sonet events** command:

```
RP/0/RP0/CPU0:router# debug sonet events location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug sonet all	Debugs information for all but periodic SONET.
debug sonet aps	Debugs information for the SONET APS.
debug sonet errors	Debugs SONET errors.
debug sonet info	Debugs generic SONET information.
debug sonet sysdb	Debugs information for the SONET <-> SysDB.

debug sonet framer

To debug information for the SONET framer, use the **debug sonet framer** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet framer {all | **events** | **info** | **operation** | **periodic}** [**location** *node-id*]

no debug sonet framer {all | **events** | **info** | **operation** | **periodic}** [**location** *node-id*]

Syntax Description

all	Specifies debug information for all (but periodic) SONET framer.
events	Specifies debug information for the generic SONET framer.
info	Specifies debug information for the generic SONET framer.
operation	Specifies debug information for the generic SONET framer.
periodic	Specifies debug information for the generic SONET framer.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information for the generic SONET framer with the **debug sonet framer** command:

```
RP/0/RP0/CPU0:router# debug sonet framer events location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug sonet all	Debugs information for all but periodic SONET.
debug sonet events	Debugs information for SONET events.
debug sonet info	Debugs generic SONET information.

debug sonet im

To debug information for the SONET <-> interface manager, use the **debug sonet im** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet im [**location** *node-id*]

no debug sonet im [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information for the SONET <-> interface manager with the **debug sonet im** command:

```
RP/0/RP0/CPU0:router# debug sonet im location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos im	Debugs information for the PoS <-> interface manager.
debug sonet all	Debugs information for all but periodic SONET.

debug sonet info

To debug generic SONET information, use the **debug sonet info** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet info [**location** *node-id*]

no debug sonet info [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information for generic SONET information with the **debug sonet info** command:

```
RP/0/RP0/CPU0:router# debug sonet info location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Syntax Description

Command	Description
debug sonet all	Debugs information for all but periodic SONET.
debug sonet aps	Debugs information for the SONET APS.
debug sonet errors	Debugs SONET errors.
debug sonet events	Debugs information for SONET events.
debug sonet sysdb	Debugs information for the SONET <-> SysDB.

debug sonet mapping

To debug information to map SONET hardware, use the **debug sonet mapping** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet mapping [**location** *node-id*]

no debug sonet mapping [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information to map SONET hardware with the **debug sonet mapping** command:

```
RP/0/RP0/CPU0:router# debug sonet mapping location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos mapping	Debugs information to map the hardware for PoS.
debug sonet all	Debugs information for all but periodic SONET.
debug sonet aps	Debugs information for the SONET APS.
debug sonet events	Debugs information for SONET events.
debug sonet framer	Debugs information for the SONET framer.
debug sonet info	Debugs generic SONET information.
debug sonet periodic	Debugs SONET information for periodic events.

debug sonet periodic

To debug SONET information for periodic events, use the **debug sonet periodic** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet periodic [**location** *node-id*]

no debug sonet periodic [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging SONET information for periodic events with the **debug sonet periodic** command:

```
RP/0/RP0/CPU0:router# debug sonet periodic location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug pos periodic	Debugs information to periodically process the PoS hardware.
debug sonet all	Debugs information for all but periodic SONET.
debug sonet aps	Debugs information for the SONET APS.
debug sonet events	Debugs information for SONET events.
debug sonet framer	Debugs information for the SONET framer.
debug sonet info	Debugs generic SONET information.
debug sonet mapping	Debugs information to map SONET hardware.

debug sonet sysdb

To debug information for the SONET <-> SysDB, use the **debug sonet sysdb** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug sonet sysdb [**location** *node-id*]

no debug sonet sysdb [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is the location of the current, active route processor (RP).

Command Modes

EXEC

Command History

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

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sonet-sdh	read, write

Examples

The following example shows how to enable debugging information for the SONET <-> SysDB with the **debug sonet sysdb** command:

```
RP/0/RP0/CPU0:router# debug sonet sysdb location 0/0/CPU0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug sonet all	Debugs information for all but periodic SONET.
debug sonet aps	Debugs information for the SONET APS.
debug sonet errors	Debugs SONET errors.
debug sonet events	Debugs information for SONET events.
debug sonet info	Debugs generic SONET information.

ATM Debug Commands on Cisco IOS XR Software

This module describes the commands that provide useful information for debugging the ATM component on a router running Cisco IOS XR software.

debug atm errors

To turn on debugging messages for ATM errors, use the **debug atm errors** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug atm errors [**interface atm** *instance* | **location** *node-id*]

no debug atm errors [**interface atm** *instance* | **location** *node-id*]

Syntax Description

interface atm *instance*	(Optional) Physical interface instance on which to turn on debugging messages for ATM errors. Naming notation is *rack*/*slot*/*module*/*port*, and a slash between values is required as part of the notation. • *rack*—Chassis number of the rack. • *slot*—Physical slot number of the card. • *module*—Module number. A physical layer interface module (PLIM) is always 0. • *port*—Physical port number of the interface. **Note** For more information about the syntax for the router, use the question mark (**?**) online help function.
location *node-id*	(Optional) Specifies a node on which to turn on all debugging messages for ATM errors.

Defaults

Enter the **debug atm errors** command without including any of the optional syntax to turn on debugging messages for all ATM interfaces configured on the router.

Command Modes

EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco XR 12000 Series Router.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
atm	read

Examples

The following example shows how to turn on debugging messages for ATM errors:

```
RP/0/RP0/CPU0:router# debug atm errors
```

Related Commands

Command	Description
debug atm mib-api	Turns on debugging messages for the ATM MIB API
debug atm rm	Turns on debugging messages for the ATM MIB Resource Management (RM).
debug atm vc-class	Turn on all debugging messages for the ATM VC class.
debug atm vc-class-client	Turn on all debugging messages for the ATM VC class client.

debug atm mib-api

To turn on debugging messages for the ATM MIB API, use the **debug atm mib-api** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug atm mib-api {**errors** | **internal**}

no debug atm mib-api {**errors** | **internal**}

Syntax Description

errors	Turns on error debugging messages related to the ATM MIB API.
internal	Turns on debugging messages related to the internal ATM MIB API.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco XR 12000 Series Router.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
atm	read

Examples

The following example shows how to turn on internal debugging messages related to the ATM MIB API:

```
RP/0/RP0/CPU0:router# debug atm mib-api errors
```

Related Commands

Command	Description
debug atm errors	Turns on debugging messages for ATM errors.
debug atm rm	Turns on debugging messages for the ATM MIB Resource Management (RM).

Command	Description
debug atm vc-class	Turn on all debugging messages for the ATM VC class.
debug atm vc-class-client	Turn on all debugging messages for the ATM VC class client.

debug atm rm

To turn on all debugging messages for the ATM Resource Management (RM), use the **debug atm rm** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug atm rm {**errors** | **internal**}

no debug atm rm {**errors** | **internal**}

Syntax Description

errors	Turns on error debugging messages related to ATM RM.
internal	Turns on error debugging messages related to ATM RM.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco XR 12000 Series Router.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
atm	read

Examples

The following example shows how to turn on internal debugging messages related to ATM RM:

```
RP/0/RP0/CPU0:router# debug atm rm internal
```

Related Commands

Command	Description
debug atm errors	Turns on debugging messages for ATM errors.
debug atm mib-api	Turns on debugging messages for the ATM MIB API.
debug atm vc-class	Turn on all debugging messages for the ATM VC class.
debug atm vc-class-client	Turn on all debugging messages for the ATM VC class client.

debug atm vc-class

To turn on all debugging messages for the ATM VC class, use the **debug atm vc-class** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug atm vc-class {**ens** | **errors** | **events** | **internal**}

no debug atm vc-class {**ens** | **errors** | **events** | **internal**}

Syntax Description

ens	Turns on Event Notification Service (ENS) related debugging messages.
errors	Turns on debugging messages related to VC class errors.
events	Turns on debugging messages related to VC class events.
internal	Turns on internal debugging messages related to a VC class.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco XR 12000 Series Router.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
atm	read

Examples

The following example shows how to turn on debugging messages related to VC class events:

```
RP/0/RP0/CPU0:router# debug atm vc-class events
```

Related Commands

Command	Description
debug atm errors	Turns on debugging messages for ATM errors.
debug atm mib-api	Turns on debugging messages for the ATM MIB API.

Command	Description
debug atm rm	Turns on debugging messages for the ATM MIB Resource Management (RM).
debug atm vc-class-client	Turn on all debugging messages for the ATM VC class client.

debug atm vc-class-client

To turn on all debugging messages for the ATM VC class client, use the **debug atm vc-class-client** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug atm vc-class-client {**errors** | **internal**}

no debug atm vc-class-client {**errors** | **internal**}

Syntax Description

errors	Turns on debugging messages related to VC class client errors.
internal	Turns on internal debugging messages related to the VC class client.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco XR 12000 Series Router.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
atm	read

Examples

The following example shows how to turn on debugging messages related to VC class client errors:

```
RP/0/RP0/CPU0:router# debug atm vc-class-client errors
```

Related Commands

Command	Description
debug atm errors	Turns on debugging messages for ATM errors.
debug atm mib-api	Turns on debugging messages for the ATM MIB API.
debug atm rm	Turns on debugging messages for the ATM MIB Resource Management (RM).
debug atm vc-class	Turn on all debugging messages for an ATM VC class.

cHDLC Debug Commands on Cisco IOS XR Software

This chapter describes the Cisco High-Level Data Link Control (cHDLC) and Serial Line Address Resolution Protocol (SLARP) debug commands on Cisco IOS XR software.

debug chdlc ma slarp

To debug the SLARP protocol, use the **debug chdlc ma slarp** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug chdlc ma slarp {**packets** | **state**} [**location** *node-id*] [**interface** *interface-type interface-instance*]

no debug chdlc ma slarp {**packet**s | **state**} [**location** *node-id*] [**interface** *interface-type interface-instance*]

Syntax Description

packet	Specifies the debug information for sent and received SLARP packets.
state	Specifies the debug information for the state of the SLARP finite state machine.
location *node-id*	(Optional) Specifies the location on the router, for example, 0/0/CPU0. The *node-id* argument is entered in the *rack/slot/module* notation.
interface *interface-type*	(Optional) Interface type. For more information, use the question mark (**?**) online help function.
interface-instance	(Optional) Either a physical interface instance or a virtual interface instance as follows: • Physical interface instance. Naming notation is *rack/slot/module/port* and a slash between values is required as part of the notation. – *rack*: Chassis number of the rack. – *slot*: Physical slot number of the modular services card or line card. – *module*: Module number. A physical layer interface module (PLIM) is always 0. – *port*: Physical port number of the interface. **Note** In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0. • Virtual interface instance. Number range varies depending on interface type. For more information about the syntax for the router, use the question mark (**?**) online help function.

Defaults

If no location is specified, the default is all locations.

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	This command was supported on the Cisco XR 12000 Series Router.
Release 3.3.0	Command name changed to include the **ma** keyword. Added the **interface** keyword.
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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
hdlc	read

Examples

The following example shows the sample output for the **packet** keyword with the **debug chdlc ma slarp** command:

```
RP/0/RP0/CPU0:router# debug chdlc ma slarp packet location 0/4/CPU0

LC/0/4/CPU0:Mar 29 12:31:01.038 : chdlc_ma[113]: POS0/4/0/1: SLARP REQUEST Sent (length
14): [IP-Addr 0.0.0.0, IP-Mask 0.0.0.0]
LC/0/4/CPU0:Mar 29 12:31:01.054 : chdlc_ma[113]: POS0/4/0/1: SLARP REPLY Received (length
14): [IP-Addr 0.0.0.0, IP-Mask 0.0.0.0]
LC/0/4/CPU0:Mar 29 12:31:08.924 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Received
(length 18): [My-Seq 2, Your-Seq 0, Unique 17650] Line UP
LC/0/4/CPU0:Mar 29 12:31:11.203 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Sent (length
18): [My-Seq 1, Your-Seq 2, Unique 32549] Line UP
LC/0/4/CPU0:Mar 29 12:31:18.964 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Received
(length 18): [My-Seq 3, Your-Seq 1, Unique 17650] Line UP
LC/0/4/CPU0:Mar 29 12:31:21.244 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Sent (length
18): [My-Seq 2, Your-Seq 3, Unique 32549] Line UP
LC/0/4/CPU0:Mar 29 12:31:29.004 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Received
(length 18): [My-Seq 4, Your-Seq 2, Unique 17650] Line UP
LC/0/4/CPU0:Mar 29 12:31:31.285 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Sent (length
18): [My-Seq 3, Your-Seq 4, Unique 32549] Line UP
LC/0/4/CPU0:Mar 29 12:31:39.044 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Received
(length 18): [My-Seq 5, Your-Seq 3, Unique 17650] Line UP
LC/0/4/CPU0:Mar 29 12:31:41.326 : chdlc_ma[113]: POS0/4/0/1: SLARP KEEPALIVE Sent (length
18): [My-Seq 4, Your-Seq 5, Unique 32549] Line UP
```

The following example shows the sample output for the **statechange** keyword from the **debug chdlc ma slarp** command:

```
RP/0/RP0/CPU0:router# debug chdlc ma slarp statechange location 0/4/CPU0

LLC/0/4/CPU0:Mar 29 12:31:01.040 : chdlc_ma[113]: POS0/4/0/1: SLARP FSM State Change:
[DOWN, Keepalives enabled] -> [LINECHECK]
LC/0/4/CPU0:Mar 29 12:31:01.067 : chdlc_ma[113]: POS0/4/0/1: SLARP FSM State Change:
[LINECHECK] -> [UP, Keepalives enabled]
LC/0/4/CPU0:Mar 29 12:33:18.013 : chdlc_ma[113]: POS0/4/0/1: SLARP FSM State Change: [UP,
Keepalives enabled] -> [UP, Keepalives disabled]
LC/0/4/CPU0:Mar 29 12:33:22.522 : chdlc_ma[113]: POS0/4/0/1: SLARP FSM State Change: [UP,
Keepalives disabled] -> [DOWN, Keepalives disabled]
```

PPP Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to debug Point-to-Point Protocol (PPP), an encapsulation scheme that can be used on Packet-over-SONET (POS) and serial interfaces on the Cisco IOS XR software.

debug ppp all

To enable debugging of ppp, use the **debug ppp** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug ppp all [**location** *node-id*] [**process** *process-id*]

no debug ppp all [**location** *node-id*] [**process** *process-id*]

Syntax Description

location *node-id*	(Optional) Specifies a location of the line card. The *node-id* argument is entered in the *rack/slot/module* notation.
process *process-id*	(Optional) Specifies a particular process name or process ID.

Defaults

The default is that debugging is turned off.

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ppp	read

Examples

The following example shows how to use the **debug ppp all** command:

```
RP/0/RP0/CPU0:router# debug ppp all
```

Related Commands

Command	Description
debug ppp authentication	Enables debugging of PAP and CHAP authentication.
debug ppp negotiation	Enables debugging of LCP and Network Control Protocol (NCP) session negotiations.
debug ppp packet	Enables low-level packet dumps.

debug ppp authentication

To enable debugging of the Link Control Protocol (LCP) session authentication, use the **debug ppp authentication** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug ppp authentication [**location** *node-id*]

no debug ppp authentication [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a location of the line card. The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default is that debugging is turned off.

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	This command was 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ppp	read

Examples

The following example shows how to use the **debug ppp authentication** command:

```
RP/0/RP0/CPU0:router# debug ppp authentication location 0/4/CPU0

LC/0/4/CPU0:Mar 29 12:39:18.869 : PPP-MA[183]: LCP: POS0/4/0/1: Start authentication
layer: CHAP/CHAP (of peer/of us)
LC/0/4/CPU0:Mar 29 12:39:18.871 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: O CHALLENGE id 53
len 27 (from "router1")
LC/0/4/CPU0:Mar 29 12:39:18.879 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: I CHALLENGE id 132
len 28 (from "router2")
LC/0/4/CPU0:Mar 29 12:39:18.897 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: I RESPONSE id 53 len
28 (from "router2")
LC/0/4/CPU0:Mar 29 12:39:18.926 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: O RESPONSE id 132
len 27 (from "router1")
LC/0/4/CPU0:Mar 29 12:39:18.948 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: I SUCCESS id 132 len
4 (msg "")
LC/0/4/CPU0:Mar 29 12:39:18.948 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: Peer's
authentication of us successful
LC/0/4/CPU0:Mar 29 12:39:18.967 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: O SUCCESS id 53 len
4 (msg "")
LC/0/4/CPU0:Mar 29 12:39:18.968 : PPP-MA[183]: LCP: POS0/4/0/1: CHAP: Our authentication
of peer successful
```

Related Commands

Command	Description
debug ppp all	Enables all PPP debugging.
debug ppp negotiation	Enables debugging of LCP and Network Control Protocol (NCP) session negotiations.
debug ppp packet	Enables low-level packet dumps.

debug ppp negotiation

To enable debugging of LCP and NCP session negotiations, use the **debug ppp negotiation** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug ppp negotiation [**location** *node-id*] [**process** *process-id*]

no debug ppp negotiation [**location** *node-id*] [**process** *process-id*]

Syntax Description

location *node-id*	(Optional) Specifies a location of the line card. The *node-id* argument is entered in the *rack/slot/module* notation.
process *process-id*	(Optional) Specifies a particular process name or process ID.

Defaults

The default is that debugging is turned off.

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	This command was supported on the Cisco XR 12000 Series Router.
Release 3.3.0	Added the **process** keyword.
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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ppp	read

Examples

The following example shows sample output from the **debug ppp negotiation** command for LCP and IP Control Protocol (IPCP):

```
RP/0/RP0/CPU0:router# debug ppp negotiation location 0/4/CPU0

LC/0/4/CPU0:Mar 29 12:42:26.181 : PPP-MA[183]: LCP: POS0/4/0/1: [Starting]: Up Event
LC/0/4/CPU0:Mar 29 12:42:26.182 : PPP-MA[183]: LCP: POS0/4/0/1: [Starting]:
Initialize-Restart-Counter
LC/0/4/CPU0:Mar 29 12:42:26.185 : PPP-MA[183]: LCP: POS0/4/0/1: [Starting]: O CONFREQ id 7
len 19
LC/0/4/CPU0:Mar 29 12:42:26.187 : PPP-MA[183]: LCP: POS0/4/0/1: [Starting]: MRU 4470
(0x01041176)
LC/0/4/CPU0:Mar 29 12:42:26.190 : PPP-MA[183]: LCP: POS0/4/0/1: [Starting]: AuthProto CHAP
(0x0305c22305)
LC/0/4/CPU0:Mar 29 12:42:26.191 : PPP-MA[183]: LCP: POS0/4/0/1: [Starting]: MagicNumber
0x2f67c2ce (0x05062f67c2ce)
LC/0/4/CPU0:Mar 29 12:42:26.192 : PPP-MA[183]: LCP: POS0/4/0/1: [Starting]: Change to
state Req-Sent
LC/0/4/CPU0:Mar 29 12:42:26.218 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: I CONFREQ id
37 len 19
LC/0/4/CPU0:Mar 29 12:42:26.219 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: MRU 4470
(0x01041176)
LC/0/4/CPU0:Mar 29 12:42:26.220 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: AuthProto CHAP
(0x0305c22305)
LC/0/4/CPU0:Mar 29 12:42:26.221 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: MagicNumber
0x0729e89e (0x05060729e89e)
LC/0/4/CPU0:Mar 29 12:42:26.222 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: O CONFACK id
37 len 19
LC/0/4/CPU0:Mar 29 12:42:26.223 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: MRU 4470
(0x01041176)
LC/0/4/CPU0:Mar 29 12:42:26.224 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: AuthProto CHAP
(0x0305c22305)
LC/0/4/CPU0:Mar 29 12:42:26.224 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: MagicNumber
0x0729e89e (0x05060729e89e)
LC/0/4/CPU0:Mar 29 12:42:26.225 : PPP-MA[183]: LCP: POS0/4/0/1: [Req-Sent]: Change to
state Ack-Sent
LC/0/4/CPU0:Mar 29 12:42:26.226 : PPP-MA[183]: LCP: POS0/4/0/1: [Ack-Sent]: I CONFACK id 7
len 19
LC/0/4/CPU0:Mar 29 12:42:26.227 : PPP-MA[183]: LCP: POS0/4/0/1: [Ack-Sent]: MRU 4470
(0x01041176)
LC/0/4/CPU0:Mar 29 12:42:26.228 : PPP-MA[183]: LCP: POS0/4/0/1: [Ack-Sent]: AuthProto CHAP
(0x0305c22305)
LC/0/4/CPU0:Mar 29 12:42:26.229 : PPP-MA[183]: LCP: POS0/4/0/1: [Ack-Sent]: MagicNumber
0x2f67c2ce (0x05062f67c2ce)
LC/0/4/CPU0:Mar 29 12:42:26.230 : PPP-MA[183]: LCP: POS0/4/0/1: [Ack-Sent]:
Initialize-Restart-Counter
LC/0/4/CPU0:Mar 29 12:42:26.231 : PPP-MA[183]: LCP: POS0/4/0/1: [Ack-Sent]: Change to
state Open
LC/0/4/CPU0:Mar 29 12:42:26.231 : PPP-MA[183]: LCP: POS0/4/0/1: [Open]: Report
This-Layer-Up
LC/0/4/CPU0:Mar 29 12:42:26.350 : PPP-MA[183]: IPCP: POS0/4/0/1: [Starting]: Up Event
LC/0/4/CPU0:Mar 29 12:42:26.350 : PPP-MA[183]: IPCP: POS0/4/0/1: [Starting]:
Initialize-Restart-Counter
LC/0/4/CPU0:Mar 29 12:42:26.351 : PPP-MA[183]: IPCP: POS0/4/0/1: [Starting]: O CONFREQ id
3 len 10
LC/0/4/CPU0:Mar 29 12:42:26.352 : PPP-MA[183]: IPCP: POS0/4/0/1: [Starting]: Address
1.1.1.1 (0x030601010101)
LC/0/4/CPU0:Mar 29 12:42:26.353 : PPP-MA[183]: IPCP: POS0/4/0/1: [Starting]: Change to
state Req-Sent
LC/0/4/CPU0:Mar 29 12:42:26.355 : PPP-MA[183]: IPCP: POS0/4/0/1: [Req-Sent]: I CONFREQ id
3 len 10
LC/0/4/CPU0:Mar 29 12:42:26.356 : PPP-MA[183]: IPCP: POS0/4/0/1: [Req-Sent]: Address
1.1.1.2 (0x030601010102)
```

```
LC/0/4/CPU0:Mar 29 12:42:26.357 : PPP-MA[183]: IPCP: POS0/4/0/1: [Req-Sent]: O CONFACK id
3 len 10
LC/0/4/CPU0:Mar 29 12:42:26.357 : PPP-MA[183]: IPCP: POS0/4/0/1: [Req-Sent]: Address
1.1.1.2 (0x030601010102)
LC/0/4/CPU0:Mar 29 12:42:26.359 : PPP-MA[183]: IPCP: POS0/4/0/1: [Req-Sent]: Change to
state Ack-Sent
LC/0/4/CPU0:Mar 29 12:42:26.360 : PPP-MA[183]: IPCP: POS0/4/0/1: [Ack-Sent]: I CONFACK id
3 len 10
LC/0/4/CPU0:Mar 29 12:42:26.361 : PPP-MA[183]: IPCP: POS0/4/0/1: [Ack-Sent]: Address
1.1.1.1 (0x030601010101)
LC/0/4/CPU0:Mar 29 12:42:26.362 : PPP-MA[183]: IPCP: POS0/4/0/1: [Ack-Sent]:
Initialize-Restart-Counter
LC/0/4/CPU0:Mar 29 12:42:26.364 : PPP-MA[183]: IPCP: POS0/4/0/1: [Ack-Sent]: Change to
state Open
LC/0/4/CPU0:Mar 29 12:42:26.364 : PPP-MA[183]: IPCP: POS0/4/0/1: [Open]: Report
This-Layer-Up
```

Related Commands

Command	Description
debug ppp all	Enables all PPP debugging.
debug ppp authentication	Enables debugging of PAP and CHAP authentication.
debug ppp packet	Enables low-level packet dumps.

debug ppp packet

To enable debugging of packets at a low level, use the **debug ppp packet** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug ppp packet [**location** *node-id*] [**process** *process-id*]

no debug ppp packet [**location** *node-id*] [**process** *process-id*]

Syntax Description

location *node-id*	(Optional) Specifies a location of the line card. The *node-id* argument is entered in the *rack/slot/module* notation.
process *process-id*	(Optional) Specifies a particular process name or process ID.

Defaults

The default is that debugging is turned off.

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ppp	read

Examples

The following example shows how to use the **debug ppp packet** command:

```
RP/0/RP0/CPU0:router# debug ppp packet location 0/2/CPU0
```

Related Commands

Command	Description
debug ppp all	Enables all PPP debugging.
debug ppp authentication	Enables debugging of PAP and CHAP authentication.
debug ppp negotiation	Enables debugging of LCP and Network Control Protocol (NCP) session negotiations.

SPA Interface Processor and Shared Port Adapter Debug Commands on Cisco IOS XR Software

This module describes the Cisco IOS XR debug commands which are specific to SPA interface processors (SIPs) and shared port adapters (SPAs). For general configuration and troubleshooting commands, refer to the *Ethernet Switch and Server Platform Commands on Cisco IOS XR Software* or *Packet-over-SONET User Interface and SONET Layer 1 Commands on Cisco IOS XR Software* modules.

debug spa devobject

To debug a SPA object, use the **debug spa devobject** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa devobject [**location** *node-id*] [**job** *job-id* | **process** *pid*]

no debug spa devobject [**location** *node-id*] [**job** *job-id* | **process** *pid*]

Syntax Description

location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.
job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa devobject** command:

```
Router# debug spa devobject location 0/2/cpu0
```

debug spa error

To debug SPA errors, use the **debug spa error** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa error [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa error [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa error** command:

```
Router# debug spa error location 0/2/cpu0
```

debug spa info

To view informational debugging for the SPA infrastructure, use the **debug spa info** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa info [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa info [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa info** command:

```
Router# debug spa info location 0/2/cpu0
```

debug spa job

To debug a SPA job, use the **debug spa job** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa job *job-id* [**location** *node-id*]

no debug spa job *job-id* [**location** *node-id*]

Syntax Description

job-id	ID of job for which to display debugging information.
location *node-id*	Displays job debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	The **location** *node-id* keyword argument was added to the **debug spa job** command.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa job** command:

```
Router# debug spa job 10
```

debug spa location

To debug a SPA module, use the **debug spa location** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa location *node-id* [**job** *job-id* | **process** *pid*]

no debug spa location *node-id* [**job** *job-id* | **process** *pid*]

Syntax Description

node-id	Node for which to display debugging information. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.
job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa location** command:

```
Router# debug spa location 0/2/cpu0
```

debug spa lwm

To debug light weight messaging (lwm), use the **debug spa lwm** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa lwm [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa lwm [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

The **debug spa lwm** command debugs interprocess communication in the IOS XR software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa lwm** command:

```
Router# debug spa lwm location 0/2/cpu0
```

debug spa oir

To debug online insertion and removal of SPAs, use the **debug spa oir** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa oir [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa oir [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa oir** command:

```
Router# debug spa oir location 0/2/cpu0
```

debug spa periodic

To perform periodic SPA event debugging, use the **debug spa periodic** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa periodic [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa periodic [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa periodic** command:

```
Router# debug spa periodic location 0/2/cpu0
```

debug spa plugin

To debug a SPA plugin, use the **debug spa plugin** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa plugin [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa plugin [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa plugin** command:

```
Router# debug spa plugin location 0/2/cpu0
```

debug spa process

To debug a SPA process, use the **debug spa process** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa process *pid* [**location** *node-id*]

no debug spa process *pid* [**location** *node-id*]

Syntax Description

pid	Process ID of the process for which to debug.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following illustrates the use of the **debug spa process** command:

```
Router# debug spa process location 0/2/cpu0
```

debug spa show

To display show debugging information, use the **debug spa show** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa show [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa show [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa show** command:

```
Router# debug spa show location 0/2/cpu0
```

debug spa sysdb

To debug SPA infrastructure interaction with the system database, use the **debug spa sysdb** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa sysdb [**job** *job-id* | **process** *pid*] [**location** *node-id*]

no debug spa sysdb [**job** *job-id* | **process** *pid*] [**location** *node-id*]

Syntax Description

job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.
location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa sysdb** command:

```
Router# debug spa sysdb location 0/2/cpu0
```

debug spa trace

To display trace debug information, use the **debug spa trace** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa trace [**location** *node-id*] [**job** *job-id* | **process** *pid*]

no debug spa trace [**location** *node-id*] [**job** *job-id* | **process** *pid*]

Syntax Description

location *node-id*	Displays debugging information for a node. The *node-id* argument is entered in the *rack*/*slot*/*module* notation.
job *job-id*	Displays debugging information for a job.
process *pid*	Displays debugging information for a process.

Defaults

No default behavior or values

Command Modes

Privileged EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1 and 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example illustrates the use of the **debug spa trace** command:

```
Router# debug spa trace location 0/2/cpu0
```

debug spa-bridge error

To display error messages related to the SPA ASIC driver on the carrier card, use the **debug spa-bridge error** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa-bridge error

no debug spa-bridge error

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Privileged 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	The **debug spa-bridge error** command was moved from the root-lr task ID to the ip-services task ID.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ip-services	read, write

Examples

The following example illustrates the use of the **debug spa-bridge error** command:

```
Router# debug spa-bridge error
```

debug spa-bridge oir

To debug online insertion and removal of SPAs in relation to the SPA ASIC driver on the carrier card, use the **debug spa-bridge oir** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa-bridge oir

no debug spa-bridge oir

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Privileged 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	The **debug spa-bridge oir** command was moved from the root-lr task ID to the ip-services task ID.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ip-services	read, write

Examples

The following example illustrates the use of the **debug spa-bridge oir** command:

```
Router# debug spa-bridge oir
```

debug spa-bridge show

To display dumps related to the SPA ASIC driver on the carrier card, use the **debug spa-bridge show** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa-bridge show

no debug spa-bridge show

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Privileged 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	The **debug spa-bridge show** command was moved from the root-lr task ID to the ip-services task ID.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ip-services	read, write

Examples

The following example illustrates the use of the **debug spa-bridge show** command:

```
Router# debug spa-bridge show
```

debug spa-bridge trace

To display trace debug information related to the SPA ASIC driver on the carrier card, use the **debug spa-bridge trace** command in privileged EXEC mode. To turn off debugging output, use the **no** form of this command.

debug spa-bridge trace

no debug spa-bridge trace

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

Privileged 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	The **debug spa-bridge trace** command was moved from the root-lr task ID to the ip-services task ID.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
ip-services	read, write

Examples

The following example illustrates the use of the **debug spa-bridge trace** command:

```
Router# debug spa-bridge trace
```

Link Bundling Debug Commands on Cisco IOS XR Software

This chapter contains commands for debugging link bundling on Cisco IOS XR software.

debug bundlemgr local packets

To enable the Link Aggregation Control Protocol (LACP) and Marker PDU traffic state machine debugging for the state machines that are implemented by the bundle manager process running on the modular service cards (MSCs), use the **debug bundlemgr local packets** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bundlemgr local packets [**location** *node-id* | **port** *type instance*]

no debug bundlemgr local packets [**location** *node-id* | **port** *type instance*]

Syntax Description

location *node-id*	(Optional) Specifies the line card to debug. The *node-id* argument is entered in the *rack/slot/module* notation.
port	(Optional) Specifies the physical interface that is running LACP. The *type* argument is entered in the *rack/slot/module* notation
type	Interface type. For more information, use the question mark (?) online help function.
instance	Physical interface instance. Naming notation is rack/slot/module/port and a slash between values is required as part of the notation. • rack—Chassis number of the rack. • slot—Physical slot number of the card. • module—Module number. A physical layer interface module (PLIM) is always 0. • port—Physical port number of the interface. For more information about the syntax for the router, use the question mark (**?**) online help function.

Defaults

The default value is off.

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bundle	read

Examples

The following example shows how to use the **debug bundlemgr local packets** command:

```
RP/0/RP0/CPU0:router# debug bundlemgr local packets location 0/3/CPU0
```

Related Commands

Command	Description
debug bundlemgr local state	Enables the LACP state machine debugging for the state machines that are implemented by the bundle manager process running on the route processor (RP).
debug bundlemgr distrib state	Enables the LACP state machine debugging for the state machines that are implemented by the bundle manager process running on the route processor (RP).

debug bundlemgr local state

To enable the Link Aggregation Control Protocol (LACP) state machine debugging for the state machines that are implemented by the bundle manager process running on the modular service cards (MSCs), use the **debug bundlemgr local state** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bundlemgr local state [**location** *node-id* | **port** *type instance*]

no debug bundlemgr local state [**location** *node-id* | **port** *type instance*]

Syntax Description

location *node-id*	(Optional) Specifies the line card to debug. The *node-id* argument is entered in the *rack/slot/module* notation.
port	(Optional) Specifies the physical interface that is running LACP.
type	Interface type. For more information, use the question mark (?) online help function.
instance	Physical interface instance. Naming notation is rack/slot/module/port and a slash between values is required as part of the notation. • rack—Chassis number of the rack. • slot—Physical slot number of the card. • module—Module number. A physical layer interface module (PLIM) is always 0. • port—Physical port number of the interface. For more information about the syntax for the router, use the question mark (**?**) online help function.

Defaults

The default value is off.

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bundle	read

Examples

The following example shows all the transitions a link went through to negotiate LACP and be attached to the bundle with the **debug bundlemgr local state** command:

```
RP/0/RP0/CPU0:router# debug bundlemgr local state location 0/3/CPU0

LC/0/3/CPU0:Jun 30 12:57:15.573 : BM-LOCAL[108]: Actor's view of Partner's port, system,
key or aggregation capability is out of date for POS0_3_0_0
LC/0/3/CPU0:Jun 30 12:57:15.591 : BM-LOCAL[108]: Partner and Actor for POS0_3_0_0 agree on
their port, system and key
LC/0/3/CPU0:Jun 30 12:57:15.592 : BM-LOCAL[108]: Neither actor or partner view link
POS0_3_0_0 as individual
LC/0/3/CPU0:Jun 30 12:57:15.593 : BM-LOCAL[108]: Current status for POS0_3_0_0: actor 1,
partner 1
LC/0/3/CPU0:Jun 30 12:57:15.594 : BM-LOCAL[108]: Actor for POS0_3_0_0 is OUTOFSYNC - try
to go INSYNC
LC/0/3/CPU0:Jun 30 12:57:17.660 : BM-LOCAL[108]: Partner and Actor for POS0_3_0_0 agree on
their port, system and key
LC/0/3/CPU0:Jun 30 12:57:17.661 : BM-LOCAL[108]: Neither actor or partner view link
POS0_3_0_0 as individual
LC/0/3/CPU0:Jun 30 12:57:17.664 : BM-LOCAL[108]: Current status for POS0_3_0_0: actor 1,
partner 2
LC/0/3/CPU0:Jun 30 12:57:17.666 : BM-LOCAL[108]: Actor for POS0_3_0_0 is OUTOFSYNC - try
to go INSYNC
LC/0/3/CPU0:Jun 30 12:57:17.743 : BM-LOCAL[108]: Link POS0_3_0_0 changing state to IN
SYNC, but partner is INSYNC or above - go COLLECTING
LC/0/3/CPU0:Jun 30 12:57:17.772 : BM-LOCAL[108]: Partner and Actor for POS0_3_0_0 agree on
their port, system and key
LC/0/3/CPU0:Jun 30 12:57:17.772 : BM-LOCAL[108]: Neither actor or partner view link
POS0_3_0_0 as individual
LC/0/3/CPU0:Jun 30 12:57:17.774 : BM-LOCAL[108]: Current status for POS0_3_0_0: actor 3,
partner 3
LC/0/3/CPU0:Jun 30 12:57:17.775 : BM-LOCAL[108]: Actor for POS0_3_0_0 is COLLECT but
partner is COLLECT or DISTRIB - try to go DISTRIB
LC/0/3/CPU0:Jun 30 12:57:18.262 : BM-LOCAL[108]: Link POS0_3_0_0 changing state to
DISTRIBUTING
LC/0/3/CPU0:Jun 30 12:57:18.290 : BM-LOCAL[108]: Partner and Actor for POS0_3_0_0 agree on
their port, system and key
LC/0/3/CPU0:Jun 30 12:57:18.291 : BM-LOCAL[108]: Neither actor or partner view link
POS0_3_0_0 as individual
LC/0/3/CPU0:Jun 30 12:57:18.292 : BM-LOCAL[108]: Current status for POS0_3_0_0: actor 4,
partner 4
LC/0/3/CPU0:Jun 30 12:57:18.293 : BM-LOCAL[108]: Actor for POS0_3_0_0 is DISTRIB and
partner is COLLECT or DISTRIB - no change needed
```

Related Commands

Command	Description
debug bundlemgr local packets	Enables LACP and Marker PDU debugging.
debug bundlemgr distrib state	Enables the LACP state machine debugging for the state machines that are implemented by the bundle manager process running on the route processor (RP).

debug bundlemgr distrib state

To enable the LACP state machine debugging for the state machines that are implemented by the bundle manager process running on the RP, use the **debug bundlemgr distrib state** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bundlemgr distrib state [**port** *type instance*]

no debug bundlemgr distrib state [**port** *type instance*]

Syntax Description

port	(Optional) Specifies the physical interface that is running LACP.
type	Interface type. For more information, use the question mark (?) online help function.
instance	Physical interface instance. Naming notation is rack/slot/module/port and a slash between values is required as part of the notation. • rack—Chassis number of the rack. • slot—Physical slot number of the card. • module—Module number. A physical layer interface module (PLIM) is always 0. • port—Physical port number of the interface. For more information about the syntax for the router, use the question mark (**?**) online help function.

Defaults

The default value is off.

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bundle	read

Examples

The **debug bundlegmr distrib state** command lets you only get one message per link each time the selection logic runs. The following example shows a physical member interface for the port with the **debug bundlemgr distrib state** command:

```
RP/0/RP0/CPU0:router# debug bundlemgr distrib state port pos

RP/0/RP0/CPU0:router# BM-DISTRIB[124]: Loopback interface - link POS0_3_0_0 NOT
AGGREGATABLE
RP/0/RP0/CPU0:router# BM-DISTRIB[124]: LACP link POS0_3_0_0 is IN SYNC or COLLECTING
RP/0/RP0/CPU0:router# BM-DISTRIB[124]: LACP link POS0_3_0_0 is DISTRIBUTING
```

Related Commands

Command	Description
debug bundlemgr local packets	Enables LACP and Marker PDU debugging.
debug bundlemgr local state	Enables the LACP state machine debugging for the state machines that are implemented by the bundle manager process running on the MSCs.

Bidirectional Forwarding Detection Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to debug Bidirectional Forwarding Detection (BFD).

debug bfd client-api

To debug information for the BFD server application programming interface (API) with API clients, use the **debug bfd client-api** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bfd client-api

no debug bfd client-api

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bgp	read
or ospf	read
or isis	read
or mpols-te	read

Examples

The following example shows sample output with the **debug bfd client-api** command:

```
RP/0/RP0/CPU0:router# debug bfd client-api

RP/0/RP0/CPU0:router# bfd[122]: DBG-API[1]: Client registered:
clinfo=482300cc, client=ospf, jid=362, node=node0_RP1_CPU0, recreate timer=60
```

Related Commands

Command	Description
debug bfd errors	Specifies debug information for all error conditions.

debug bfd errors

To debug information for all error conditions, use the **debug bfd errors** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bfd errors [**client-api**] [**fsm** | **ipv4** [**packet**] | **oper** | **process**] [**location** *node-id*]

no debug bfd errors [**client-api**] [**fsm** | **ipv4** [**packet**] | **oper** | **process**] [**location** *node-id*]

Syntax Description

client-api	(Optional) Specifies debug information for errors with the BFD server API with clients.
fsm	(Optional) Specifies debug information for errors within the finite state machine (FSM) module.
ipv4 [**packet**]	(Optional) Specifies debug information for errors in IP Version 4 (IPv4) sessions. Packet is an additional filter for IPv4 packet errors.
oper	(Optional) Specifies debug information for operational errors.
process	(Optional) Specifies debug information for process and system database (SysDB) errors.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

When you use the **debug bfd errors** command, the default value is to enable all error debugging for all locations.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bgp	read
or ospf	read
or isis	read
or mpols-te	read

Examples

The following example shows sample output from a temporary failure during the process restart of the BFD server on the RP with the **debug bfd errors** command:

```
RP/0/RP0/CPU0:router# debug bfd errors location 0/0/CPU0

LC/0/0/CPU0:Jun 21 11:42:59 : bfd_agent[105]: ERR-Proc[1]:
bfd_server_open_handler:1008, Error in ipi bind rc 6 (No such device or
address)
```

Related Commands

Command	Description
debug bfd client-api	Specifies debug information for the BFD server API with API clients.
debug bfd fsm	Specifies debug information within the FSM module.
debug bfd ipv4	Specifies debug information for IPv4 sessions.
debug bfd process	Specifies debug information for process and SysDB events.

debug bfd filter

To debug information based on the applicable parameters that are filtered, use the **debug bfd filter** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bfd filter {**interface** *type instance* | **ipv4 ACL** *name*}

no debug bfd filter {**interface** *type instance* | **ipv4 ACL** *name*}

Syntax Description

interface	(Optional) Limit the output to the specified interface.
type	Interface type. For more information, use the question mark (**?**) online help function.
instance	Either a physical interface instance or a virtual interface instance as follows: • Physical interface instance. Naming notation is *rack*/*slot*/*module*/*port* and a slash between values is required as part of the notation. – *rack*: Chassis number of the rack. – *slot*: Physical slot number of the modular services card or line card. – *module*: Module number. A physical layer interface module (PLIM) is always 0. – *port*: Physical port number of the interface. **Note** In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0. – Virtual interface instance. Number range varies depending on interface type. For more information about the syntax for the router, use the question mark (**?**) online help function.
ipv4 ACL *name*	Specifies the debug output that is filtered based on a match for the access list specified by *name*.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bgp	read
or ospf	read
or isis	read
or mpols-te	read

Examples

The following example shows how to enable debugging information for the PoS interface with the **debug bfd filter** command:

```
RP/0/RP0/CPU0:router# debug bfd filter interface pos 0/2/0/0
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug bfd ipv4	Debugs information for IPv4 sessions.

debug bfd fsm

To debug information within the FSM module, use the **debug bfd fsm** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bfd fsm [**location** *node-id*]

no debug bfd fsm [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

If you do not enable the location filter, the default value is to enable debugging on all locations.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bgp	read
or ospf	read
or isis	read
or mpols-te	read

Examples

The following example shows sample output with the **debug bfd fsm** command for a specified location:

```
RP/0/RP0/CPU0:router# debug bfd fsm location 0/0/CPU0

LC/0/0/CPU0:Jun 21 11:46:42 : bfd_agent[105]: Session [2.2.2.1,2.2.2.2,POS0_0_0_0,65539],
event Remote state init, state DOWN -> UP
```

Related Commands

Command	Description
debug bfd client-api	Specifies debug information for the BFD server API with API clients.
debug bfd errors	Specifies debug information for all error conditions.
debug bfd ipv4	Specifies debug information for IPv4 sessions.

debug bfd ipv4

To debug information for IPv4 sessions, use the **debug bfd ipv4** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bfd ipv4 [**packet**] [**location** *node-id*]

no debug bfd ipv4 [**packet**] [**location** *node-id*]

Syntax Description

packet	(Optional) Specifies debug information for IPv4 packets that displays changes only in packets received and transmitted.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

If you do not enable the location filter, the default value is to enable debugging on all locations.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bgp	read
or ospf	read
or isis	read
or mpols-te	read

Examples

The following example shows sample output with the **debug bfd ipv4** command for a specified location:

```
RP/0/RP0/CPU0:router# debug bfd ipv4 packet location 0/0/CPU0
```

```
LC/0/0/CPU0:Jun 21 11:47:55 : bfd_agent[105]: Rx IP: src 2.2.2.2, dst 2.2.2.1, plen 24.
BFD: diag 0, state 3, P/F/C/A/D (0/0/1/0/0), mult 3, len 24, loc/rem discr 65537 65539, tx
2000000, rx 2000000, rx echo 1000
```

Related Commands

Command	Description
debug bfd client-api	Specifies debug information for the BFD server API with API clients.
debug bfd errors	Specifies debug information for all error conditions.
debug bfd fsm	Specifies debug information within the FSM module.
debug bfd process	Specifies debug information for process and SysDB events.

debug bfd lib

To debug information for the BFD clients for the client API, use the **debug bfd lib** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bfd lib [**errors** | **jid** *jobid*] [**location** *node-id*]

no debug bfd lib [**errors** | **jid** *jobid*] [**location** *node-id*]

Syntax Description

errors	(Optional) Specifies debug information for errors only for the BFD clients for the client API.
jid *jobid*	(Optional) Specifies the filter to display debugging only for the client process specified by *jobid*.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default value is to enable debugging for all clients.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bgp	read
or ospf	read
or isis	read
or mpols-te	read

Examples

The following example shows sample output with the **debug bfd lib** command for a specified location:

```
RP/0/RP0/CPU0:router# debug bfd lib location 0/0/CPU0

RP/0/RP0/CPU0:router# ospf[362]: DBG-Lib: bfd_api_bind:671, Client successfully registered
```

Related Commands

Command	Description
debug bfd client-api	Specifies debug information for the BFD server API with API clients.
debug bfd errors	Specifies debug information for all error conditions.

debug bfd process

To debug information for process and SysDB events, use the **debug bfd process** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug bfd process [**location** *node-id*]

no debug bfd process [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

If you do not enable the location filter, the default value is to enable debugging on all locations.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
bgp	read
or ospf	read
or isis	read
or mpols-te	read

Examples

The following example shows sample output with the **debug bfd proces**s command for a specified location:

```
RP/0/RP0/CPU0:router# debug bfd process location 0/0/cpu0

LC/0/0/CPU0:Jun 21 11:49:41 : bfd_agent[105]: DBG-Proc[1]: Local discr is 0x10000,
0x4824b0f4
```

Related Commands

Command	Description
debug bfd client-api	Specifies debug information for the BFD server API with API clients.
debug bfd errors	Specifies debug information for all error conditions.
debug bfd fsm	Specifies debug information within the FSM module.
debug bfd ipv4	Specifies debug information for IPv4 sessions.

Platform and Driver Debug Commands on Cisco IOS XR Software

This module describes the commands that provide useful information for debugging the platform and driver components of the Cisco CRS-1 and the Cisco XR 12000 Series Router.

debug asic-scan

To display debugging information about the ASIC scan, use the **debug asic-scan** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug asic-scan [**level** [*level* | **error** [**level** *level*] | **trace** [**level** *level*] | **xsvf** [**level** *level*]] | **lib** [**error** [**level** *level*] | **level** *level* | **trace** [**level** *level*]] [**location** *node-id*]

no debug asic-scan [**level** [*level* | **error** [**level** *level*] | **trace** [**level** *level*] | **xsvf** [**level** *level*]] | **lib** [**error** [**level** *level*] | **level** *level*| **trace** [**level** *level*]] [**location** *node-id*]

Syntax Description

level *level*	(Optional) Specifies the level of output to display. Range is from 1 through 3, where level 3 provides the most detail.
error	(Optional) Displays information about ASIC scan errors.
trace	(Optional) Displays information about ASIC scan trace.
xsvf	(Optional) Displays information about the ASIC scan XSVF.
lib	(Optional) Displays application programming interface (API) library debugging flags.
location *node-id*	(Optional) Displays ASIC scan information for a specific node. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable debugging information for the ASIC scan for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug asic-scan
```

The following example shows how to enable debugging information about the ASIC scan with the API library debugging flags turned on for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug asic-scan level 2
```

The following example shows how to enable debugging information about the ASIC scan with the API library debugging flags turned on for the CPU node installed in Slot 0:

```
RP/0/RP0/CPU0:router# debug asic-scan lib location 0/0/CPU0
```

debug cctl

To display debugging information about chassis control driver functionality, use the **debug cctl** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug cctl [**server**] [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cctl [**server**] [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

server	(Optional) Displays information about the cBus controller (CCTL) low water mark (LWM) server.
job *jobid*	(Optional) Displays chassis control driver functionality for a specific job. Range is from 0 through 4294967295.
process *string*	(Optional) Displays chassis control driver functionality for a specific process. Replace the *string* argument with a process ID or name.
location *node-id*	(Optional) Displays chassis control driver functionality for a specific node. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

Admin 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	Modification
Release 3.3.0	No modification.
Release 3.4.0	The following keywords were removed from the **debug cctl** command sytax: • **alarm** • **all** • **api** • **edm** • **errors** • **helperfunc** • **ideeprom** • **internalapi** • **monitor** • **obfl** • **reset** • **trap**

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
system	read

Examples

The following example shows how to enable debugging information for the complete functionality of Chassis Control Driver:

```
RP/0/RP0/CPU0:router(admin)# debug cctl server
```

debug cetftp

To display debugging information about the CE-TFTP server, use the **debug cetftp** command in administrative EXEC mode. To disable debugging, use the **no** form of this command.

debug cetftp {**all** | **arp** | **brief** | **cfg** | **detail** | **enet** | **error** | **ip** | **server** | **timer**}

no debug cetftp {**all** | **arp** | **brief** | **cfg** | **detail** | **enet** | **error** | **ip** | **server** | **timer**}

Syntax Description

all	Turns on all the debug options for the CE-TFTP server.
arp	Displays information about the CE-TFTP ARP interface.
brief	Displays brief CE-TFTP information. This is equivalent to logging.
cfg	Displays information about the CE-TFTP CFG interface.
detail	Displays information about the CE-TFTP. This is equivalent to tracing.
enet	Displays information about the control Ethernet and IP layer of the CE-TFTP interface.
error	Displays information about CE-TFTP errors from internal functions.
ip	Displays information about the CE-TFTP IP interface.
server	Displays information about the CE-TFTP server interface.
timer	Displays information about the CE-TFTP TIMER interface.

Defaults

No default behavior or values

Command Modes

Administrative 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	The **debug cetftp** command was moved from EXEC mode to administrative EXEC mode.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
root-system	read

Examples

The following example shows how to enable debugging information for the CE-TFTP server:

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# debug cetftp all
```

The following example shows how to enable debugging information for CE-TFTP errors from internal functions.

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/CPU0:router(admin)# debug cetftp error
```

Related Commands

Command	Description
ce tftp server enable	Enables or disables Trivial File Transfer Protocol (TFTP) on a specific directory, or to enable files to be written to the TFTP server.

debug cpuctrl api

To turn on all debugging messages for the CPU controller driver API DLL, use the **debug cpuctrl api** command in EXEC mode. To disable debugging messages, use the **no** form of this command.

debug cpuctrl api [**cdma** | **connect** | **errors** | **fatal** | **info** | **pdma** | **pio**] [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl api [**cdma** | **connect** | **errors** | **fatal** | **info** | **pdma** | **pio**] [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

cdma	(Optional) Turns on CDMA debugging messages from the Cpuctrl driver API DLL.
connect	(Optional) Turns on connect debugging messages from the Cpuctrl driver API DLL.
errors	(Optional) Turns on error debugging messages from the Cpuctrl driver API DLL.
fatal	(Optional) Turns on fatal debugging messages from the Cpuctrl driver API DLL.
info	(Optional) Turns on info debugging messages from the Cpuctrl driver API DLL.
pdma	(Optional) Turns on PDMA debugging messages from the Cpuctrl Driver API DLL.
pio	(Optional) Turns on PIO debugging messages from the Cpuctrl Driver API DLL.
job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all debugging messages for the CPU driver API DLL. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to enable debugging information for the CPU controller driver API DLL:

```
RP/0/RP0/CPU0:router# debug cpuctrl api
```

The following example shows how to enable debugging information for the CPU controller driver API DLL for the job with the ID 200:

```
RP/0/RP0/CPU0:router# debug cpuctrl api info job 200
```

Related Commands

Command	Description
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl asic-error	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.

Command	Description
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl asic-error

To turn on error messages from the CPU controller driver asic errors, use the **debug cpuctrl asic-error** command in EXEC mode. To disable debugging messages, use the **no** form of this command.

debug cpuctrl asic-error [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl asic-error [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all debugging messages for the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to enable asic error messages for the CPU controller driver:

```
RP/0/RP0/CPU0:router# debug cpuctrl asic-error
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl asic-info

To turn on informational messages from the CPU controller driver asic errors, use the **debug cpuctrl asic-error** command in EXEC mode. To disable debugging messages, use the **no** form of this command.

debug cpuctrl asic-info [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl asic-info [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all debugging messages for the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to enable asic error messages for the CPU controller driver:

```
RP/0/RP0/CPU0:router# debug cpuctrl asic-error
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl detail

To turn on all debugging messages from the CPU controller driver, use the **debug cpuctrl detail** command in EXEC mode. To disable debugging messages, use the **no** form of this command.

debug cpuctrl detail [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl detail [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all debugging messages for the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to enable debugging information for the CPU controller driver:

```
RP/0/RP0/CPU0:router# debug cpuctrl detail
```

The following example shows how to enable debugging information for the CPU controller driver on a specific node (in this example, the CPU node in Slot 2):

```
RP/0/RP0/CPU0:router# debug cpuctrl detail 0/2/CPU0
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl entryexit

To turn on all entry and exit debugging messages from CPU controller driver, use the **debug cpuctrl entryexit** command in EXEC mode. To disable debugging messages, use the **no** form of this command.

debug cpuctrl entryexit [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl entryexit [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all entry and exit messages from the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to turn on all entry and exit messages from CPU controller driver:

```
RP/0/RP0/CPU0:router# debug cpuctrl enteryexit
```

The following example shows how to turn on all entry and exit messages from CPU controller driver for the job with the ID 400:

```
RP/0/RP0/CPU0:router# debug cpuctrl enteryexit job 400
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl asic-error	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl error

To turn on debugging error messages from the CPU controller, use the **debug cpuctrl error** command in exec mode. To disable debugging messages, use the **no** form of this command.

debug cpuctrl error [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl error [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all error messages from the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to turn on all error messages from the CPU controller:

```
RP/0/RP0/CPU0:router# debug cpuctrl error
```

The following example shows how to turn on error messages from the CPU controller on a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug cpuctrl error location 0/2/CPU0
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl asic-error	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl fatal

To turn on fatal messages from CPU controller driver, use the **debug cpuctrl fatal** command in EXEC mode. To disable fatal messages, use the **no** form of this command.

debug cpuctrl fatal [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl fatal [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all fatal messages from the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to turn on fatal messages from CPU controller driver on all nodes in the router:

```
RP/0/RP0/CPU0:router# debug cpuctrl fatal
```

The following example shows how to turn on fatal messages from CPU controller driver on the a specific job (the job with the ID 332):

```
RP/0/RP0/CPU0:router# debug cpuctrl fatal job 332
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl asic-error	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl info

To turn on informational messages from the CPU controller, use the **debug cpuctrl info** command in EXEC mode. To disable informational messages, use the **no** form of this command.

debug cpuctrl info [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug cpuctrl info [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on all informational debugging messages from the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to turn on informational messages from the CPU controller:

```
RP/0/RP0/CPU0:router# debug cpuctrl info
```

The following example shows how to turn on informational messages from the CPU controller on the process with the ID *name*:

```
RP/0/RP0/CPU0:router# debug cpuctrl info process name
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl asic-error	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl location

To turn on all debugging messages from the CPU controller driver on a specific node, use the **debug cpuctrl location** command in EXEC mode. To disable debugging messages, use the **no** form of this command.

debug cpuctrl location *node-id*

no debug cpuctrl location *node-id*

Syntax Description

location *node-id*	Specifies a node on which to turn on all debugging messages from the CPU driver. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to turn on all debugging messages from the CPU controller driver on a specific node (the CPU controller in Slot 2):

```
RP/0/RP0/CPU0:router# debug cpuctrl location 0/2/CPU0
```

Related Commands

Command	Description
debug cpuctrl api	Turns on all debugging messages for the CPU driver API DLL.
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl asic-error	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug egressq

To turn on all messages from the egress queue manager, use the **debug egressq** command in EXEC mode. To disable messages from the egress queue manager, use the **no** form of this command.

debug egressq [api [errors | **fatal** | **info**] [**job** *jobid* | **process** *word*] | **cdma** | **detail** | **eio** | **entryexit** | **error** | **fatal** | **info** | **interrupt** | **periodic**] [**location** *node-id*]

no debug egressq [api [errors | **fatal** | **info**] [**job** *jobid* | **process** *word*] | **cdma** | **detail** | **eio** | **entryexit** | **error** | **fatal** | **info** | **interrupt** | **periodic**] [**location** *node-id*]

Syntax Description

api	(Optional) Turns on messages from the egress queue manager API DLL.
errors	(Optional) Turns on all debug error messages from the egress queue manager API DLL.
fatal	(Optional) Turns on all fatal messages from the egress queue manager API DLL.
info	(Optional) Turns on informational messages from the egress queue manager API DLL.
job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
cdma	(Optional) Turns on all CDMA messages from the egress queue manager.
detail	(Optional) Turns on detailed messages from the egress queue manager.
eio	(Optional) Turns on EIO messages from the egress queue manager.
entryexit	(Optional) Turns on entry and exit messages from the egress queue manager.
error	(Optional) Turns on error messages from the egress queue manager.
fatal	(Optional) Turns on fatal messages from the egress queue manager.
info	(Optional) Turns on informational messages from the egress queue manager.
interrupt	(Optional) Turns on interrupt messages from the egress queue manager.
periodic	(Optional) Turns on periodic messages from the egress queue manager.
location *node-id*	(Optional) Specifies a node on which to turn on all debug error messages from the egress queue manager API DLL. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

Enter the **debug egressq** command without including any of the optional syntax to turn on all messages from the egress queue manager for the entire 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to turn all messages from the egress queue manager:

```
RP/0/RP0/CPU0:router# debug egressq
```

Related Commands

Command	Description
show controllers egressq eio links	Displays Elastic I/O (EIO) information for the egress queueing ASIC.
show controllers egressq group	Displays information about egress queue groups.
show controllers egressq interface	Displays information about interfaces associated with an egress queue.
show controllers egressq port	Displays egress queue information for a port, or for several ports.
show controllers egressq queue	Displays information about a specific egress queue, or a range of egress queues.
show controllers egressq statistic	Displays egress queue manager statistics.

debug ether

To display debugging information about Ethernet management, use the **debug ether** command in EXEC mode. To disable debugging information about Ethernet management, use the **no** form of this command.

debug ether {**all** | **errors** | **im** | **info** | **trace**} [**location** *node-id*]

no debug ether {**all** | **errors** | **im** | **info** | **trace**} [**location** *node-id*]

Syntax Description

all	Turns on all Ethernet management debugging options.
errors	Turns on Ethernet error messages.
im	Turns on Ethernet interface management messages.
info	Turns on Ethernet management driver informative messages.
trace	Turns on verbose Ethernet management tracing.
location *node-id*	(Optional) Specifies a node on which to turn on specific Ethernet management debugging options. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	On the Cisco XR 12000 Series Router, the **debug ether** command was updated to inlude the following syntax: • **all** • **errors** • **im** • **info** • **location** *node-id*

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to enable all Ethernet management debugging options for the entire router:

```
RP/0/RP0/CPU0:router# debug ether all
```

The following example shows how to enable Ethernet management driver informative messages on a specific node (the CPU node in Slot 2:

```
RP/0/RP0/CPU0:router# debug ether im
```

Related Commands

Command	Description
show controllers GigabitEthernet	Displays Gigabit Ethernet port information.
show controllers tengige	Displays 10-Gigabit Ethernet (TenGigE) port information.

debug fabricq

To turn on debugging messages from the fabric queue, use the **debug fabricq** command in EXEC mode. To disable debugging messages from the fabric queue, use the **no** form of this command.

debug fabricq [**asic** [**eio** | **entryexit** | **errors** | **fabric** | **fatal** | **fbp** | **info** | **init** | **interrupt** | **noreset** | **periodic** | **register** | **show**] | **api** | **detail** | **entryexit** | **error** | **fabric** | **fatal** | **fbp** | **info** | **init** | **periodic**] [**job** *jobid* | **process** *string*] [**location** *node-id*]

no debug fabricq [**asic** [**eio** | **entryexit** | **errors** | **fabric** | **fatal** | **fbp** | **info** | **init** | **interrupt** | **noreset** | **periodic** | **register** | **show**] | **api** | **detail** | **entryexit** | **error** | **fabric** | **fatal** | **fbp** | **info** | **init** | **periodic**] [**job** *jobid* | **process** *string*] [**location** *node-id*]

Syntax Description

asic	(Optional) Turns on debugging messages from the fabric queue ASIC DLL.
eio	(Optional) Turns on EIO library debugging for the fabric queue ASIC EIO links.
entryexit	(Optional) Turns on entryexit function messages from the fabric queue.
errors	(Optional) Turns on error messages from the fabric queue ASIC DLL.
fabric	(Optional) Turns on fabric messages from the fabric queue.
fatal	(Optional) Turns on fatal messages from the fabric queue.
fbp	(Optional) Turns on backpressure activity messages from the fabric queue.
info	(Optional) Turns on informational messages from the fabric queue.
init	(Optional) Turns on initialization messages from the fabric queue ASIC DLL.
interrupt	(Optional) Turns on interrupt messages from the fabric queue ASIC DLL.
noreset	(Optional) Turns off fabricq reset on error from the fabric queue ASIC DLL.
periodic	(Optional) Turns on periodic activity messages from the fabric queue.
register	(Optional) Turns on register access debugs from the fabric queue ASIC DLL.
show	(Optional) Turns on **show** command messages from the fabric queue ASIC DLL.
error	(Optional) Turns on error messages from the fabric queue.
job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
location *node-id*	(Optional) Specifies a node on which to turn on messages from the fabric queue. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

Enter the **debug fabricq** command without including any of the optional syntax to turn on all turn on debugging messages from the fabric queue for the entire 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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable all messages from the fabric queue ASIC DLL for the entire router:

```
RP/0/RP0/CPU0:router# debug fabricq asic
```

The following example shows how to enable EIO library debugging for the fabric queue ASIC EIO on for a specific node (the CPU node in Slot 2):

```
RP/0/RP0/CPU0:router# debug fabricq asic eio location 0/2/CPU0
```

Related Commands

Command	Description
clear controller fabricq counters all	Clears the fabric queue statistics for the application-specific integrated circuit (ASIC).
clear fabricq counters	Clears all fabric queue driver counters.
show controllers fabricq errors	Displays the count of hardware errors associated with the fabric queue driver.
show controllers fabricq queue	Displays information about the hardware queues of the performance route processor chopper and assembler FPGAs.

Command	Description
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.

debug fcram

To enable debugging information about the Fast Cycle Random Access Memory (FCRAM) in ASICs, use the **debug fcram** command in EXEC mode. To disable debugging information about the FCRAM in ASICs, use the **no** form of this command.

debug fcram {**chkpt** | **entryexit** | **errors** | **events** | **fatal** | **info**}

no debug fcram {**chkpt** | **entryexit** | **errors** | **events** | **fatal** | **info**}

Syntax Description

chkpt	Turns on checkpointing messages from the FCRAM in ASICs.
entryexit	Turns on entry and exit messages from the FCRAM in ASICs.
errors	Turns on error messages from the FCRAM in ASICs.
events	Turns on event messages from the FCRAM in ASICs.
fatal	Turns on fatal messages from the FCRAM in ASICs.
info	Turns on informational messages from the FCRAM in ASICs.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable checkpointing messages from the FCRAM in ASICs:

```
RP/0/RP0/CPU0:router# debug fcram chkpt
```

The following example shows how to enable fatal messages from the FCRAM in ASICs:

```
RP/0/RP0/CPU0:router# debug fcram fatal
```

debug generic

To enable generic debugging for the entire router, use the **debug generic** command in EXEC mode. To disable generic debugging for the entire router, use the **no** form of this command.

debug generic

no debug generic

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

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	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
basic-services	read, write

Examples

The following example shows how to enable generic debugging for the entire router:

```
RP/0/RP0/CPU0:router# debug generic
```

debug gsp-em

To display debugging information about Gigabit Switch Platform (GSP) Ethernet support, use the **debug gsp-em** command in EXEC mode. To disable debugging information about GSP Ethernet support, use the **no** form of this command.

debug gsp-em {**enet-addr** | **enet-error** | **enet-replay** | **enet-rx** | **enet-rx-hi** | **enet-rx-lo** | **enet-states** | **enet-tx** | **enet-tx-hi** | **enet-tx-lo**} [**location** *node-id*]

no debug gsp-em {**enet-addr** | **enet-error** | **enet-replay** | **enet-rx** | **enet-rx-hi** | **enet-rx-lo** | **enet-states** | **enet-tx** | **enet-tx-hi** | **enet-tx-lo**} [**location** *node-id*]

Syntax Description

enet-addr	Displays information pertaining to the setting and unsetting of the Ethernet address.
enet-error	Tracks all Ethernet DLL errors.
enet-replay	Displays information about Ethernet address replay.
enet-rx	Displays information about both high and low Ethernet receive streams.
enet-rx-hi	Displays information about high Ethernet receive streams.
enet-rx-lo	Displays information about low Ethernet receive streams.
enet-states	Displays information about Ethernet DLL states.
enet-tx	Displays information about both high and low Ethernet transmit streams.
enet-tx-hi |	Displays information about high Ethernet transmit streams.
enet-tx-lo	Displays information about low Ethernet transmit streams.
location *node-id*	(Optional) Specifies a particular node whose GSP Ethernet support information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sys-mgr	read

Examples

The following example shows how display information pertaining to the setting and unsetting of the Ethernet address for all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug gsp-em enet-addr
```

The following example shows how to display information pertaining to low Ethernet receive streams for a specific node (the CPU node in Slot 2):

```
RP/0/RP0/CPU0:router# debug gsp-em enet-rx-lo location 0/2/CPU0
```

debug gsp-fab

To display debugging information related to Gigabit Switch Platform (GSP) fabric support, use the **debug gsp-em** command in EXEC mode. To disable debugging information related to GSP fabric support, use the **no** form of this command.

debug gsp-fab {**fab-addr** | **fab-error** | **fab-replay** | **fab-rx** | **fab-rx-frr** | **fab-rx-hi** | **fab-rx-lo** | **fab-states** | **fab-tx** | **fab-tx-frr** | **fab-tx-hi** | **fab-tx-lo**} [**location** *node-id*]

no debug gsp-fab {**fab-addr** | **fab-error** | **fab-replay** | **fab-rx** | **fab-rx-frr** | **fab-rx-hi** | **fab-rx-lo** | **fab-states** | **fab-tx** | **fab-tx-frr** | **fab-tx-hi** | **fab-tx-lo**} [**location** *node-id*]

Syntax Description

fab-addr	Debugs the setting and unsetting of the fabric address.
fab-error	Tracks fabric DLL errors.
fab-replay	Debugs the fabric address replay.
fab-rx	Tracks GSP fabric receive.
fab-rx-frr	Tracks GSP fabric receive FRR queue.
fab-rx-hi	Tracks GSP fabric receive high priority queue.
fab-rx-lo	Tracks GSP fabric receive low queue.
fab-states	Debugs fabric DLL states.
fab-tx	Tracks GSP fabric transmit.
fab-tx-frr	Tracks GSP fabric transmit FRR queue.
fab-tx-hi	Tracks GSP fabric transmit hi queue.
fab-tx-lo	Tracks GSP fabric transmit low queue.
location *node-id*	(Optional) Specifies a node on whose GSP fabric support information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
sys-mgr	read

Examples

The following example shows how to display information related to the setting and unsetting of the fabric address for all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug gsp-fab fab-addr
```

The following example shows how to enable the tracking of fabric DLL errors on a specific node (the CPU node in Slot 2):

```
RP/0/RP0/CPU0:router# debug gsp-fab fab-error location 0/2/CPU0
```

debug ingressq

To display debugging information related to the ingress queue manager for all nodes installed in the router, use the **debug ingressq** command in EXEC mode. To disable debugging information related to the ingress queue manager for all nodes installed in the router, use the **no** form of this command.

debug ingressq

no debug ingressq

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to display information related to the ingress queue manager for all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq
```

Related Commands

Command	Description
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq api

To turn on debugging messages from the ingress queue API DLL, use the **debug ingressq api** command in EXEC mode. To disable debugging messages from the ingress queue API DLL, use the **no** form of this command.

debug ingressq api [**errors** | **fatal** | **info**] [**location** *node-id*]

no debug ingressq api [**errors** | **fatal** | **info**] [**location** *node-id*]

Syntax Description

errors	(Optional) Turns on error messages from the ingress queue API DLL.
fatal	(Optional) Turns on fatal messages from the ingress queue API DLL.
info	(Optional) Turns on info messages from the ingress queue API DLL.
location *node-id*	(Optional) Specifies a node on which to turn on messages from the ingress queue API DLL. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable all messages from the ingress queue API DLL on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq api
```

The following example shows how to enable error messages from the ingress queue API DLL on a specific node (the CPU in Slot 0):

```
RP/0/RP0/CPU0:router# debug ingressq api location 0/0/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq asic

To enable debugging messages from the ingress queue ASIC DLL, use the **debug ingressq asic** command in EXEC mode. To disable debugging messages from the ingress queue ASIC DLL, use the **no** form of this command.

debug ingressq asic [**cdma** | **detail** | **eio** | **error** | **fatal** | **gaspp** | **info** | **intr** | **pio**] [**location** *node-id*]

no debug ingressq asic [**cdma** | **detail** | **eio** | **error** | **fatal** | **gaspp** | **info** | **intr** | **pio**] [**location** *node-id*]

Syntax Description

cdma	(Optional) Turns on detailed CDMA debug messages from the ingress queue ASIC DLL.
detail	(Optional) Turns on detailed debug messages from the ingress queue ASIC DLL.
eio	(Optional) Turns on EIO messages from the ingress queue ASIC DLL.
error	(Optional) Turns on error messages from the ingress queue ASIC DLL.
fatal	(Optional) Turns on fatal messages from the ingress queue ASIC DLL.
gaspp	(Optional) Turns on GASPP messages from the ingress queue ASIC DLL.
info	(Optional) Turns on informational messages from the ingress queue ASIC DLL.
intr	(Optional) Turns on error interrupt messages from the ingress queue ASIC DLL.
pio	(Optional) Turns on detailed PIO debug messages from the ingress queue ASIC DLL.
location *node-id*	(Optional) Specifies a node on which to turn on messages from the ingress queue ASIC DLL. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable all messages from the ingress queue ASIC DLL on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq asic
```

The following example shows how to enable messages from the ingress queue ASIC DLL on a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug ingressq asic location 0/2/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq detail

To turn on detailed debug messages from the ingress queue, use the **debug ingressq detail** command in EXEC mode. To disable detailed debug messages from the ingress queue, use the **no** form of this command.

debug ingressq detail [**location** *node-id*]

no debug ingressq detail [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on detailed debug messages from the ingress queue. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable detailed debug messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq detail
```

The following example shows how to enable detailed debug messages from the ingress queue on a specific node (the CPU in Slot 0):

```
RP/0/RP0/CPU0:router# debug ingressq detail location 0/0/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq entryexit

To turn on entry and exit messages from the ingress queue, use the **debug ingressq entryexit** command in EXEC mode. To disable entry and exit messages from the ingress queue, use the **no** form of this command.

debug ingressq entryexit [**location** *node-id*]

no debug ingressq entryexit [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on entry and exit messages from the ingress queue. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable entry and exit messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq entryexit
```

The following example shows how to enable entry and exit messages from the ingress queue on a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug ingressq entryexit location 0/2/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq error

To turn on error messages from the ingress queue, use the **debug ingressq error** command in EXEC mode. To disable error messages from the ingress queue, use the **no** form of this command.

debug ingressq error [**location** *node-id*]

no debug ingressq error [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on error messages from the ingress queue. The *node-id* argument is expressed in the *rack/slot/module* notation. Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable error messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq error
```

The following example shows how to enable error messages from the ingress queue on a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug ingressq error location 0/2/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq fatal

To turn on fatal messages from the ingress queue, use the **debug ingressq fatal** command in EXEC mode. To disable fabric messages from the ingress queue, use the **no** form of this command.

debug ingressq fatal [**location** *node-id*]

no debug ingressq fatal [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on fabric messages from the ingress queue. The *node-id* argument is expressed in the *rack/slot/module* notation. Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable fatal messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq fatal
```

The following example shows how to enable fatal messages from the ingress queue on a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug ingressq fatal location 0/2/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq fabric

To turn on fabric messages from the ingress queue, use the **debug ingressq fabric** command in EXEC mode. To disable fabric messages from the ingress queue, use the **no** form of this command.

debug ingressq fabric [**location** *node-id*]

no debug ingressq fabric [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on fabric messages from the ingress queue. The *node-id* argument is expressed in the *rack/slot/module* notation. Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable fabric messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq fabric
```

The following example shows how to enable fabric messages from the ingress queue on a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug ingressq fabric location 0/2/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq info

To turn on informational messages from the ingress queue, use the **debug ingressq info** command in EXEC mode. To disable informational messages from the ingress queue, use the **no** form of this command.

debug ingressq info [**location** *node-id*]

no debug ingressq info [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on informational messages from the ingress queue. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable informational messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq info
```

The following example shows how to enable informational messages from the ingress queue on a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug ingressq info location 0/2/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq location

To display debugging information related to the ingress queue manager on a specific node, use the **debug ingressq location** command in EXEC mode. To disable debugging information related to the ingress queue manager on a specific node, use the **no** form of this command.

debug ingressq location *node-id*

no debug ingressq location *node-id*

Syntax Description

node-id	Specifies a node whose ingress queue manager information you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to display information related to the ingress queue manager for a specific node (the CPU0 node installed in Slot *2*):

```
RP/0/RP0/CPU0:router# debug ingressq location 0/2/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug pfilter-ea

To turn on debugging messages related to the pfilter electrical absorption (EA), use the **debug pfilter-ea** command in EXEC mode. To turn off debugging messages that are related to the pfilter EA, use the **no** form of this command.

On the Cisco CRS-1:

debug pfilter-ea {**all** | **errors** | **info** | **rlb**} [**location** *node-id*]

no debug pfilter-ea {**all** | **errors** | **info** | **rlb**} [**location** *node-id*]

On the Cisco XR 12000 Series Router:

debug pfilter-ea {**all** | **detail** | **errors** | **info**}

no debug pfilter-ea {**all** | **detail** | **errors** | **info**}

Syntax Description

all	Turns on pfilter EA error debug messages.
errors	Turns on pfilter electrical absorption (EA) error messages.
info	Turns on pfilter electrical absorption (EA) informational messages.
rlb	Turns on detailed pfilter EA Range Logic Block (RLB) debug messages. **Note** The **rlb** *node-id* keyword argument is available on the Cisco CRS-1 only.
detail	Turns on detailed pfilter EA error debug messages. Turns on detailed pfilter EA Range Logic Block (RLB) debug messages. **Note** The **detail** *node-id* keyword argument is available on the Cisco XR 12000 Series Router only.
location *node-id*	(Optional) Specifies a node on which to turn on pfilter-EA RLB messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router. **Note** The **location** *node-id* keyword argument is available on the Cisco CRS-1 only.

Defaults

No default behavior or values

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	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to turn on error messages related to the pfilter EA for all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug pfilter-ea all
```

The following example shows how to turn on all error messages related to the pfilter EA for a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug pfilter-ea all location 0/2/CPU0
```

Related Commands

Command	Description
debug pfilter-ea	Turns on detailed pfilter EA debug messages for a specific node, or for all nodes installed in the router.

debug pladrv

To enable physical layer interface module (PLIM) link ASIC debugging on a router, use the **debug pladrv** command in EXEC mode. To disable PLIM link ASIC debugging on a router, use the **no** form of this command.

debug pladrv [**api** [**error | info** [**job** *jobid* | **process** *string*] | **job** *jobid* | **process** *string*| **trace** [**job** *jobid* | **process** *string*]] | **eio** | **error** | **info** | **int** | **memory** | **periodic** | **trace**] [**location** *node-id*]

no debug pladrv api [**api** [**error | info** [**job** *jobid* | **process** *string*] | **job** *jobid* | **process** *string*| **trace** [**job** *jobid* | **process** *string*]] | **eio** | **error** | **info** | **int** | **memory** | **periodic** | **trace**] [**location** *node-id*]

Syntax Description

api	(Optional) Displays debugging information related to the platform client API calls on the physical layer interface module (PLIM) link ASIC.
error	(Optional) Turns on API errors.
info	(Optional) Enables physical layer interface module (PLIM) link ASIC interrupts.
job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295.
process *string*	(Optional) Specifies a process name or ID.
trace	(Optional) Turns on turn on PLIM link ASIC tracing.
eio	(Optional) Displays debugging information related to physical layer interface module (PLIM) link ASIC Elastic I/O (EIO) training.
error	(Optional) Enables physical layer interface module (PLIM) link ASIC error messages.
info	(Optional) Enables physical layer interface module (PLIM) link ASIC informational messages.
int	(Optional) Enables physical layer interface module (PLIM) link ASIC interrupt messages.
memory	(Optional) Enables physical layer interface module (PLIM) link ASIC memory debugging
periodic	(Optional) Enables physical layer interface module (PLIM) link ASIC periodic messages.
location *node-id*	(Optional) Specifies a node whose platform client API calls you want to display. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to display information related to platform client API calls on the PLIM link ASIC for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug pladrv api

LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: entering pla_periodic_handler
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: pla_periodic_handler: pla peiodic
 timer
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: -->pla_update_gb_stats
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: -->pla_read_rmn
```

The following example shows how to display information related to PLA client API calls on the PLIM link ASIC for a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug pladrv api trace location 0/2/CPU0
```

debug plim

To enable physical layer interface module (PLIM) debugging operations, use the **debug plim** command in EXEC mode. To disable PLIM debugging operations, use the **no** form of this command.

On the Cisco CRS-1:

debug plim {**all** | **eio** | **errors** | **events** | **gaspp** | **im** | **info** | **mapping** | **operations** | **periodic** | **pio** | **trace**} [**job** *jobid* | **process** *string*} [**location** *node-id*]

no debug plim {**all** | **eio** | **errors** | **events** | **gaspp** | **im** | **info** | **mapping** | **operations** | **periodic** | **pio** | **trace**} [**job** *jobid* | **process** *string*] [**location** *node-id*]

On the Cisco XR 12000 Series Router:

debug plim {**all** | **eio** | **errors** | **events** | **gaspp** | **ge-4p-vlan** {**all** |**errors** | **info** | **periodic**} | **im** | **info** | **jdam** {**all** | **rxtx-buf** | **sram** | **tcam** | **tx-port-map** | **vlan**} | **mapping** | **operations** | **periodic** | **pio** | **trace**} [**location** *node-id*]

no debug plim {**all** | **eio** | **errors** | **events** | **gaspp** | **ge-4p-vlan** {**all** |**errors** | **info** | **periodic**} | **im** | **info** | **jdam** {**all** | **rxtx-buf** | **sram** | **tcam** | **tx-port-map** | **vlan**} | **mapping** | **operations** | **periodic** | **pio** | **trace**} [**location** *node-id*]

Syntax Description

all	Enables all PLIM debugging options.
eio	Enables PLIM ASIC eio operations.
errors	Turns on PLIM errors.
events	Enables PLIM hardware event debugging.
gaspp	Enables PLIM ASIC Peek and Poke library debugging.
ge-4p-vlan	PLIM 4P GE VLAN Debugging **Note** The **ge-4p-vlan** keyword is available on the Cisco XR 12000 Series Router only.
im	Enables PLIM interface manager debugging.
info	Turns on PLIM driver informative messages.
jdam	Enables PLIM 4P GE JDAM debugging **Note** The **jdam** keyword is available on the Cisco XR 12000 Series Router only.
rxtx-buf	Enables receive and transmit buffer configuration debugging on the PLIM 4P GE JDAM. **Note** The **rxtx-buf** keyword is available on the Cisco XR 12000 Series Router only.
sram	Enables SRAM debugging on the PLIM 4P GE JDAM. **Note** The **sram** keyword is available on the Cisco XR 12000 Series Router only.
tcam	Enables TCAM debugging one the PLIM 4P GE JDAM. **Note** The **tcam** keyword is available on the Cisco XR 12000 Series Router only.

tx-port-map	Enables transmit port map configuration debugging PLIM 4P GE JDAM. **Note** The **tx-port-map** keyword is available on the Cisco XR 12000 Series Router only.
vlan	Enables PLIM Vlan debugging on the PLIM 4P GE JDAM. **Note** The **vlan** keyword is available on the Cisco XR 12000 Series Router only.
mapping	Enables PLIM hardware mapping debugging.
operations	Enables PLIM hardware operations debugging.
periodic	Enables PLIM hardware periodic processing debugging.
pio	Enables PLIM PIO access debugging.
trace	Enables verbose PLIM tracing.
job *jobid*	(Optional) Specifies a job. Range is from 0 through 4294967295. **Note** The **job** *jobid* keyword argument is available on the Cisco CRS-1 only.
process *string*	(Optional) Specifies a process name or ID. **Note** The **process** *string* keyword argument is available on the Cisco CRS-1 only.
location *node-id*	(Optional) Specifies a node on which to turn on platform manager messages from the hfr_pmlib DLL. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
drivers	read, write

Examples

The following example shows how to enable all PLIM debugging options on all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug plim all
```

The following example shows how to enable verbose PLIM tracing on a specific job (the job with the ID 205):

```
RP/0/RP0/CPU0:router# debug plim trace job 205
```

debug tcam-mgr cam entry update

To turn on TCAM manager cam entry update debug messages for all nodes installed in the router, or for a specific node, use the **debug tcam-mgr errors** command in EXEC mode. To disable TCAM manager error condition debug messages for all nodes installed in the router, use the **no** form of this command.

debug tcam-mgr cam entry update [**location** *node-id*]

no debug tcam-mgr cam entry update [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager error condition debug messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable cam entry upate debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr cam entry update
```

The following example shows how to enable cam entry update debug messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr cam entry update location 0/2/CPU0
```

debug tcam-mgr chkpt

To turn on TCAM manager checkpointing operations debug messages, use the **debug tcam-mgr chkpt** command in EXEC mode. To disable TCAM manager checkpointing operations content or error debug messages, use the **no** form of this command.

debug tcam-mgr chkpt {**content** | **errors**} [**location** *node-id*]

no debug tcam-mgr chkpt {**content** | **errors**} [**location** *node-id*]

Syntax Description

content	Turns on content error messages.
errors	Turns on run-time error messages.
location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager checkpointing operations debug messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable TCAM manager checkpointing operations content messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr chkpt content
```

The following example shows how to enable TCAM manager checkpointing operations error messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr chkpt error location 0/2/CPU0
```

debug tcam-mgr client

To turn on TCAM manager client dynamic link library (DLL) debug messages, use the **debug tcam-mgr client** command in EXEC mode. To disable TCAM manager client DLL debug messages, use the **no** form of this command.

debug tcam-mgr client {**errors** | **info** | **ipc** | **notif** |**persistent-errors**} [**location** *node-id*]

no debug tcam-mgr client {**errors** | **info** | **ipc** | **notif** |**persistent-errors**} [**location** *node-id*]

Syntax Description

errors	Turns on TCAM manager run-time error messages.
info	Turns on informational messages from the TCAM manager client DLL.
ipc	Turns on IPC messages from the TCAM manager client to the server.
notif	Turns on notifications from the TCAM manager client to the client
persistent-errors	Turns on persistent TCAM manager error messages. **Note** TCAM manager error messages are typically due to incorrect API usage.
location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager client DLL debug messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable informational messages from the TCAM manager client DLL for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr client info
```

The following example shows how to enable persistent TCAM manager error messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr client persistent-errors location 0/2/CPU0
```

debug tcam-mgr errors

To turn on TCAM manager error condition debug messages for all nodes installed in the router, or for a specific node, use the **debug tcam-mgr errors** command in EXEC mode. To disable TCAM manager error condition debug messages for all nodes installed in the router, use the **no** form of this command.

debug tcam-mgr errors [**location** *node-id*]

no debug tcam-mgr errors [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager error condition debug messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable error condition debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr errorS
```

The following example shows how to enable error condition debug messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr errors location 0/2/CPU0
```

debug tcam-mgr events

To turn on TCAM manager non-resource allocation event messages, use the **debug tcam-mgr events** command in EXEC mode. To disable TCAM manager non-resource allocation event messages, use the **no** form of this command.

debug tcam-mgr events [**location** *node-id*]

no debug tcam-mgr events [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager non-resource allocation event messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable TCAM manager non-resource allocation event messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr events
```

The following example shows how to enable TCAM manager non-resource allocation event messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr events location 0/2/CPU0
```

debug tcam-mgr prefix-compress

To turn on TCAM manager IPv6 prefix compression debug messages, use the **debug tcam-mgr prefix-compress** command in EXEC mode. To disable TCAM manager IPv6 prefix compression debug messages, use the **no** form of this command.

debug tcam-mgr prefix-compress {**errors** | **incremental-update-table** | **processing** | **profiling** | **result** | **trace**} [**location** *node-id*]

no debug tcam-mgr prefix-compress {**errors** | **incremental-update-table** | **processing** | **profiling** | **result** | **trace**} [**location** *node-id*]

Syntax Description

errors	Turns on TCAM IPv6 prefix compression error messages.
incremental-update-table	Turns on TCAM IPv6 prefix compression incremental update table debug messages.
processing	Turns on TCAM IPv6 prefix compression processing messages.
profiling	Turns on TCAM IPv6 prefix compression profiling messages.
result	Turns on TCAM IPv6 prefix compression result messages.
trace	Turns on detailed TCAM IPv6 prefix compression trace messages.
location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager IPv6 prefix compression debug messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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	The **incremental-update-table** and **result** keywords were added to the **debug tcam-mgr prefix-compress** command syntax.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable TCAM IPv6 prefix compression error messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr prefix-compress errors
```

The following example shows how to enable detailed TCAM IPv6 prefix compression trace messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr prefix-compress trace location 0/2/CPU0
```

debug tcam-mgr processing

To turn on detailed TCAM manager event processing debug messages, use the **debug tcam-mgr processing** command in EXEC mode. To disable detailed TCAM manager event processing debug messages, use the **no** form of this command.

debug tcam-mgr processing [**location** *node-id*]

no debug tcam-mgr processing [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on detailed TCAM manager event processing debug messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable detailed TCAM manager event processing debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing errors
```

The following example shows how to enable detailed TCAM manager event processing debug messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing location 0/2/CPU0
```

debug tcam-mgr resalloc

To turn on TCAM manager resource allocation event messages, use the **debug tcam-mgr resalloc** command in EXEC mode. To disable TCAM manager resource allocation event messages, use the **no** form of this command.

debug tcam-mgr resalloc [**location** *node-id*]

no debug tcam-mgr resalloc [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager resource allocation event messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable TCAM manager resource allocation event messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr resalloc
```

The following example shows how to enable TCAM manager resource allocation event messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr resalloc location 0/2/CPU0
```

debug tcam-mgr rlb

To turn on TCAM manager Range Logic Block (RLB) debug messages, use the **debug tcam-mgr rlb** command in EXEC mode. To disable TCAM manager RLB debug messages, use the **no** form of this command.

debug tcam-mgr rlb {**errors** | **events** | **trace**} [**location** *node-id*]

no debug tcam-mgr rlb {**errors** | **events** | **trace**} [**location** *node-id*]

Syntax Description

errors	Turns on TCAM RLB debug error condition messages.
events	Turns on TCAM RLB debug messages for RLB use events.
trace	Turns on TCAM RLB debug messages for function call level trace.
location *node-id*	(Optional) Specifies a node on which to turn on TCAM manager RLB debug messages. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable TCAM RLB debug error condition messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing errors
```

The following example shows how to enable TCAM RLB debug error condition messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing location 0/2/CPU0
```

debug tcam-mgr scrub

To scrub TCAM manager debug messages, use the **debug tcam-mgr scrub** command in EXEC mode. To disable detailed TCAM manager function level traces, use the **no** form of this command.

debug tcam-mgr scrub [**location** *node-id*]

no debug tcam-mgr scrub [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on detailed TCAM manager function level traces. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how scrub TCAM manager debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr scrub
```

The following example shows how toscrub TCAM manager debug messages for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr scrub location 0/2/CPU0
```

debug tcam-mgr trace

To turn on detailed TCAM manager function level traces, use the **debug tcam-mgr trace** command in EXEC mode. To disable detailed TCAM manager function level traces, use the **no** form of this command.

debug tcam-mgr trace [**location** *node-id*]

no debug tcam-mgr trace [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Specifies a node on which to turn on detailed TCAM manager function level traces. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **show platform** command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to enable detailed TCAM manager function level traces for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr trace
```

The following example shows how to enable detailed TCAM manager function level traces for a specific node (the CPU0 node in Slot *2*):

```
RP/0/RP0/CPU0:router# debug tcam-mgr trace location 0/2/CPU0
```

Fabric Management Debug Commands on Cisco IOS XR Software

This chapter describes the Cisco IOS XR software commands used to debug 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.

debug fabric driver

To debug the fabric driver, use the **debug fabric driver** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric driver {**access** | **basic** | **detail** | **fcm** | **fdi** | **functions** | **intr** | **topo**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric driver {**access** | **basic** | **detail** | **fcm** | **fdi** | **functions** | **intr** | **topo**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description

access	(Optional) Reports any fabric ASIC register for read or write operations.
basic	(Optional) Reports any basic events or operations that are happening in the driver.
detail	(Optional) Reports more detailed operations that are happening in the driver.
fcm	(Optional) Reports the flow control related events that are happening in the driver.
fdi	(Optional) Reports the FDI messages that are exchanged between the driver and the control software.
functions	(Optional) Reports when critical interrupt handlers or important functions are invoked by the driver.
intr	(Optional) Reports the events that are happening when the fabric driver is processing interrupts.
topo	(Optional) Reports the topology download related events that are happening in the driver.
process *string*	(Optional) Specifies a process name or process identification (PID).
job *jobid*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default values are used to debug all processes and all locations.

Command Modes

Admin 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.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows how to display fabric topology information with the **debug fabric driver** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric driver topo location 0/SM0/SP
RP/0/RP0/CPU0:Router (admin)# process restart sfe_drvr location 0/SM0/SP

RP/0/RP0/CPU0:Router (admin)# SP/0/SM0/SP:Aug 15 12:32:21.783 : sfe_drvr[108][120]: Board
revision : 0x00.
SP/0/SM0/SP:Aug 15 12:32:22.875 : sfe_drvr[108]: sea_topo_msg_hdlr: Received topology
config message
SP/0/SM0/SP:Aug 15 12:32:22.894 : sfe_drvr[108]: sea_topo_save_topo_cfg: Received topology
config for ASIC s1/0/SM0/SP/0. Plane=0, node number = 0
SP/0/SM0/SP:Aug 15 12:32:22.895 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/0 :
Queue ID configured :1, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.897 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/1 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.899 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/2 :
Queue ID configured :2, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.901 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/3 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.903 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/4 :
Queue ID configured :5, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.905 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/5 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.906 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/6 :
Queue ID configured :1, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.909 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/7 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.911 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/8 :
Queue ID configured :2, old = 0.
```

Related Commands

Command	Description
debug fabric fdi	Debugs the fabric driver infrastructure.

debug fabric fdi

To debug the fabric driver infrastructure, use the **debug fabric fdi** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric fdi {**all** | **api** | **detail** | **errors**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric fdi {**all** | **api** | **detail** | **errors**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description

all	(Optional) Prints all kinds of debug messages.
api	(Optional) Restricts output to messages that are related to application programming interface (API) usage by client programs.
detail	(Optional) Displays debug messages that give detail about API operations.
errors	(Optional) Displays additional information about errors that are encountered during an operation.
process *string*	(Optional) Specifies a process name or PID.
job *jobid*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

If **location**, **job**, and **process** keywords are omitted, output is not restricted to debug messages from a single location, job, or process. Thus, if all are omitted, output from all processes are displayed.

Command Modes

Admin 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.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

When enabled, large amounts of output are produced even in a normal operation.

Task ID

Task ID	Operations
fabric	read

Examples

The example shows how to the display debug messages for detailed API operations with the **debug fabric fdi** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fdi detail location 0/sm0/sp

SP/0/SM0/SP:Aug 15 04:03:45.632 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
SP/0/SM0/SP:Aug 15 04:03:47.003 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 0
SP/0/SM0/SP:Aug 15 04:03:47.003 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:47.005 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 1
SP/0/SM0/SP:Aug 15 04:03:47.006 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 1
SP/0/SM0/SP:Aug 15 04:03:47.008 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 2
SP/0/SM0/SP:Aug 15 04:03:47.009 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 2
SP/0/SM0/SP:Aug 15 04:03:48.634 : fgid_consumer[107]: get_connection: Thread 1 got lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:48.634 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
SP/0/SM0/SP:Aug 15 04:03:50.012 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 0
SP/0/SM0/SP:Aug 15 04:03:50.017 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:50.020 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 1
SP/0/SM0/SP:Aug 15 04:03:50.021 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 1
SP/0/SM0/SP:Aug 15 04:03:50.031 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 2
SP/0/SM0/SP:Aug 15 04:03:50.039 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 2
SP/0/SM0/SP:Aug 15 04:03:51.637 : fgid_consumer[107]: get_connection: Thread 1 got lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:51.637 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
SP/0/SM0/SP:Aug 15 04:03:53.046 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 0
SP/0/SM0/SP:Aug 15 04:03:53.046 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:53.048 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 1
SP/0/SM0/SP:Aug 15 04:03:53.049 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 1
SP/0/SM0/SP:Aug 15 04:03:53.051 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 2
```

```
SP/0/SM0/SP:Aug 15 04:03:53.052 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 2
SP/0/SM0/SP:Aug 15 04:03:54.640 : fgid_consumer[107]: get_connection: Thread 1 got lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:54.640 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
RP/0/RP0/CPU0:Router (admin)# no debug fabric fdi detail location 0/sm0/sp
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric driver	Debugs the fabric driver.
debug fabric fsdb	Debugs the fabric FSDB server.

debug fabric fgid

To debug the fabric FGID software, use the **debug fabric fgid** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric fgid {**aggregator** | **allocator** | **batch-performance** | **bcdlconsumer** | **bcdlproducer** | **errors** | **performance** | **restart** | **server**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric fgid {**aggregator** | **allocator** | **batch-performance** | **bcdlconsumer** | **bcdlproducer** | **errors** | **performance** | **restart** | **server**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description

aggregator	(Optional) Specifies the FGID aggregator process.
allocator	(Optional) Specifies the FGID allocator process.
batch-performance	(Optional) Specifies debug information for the fabric FGID batch performance.
bcdlconsumer	(Optional) Specifies the FGID BCDL consumer process.
bcdlproducer	(Optional) Specifies the FGID BCDL producer function.
errors	(Optional) Specifies debug information for the low-level fabric FGID errors.
performance	(Optional) Specifies debug information for the fabric FGID performance.
restart	(Optional) Specifies debug information for the low-level fabric FGID restart.
server	(Optional) Specifies the FGID server process.
process *string*	(Optional) Specifies a process name or PID.
job *jobid*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default value is the management node that CLI runs.

Command Modes

Admin 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.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
fabric	read

Examples

The example shows how to enable debugging information for the FGID server process with the **debug fabric fgid** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fgid server process fgid_server location
                              0/RP0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fgid client	Debugs the client library activities.

debug fabric fsdb

To debug the fabric FSDB server, use the **debug fabric fsdb** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric fsdb {**avail** | **detail** | **edm** | **errors** | **events** | **fled** | **mrl** | **status** | **structure** | **trap**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric fsdb {**avail** | **detail** | **edm** | **errors** | **events** | **fled** | **mrl** | **status** | **structure** | **trap**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description

avail	(Optional) Reports changes to reachability data that are downloaded to fabric hardware to route data around components that are unavailable.
detail	(Optional) Reports low-level details of server calculation and internal operations.
edm	(Optional) Reports operations that are related to the FSDB EDM (External Data Manager). The EDM is the mechanism which exports data from the server so that it can be output by show commands and other methods.
errors	(Optional) Reports additional information about errors that are encountered during FSDB operation.
events	(Optional) Reports external events as they are notified to the FSDB server for attention.
fled	(Optional) Reports operations that are related to controlling the fabric LED boards.
mrl	(Optional) Reports interactions between FSDB server instances and the fsdb_aserver process.
status	(Optional) Reports details of calculations of fabric link status.
structure	(Optional) Reports contents of certain internal data structures.
trap	(Optional) Reports debug information about generating SNMP traps.
process *string*	(Optional) Specifies a process name or PID.
job *jobid*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default values are used to debug all processes and locations.

Command Modes

Admin EXEC

Command History

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

Release	Modification
Release 3.2	No modification.
Release 3.3.0	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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

When enabled, large amounts of output are produced even in a normal operation.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows sample output to debug events with the **debug fabric fsdb** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fsdb events
RP/0/RP0/CPU0:Router (admin)# configure
RP/0/RP0/CPU0:Router (admin-config)# control fabric link port s3rx 0/sm1/sp/0/0 shut
RP/0/RP0/CPU0:Router (admin-config)# commit

SC/F0/SC0/CPU0:Aug  9 13:17:58.623 : fsdb_server[125]: fsdb_handle_status_change: received
oper status change for s2tx/F0/SM6/SP/1/0, New status is CTL_ONLY (11).
RP/0/RP0/CPU0:Aug  9 13:17:58.627 : config[65728]: %MGBL-LIBTARCFG-6-ADMIN_COMMIT :
Administration configuration committed by user 'lab'.
RP/0/RP0/CPU0:Aug  9 13:17:58.643 : fsdb_server[174]: fsdb_handle_status_change: received
oper status change for s3rx/0/SM1/SP/0/0, New status is DOWN (1).
RP/0/RP0/CPU0:Router (admin-config)# no control fabric link port s3rx 0/sm1/sp/0/0 shut
RP/0/RP0/CPU0:Router (admin-config)# commit
RP/0/RP0/CPU0:Aug  9 13:18:58.326 : config[65728]: %MGBL-LIBTARCFG-6-ADMIN_COMMIT :
Administration configuration committed by user 'lab'.
RP/0/RP0/CPU0:Aug  9 13:18:58.514 : fsdb_server[174]: fsdb_handle_status_change: received
oper status change for s3rx/0/SM1/SP/0/0, New status is UP (2).
SC/F0/SC0/CPU0:Aug  9 13:18:58.532 : fsdb_server[125]: fsdb_handle_status_change: received
oper status change for s2tx/F0/SM6/SP/1/0, New status is UP (2).
RP/0/RP0/CPU0:Router (admin-config)# end
RP/0/RP0/CPU0: Aug  9 13:19:10.762 : config[65728]: %MGBL-SYS-5-CONFIG_I : Configured from
console by lab
RP/0/RP0/CPU0:Router (admin)# no debug fabric fsdb events
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric driver	Debugs the fabric driver.

debug fabric fstats aggregator

To debug the fabric statistics aggregator, use the **debug fabric fstats aggregator** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric fstats aggregator [**all** | **edm** | **errors** | **pdu**] [**location** *node-id*]

no debug fabric fstats aggregator [**all** | **edm** | **errors** | **pdu**] [**location** *node-id*]

Syntax Description

all	(Optional) Enables all debugging options for the fabric statistics aggregator. **Note** You do not need to specify a particular location.
edm	(Optional) Specifies debug information for the fabric statistics aggregator EDM.
errors	(Optional) Specifies debug information for the fabric statistics aggregator errors.
pdu	(Optional) Specifies debug information for the related fabric statistics aggregator communication protocol data unit (PDU).
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default value is the management node that the CLI runs.

Command Modes

Admin 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.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
fabric	read

Examples

The example shows how to enable debugging information for the fabric statistics aggregator errors with the **debug fabric fstats aggregator** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fstats aggregator errors location 0/0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric fstats client	Debugs the fabric statistics client API.
debug fabric fstats server	Debugs the fabric statistics server.

debug fabric fstats client

To debug the fabric statistics client API, use the **debug fabric fstats client** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric fstats client [**all** | **api** | **errors** | **pdu**] [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric fstats client [**all** | **api** | **errors** | **pdu**] [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description

all	(Optional) Enables all debugging options for the fabric statistics client library. **Note** You do not need to specify a process, job, or location.
api	(Optional) Specifies debug information for the related fabric statistics client API calls.
errors	(Optional) Specifies debug information for the related fabric statistics client API errors.
pdu	(Optional) Specifies debug information for the related fabric statistics client API communication protocol data unit (PDU).
process *string*	(Optional) Specifies a process name or PID.
job *jobid*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default value is the management node that the CLI runs.

Command Modes

Admin 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.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
fabric	read

Examples

The example shows how to enable debugging information for the related fabric statistics client API calls with the **debug fabric fstats client** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fstats client api location 0/0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric fstats aggregator	Debugs the fabric statistics aggregator.
debug fabric fstats server	Debugs the fabric statistics server.
debug fgid client	Debugs the client library activities.

debug fabric fstats server

To debug the fabric statistics server, use the **debug fabric fstats server** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric fstats server [**access** | **all** | **edm** | **errors** | **pdu**] [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric fstats server [**access** | **all** | **edm** | **errors** | **pdu**] [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description

access	(Optional) Specifies debug information to access the fabric statistics server database.
all	(Optional) Enables all debugging options for the fabric statistics client library. **Note** You do not need to specify a process, job, or location.
edm	(Optional) Specifies debug information for the related fabric statistics server EDM.
errors	(Optional) Specifies debug information for the fabric statistics server errors.
pdu	(Optional) Specifies debug information for the related fabric statistics server communication PDU.
process *string*	(Optional) Specifies a process name or PID.
job *jobid*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default value is the management node that the CLI runs.

Command Modes

Admin 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.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows how to enable debugging information for the fabric statistics server errors with the **debug fabric fstats server** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fstats server errors location 0/0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric fstats aggregator	Debugs the fabric statistics aggregator.
debug fabric fstats client	Debugs the fabric statistics client API.

debug fabric server

To debug the fabric server, use the **debug fabric server** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric server {**client** | **error** | **info** | **packet** | **srp**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric server {**client** | **error** | **info** | **packet** | **srp**} [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description

client	Displays debug messages that provide details about the client.
error	Displays debug messages that provide details about the errors.
info	Displays informational debug messages.
packet	Displays debug messages that provide details about informational messages.
srp	Displays debug messages that provide details about the standby RP ping packets.
process *string*	(Optional) Specifies a process name or process identification (PID).
job *jobid*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default values are used to debug all processes and all locations.

Command Modes

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows how to display fabric topology information with the **debug fabric server** command:

```
RP/0/RP0/CPU0:Router# debug fabric server
```

debug fgid client

To debug client library activities, use the **debug fgid client** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug fgid client [**allocation** | **error** | **generic** | **location** | **messages**] [**process** *string*] | [**job** *num*] [**location** *node-id*]

no debug fgid client [**allocation** | **error** | **generic** | **location** | **messages**] [**process** *string*] | [**job** *num*] [**location** *node-id*]

Syntax Description

allocation	(Optional) Enables allocation debugging from the FGID client.
error	(Optional) Enables error messages from the FGID client.
generic	(Optional) Enables general generic events in the FGID client.
location	(Optional) Specifies a location.
messages	(Optional) Enables message tracking in the FGID client.
process *string*	(Optional) Specifies a process name or PID.
job *num*	(Optional) Specifies a job ID.
location *node-id*	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The *node-id* argument is entered in the *rack/slot/module* notation.

Defaults

The default value is the management node that the CLI runs.

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.

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*.

Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows how to enable debugging information for error messages from the FGID client with the **debug fgid client** command:

```
RP/0/RP0/CPU0:router# debug fgid client error process smith
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug fabric fstats server	Debugs the fabric statistics server.
debug fabric fstats client	Debugs the fabric statistics client API.

HC	Cisco IOS XR Interface and Hardware Component Configuration Guide
IC	Cisco IOS XR IP Addresses and Services Configuration Guide
MCC	Cisco IOS XR Multicast Configuration Guide
MNC	Cisco IOS XR System Monitoring Configuration Guide
MPC	Cisco IOS XR MPLS Configuration Guide
QC	Cisco IOS XR Modular Quality of Service Configuration Guide
RC	Cisco IOS XR Routing Configuration Guide
SBC	Cisco IOS XR Session Border Controller Configuration Guide
SC	Cisco IOS XR System Security Configuration Guide
SMC	Cisco IOS XR System Management Configuration Guide

A

asic-scan, debug 126

B

bfd client-api, debug 110
bfd errors, debug 112
bfd filter, debug 114
bfd fsm, debug 116
bfd ipv4, debug 118
bfd lib, debug 120
bfd process, debug 122
bundlemgr distrib state, debug 106
bundlemgr local packets, debug 102
bundlemgr local state, debug 104

C

cctl, debug 128
cetftp, debug 130
chdlc ma slarp, debug 70
cpuctrl api, debug 132
cpuctrl asic-error, debug 135
cpuctrl asic-info, debug 137
cpuctrl detail, debug 139
cpuctrl entryexit, debug 141
cpuctrl error, debug 143
cpuctrl fatal, debug 145
cpuctrl info, debug 147
cpuctrl location, debug 149

E

egressq, debug 152
ether, debug 154

F

fabric driver, debug 216
fabric fdi, debug 218
fabric fgid, debug 221
fabric fsdb, debug 223
fabric fstats aggregator, debug 225
fabric fstats client, debug 227
fabric fstats server, debug 229
fabricq, debug 156
fcram, debug 159
fgid client, debug 233

G

generic, debug 161
gsp-em, debug 162
gsp-fab, debug 164

I

ingressq, debug 166
ingressq api, debug 168
ingressq asic, debug 170
ingressq detail, debug 172
ingressq entryexit, debug 174
ingressq error, debug 176
ingressq fabric, debug 180
ingressq fatal, debug 178
ingressq info, debug 182
ingressq location, debug 184

O

oird, debug 10

P

pfilter-ea, debug 186
pladrv, debug 188
plim, debug 190
pos all, debug 20
pos events, debug 22
pos framer, debug 24
pos im, debug 26
pos info, debug 28
pos mapping, debug 30
pos periodic, debug 32
pos sysdb, debug 34
pos trace, debug 36
ppp all, debug 74
ppp authentication, debug 76
ppp negotiation, debug 78
ppp packet, debug 81

S

screddrv, debug 12
socket, debug 14
sonet all, debug 38
sonet aps, debug 40
sonet errors, debug 42
sonet events, debug 44
sonet framer, debug 46
sonet im, debug 48
sonet info, debug 50
sonet mapping, debug 52
sonet periodic, debug 54
sonet sysdb, debug 56
spa-bridge error, debug 97
spa-bridge oir, debug 98
spa-bridge show, debug 99
spa-bridge trace, debug 100
spa devobject, debug 84
spa error, debug 85
spa info, debug 86
spa job, debug 87
spa location, debug 88
spa lwm, debug 89
spa oir, debug 90
spa periodic, debug 91
spa plugin, debug 92
spa process, debug 93
spa show, debug 94
spa sysdb, debug 95
spa trace, debug 96

T

tcam-mgr cam entry update, debug 193
tcam-mgr chkpt, debug 195
tcam-mgr client, debug 197
tcam-mgr errors, debug 199
tcam-mgr events, debug 201

tcam-mgr prefix-compress, debug 203
tcam-mgr processing, debug 205
tcam-mgr resalloc, debug 207
tcam-mgr rlb, debug 209
tcam-mgr scrub, debug 211
tcam-mgr trace, debug 213