Cisco IOS XR Multicast Debug Command Reference

Cisco IOS XR Software Release 3.4

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Text Part Number: OL-11922-01

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Preface

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

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-11922-01	November 2006	Initial release 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

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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.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day at this URL:

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:

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- 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:

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- 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

Multicast IGMP Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to debug multicast Internet Group Management Protocol (IGMP) on Cisco IOS XR software.

debug igmp

To display multicast IGMP information, use the **debug** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug igmp {**interface** *type instance* | **explicit** | **group** | **nsf**}

no debug igmp {**interface** *type instance* | **explicit** | **group** | **nsf**}

Syntax Description

interface	Specifies interface type.
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.
explicit	Displays debug information about the tracked group.
group	Displays debug messages about the group defined by the access list. All group activity is visible in the debug output.
nsf	Displays nonstop forwarding information.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug igmp** command using the **explicit** keyword:

```
RP/0/RP0/CPU0:router# debug igmp explicit 100

RP/0/0/CPU0:phoenix#RP/0/0/CPU0:1h:46:14: igmp[325]:  ET host 20.1.1.3 report for
239.1.1.1 (0 srcs) on POS0/2/0/2
RP/0/0/CPU0:1h:46:14: igmp[325]:  ET host 20.1.1.3 switch to exclude for 239.1.1.1 on
POS0/2/0/2
RP/0/0/CPU0:1h:46:14: igmp[325]:  ET MRIB modify for (*,239.1.1.1) on POS0/2/0/2 new 100,
mdf 100
RP/0/0/CPU0:phoenix#
RP/0/0/CPU0:phoenix#RP/0/0/CPU0:1h:47:12: igmp[325]:  ET host 20.1.1.3 report for
239.1.1.1 (0 srcs) on POS0/2/0/2
RP/0/0/CPU0:1h:48:13: igmp[325]:  ET host 20.1.1.3 report for 239.1.1.1 (0 srcs) on
POS0/2/0/2
RP/0/0/CPU0:phoenix#deb igmp RP/0/0/CPU0:1h:49:20: igmp[325]:  ET host 20.1.1.3 report for
239.1.1.1 (0 srcs) on POS0/2/0/2
```

The following is sample output using the **debug igmp** command using the **group** keyword:

```
RP/0/RP0/CPU0:router# debug igmp group 100

RP/0/0/CPU0:26:15: igmp[325]:  Group address in Recv Report is 239.1.1.1 for grp# 0 from
src: 20.1.1.3
RP/0/0/CPU0:26:15: igmp[325]:  Updating EXCLUDE group timer for 239.1.1.1
RP/0/0/CPU0:27:11: igmp[325]:  Group address in Send report is 239.1.1.1
RP/0/0/CPU0:27:11: igmp[325]:  Group address in Recv Report is 239.1.1.1 for grp# 0 from
src: 20.1.1.3
RP/0/0/CPU0:27:11: igmp[325]:  Updating EXCLUDE group timer for 239.1.1.1
RP/0/0/CPU0:28:11: igmp[325]:  Group address in Send report is 239.1.1.1
RP/0/0/CPU0:28:11: igmp[325]:  Group address in Recv Report is 239.1.1.1 for grp# 0 from
src: 20.1.1.3
RP/0/0/CPU0:28:11: igmp[325]:  Updating EXCLUDE group timer for 239.1.1.1
RP/0/0/CPU0:29:17: igmp[325]:  Group address in Send report is 239.1.1.1
RP/0/0/CPU0:29:17: igmp[325]:  Group address in Recv Report is 239.1.1.1 for grp# 0 from
src: 20.1.1.3
RP/0/0/CPU0:29:17: igmp[325]:  Updating EXCLUDE group timer for 239.1.1.1
RP/0/0/CPU0:30:15: igmp[325]:  Group address in Send report is 239.1.1.1
```

Multicast PIM Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to debug Protocol Independent Multicast (PIM) on Cisco IOS XR software.

Cisco IOS XR software supports Internet Protocol Version 4 and 6 (ipv4 and ipv6). To simplify the presentation of these debug commands, there is no distinction made between the protocols in the command documentation. The assumption will be that you have entered one of the two protocols.

Note The Cisco XR 12000 Series Router supports ipv4 only.
The Cisco CRS-1 provides support for both the ipv4 and ipv6 protocols.

debug pim all

To debug all PIM activity, use the **debug pim all** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim all

no debug pim all

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 supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim all** command:

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

RP/0/RP0/CPU0:router# RP/0/RP0/CPU0:3d:21h:59:21: pim[335]: NSF State: Initialized to
Normal
RP/0/RP0/CPU0:3d:21h:59:21: pim[335]: PIM restarting (3 respawns)
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Creating a new PIM interface: POS0_1_0_0
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Adding PIM interface PO0/1/0/0 (0x02000400) state:
unknown
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Committed idb addr change
IP_ADDR_C_ADDR_CHANGE_TYPE_ADD on int PO0/1/0/0 with ip addr 10.1.1.1
```

```
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Added address 10.1.1.1 (PO0/1/0/0) to my address
database
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Creating a new PIM interface: POS0_1_0_2
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Adding PIM interface PO0/1/0/2 (0x02000a00) state:
unknown
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Committed idb addr change
IP_ADDR_C_ADDR_CHANGE_TYPE_ADD on int PO0/1/0/2 with ip addr 11.1.1.1
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Added address 11.1.1.1 (PO0/1/0/2) to my address
database
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Creating a new PIM interface: MgmtEth0_6_CPU0_0
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Adding PIM interface Mg0/6/CPU0/0 (0x07000100)
state: unknown
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Committed idb addr change
IP_ADDR_C_ADDR_CHANGE_TYPE_ADD on int Mg0/6/CPU0/0 with ip addr 12.21.17.57
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Added address 12.21.17.57 (Mg0/6/CPU0/0) to my
address database
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Received RIB connection open message
RP/0/RP0/CPU0:3d:21h:59:23: pim[335]: Starting rib register timer
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Adding new interface to IFRS: Bundle-POS1
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Adding new interface to IFRS: Bundle-POS2
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Configure admin boundary on BP2 ACL 2
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: MRIB bound
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: MRIB registration postponed: 'MRIB' detected the
'warning' condition 'operation delayed'
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: MRIB connection established
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: ipv4_mrib_filter_cntrl done
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Register inject socket open
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: New grange entry 224.0.0.0/24 rp =
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Activating 224.0.0.0/24 - (NO) in the MRIB
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: (*,224.0.0.0/24) MRIB modify
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: New grange entry 224.0.0.0/4 rp = 0.0.0.0
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Activating 224.0.0.0/4 - 0.0.0.0(SM) in the MRIB
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: (*,224.0.0.0/4) MRIB modify DC
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: New grange entry 224.0.1.39/32 rp =
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Activating 224.0.1.39/32 - (DM) in the MRIB
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: (*,224.0.1.39/32) MRIB modify S UF
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: New grange entry 224.0.1.40/32 rp =
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Activating 224.0.1.40/32 - (DM) in the MRIB
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: (*,224.0.1.40/32) MRIB modify S UF
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Create range list 0.0.0.0 Source-Specific
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Create range 232.0.0.0/8
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: New grange entry 232.0.0.0/8 rp =
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Activating 232.0.0.0/8 - (SSM) in the MRIB
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: (*,232.0.0.0/8) MRIB modify
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Received bulk local IM notification with 3 ops
(owned resource)
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: OWNED_RESOURCE for Encapstunnel0 (0x7000780)
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: OWNED_RESOURCE for Encapstunnel0 (0x7000780)
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: OWNED_RESOURCE for Encapstunnel0 (0x7000780)
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: mapped encaps interface Encapstunnel0 to 20.20.20.1
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Processed 3 bulk local IM notifications
RP/0/RP0/CPU0:3d:21h:59:24: pim[335]: Received bulk local IM notification with 1 ops
(owned resource end)
...
...
```

debug pim autorp

To display Auto-RP client activity, use the **debug pim autorp** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim autorp

no debug pim autorp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was supported on the Cisco CRS-1 and 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
multicast	read

Examples

The following example shows how to display Auto-RP client activity:

```
RP/0/RP0/CPU0:router# debug pim autorp
```

debug pim bsr

To debug PIM bootstrap router (BSR) messages, use the **debug pim bsr** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim bsr

no debug pim bsr

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was supported on the Cisco CRS-1 and 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
multicast	read

Examples

The following example shows how to debug PIM BSR messages:

```
RP/0/RP0/CPU0:router# debug pim bsr
```

debug pim checkpoint

To debug the checkpointing of the rendezvous point (RP) address to decapsulation interface mapping, use the **debug pim checkpoint** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim checkpoint

no debug pim checkpoint

Syntax Description

This command has no keywords or arguments.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim checkpoint** command:

```
RP/0/RP0/CPU0:router# debug pim checkpoint

RP/0/RP0/CPU0:4d:3h:16:2: pim[335]: Saved decaps mapping to chkpt Decapstunnel0 - 10.1.1.1
(key 0)
RP/0/RP0/CPU0:4d:3h:20:58: pim[335]: Deleted decaps mapping from chkpt Decapstunnel0 -
10.1.1.1 (key 0)
```

debug pim crp

To debug PIM BSR candidate rendezvous point (RP) messages, use the **debug pim** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim crp

no debug pim crp

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was supported on the Cisco CRS-1 and 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
multicast	read

Examples

The following example shows how to debug PIM BSR candidate RP messages:

```
RP/0/RP0/CPU0:router# debug pim crp
```

debug pim df-election

To display PIM designated forwarder (DF) election state activity, use the **debug pim df-election** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim df-election [*type instance* | **rp** *access-list*]

no debug pim df-election [*type instance* | **rp** *access-list*]

Syntax Description

type	(Optional) Interface type. For more information, use the question mark (**?**) online help function.
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.
rp *access-list*	Selects the rendezvous point and specifies an access list.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows how to display PIM DF election state activity:

```
RP/0/RP0/CPU0:router# debug pim df-election rp 10
```

debug pim error

To display PIM error messages, use the **debug pim error** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim error

no debug pim error

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was supported on the Cisco CRS-1 and 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
multicast	read

Examples

The following example shows how to display PIM error messages:

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

debug pim interface-management

To debug interface processing, use the **debug pim interface-management** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim interface-management

no debug pim interface-management

Syntax Description

This command has no keywords or arguments.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Interface processing includes Interface Manager events, IP address notifications, as well as encapsulation-decapsulation interface creation and deletion.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug pim interface-management** command:

```
RP/0/RP0/CPU0:router# debug pim interface-management

 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Creating a new PIM interface: POS0_1_0_0
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Adding PIM interface PO0/1/0/0 (0x02000400) state:
unknown
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Committed idb addr change
IP_ADDR_C_ADDR_CHANGE_TYPE_ADD on int PO0/1/0/0 with ip addr 10.1.1.1
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Added address 10.1.1.1 (PO0/1/0/0) to my address
database
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Creating a new PIM interface: POS0_1_0_2
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Adding PIM interface PO0/1/0/2 (0x02000a00) state:
unknown
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Committed idb addr change
IP_ADDR_C_ADDR_CHANGE_TYPE_ADD on int PO0/1/0/2 with ip addr 11.1.1.1
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Added address 11.1.1.1 (PO0/1/0/2) to my address
database
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Creating a new PIM interface: MgmtEth0_6_CPU0_0
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Adding PIM interface Mg0/6/CPU0/0 (0x07000100)
state: unknown
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Committed idb addr change
IP_ADDR_C_ADDR_CHANGE_TYPE_ADD on int Mg0/6/CPU0/0 with ip addr 12.21.17.57
 RP/0/RP0/CPU0:4d:3h:22:55: pim[335]: Added address 12.21.17.57 (Mg0/6/CPU0/0) to my
address database
 RP/0/RP0/CPU0:4d:3h:22:56: pim[335]: Adding new interface to IFRS: Bundle-POS1
 RP/0/RP0/CPU0:4d:3h:22:56: pim[335]: Adding new interface to IFRS: Bundle-POS2
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Received bulk local IM notification with 3 ops
(owned resource)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: OWNED_RESOURCE for Encapstunnel0 (0x7000a80)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: OWNED_RESOURCE for Encapstunnel0 (0x7000a80)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: OWNED_RESOURCE for Encapstunnel0 (0x7000a80)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: mapped encaps interface Encapstunnel0 to 20.20.20.1
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Processed 3 bulk local IM notifications
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Received bulk local IM notification with 1 ops
(owned resource end)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Received OWNED RESOURCE END notification from IM
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: RP 20.20.20.1 Adding monitor for encaps source
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Creating a new PIM interface: Null
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Adding PIM interface Nu (0x00000000) state: unknown
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Changing encaps source ignored (same src 0.0.0.0)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Creating a new PIM interface: Encapstunnel0
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Adding PIM interface En0 (0x07000a80) state: unknown
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Received OWNED RESOURCE END notification from IM
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Processed 1 bulk local IM notifications
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Received bulk global IMD notification with 5 ops
(create)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface CREATE notification skipped for FINT type
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface CREATE notification received from IM:
PO0/1/0/0 (handle 0x2000400, type 0x13)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface CREATE notification received from IM:
PO0/1/0/2 (handle 0x2000a00, type 0x13)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface CREATE notification skipped for FINT type
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface CREATE notification received from IM:
Mg0/6/CPU0/0 (handle 0x7000100, type 0x8)
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface PO0/1/0/0 registered for state
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface PO0/1/0/2 registered for state
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface PO0/1/0/0 registered for MTU notification
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Interface PO0/1/0/2 registered for MTU notification
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Processed 5 bulk global IMD notifications
 RP/0/RP0/CPU0:4d:3h:22:58: pim[335]: Received bulk global IMD notification with 2 ops
```

debug pim io

To debug pim packet processing, use the **debug pim io** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim io

no debug pim io

Syntax Description

This command has no keywords or arguments.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Packet processing includes socket join/leave and other I/O related activity.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug pim io** command:

```
RP/0/RP0/CPU0:router# debug pim io

RP/0/RP0/CPU0:4d:3h:27:47: pim[335]: Register inject socket open
RP/0/RP0/CPU0:4d:3h:27:47: pim[335]: Enabled reception for group 224.0.0.13 on interface
PO0/1/0/0
RP/0/RP0/CPU0:4d:3h:27:48: pim[335]: Enabled reception for group 224.0.0.13 on interface
PO0/1/0/2
RP/0/RP0/CPU0:4d:3h:27:48: pim[335]: Sending packet, src 11.1.1.1, dest 224.0.0.13,
datasize 30
```

debug pim maximum-enforcement

To debug enforcement of the maximum number of routes, route-interfaces, routes due to registers, use the **debug pim maximum-enforcement** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim maximum-enforcement

no debug pim maximum-enforcement

Syntax Description

This command has no keywords or arguments.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim maximum-enforcement** command:

```
RP/0/RP0/CPU0:router# debug pim maximum-enforcement

RP/0/RP0/CPU0:Aug 23 07:11:13.268: pim[335]: (*,239.5.5.5) discarded Join/Prune from
11.1.1.1 - Reached Route/RxI Maximum (5/300000)
RP/0/RP0/CPU0:Aug 23 07:12:15.069: pim[335]: (*,239.5.5.5) discarded Join/Prune from
11.1.1.1 - Reached Route/RxI Maximum (5/300000)
```

debug pim mdr

To display PIM minimal disruption routing (MDR) events, use the **debug pim mdr** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim mdr

no debug pim mdr

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.3	This command was supported on the Cisco CRS-1 and 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.

MDR minimizes or altogether eliminates packet loss during a line card reboot.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows how to display PIM MDR events:

```
RP/0/RP0/CPU0:router# debug pim mdr
```

debug pim mrib

To debug pim and mrib interactions, use the **debug pim mrib** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim mrib [**access list** *aclname*]

no debug pim mrib [**access list** *aclname*]

Syntax Description

access list *aclname*	The access control list (ACL) name expressed as an alpha or numeric string.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim mrib** command:

```
RP/0/RP0/CPU0:router# debug pim mrib

RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: MRIB bound
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: MRIB registration postponed: 'MRIB' detected the
'warning' condition 'operation delayed'
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: MRIB connection established
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: ipv4_mrib_filter_cntrl done
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.0.0/24) MRIB modify
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.0.0/4) MRIB modify DC
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.1.39/32) MRIB modify S UF
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.1.40/32) MRIB modify S UF
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,232.0.0.0/8) MRIB modify
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.0.0/4) MRIB modify !DC
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.0.0/4) MRIB modify !DC
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.0.0/4) MRIB modify DC
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (*,224.0.0.0/4) MRIB modify
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.39/32) NULLIF-skip MRIB modify A
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.39/32) MRIB modify
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.39/32) MRIB modify UF
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.39/32) NULLIF-skip MRIB modify A
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.40/32) NULLIF-skip MRIB modify A
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.40/32) MRIB modify
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.40/32) MRIB modify UF
RP/0/RP0/CPU0:4d:5h:49:26: pim[335]: (20.20.20.1,224.0.1.40/32) NULLIF-skip MRIB modify A
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.2.2.2/32) MRIB update (a=0,f=0,t=1)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.2.2.2/32) PO0/1/0/0 MRIB update (f=140,c=3e0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.2.2.2/32) MRIB modify DC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.2.2.2/32) NULLIF-skip MRIB modify A
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.2.2.2/32) PO0/1/0/0(0x02000400) MRIB modify IC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.4.4.4/32) MRIB update (a=0,f=0,t=1)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.4.4.4/32) PO0/1/0/0 MRIB update (f=140,c=3e0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.4.4.4/32) MRIB modify DC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.4.4.4/32) NULLIF-skip MRIB modify A
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.4.4.4/32) PO0/1/0/0(0x02000400) MRIB modify IC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) MRIB update (a=0,f=0,t=1)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) PO0/1/0/2 MRIB update (f=140,c=3e0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) MRIB modify DC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) NULLIF-skip MRIB modify A
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: %ROUTING-IPV4_PIM-4-OOR_ROUTES_WARN: The maximum
number of PIM routes (5) or route-interfaces (300000) has been reached. Route creation
will be throttled. Configure a higher maximum or take steps to reduce multicast state.
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.1.39/32) MRIB modify !S
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.1.40/32) MRIB modify !S
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.0.0/4) MRIB modify !DC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) MRIB modify !DC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.2.2.2/32) MRIB modify !DC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.4.4.4/32) MRIB modify !DC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) PO0/1/0/2(0x02000A00) MRIB modify IC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.0.0/24) MRIB update (a=0,f=0,t=0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.1.39/32) MRIB update (a=0,f=0,t=0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,232.0.0.0/8) MRIB update (a=0,f=0,t=0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.1.40/32) MRIB update (a=0,f=0,t=1)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.1.40/32) PO0/1/0/0 MRIB update (f=140,c=3e0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (20.20.20.1,224.0.1.40/32) PO0/1/0/0(0x02000400) MRIB
modify !IC
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,224.0.0.0/4) MRIB update (a=0,f=0,t=0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (20.20.20.1,224.0.1.39/32) MRIB update (a=0,f=0,t=0)
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (20.20.20.1,224.0.1.39/32) PO0/1/0/0(0x02000400) MRIB
modify A
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) MRIB modify
RP/0/RP0/CPU0:4d:5h:49:27: pim[335]: (*,239.1.1.1/32) NULLIF-skip MRIB modify !A
...
```

debug pim neighbor

To debug pim neighbor activity, use the **debug pim neighbor** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim neighbor

no debug pim neighbor

Syntax Description

This command has no keywords or arguments.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim neighbor** command:

```
RP/0/RP0/CPU0:router# debug pim neighbor

RP/0/RP0/CPU0:sfo#RP/0/RP0/CPU0:Aug 23 07:13:53.055: pim[335]: Sending Hello on Lo1
RP/0/RP0/CPU0:Aug 23 07:13:53.068: pim[335]: Received Hello with holdtime 105 routable
addresses 0 on Lo1 from 12.2.2.1 (0 bytes)
RP/0/RP0/CPU0:Aug 23 07:13:53.070: pim[335]: New neighbor 12.2.2.1 on Lo1
RP/0/RP0/CPU0:Aug 23 07:13:53.080: pim[335]: Hello on Lo1 from 12.2.2.1 has advertized 0
addresses
RP/0/RP0/CPU0:Aug 23 07:13:53.082: pim[335]: Neighbor address 12.2.2.1 not the nexthop for
any routes
RP/0/RP0/CPU0:Aug 23 07:13:53.085: pim[335]: Min override of 12.2.2.1 on Lo1 is 0.5 + 2.5
secs
RP/0/RP0/CPU0:Aug 23 07:13:53.091: pim[335]: New DR on Lo1 is 12.2.2.1
RP/0/RP0/CPU0:Aug 23 07:13:53.095: pim[335]: Neighbor 12.2.2.1 on Lo1 is bidir capable
RP/0/RP0/CPU0:Aug 23 07:13:53.097: pim[335]: Sending Hello on Lo0
RP/0/RP0/CPU0:Aug 23 07:13:53.099: pim[335]: Received Hello with holdtime 105 routable
addresses 0 on Lo0 from 12.1.1.1 (0 bytes)
RP/0/RP0/CPU0:Aug 23 07:13:53.103: pim[335]: New neighbor 12.1.1.1 on Lo0
RP/0/RP0/CPU0:Aug 23 07:13:53.112: pim[335]: Hello on Lo0 from 12.1.1.1 has advertized 0
addresses
...
```

debug pim nsf

To debug PIM Non-Stop-Forwarding (NSF) related activities, use the **debug pim nsf** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim nsf [**access list** *aclname*]

no debug pim nsf [**access list** *aclname*]

Syntax Description

access list *aclname*	The access control list (ACL) name expressed as an alpha or numeric string.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim nsf** command:

```
RP/0/RP0/CPU0:router# debug pim nsf access list 5

RP/0/RP0/CPU0:Aug 23 07:17:37.606: pim[335]: Registered for NSF with MRIB
RP/0/RP0/CPU0:Aug 23 07:17:37.611: pim[335]: PIM NSF Configured
RP/0/RP0/CPU0:Aug 23 07:17:37.619: pim[335]: Register for RP checkpoint table: AutoRP
RP/0/RP0/CPU0:Aug 23 07:17:37.626: pim[335]: Checkpointed RP-Set Table: NSF
configured,create new chkpt adj table id 80001e10, rc = 0
RP/0/RP0/CPU0:Aug 23 07:17:37.632: pim[335]: Register for RP checkpoint table: BSR
RP/0/RP0/CPU0:Aug 23 07:17:37.636: pim[335]: Checkpointed RP-Set Table: NSF
configured,create new chkpt adj table id 80001d68, rc = 0
```

```
RP/0/RP0/CPU0:Aug 23 07:17:37.641: pim[335]: Successfully registered BSR Scope Zone
checkpoint table
RP/0/RP0/CPU0:Aug 23 07:17:37.646: pim[335]: Start checkpoint all existing bsr scope zone
info
RP/0/RP0/CPU0:Aug 23 07:17:37.649: pim[335]: Checkpointed RPF Table: NSF configured,create
new chkpt adj table id 80001a40, rc = 0
RP/0/RP0/CPU0:Aug 23 07:17:37.653: pim[335]: Saved checkpoint state for 1 RPF monitor
paths
RP/0/RP0/CPU0:Aug 23 07:17:37.656: pim[335]: PIM NSF Configured - checkpoint signal tables
opened: DM new, SM connected new, SM SPT new
RP/0/RP0/CPU0:Aug 23 07:17:37.661: pim[335]: PIM NSF Configured - checkpointed signals for
existing routes: 0 DM signals, 0 SM connected signals, 0 SM SPT signals
RP/0/RP0/CPU0:Aug 23 07:18:13.449: pim[335]: NSF State: Initialized to Normal
RP/0/RP0/CPU0:Aug 23 07:18:13.464: pim[335]: PIM restarting (3 respawns)
RP/0/RP0/CPU0:Aug 23 07:18:13.893: qsm[75]: qsm_db_link_already_exists.163: cerr=17 link
at dev/chkpt_procs/mrib_001.d/node0_6_CPU0/dev/chkpt_procs/mrib_001.d/node0_6_CPU0
class=d/d st=0/0 spid=258238/577726 mflgs=1/1
RP/0/RP0/CPU0:Aug 23 07:18:16.543: pim[335]: PIM NSF Configured
RP/0/RP0/CPU0:Aug 23 07:18:16.546: pim[335]: Successfully registered BSR Scope Zone
checkpoint table
RP/0/RP0/CPU0:Aug 23 07:18:16.553: pim[335]: BSR scope zone chkpt info recovery
successfully completed, 0 scope zone entry restored
RP/0/RP0/CPU0:Aug 23 07:18:16.559: pim[335]: Checkpointed RPF Table: NSF configured,open
chkpt adj table id 80001a40, rc = 0
RP/0/RP0/CPU0:Aug 23 07:18:16.561: pim[335]: Restored RPF Path: prefix 11.2.2.2: NH addr
11.2.2.2 intf 0x2000d00
RP/0/RP0/CPU0:Aug 23 07:18:16.563: pim[335]: RPF Read complete, 1 rpf paths restored
RP/0/RP0/CPU0:Aug 23 07:18:16.565: pim[335]: PIM NSF Configured - checkpoint signal tables
opened: DM existed, SM connected existed, SM SPT existed
RP/0/RP0/CPU0:Aug 23 07:18:16.568: pim[335]: PIM NSF Configured - all signal checkpoint
tables existing
RP/0/RP0/CPU0:Aug 23 07:20:12.908: pim[335]: NSF Event PIM TT Summary: 6 group ranges, 5
(*,G) routes, 0 (S,G) routes, 0 (S,G)RPT routes
RP/0/RP0/CPU0:Aug 23 07:20:12.911: pim[335]: NSF Done: all conditions met
RP/0/RP0/CPU0:Aug 23 07:20:12.913: pim[335]: NSF State: timeout triggers PIM NSF Done
RP/0/RP0/CPU0:Aug 23 07:20:12.914: pim[335]: Replaying SM signals from chkpt table id
80001cc0
RP/0/RP0/CPU0:Aug 23 07:20:12.915: pim[335]: SM Signal Read complete, 0 signals replayed
RP/0/RP0/CPU0:Aug 23 07:20:12.920: pim[335]: BSR scope zone chkpt table iterate
successfully completed
```

debug pim protocol

To debug pim protocol activities, use the **debug pim protocol** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim protocol [**access list** *aclname*]

no debug pim protocol [**access list** *aclname*]

Syntax Description

access list *aclname*	The access control list (ACL) name expressed as an alpha or numeric string.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim protocol** command:

```
RP/0/RP0/CPU0:router# debug pim protocol

RP/0/RP0/CPU0:Aug 23 07:22:33.664: pim[335]: Received J/P on Gi0/4/0/0 from 11.1.1.1
target: 11.1.1.2 (to us)
RP/0/RP0/CPU0:Aug 23 07:22:33.664: pim[335]: Hash not required from 224.0.0.0/0.0.0.0
RP/0/RP0/CPU0:Aug 23 07:22:33.665: pim[335]: Best Matching grange (224.0.0.0,11.2.2.2) for
group 239.4.4.4
RP/0/RP0/CPU0:Aug 23 07:22:33.665: pim[335]: J/P entry: Join root: 11.2.2.2 group:
239.4.4.4 flags: RPT WC S
RP/0/RP0/CPU0:Aug 23 07:22:33.666: pim[335]: (*,239.4.4.4) Create entry
```

```
RP/0/RP0/CPU0:Aug 23 07:22:33.666: pim[335]: (*,239.4.4.4) Gi0/4/0/0 J/P state changed
from Null to Join
RP/0/RP0/CPU0:Aug 23 07:22:33.667: pim[335]: (*,239.4.4.4) Gi0/4/0/0 Raise J/P expiration
timer to 210 seconds
RP/0/RP0/CPU0:Aug 23 07:22:33.667: pim[335]: (*,239.4.4.4) Gi0/4/0/0 FWD state change from
Prune to Forward
RP/0/RP0/CPU0:Aug 23 07:22:33.668: pim[335]: (*,239.4.4.4) Updating J/P status from Null
to Join
RP/0/RP0/CPU0:Aug 23 07:22:33.668: pim[335]: Hash not required from 224.0.0.0/0.0.0.0
...
...
```

debug pim register

To display PIM registry messages, use the **debug pim register** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim register

no debug pim register

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was supported on the Cisco CRS-1 and 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
multicast	read

Examples

The following example shows how to display PIM registry messages:

```
RP/0/RP0/CPU0:router# debug pim register
```

debug pim retry

To display PIM error recovery messages, use the **debug pim retry** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim retry

no debug pim retry

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.3.0	This command was supported on the Cisco CRS-1 and 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
multicast	read

Examples

The following example shows how to display PIM error recovery messages:

```
RP/0/RP0/CPU0:router# debug pim retry
```

debug pim rib

To debug RIB related activities, use the **debug pim rib** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim rib [**access list** *aclname*]

no debug pim rib [**access list** *aclname*]

Syntax Description

access list *aclname*	The access control list (ACL) name expressed as an alpha or numeric string.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows sample output for the **debug pim rib** command:

```
RP/0/RP0/CPU0:router# debug pim rib

RP/0/RP0/CPU0:Aug 23 07:26:03.129: pim[335]: Received RIB connection open message
RP/0/RP0/CPU0:Aug 23 07:26:03.143: pim[335]: Starting rib register timer
RP/0/RP0/CPU0:Aug 23 07:26:04.567: pim[335]: Adding monitor for 11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:04.569: pim[335]: Got RPF info from Checkpoint table for
11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:04.571: pim[335]: Recovered RPF information for root 11.2.2.2:
nbr 11.2.2.2, ifhandle 0x2000d00
RP/0/RP0/CPU0:Aug 23 07:26:04.576: pim[335]: Looking for valid nexthop address for
11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:04.579: pim[335]: Unresolved nexthop address 11.2.2.2, pim rpf
nbr is set to unresolved nexthop
RP/0/RP0/CPU0:Aug 23 07:26:04.581: pim[335]: RPF information for root 11.2.2.2 path num 1:
nbr 11.2.2.2 (rib nexthop 11.2.2.2, no advertising PIM nbr), PO0/1/0/3 (disabled) [0/0] C:
True
RP/0/RP0/CPU0:Aug 23 07:26:04.669: pim[335]: Inserted nbr addr in trie: 11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:04.677: pim[335]: Adding the monitor path for 11.2.2.2 to the
rpf nbr tree, rib rpf nbr is 11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:04.776: pim[335]: Received RIB convergence message for table
0xe0000000
RP/0/RP0/CPU0:Aug 23 07:26:04.778: pim[335]: Stopped rib register timer
RP/0/RP0/CPU0:Aug 23 07:26:04.782: pim[335]: Registered 11.2.2.2 with rib
RP/0/RP0/CPU0:Aug 23 07:26:04.794: pim[335]: RIB nexthop nbr addr is NULL, set rpf nbr to
NULL
RP/0/RP0/CPU0:Aug 23 07:26:04.800: pim[335]: RPF information for root 11.2.2.2 path num 1:
nbr 0.0.0.0 (rib nexthop 0.0.0.0), Nu (disabled) [4294967295/4294967295] C: False
RP/0/RP0/CPU0:Aug 23 07:26:04.805: pim[335]: Checkpointed RPF for 11.2.2.2, objid
0x80002fb8
RP/0/RP0/CPU0:Aug 23 07:26:04.808: pim[335]: Save RPF information for root 11.2.2.2: nbr
0.0.0.0, ifhandle 0x0, objid 0x80002fb8
RP/0/RP0/CPU0:Aug 23 07:26:05.947: pim[335]: Received RIB update from table 0xe0000000 for
11.2.2.2/32, 1 nexthop path(s) CONNECTED
RP/0/RP0/CPU0:Aug 23 07:26:05.949: pim[335]: Nexthop Path #0: nbr 11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:05.953: pim[335]: Removing the monitor path for 11.2.2.2 from
the rpf nbr list
RP/0/RP0/CPU0:Aug 23 07:26:05.958: pim[335]: Removing rpf neighbor 11.2.2.2 from rpf nbr
tree: monitor path list empty
RP/0/RP0/CPU0:Aug 23 07:26:05.962: pim[335]: Looking for valid nexthop address for
11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:05.965: pim[335]: Unresolved nexthop address 11.2.2.2, pim rpf
nbr is set to unresolved nexthop
RP/0/RP0/CPU0:Aug 23 07:26:05.968: pim[335]: RPF information for root 11.2.2.2 path num 1:
nbr 11.2.2.2 (rib nexthop 11.2.2.2, no advertising PIM nbr), PO0/1/0/3 [0/0] C: True
RP/0/RP0/CPU0:Aug 23 07:26:05.972: pim[335]: Deleted RPF Checkpoint entry for 11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:05.978: pim[335]: Checkpointed RPF for 11.2.2.2, objid
0x80002fb8
RP/0/RP0/CPU0:Aug 23 07:26:05.981: pim[335]: Save RPF information for root 11.2.2.2: nbr
11.2.2.2, ifhandle 0x2000d00, objid 0x80002fb8
RP/0/RP0/CPU0:Aug 23 07:26:05.985: pim[335]: Updating monitor 11.2.2.2 for RPF update
RP/0/RP0/CPU0:Aug 23 07:26:05.991: pim[335]: Inserted nbr addr in trie: 11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:05.996: pim[335]: Adding the monitor path for 11.2.2.2 to the
rpf nbr tree, rib rpf nbr is 11.2.2.2
RP/0/RP0/CPU0:Aug 23 07:26:06.138: pim[335]: Updating monitor 11.2.2.2 for RPF update
```

debug pim sysdb

To debug PIM SysDB events, use the **debug pim sysdb** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug pim sysdb

no debug pim sysdb

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 supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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
multicast	read

Examples

The following example shows how to debug PIM SysDB events:

```
RP/0/RP0/CPU0:router# debug pim sysdb
```

Multicast MFIB Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to debug multicast routing and forwarding on Cisco IOS XR software.

debug mfib adjacency

To track interface events, use the **debug mfib adjacency** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4** | **ipv6**] **adjacency** [*type instance*]

no debug mfib [**ipv4** | **ipv6**] **adjacency** [*type instance*]

Syntax Description

[**ipv4** | **ipv6**]	(Required) IP protocol versions 4 and 6.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

The **degub mfib adjacency** command tracks interface events, including interaction with:

- adjacency information base (AIB)
- inter-interface relationships (IIR)
- interface specific configuration updates
- ip address changes

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib adjacency** command using the **ipv4** keyword and *type instance* argument:

```
RP/0/RP0/CPU0:router# debug mfib ipv4 adjacency MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 13:22:48.714: ipv4_mfwd_partner[215]: BCDL: Got 1 BCDL messages
RP/0/RP0/CPU0:Aug 2 13:22:48.745: ipv4_mfwd_partner[215]: RD: Got 1 new 0 existing route
updates
```

debug mfib download

To download route updates to MFIB line cards, use the **debug mfib download** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4** | **ipv6**] **download** [**bcdl** *type instance* | **location** *type instance*]

no debug mfib [**ipv4** | **ipv6**] **download** [**bcdl** *type instance* | **location** *type instance*]

Syntax Description

[**ipv4** | **ipv6**]	(Required) IP protocol versions 4 and 6.
bcdl	Displays download routes received by the LC MFWD.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib download** command using the **bcdl** keyword and *type instance* arguments:

```
RP/0/RP0/CPU0:router# debug mfib download bcdl MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 13:22:48.714: ipv4_mfwd_partner[215]: BCDL: Got 1 BCDL messages
RP/0/RP0/CPU0:Aug 2 13:22:48.745: ipv4_mfwd_partner[215]: RD: Got 1 new 0 existing route
updates
```

debug mfib errors

To monitor and debug critical errors in line card multicast forwarding, use the **debug mfib errors** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4 | ipv6**] **errors** [**location** *type instance*]

no debug mfib [**ipv4 | ipv6**] **errors** [**location** *type instance*]

Syntax Description

[**ipv4 | ipv6**]	(Required) IP protocol versions 4 and 6.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib errors** command:

```
RP/0/RP0/CPU0:router# debug mfib errors MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 13:22:48.714: ipv4_mfwd_partner[215]: ERR: Mismatch in partial updates
received in ipv4_mfwd_mrib_update. Expected - (1.1.1.1,239.1.1.1/32). Got -
(2.2.2.2,239.1.1.1/32)
```

debug mfib events

To debug multicast forwarding server connectivity events, use the **debug mfib events** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4 | ipv6**] **events** [**location** *type instance*]

no debug mfib [**ipv4 | ipv6**] **events** [**location** *type instance*]

Syntax Description

[**ipv4 | ipv6**]	(Required) IP protocol versions 4 and 6.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Use the **debug mfib events** command to monitor connects, disconnects, registrations, binds, and initializations with various servers, including MRIB and IPARMS.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib events** command:

```
RP/0/RP0/CPU0:router# debug mfib events MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 13:41:10.934: ipv4_mfwd_partner[215]: EV: Connected to MRIB
RP/0/RP0/CPU0:Aug 2 13:41:10.974: ipv4_mfwd_partner[215]: EV: MRIB download complete
RP/0/RP0/CPU0:Aug 2 13:41:12.878: ipv4_mfwd_partner[215]: EV: Mcast already enabled
```

debug mfib ha

To track package installation, hot upgrades and downgrades, and sysmgr signal handling, use the **debug mfib ha** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4 | ipv6**] **ha** [**install location** *type instance* | **total-clean location** *type instance*]

no debug mfib [**ipv4 | ipv6**] **ha** [**install location** *type instance* | **total-clean location** *type instance*]

Syntax Description

[**ipv4	ipv6**]	(Required) IP protocol versions 4 and 6.
install location	Displays mfib DLL upgrade and downgrade events.
total-clean location	Displays mfib share memory window cleanup events; for example, when mfib restarts during a route transaction, the new mfib process cleans up the share memory window.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib ha** command:

```
RP/0/RP0/CPU0:router# debug mfib ha MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 13:44:50.357: ipv4_mfwd_partner[215]: CLEAN:
ipv4_mfwd_ha_init_handle_frequent_restart Restart information has been updated
RP/0/RP0/CPU0:Aug 2 13:44:51.184: ipv4_mfwd_partner[215]: INST:
ipv4_mfwd_upgrade_init 1508: Successfully registered with Sys mgr cleanup
RP/0/RP0/CPU0:Aug 2 13:44:51.346: ipv4_mfwd_partner[215]: INST:
ipv4_mfwd_upgrade_init 1584: Successfully registered for hot upgrade/downgrade
```

debug mfib interface

To debug interface events, use the **debug mfib interface** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib interface [*location*]

no debug mfib interface [*location*]

Syntax Description

location	(Optional) Interface type and fully qualified location or group ip address.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows how to debug interface events:

```
RP/0/RP0/CPU0:router# debug mfib interface replications MgmtEth0/RP1/CPU0/0
```

debug mfib ma

To track mfib management agent events, use the **debug mfib ma** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [ipv4 | ipv6] ma [**interface** *type interface* | **sysdb**]

no debug mfib [ipv4 | ipv6] ma [**interface** *type interface* | **sysdb**]

Syntax Description

[**ipv4	ipv6**]	(Required) IP protocol versions 4 and 6.
interface	Interface type.
type	(Optional) 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.
sysdb	Displays interactions with sysdb and configuration-related events.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

The multicast forwarding management agent is a management agent running on the route processor. It distributes global multicast configuration to line card multicast forwarding and handles forward referencing for interface configuration.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib ma** command:

```
RP/0/RP0/CPU0:router# debug mfib ma MgmtEth0/RP1/CPU0/0

RP/0/0/CPU0:Aug 2 14:04:11.559: ipv4_mfwd_ma[315]: Added GigabitEthernet0_3_1_0 to FRIS in
idb_get
RP/0/0/CPU0:Aug 2 14:04:11.569: ipv4_mfwd_ma[315]: Multicast disabled [set] on
GigabitEthernet0_3_1_0
```

debug mfib netio

To track software-switched multicast packets on a specific location, use the **debug mfib netio** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [ipv4 | ipv6] netio [**drop** [*aclname*] [**location** *type instance*] | **packet** [*aclname*] [**detail**] [**location** *type instance*]]

no debug mfib [ipv4 | ipv6] netio [**drop** [*aclname*] [**location** *type instance*] | packet [*aclname*] [**detail**] [**location** *type instance*]]

Syntax Description

[**ipv4 | ipv6**]	(Required) IP protocol versions 4 and 6.
drop	Displays packets dropped in software mfib.
packet	Displays software switched multicast packet.
aclname	Displays the access list name to limit the debug message to the permitted addresses.
detail	Displays verbose debug output.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Use the **debug mfib netio** command to track software- switched multicast packets on a specific interface.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib netio** command:

```
RP/0/RP0/CPU0:router# debug mfib netio

RP/0/RP0/CPU0:Aug 2 14:11: 26.471: netio[66]: MFIB-ingress: Pkt (44.0.0.201, 239.1.1.1)
[0xda3150fc] received. Incoming intf GigabitEthernet0/3/0/0 [0x4000200]
```

debug mfib nsf

To track mfwd nsf events if multicast NSF is turned on for multicast forwarding NSF events, use the **debug mfib nsf** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4** | **ipv6**] **nsf** [**location** *type instance*]

no debug mfib [**ipv4** | **ipv6**] **nsf** [**location** *type instance*]

Syntax Description

[**ipv4** | **ipv6**]	(Required) IP protocol versions 4 and 6.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was initially documented.
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.

Multicast NSF must be enabled to use the **debug mfib nsf** command.

Use the **debug mfib netio** command to track software-switched multicast packets on a specific interface.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib nsf** command:

```
RP/0/RP0/CPU0:router# debug mfib ipv4 nsf location type instance

RP/0/RP0/CPU0:Aug 2 14:18:10.085: ipv4_mfwd_partner[215]: [NSF] MFWD started as NSF 'MNSF'
mode
RP/0/RP0/CPU0:Aug 2 14:18:10.089: ipv4_mfwd_partner[215]: [NSF] Started multicast NSF
timer: 900 secs
RP/0/RP0/CPU0:Aug 2 14:18:10.098: ipv4_mfwd_partner[215]: [NSF] Old MFIB entries have been
marked as stale
```

debug mfib route

To track per route update event in software MFIB, use the **debug mfib route** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4** | **ipv6**] **route** [*group address* | *type instance*]

no debug mfib [**ipv4** | **ipv6**] **route** [*group address* | *type instance*]

Syntax Description

[**ipv4** | **ipv6**]	(Required) IP protocol versions 4 and 6.
group address	Displays the group option to filter on group address.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

The **debug mfib route** command displays detailed information about route entry and route interface updates.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib route** command:

```
RP/0/RP0/CPU0:router# debug mfib ipv4 route MgmtEth0/RP1/CPU0 /0]

RP/0/RP0/CPU0:Aug 2 16:00:07.698: ipv4_mfwd_partner[215]: (*,
239.1.1.1/32) received: [GigabitEthernet0_3_0_0!A !DP NS IC !SP EG !EI ]
RP/0/RP0/CPU0:Aug 2 16:00:07.700: ipv4_mfwd_partner[215]: (*,
239.1.1.1/32) received: C !S !IA !IF !D
```

debug mfib signal

To track per route signalling events for PIM-SM and PIM-DM ranges in software MFIB, use the **debug mfib signal** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4** | **ipv6**] **signal** [*type instance*]

no debug mfib [**ipv4** | **ipv6**] **signal** [*type instance*]

Syntax Description

[**ipv4** | **ipv6**]	(Required) IP protocol versions 4 and 6.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib signal** command:

```
RP/0/RP0/CPU0:router # debug mfib ipv4 signal MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 16:06:18.142: ipv4_mfwd_partner[215]: SIG:
ipv4_mfwd_mrib _post: Successfully posted 1 signals in 44 bytes to MRIB
```

debug mfib sysdb

To track MFIB sysdb local plane events, show client and show server events, use the **debug mfib signal** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4** | **ipv6**] **sysdb** [*type instance*]

no debug mfib [**ipv4** | **ipv6**] **sysdb** [*type instance*]

Syntax Description

[**ipv4** | **ipv6**]	(Required) IP protocol versions 4 and 6.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib sysdb** command:

```
RP/0/RP0/CPU0:router# debug mfib ipv4 sysdb MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 16:15:33.195: ipv4_mfwd_partner[215]: SysDB:
ttl_threshold: TTL for FI0/3/CPU0 is zero but we got notification to unconfig TTL (stale
flag set)
RP/0/RP0/CPU0:Aug 2 16:15:33.196: ipv4_mfwd_partner[215]: SysDB:
ttl_threshold: TTL for Gi0/3/0/0 is zero but we got notification to unconfig TTL (stale
flag set)
RP/0/RP0/CPU0:Aug 2 16:15:33.197: ipv4_mfwd_partner[215]: SysDB:
Successfully removed all stale configs.
```

debug mfib warning

To monitor warnings in MFIB for any anomalies, use the **debug mfib warning** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mfib [**ipv4** | **ipv6**] **warning** [*type instance*]

no debug mfib [**ipv4** | **ipv6**] **warning** [*type instance*]

Syntax Description

[**ipv4** | **ipv6**]	(Required) IP protocol versions 4 and 6.
type	(Optional) 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.

Defaults

The default protocol is ipv4.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Messages categorized as warnings are less critical and often fully-recoverable through automatic retry.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mfib warning** command:

```
RP/0/RP0/CPU0:router# debug mfib ipv4 warning MgmtEth0/RP1/CPU0/0

RP/0/RP0/CPU0:Aug 2 16:16:36.321: ipv4_mfwd_partner[215]: WARN:
ipv4_mfwd_sysdb_cfg_if_remove_enable_disable: Got remove enable/disable config on
Gi0/3/0/0 but there was no config before (stale cfg)
```

Multicast MLIB Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to debug multicast MLIB on Cisco IOS XR software.

MLIB is the multicast library handling route and interface programming from software mfib to specific platform calls.

Note Debug messages are generated from both platform independent and platform dependent components.

debug mlib connections

To track platform server connection events, use the **debug mlib connections** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] connections [*type instance*]

no debug mlib [ipv4 | ipv6] connections [*type instance*]

Syntax Description

[**ipv4	ipv6**]	IP protocol versions 4 and 6.
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.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Use the **debug mlib connection** command to track platform server connection events, including:

- mstat server
- platform library sysdb connection

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib connection** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 connection

RP/0/RP0/CPU0:August 2 16:16:14.359: ipv4_mfwd_partner[147]: ML-DEBUG-CONN:
ipv4_mfwd_hfr_edm_oper_handler 3757: Disconnected from SysDB at HFR oper
```

debug mlib errors

To monitor and debug critical errors in line card MLIB, use the **debug mlib errors** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] errors [*type instance*]

no debug mlib [ipv4 | ipv6] errors [*type instance*]

Syntax Description

[**ipv4	ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note Most errors in MLIB can be recovered automatically.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib errors** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 errors

RP/0/RP0/CPU0:August 2 16:26:14.359: ipv4_mfwd_partner[147]: ML-DEBUG-ERR:
ipv4mc_queue_intf_change_request 1522: Null Table pointer
```

debug mlib events

To track software to hardware route programming actions, use the **debug mlib events** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] events [*type instance*]

no debug mlib [ipv4 | ipv6] events [*type instance*]

Syntax Description

[**ipv4	ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Software to hardware route programming actions include route creation and deletion.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib events** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 events

RP/0/RP0/CPU0:August 2 16:36:14.359: ipv4_mfwd_partner[147]: ML-DEBUG-EV:
ipv4mc_intf_operation 4382: Processing Route (79.17.97.2,225.0.41.16/64)
intf=Ha0x1580020 action=create
```

debug mlib idb

To to monitor interface control events, use the **debug mlib idb** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] idb [*type instance*]

no debug mlib [ipv4 | ipv6] idb [*type instance*]

Syntax Description

[**ipv4	ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Control events include enabling interface structure for multicast, adjacency changes, and interface ip addresses.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib idb** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 idb

RP/0/RP0/CPU0:August 2 16:45:52.030: ipv4_mfwd_partner[147]: ML-DEBUG-IDB:
lcv4mc_update_aib 3082: Updated the adjacency of PO0/4/0/1 l2_load_info
= 0x4201
RP/0/RP0/CPU0:August 2 16:45:52.030: ipv4_mfwd_partner[147]: ML-DEBUG-IDB:
lcv4mc_update_aib 3125: Performed 0 routes walk for PO0/4/0/1 because
adj changed from 0x0 to 0x4201
```

debug mlib interface

To track platform interface update events, use the **debug mlib interface** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] interface [*type instance*]

no debug mlib [ipv4 | ipv6] interface [*type instance*]

Syntax Description

[**ipv4** | **ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Track platform interface update events include flap updates.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib interface** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 interface

RP/0/RP0/CPU0:August 2 16:52:03.939: ipv4_mfwd_partner[147]: ML-DEBUG-INTF:
ipv4mc_platform_intf_operation 1891: Non-local intf uIDB commit
Ha0x1580020 (A NS) to (79.17.97.2,225.0.84.219/64)
RP/0/RP0/CPU0:August 2 16:52:03.939: ipv4_mfwd_partner[147]: ML-DEBUG-INTF:
ipv4mc_intf_operation 4603: Existing intf commit Ha0x1580020 (A NS) to
(79.17.97.2,225.0.84.219/64)
```

debug mlib routes

To track basic route update events, use the **debug mlib routes** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] routes [*type instance*]

no debug mlib [ipv4 | ipv6] routes [*type instance*]

Syntax Description

[**ipv4** | **ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

For detail event tracking, use the **debug mlib events** command.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib routes** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 routes

RP/0/RP0/CPU0:August 2 16:56:59.091: ipv4_mfwd_partner[147]:
ML-DEBUG-ROUTE: ipv4mc_route_operation 4005: Existing route commit
(79.17.97.2,225.0.23.239/64) (0 0 0)
RP/0/RP0/CPU0:August 2 16:56:59.091: ipv4_mfwd_partner[147]:
ML-DEBUG-ROUTE: ipv4mc_route_operation 3551: Existing route create
(79.17.97.2,225.0.24.7/64) (0 0 0)
```

debug mlib signal

To to monitor per route signalling event for PIM-SM and PIM-DM range in the platform library, use the the **debug mlib signal** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] signal [*type instance*]

no debug mlib [ipv4 | ipv6] signal [*type instance*]

Syntax Description

[**ipv4	ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib signal** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 signal

RP/0/RP0/CPU0:August 2 17:00:01.367: ipv4_mfwd_partner[147]: ML-DEBUG-SIG:
ipv4mc_signal_lookup 7023: Signal Nf0x00000000
(79.17.97.2,225.0.101.136/64) not found
```

debug mlib state

To monitor platform library state transition, use the **debug mlib signal** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] state [*type instance*]

no debug mlib [ipv4 | ipv6] state [*type instance*]

Syntax Description

[**ipv4	ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib state** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 state

RP/0/RP0/CPU0:August 2 17:04:02.156: ipv4_mfwd_partner[147]:
ML-DEBUG-STATE: ipv4mc_idb_init 3881: IDB state changed from NOTREADY to
CONNECTING
RP/0/RP0/CPU0:August 2 17:04:02.156: ipv4_mfwd_partner[147]:
ML-DEBUG-STATE: ipv4mc_idb_init 4002: IDB state changed from CONNECTING
to READY
```

debug mlib warning

To monitor warnings in MLIB, use the **debug mlib warning** command in EXEC mode. To disable debugging output, use the **no** form of this command.

debug mlib [ipv4 | ipv6] warning [*type instance*]

no debug mlib [ipv4 | ipv6] warning [*type instance*]

Syntax Description

[**ipv4 | ipv6**]	IP protocol versions 4 and 6.
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.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was supported on the Cisco CRS-1 and Cisco XR 12000 Series Router.
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.

Messages categorized as warnings are less critical and often fully recoverable using automatic retry.

Note All debug commands apply to both ipv4 and ipv6 address families. If you do not specify ipv4 or ipv6, and if the default-afi is not set, ipv4 is the default.

Task ID

Task ID	Operations
multicast	read

Examples

The following example shows sample output for the **debug mlib warning** command:

```
RP/0/RP0/CPU0:router# debug mlib ipv4 warning

RP/0/RP0/CPU0:August 2 17:04:03.156: ipv4_mfwd_partner[147]: ML-DEBUG-WARN:
ipv4mc_queue_intf_change_request 1536: Maximum number of queued requests
exceeded
```

DHR	Cisco IOS XR Interface and Hardware Component Debug Command Reference
DIR	Cisco IOS XR IP Addresses and Services Debug Command Reference
DMCR	Cisco IOS XR Multicast Debug Command Reference
DMPR	Cisco IOS XR MPLS Debug Command Reference
DQR	Cisco IOS XR Modular Quality of Service Debug Command Reference
DRR	Cisco IOS XR Routing Debug Command Reference
DSB	Cisco IOS XR Session Border Controller Debug Command Reference
DSMR	Cisco IOS XR System Management Debug Command Reference
DSR	Cisco IOS XR System Security Debug Command Reference

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