



Cisco IOS XR Interface and Hardware Component Debug Command Reference

Cisco IOS XR Software Release 3.5

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Cisco IOS XR Interface and Hardware Component Debug Command Reference
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Preface

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

- [Changes to This Document, page iii](#)
- [Obtaining Documentation, Obtaining Support, and Security Guidelines, page iii](#)

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-14009-01	June 2007	Initial draft of this document

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>



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

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

debug oird

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

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

Task ID	Task ID	Operations
	system	read

Examples

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

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

RP/0/RP0/CPU0:router# oir_daemon[247]: Card Mask = 4000000000000000, Card_present =
ffffdc000fffffbfd, Card_intr = fbffffdfffffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIROUT : OIR: Node 0/10/SP removed
RP/0/RP0/CPU0:router# oir_daemon[247]: Card Mask = 4000000000000000, Card_present =
ffffdc000fffffbfd, Card_intr = fbffffdfffffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIRIN : OIR: Node 0/10/SP inserted
RP/0/RP0/CPU0:router# oir_daemon[247]: Card Mask = 4000000000000000, Card_present =
ffffdc000fffffbfd, Card_intr = fbffffdfffffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIROUT : OIR: Node 0/10/SP removed
RP/0/RP0/CPU0:router# oir_daemon[247]: Card Mask = 4000000000000000, Card_present =
ffffdc000fffffbfd, Card_intr = fbffffdfffffffffff.
RP/0/RP0/CPU0:router# oir_daemon[247]: %OIRD-5-OIRIN : OIR: Node 0/10/SP inserted
```

debug screddrv

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

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

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

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

1. LWM = light weight message

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

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	system	read

Examples

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

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

debug socket

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

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

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

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

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

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	transport	read

Examples

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

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

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

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

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

```

RP/0/RP0/CPU0:Aug 16 20:58:34.049 : Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.070 : Entering: soclose (so 0x8067370, finish 0)
  2 sjc15-00lab-gw1.cisco.com (172.24.114.33) 10 msec RP/0/RP0/CPU0:Aug 16 20:58:34.071 :
Entering: socantrcvmore (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.072 : Entering: socket_read_wakeup (so 0x8067370)
  10 msec RP/0/RP0/CPU0:Aug 16 20:58:34.073 : Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.156 : Entering: sofree (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.156 : Entering: sounlock (so 0x8067370)
  10 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.157 : Entering: sofree (so 0x8067370)
  3 sjc5-lab4-gw1.cisco.com (172.24.114.89) 3 msec RP/0/RP0/CPU0:Aug 16 20:58:34.157 :
Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.157 : Entering: socantrcvmore (so 0x8067370)
  11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.157 : Entering: socket_read_wakeup (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.158 : Entering: sbflush_packet
  9 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.158 : Entering: socket_destroy (so 0x8067370)
  4 sjc5-sbb4-gw1.cisco.com (171.71.241.162) 5 msec RP/0/RP0/CPU0:Aug 16 20:58:34.158 :
Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.159 : Entering: socket_destroy_mutex (tinfo 0x8039360,
mutex 0x804bf70)
  11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.492 : Entering: io_open
  15 msec RP/0/RP0/CPU0:Aug 16 20:58:34.493 : Entering: io_open_create

RP/0/RP0/CPU0:Aug 16 20:58:34.493 : Entering: screate (domain 2, type 2, proto 0,
app_jid 0, xipcq_number 0)
  5 sjc17-dtc-gw2.cisco.com (171.71.241.81) 11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.494 :
Entering: socket_create
RP/0/RP0/CPU0:Aug 16 20:58:34.494 : Entering: socket_create_mutex (so 0x8067370,
protocol: 0)
  10 msec RP/0/RP0/CPU0:Aug 16 20:58:34.494 : Entering: solock (so 0x8067370)
  5 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.495 : Entering: sockbuf_packet_init
RP/0/RP0/CPU0:Aug 16 20:58:34.495 : Entering: sockbuf_packet_init
RP/0/RP0/CPU0:Aug 16 20:58:34.496 : Entering: sbe_reserve_packet (maxpak 50)
  6 sjc15-00-gw2.cisco.com (171.71.240.182) 9 msec RP/0/RP0/CPU0:Aug 16 20:58:34.496 :
Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.497 : io_devctl: io_devctl context 8065c50 msg 805e0c4 ocb
8067370 coid 16
  11 msec RP/0/RP0/CPU0:Aug 16 20:58:34.498 : Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.498 : io_devctl: udp -- DCMD_ACME_SOCKET_SEND
  10 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.498 : Entering: sosend (so 0x8067370, datalen 40)
  7 rajkotia-ul0.cisco.com (171.71.136.54) 8 msec RP/0/RP0/CPU0:Aug 16 20:58:34.499 :
Entering: sbe_uiomove_packet (elem 0xda3181ff, uio_elem_offset 0, uio_datalen 40)
RP/0/RP0/CPU0:Aug 16 20:58:34.500 : Entering: sbe_num_iov_packet (offset 0, len 40)
RP/0/RP0/CPU0:Aug 16 20:58:34.500 : Entering: sbe_set_iov_packet (pak 0xda3181ff, offset
0, len 40, numiovs 1)
RP/0/RP0/CPU0:Aug 16 20:58:34.504 : Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.505 : Entering: io_notify (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.506 : Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.507 : Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.509 : Entering: sbe_set_name_packet (elem 0xda3181ff, name
0x8057190, len 16)
RP/0/RP0/CPU0:Aug 16 20:58:34.510 : Entering: sbappendaddr_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.511 : Entering: sbe_set_control_fsv (pak 0xda3181ff,
control_data 0x7dc6c68)
RP/0/RP0/CPU0:Aug 16 20:58:34.511 : Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.511 : Entering: socket_read_wakeup (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.512 : io_devctl: io_devctl context 8065c50 msg 805d89c ocb
8067370 coid 16
RP/0/RP0/CPU0:Aug 16 20:58:34.513 : Entering: solock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.513 : io_devctl: udp -- DCMD_ACME_SOCKET_RECEIVE
RP/0/RP0/CPU0:Aug 16 20:58:34.514 : Entering: soreceive (so 0x8067370)

```

```
RP/0/RP0/CPU0:Aug 16 20:58:34.514 : Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7de7c00)
RP/0/RP0/CPU0:Aug 16 20:58:34.515 : Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7de7c00)
RP/0/RP0/CPU0:Aug 16 20:58:34.515 : Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.515 : Entering: sbe_uiomove_packet (elem 0xda3181ff,
uio_elem_offset 0, uio_data_len 124)
RP/0/RP0/CPU0:Aug 16 20:58:34.516 : Entering: sbe_num_iov_packet (offset 0, len 124)
RP/0/RP0/CPU0:Aug 16 20:58:34.516 : Entering: sbe_set_iov_packet (pak 0xda3181ff, offset
0, len 124, numiovs 1)
RP/0/RP0/CPU0:Aug 16 20:58:34.517 : Entering: sbe_size_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.518 : Entering: sbe_get_name_packet (pak 0xda3181ff)
RP/0/RP0/CPU0:Aug 16 20:58:34.518 : Entering: sbe_get_control_fsv (pak 0xda3181ff,
control_data 0x7de7bb0)
RP/0/RP0/CPU0:Aug 16 20:58:34.520 : Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.520 : Entering: io_close_ocb (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.523 : Entering: solock (so 0x8067370)
* RP/0/RP0/CPU0:Aug 16 20:58:34.525 : Entering: soclose (so 0x8067370, finish 0)
RP/0/RP0/CPU0:Aug 16 20:58:34.526 : Entering: socantrcvmore (so 0x8067370)
11 msec
RP/0/RP0/CPU0:Aug 16 20:58:34.526 : Entering: socket_read_wakeup (so 0x8067370)
RP/0/RP0/CPU0:router# RP/0/RP0/CPU0:Aug 16 20:58:34.527 : Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.534 : Entering: sofree (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.540 : Entering: sounlock (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.542 : Entering: sofree (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.544 : Entering: sbflush_packet
RP/0/RP0/CPU0:Aug 16 20:58:34.547 : Entering: socantrcvmore (so 0x8067370)
RP/0/RP0/CPU0:Aug 16 20:58:34.549 : Entering: socket_read_wakeup (so 0x8067370)
```

■ debug socket



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

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

debug pos all

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

debug pos all [*location node-id*]

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

Syntax Description	location <i>node-id</i> (Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults	The default is the location of the current, active route processor (RP).
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th style="border: none;">Release</th> <th style="border: none;">Modification</th> </tr> </thead> <tbody> <tr> <td style="border: none;">Release 3.0</td> <td style="border: none;">This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td style="border: none;">Release 3.2</td> <td style="border: none;">No modification.</td> </tr> <tr> <td style="border: none;">Release 3.3.0</td> <td style="border: none;">No modification.</td> </tr> <tr> <td style="border: none;">Release 3.4.0</td> <td style="border: none;">This command was supported on the Cisco XR 12000 Series Router.</td> </tr> <tr> <td style="border: none;">Release 3.5.0</td> <td style="border: none;">No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.0	This command was introduced on the Cisco CRS-1.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.	Release 3.5.0	No modification.
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Release 3.5.0	No modification.												

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th style="border: none;">Task ID</th> <th style="border: none;">Operations</th> </tr> </thead> <tbody> <tr> <td style="border: none;">pos-dpt</td> <td style="border: none;">read</td> </tr> </tbody> </table>	Task ID	Operations	pos-dpt	read
Task ID	Operations				
pos-dpt	read				

Examples

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

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

LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]: pos_port_get_hw_stats, data @
48249c78
LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]: -->
pos_find_owned_im_node_data_by_ifhstype, 251
LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]:      searching IM data @ 48
24c034
LC/0/2/CPU0:Jun 27 16:40:51.465 : plim_16p_oc48[190]:      searching IM data @ 48
2558c8
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: --> pos_get_port_data_by_im_data,
366
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: pos_get_port_data_by_im_data: type
19 context 482555d4
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: pos_get_port_data_by_ifhandle(),
418: mapped ifhandle: @012800c0 --> pos_port_st: @482555d4
LC/0/2/CPU0:Jun 27 16:40:51.466 : plim_16p_oc48[190]: --> pos_get_stats, 302: port 1
```

Related Commands

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

debug pos events

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

debug pos events [*location node-id*]

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

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

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

Related Commands

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

debug pos framer

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

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

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

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

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

Examples

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

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

Related Commands

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

debug pos im

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

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

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

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

Related Commands	Command	Description
	debug pos all	Debugs information for all PoS.
	debug sonet im	Debugs information for the SONET interface manager.

debug pos info

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

debug pos info [*location node-id*]

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

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

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

Related Commands

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

debug pos mapping

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

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

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

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

Related Commands

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

debug pos periodic

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

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

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

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

Related Commands

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

debug pos sysdb

To debug information for the POS system database, use the **debug pos sysdb** command in EXEC mode. To disable debugging, use the **no** form of this command.

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

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

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

Related Commands

Command	Description
debug sonet sysdb	Debugs information for the SONET system database.

debug pos trace

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

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	pos-dpt	read

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

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

Related Commands

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

debug sonet all

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

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults	The default is the location of the current, active route processor (RP).
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Command Modes	EXEC
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Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID	Task ID	Operations
	sonet-sdh	read, write

Examples

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

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

LC/0/0/CPU0:Jun 28 13:02:04.957 : vpa_1p_oc192[247]: sonet_hw_c2_state_changed:
SonetPath0/0/1/0 state=3
LC/0/0/CPU0:Jun 28 13:02:05.393 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/1 state=3
LC/0/0/CPU0:Jun 28 13:02:05.393 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/2 state=3
LC/0/0/CPU0:Jun 28 13:02:05.393 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/3 state=3
LC/0/0/CPU0:Jun 28 13:02:05.958 : vpa_1p_oc192[247]: sonet_hw_c2_state_changed:
SonetPath0/0/1/0 state=3
LC/0/0/CPU0:Jun 28 13:02:06.394 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/1 state=3
LC/0/0/CPU0:Jun 28 13:02:06.394 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/2 state=3
LC/0/0/CPU0:Jun 28 13:02:06.394 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/3 state=3
LC/0/0/CPU0:Jun 28 13:02:06.959 : vpa_1p_oc192[247]: sonet_hw_c2_state_changed:
SonetPath0/0/1/0 state=3
LC/0/0/CPU0:Jun 28 13:02:07.395 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/1 state=3
LC/0/0/CPU0:Jun 28 13:02:07.395 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/2 state=3
LC/0/0/CPU0:Jun 28 13:02:07.395 : spa_4p_oc3[214]: sonet_hw_c2_state_changed:
SonetPath0/0/5/3 state=3
```

Related Commands

Command	Description
debug sonet aps	Debugs information for the SONET automatic protection switching (APS).
debug sonet errors	Debugs SONET errors.
debug sonet events	Debugs information for SONET events.
debug sonet info	Debugs generic SONET information.
debug sonet sysdb	Debugs information for the SONET system database.

debug sonet aps

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

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

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

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

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	sonet-sdh	read, write

Examples

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

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

Related Commands

Command	Description
debug sonet all	Debugs information for all but periodic SONET.
debug sonet errors	Debugs SONET errors.
debug sonet events	Debugs information for SONET events.
debug sonet info	Debugs generic SONET information.
debug sonet sysdb	Debugs information for the SONET system database.

debug sonet errors

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

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults	The default is the location of the current, active route processor (RP).
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Command Modes	EXEC
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Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID	Task ID	Operations
	sonet-sdh	read, write

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

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

Related Commands

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

debug sonet events

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

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

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	sonet-sdh	read, write

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

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

Related Commands

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

debug sonet framer

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

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

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

Syntax Description

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

Defaults

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

Command Modes

EXEC

Command History

Release	Modification
Release 3.0	This command was introduced on the Cisco CRS-1.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
Release 3.5.0	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
sonet-sdh	read, write

Examples

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

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

Related Commands

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

debug sonet im

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

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

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

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

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	sonet-sdh	read, write

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

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

Related Commands

Command	Description
debug pos im	Debugs information for the POS interface manager.
debug sonet all	Debugs information for all but periodic SONET.

debug sonet info

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

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

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

Syntax Description	location <i>node-id</i> (Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults	The default is the location of the current, active route processor (RP).
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>This command was supported on the Cisco XR 12000 Series Router.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.0	This command was introduced on the Cisco CRS-1.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.	Release 3.5.0	No modification.
Release	Modification												
Release 3.0	This command was introduced on the Cisco CRS-1.												
Release 3.2	No modification.												
Release 3.3.0	No modification.												
Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.												
Release 3.5.0	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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>sonet-sdh</td> <td>read, write</td> </tr> </tbody> </table>	Task ID	Operations	sonet-sdh	read, write
Task ID	Operations				
sonet-sdh	read, write				

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

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

Syntax Description	Command	Description
	debug sonet all	Debugs information for all but periodic SONET.
	debug sonet aps	Debugs information for the SONET APS.
	debug sonet errors	Debugs SONET errors.
	debug sonet events	Debugs information for SONET events.
	debug sonet sysdb	Debugs information for the SONET system database.

debug sonet mapping

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

debug sonet mapping [*location node-id*]

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

Syntax Description	location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults The default is the location of the current, active route processor (RP).

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	sonet-sdh	read, write

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

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

Related Commands

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

debug sonet periodic

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

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

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

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

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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
	sonet-sdh	read, write

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

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

Related Commands

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

debug sonet sysdb

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

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

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

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

Defaults	The default is the location of the current, active route processor (RP).
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Command Modes	EXEC
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Command History	Release	Modification
	Release 3.0	This command was introduced on the Cisco CRS-1.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.5.0	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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID	Task ID	Operations
	sonet-sdh	read, write

Examples	The following example shows how to enable debugging information for the SONET system database with the debug sonet sysdb command:
-----------------	--

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

Related Commands

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

■ debug sonet sysdb



DWDM Debug Commands on Cisco IOS XR Software

This chapter describes the dense wavelength division multiplexing (DWDM) controller debug commands on Cisco IOS XR software.

debug dwdm

To turn on debugging messages related to the DWDM controller, use the **debug dwdm** command in EXEC mode. To turn off DWDM debugging messages, use the **no** form of this command.

```
debug dwdm {all | errors | im | info | system} [location node-id]
```

```
no debug chdmc ma slarp {all | errors | im | info | system} [location node-id]
```

Syntax Description		
all		Turns on all debugging messages related to the DWDM controller.
errors		Turns on error debugging messages related to the DWDM controller.
im		Turns on interface manager debugging messages related to the DWDM controller.
info		Turns on generic debugging messages related to the DWDM controller.
system		Turns on system database debugging messages related to the DWDM controller.
location <i>node-id</i>	(Optional)	Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco CRS-1.

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

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

Task ID	Task ID	Operations
	interface	read

Examples The following example shows how to turn on all debugging messages for all DWDM controllers on the router:

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

Related Commands

Command	Description
debug g709 all	Turns on all but periodic G709 debugging messages.
debug g709 errors	Turns on G.709 debugging error messages.
debug g709 events	Turns on G.709 debugging event messages.
debug g709 framer	Turns on G.709 framer debugging messages.
debug g709 info	Turns on generic G.709 debugging messages.
debug g709 mapping	Turns on G.709 hardware mapping debugging messages.
debug g709 periodic	Turns on periodic G.709 debugging messages.

debug g709 all

To turn on all but periodic G.709 debugging messages, use the **debug g709 all** command in EXEC mode. To turn off all G.709 debugging messages, use the **no** form of this command.

```
debug g709 all [job job-id | process string] [location node-id]
```

```
no debug g709 all [job job-id | process string] [location node-id]
```

Syntax Description	job <i>job-id</i>	(Optional) Displays G.709 debugging messages for a specific job. Range is from 0 through 4294967295.
	process <i>string</i>	(Optional) Displays G.709 debugging messages for a specific process. Replace the <i>string</i> argument with a process ID or name.
	location <i>node-id</i>	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco CRS-1.

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

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

Task ID	Task ID	Operations
	root-system	read, write

Examples The following example shows how to turn on all but periodic G.709 debugging messages for all DWDM controllers in the router:

```
RP/0/RP0/CPU0:router# debug g709 all
```

Related Commands

Command	Description
debug dwdm	Turn on debugging messages related to the DWDM controller.
debug g709 errors	Turns on G.709 debugging error messages.
debug g709 events	Turns on G.709 debugging event messages.
debug g709 framer	Turns on G.709 framer debugging messages.
debug g709 info	Turns on generic G.709 debugging messages.
debug g709 mapping	Turns on G.709 hardware mapping debugging messages.
debug g709 periodic	Turns on periodic G.709 debugging messages.

debug g709 errors

To turn on G.709 debugging error messages, use the **debug g709 errors** command in EXEC mode. To turn off G.709 debugging error messages, use the **no** form of this command.

```
debug g709 errors [job job-id | process string] [location node-id]
```

```
no debug g709 errors [job job-id | process string] [location node-id]
```

Syntax Description	Parameter	Description
	job <i>job-id</i>	(Optional) Displays G.709 debugging error messages for a specific job. Range is from 0 through 4294967295.
	process <i>string</i>	(Optional) Displays G.709 debugging error messages for a specific process. Replace the <i>string</i> argument with a process ID or name.
	location <i>node-id</i>	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco CRS-1.

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

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

Task ID	Task ID	Operations
	root-system	read, write

Examples The following example shows how to turn on G.709 error messages for all DWDM controllers in the router:

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

Related Commands

Command	Description
debug dwdm	Turn on debugging messages related to the DWDM controller.
debug g709 all	Turns on all but periodic G.709 debugging messages.
debug g709 events	Turns on G.709 debugging event messages.
debug g709 framer	Turns on G.709 framer debugging messages.
debug g709 info	Turns on generic G.709 debugging messages.
debug g709 mapping	Turns on G.709 hardware mapping debugging messages.
debug g709 periodic	Turns on periodic G.709 debugging messages.

debug g709 events

To turn on G.709 debugging event messages, use the **debug g709 all** command in EXEC mode. To turn off all G.709 debugging event messages, use the **no** form of this command.

debug g709 events [*job job-id* | *process string*] [*location node-id*]

no debug g709 events [*job job-id* | *process string*] [*location node-id*]

Syntax Description		
job <i>job-id</i>	(Optional) Displays G.709 debugging event messages for a specific job. Range is from 0 through 4294967295.	
process <i>string</i>	(Optional) Displays G.709 debugging event messages for a specific process. Replace the <i>string</i> argument with a process ID or name.	
location <i>node-id</i>	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.	

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco CRS-1.

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

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

Task ID	Task ID	Operations
	root-system	read, write

Examples The following example shows how to turn on G.709 debugging event messages for all DWDM controllers in the router:

```
RP/0/RP0/CPU0:router# debug g709 events
```

Related Commands

Command	Description
debug dwdm	Turn on debugging messages related to the DWDM controller.
debug g709 all	Turns on all but periodic G.709 debugging messages.
debug g709 errors	Turns on G.709 debugging error messages.
debug g709 framer	Turns on G.709 framer debugging messages.
debug g709 info	Turns on generic G.709 debugging messages.
debug g709 mapping	Turns on G.709 hardware mapping debugging messages.
debug g709 periodic	Turns on periodic G.709 debugging messages.

debug g709 framer

To turn on G.709 framer debugging messages, use the **debug g709 framer** command in EXEC mode. To turn off G.709 framer debugging messages, use the **no** form of this command.

```
debug g709 framer {all | events | info | operations | periodic} [job job-id | process string]
                    [location node-id]
```

```
no debug g709 framer {all | events | info | operations | periodic} [job job-id | process string]
                    [location node-id]
```

Syntax Description

all	Turns on all but periodic G.709 framer debugging messages.
events	Turns on G.709 framer debugging event messages.
info	Turns on generic G.709 framer debugging messages.
operations	Turns on G.709 framer operations debugging messages.
periodic	Turns on G.709 framer periodic debugging messages.
job job-id	(Optional) Displays framer debugging messages for a specific job. Range is from 0 through 4294967295.
process string	(Optional) Displays framer debugging messages for a specific process. Replace the <i>string</i> argument with a process ID or name.
location node-id	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults

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

Command Modes

EXEC

Command History

Release	Modification
Release 3.5.0	This command was introduced on the Cisco CRS-1.

Usage Guidelines

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

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

Task ID

Task ID	Operations
root-system	read, write

Examples

The following example shows how to turn on all but periodic G.709 framer debugging messages for the entire router:

```
RP/0/RP0/CPU0:router# debug g709 framer all
```

Related Commands

Command	Description
debug dwdm	Turn on debugging messages related to the DWDM controller.
debug g709 all	Turns on all but periodic G.709 debugging messages.
debug g709 errors	Turns on G.709 debugging error messages.
debug g709 events	Turns on G.709 debugging event messages.
debug g709 info	Turns on generic G.709 debugging messages.
debug g709 mapping	Turns on G.709 hardware mapping debugging messages.
debug g709 periodic	Turns on periodic G.709 debugging messages.

debug g709 info

To turn on generic G.709 debugging messages, use the **debug g709 info** command in EXEC mode. To turn off generic G.709 debugging messages, use the **no** form of this command.

debug g709 info [**job** *job-id* | **process** *string*] [**location** *node-id*]

no debug g709 info [**job** *job-id* | **process** *string*] [**location** *node-id*]

Syntax Description	Parameter	Description
	job <i>job-id</i>	(Optional) Displays generic G.709 debugging messages for a specific job. Range is from 0 through 4294967295.
	process <i>string</i>	(Optional) Displays generic G.709 debugging messages for a specific process. Replace the <i>string</i> argument with a process ID or name.
	location <i>node-id</i>	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco CRS-1.

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

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

Task ID	Task ID	Operations
	root-system	read, write

Examples The following example shows how to turn on generic G.709 debugging messages for the entire router:

```
RP/0/RP0/CPU0:router# debug g709 info
```

Related Commands

Command	Description
debug dwdm	Turn on debugging messages related to the DWDM controller.
debug g709 all	Turns on all but periodic G.709 debugging messages.
debug g709 errors	Turns on G.709 debugging error messages.
debug g709 events	Turns on G.709 debugging event messages.
debug g709 framer	Turns on G.709 framer debugging messages.
debug g709 mapping	Turns on G.709 hardware mapping debugging messages.
debug g709 periodic	Turns on periodic G.709 debugging messages.

debug g709 mapping

To turn on G.709 hardware mapping debugging messages, use the **debug g709 mapping** command in EXEC mode. To turn off G.709 hardware mapping debugging messages, use the **no** form of this command.

debug g709 mapping [*job job-id* | *process string*] [*location node-id*]

no debug g709 mapping [*job job-id* | *process string*] [*location node-id*]

Syntax Description

job <i>job-id</i>	(Optional) Displays G.709 hardware mapping debugging messages for a specific job. Range is from 0 through 4294967295.
process <i>string</i>	(Optional) Displays G.709 hardware mapping debugging messages for a specific process. Replace the <i>string</i> argument with a process ID or name.
location <i>node-id</i>	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults

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

Command Modes

EXEC

Command History

Release	Modification
Release 3.5.0	This command was introduced on the Cisco CRS-1.

Usage Guidelines

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

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

Task ID

Task ID	Operations
root-system	read, write

Examples

The following example shows how to turn on G.709 hardware mapping debugging messages for all DWDM controllers in the router:

```
RP/0/RP0/CPU0:router# debug g709 mapping
```

Related Commands

Command	Description
debug dwdm	Turn on debugging messages related to the DWDM controller.
debug g709 all	Turns on all but periodic G.709 debugging messages.
debug g709 errors	Turns on G.709 debugging error messages.
debug g709 events	Turns on G.709 debugging event messages.
debug g709 framer	Turns on G.709 framer debugging messages.
debug g709 info	Turns on generic G.709 debugging messages.
debug g709 periodic	Turns on periodic G.709 debugging messages.

debug g709 periodic

To turn on periodic G.709 debugging messages, use the **debug g709 periodic** command in EXEC mode. To turn off all periodic G.709 debugging messages, use the **no** form of this command.

debug g709 periodic [**job** *job-id* | **process** *string*] [**location** *node-id*]

no debug g709 periodic [**job** *job-id* | **process** *string*] [**location** *node-id*]

Syntax Description		
job <i>job-id</i>	(Optional) Displays periodic G.709 debugging messages for a specific job. Range is from 0 through 4294967295.	
process <i>string</i>	(Optional) Displays periodic G.709 debugging messages for a specific process. Replace the <i>string</i> argument with a process ID or name.	
location <i>node-id</i>	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.	

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco CRS-1.

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

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

Task ID	Task ID	Operations
	root-system	read, write

Examples The following example shows how to turn on periodic G.709 debugging messages for all DWDM controllers on the router:

```
RP/0/RP0/CPU0:router# debug g709 periodic
```

Related Commands

Command	Description
debug dwdm	Turn on debugging messages related to the DWDM controller.
debug g709 all	Turns on all but periodic G.709 debugging messages.
debug g709 errors	Turns on G.709 debugging error messages.
debug g709 events	Turns on G.709 debugging event messages.
debug g709 framer	Turns on G.709 framer debugging messages.
debug g709 info	Turns on generic G.709 debugging messages.
debug g709 mapping	Turns on G.709 hardware mapping debugging messages.

■ debug g709 periodic

Ethernet Interface Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to Ethernet interfaces on a router running Cisco IOS XR software.

debug mac-accounting

To turn on event and interface debug messages related to MAC accounting, use the **debug mac-accounting** command in EXEC mode. To disable MAC-accounting debug messages, use the **no** form of this command.

```
debug mac-accounting {all | events | internal} [interface type instance | location node-id]
```

```
no debug mac-accounting {all | events | internal} [interface type instance | location node-id]
```

Syntax Description

all	Turns on both event and interface messages related to MAC accounting debugging.
events	Turns on event messages related to MAC accounting debugging.
internal	Turns on internal messages related to MAC accounting debugging.
interface type instance	(Optional) Turns on MAC accounting debug messages for a specific interface. Replace <i>type</i> with the interface type. Replace <i>instance</i> with a physical interface, virtual interface, or link bundle identifier. Note For more information about the syntax for the router, use the question mark (?) online help function
location node-id	(Optional) Turns on MAC accounting debug messages for a specific location. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation. If you include the location node-id keyword argument, then debugging messages are turned on for the specified location only.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.5.0	This command was introduced 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
	interface	read

Examples

The following example shows how to use the **debug mac-accounting all** command to turn on both event and interface messages related to MAC accounting debugging:

```
RP/0/RP0/CPU0:router# debug mac-accounting all
```

■ debug mac-accounting

802.1Q VLAN Debug Commands on Cisco IOS XR Software

This chapter describes the commands used to 802.1Q VLAN subinterfaces on a router running Cisco IOS XR software.

debug snmp mib vlanifrelationmib

To turn on 802.1Q VLAN debugging, use the **debug snmp mib vlanifrelationmib** command in EXEC mode. To turn off 802.1Q VLAN debugging, use the **no** form of this command.

debug snmp mib vlanifrelationmib

no debug snmp mib vlanifrelationmib

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced 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
	snmp	read, write

Examples The following example shows how to turn on 802.1Q VLAN debugging:

```
RP/0/RP0/CPU0:router# debug snmp mib vlanifrelationmib
```



ATM Debug Commands on Cisco IOS XR Software

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

debug atm errors

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

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

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

Syntax Description	<p>interface atm <i>instance</i> (Optional) Physical interface instance on which to turn on debugging messages for ATM errors. Naming notation is <i>rack/slot/module/port</i>, and a slash between values is required as part of the notation.</p> <ul style="list-style-type: none"> <i>rack</i>—Chassis number of the rack. <i>slot</i>—Physical slot number of the card. <i>module</i>—Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>—Physical port number of the interface. <p>Note For more information about the syntax for the router, use the question mark (?) online help function.</p> <p>location <i>node-id</i> (Optional) Specifies a node on which to turn on all debugging messages for ATM errors.</p>						
Defaults	Enter the debug atm errors command without including any of the optional syntax to turn on debugging messages for all ATM interfaces configured on the router.						
Command Modes	EXEC						
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.4.0</td> <td>This command was introduced on the Cisco XR 12000 Series Router.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.4.0	This command was introduced on the Cisco XR 12000 Series Router.	Release 3.5.0	No modification.
Release	Modification						
Release 3.4.0	This command was introduced on the Cisco XR 12000 Series Router.						
Release 3.5.0	No modification.						
Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p> <p>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.</p>						
Task ID	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>atm</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	atm	read		
Task ID	Operations						
atm	read						

Examples

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

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




cHDLC Debug Commands on Cisco IOS XR Software

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

debug chdlc ma slarp

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

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

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

Syntax Description	packet	Specifies the debug information for sent and received SLARP packets.
	state	Specifies the debug information for the state of the SLARP finite state machine.
	location <i>node-id</i>	(Optional) Specifies the location on the router, for example, 0/0/CPU0. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
	interface <i>interface-type</i> <i>interface-instance</i>	(Optional) Interface type. For more information, use the question mark (?) online help function. (Optional) Either a physical interface instance or a virtual interface instance as follows: <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>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.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>

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

Command Modes EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was supported on the Cisco XR 12000 Series Router.
Release 3.3.0	Command name changed to include the ma keyword. Added the interface keyword.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
hdlc	read

Examples

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

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

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

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

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

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

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

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

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



PPP Debug Commands on Cisco IOS XR Software

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

debug multilink

To turn on multilink debugging messages for a router or for a specific location, use the **debug multilink** command in EXEC mode. To disable debugging, use the **no** form of this command.

debug multilink { **all** | **errors** | **events** | **im** | **info** | **mapping** | **periodic** | **sysdb** } [**location** *node-id*]

no debug multilink { **all** | **errors** | **events** | **im** | **info** | **mapping** | **periodic** | **sysdb** } [**location** *node-id*]

Syntax Description		
all		Turns on all multilink debugging messages for the router, or for a specific location.
errors		Turns on multilink error debugging messages for the router, or for a specific location.
events		Turns on multilink event messages for the router, or for a specific location.
im		Turns on multilink interface manager debugging messages for the router, or for a specific location.
info		Turns on generic multilink informative events for the router, or for a specific location.
mapping		Turns on multilink hardware mapping debugging messages for the router, or for a specific location.
periodic		Turns on hardware periodic processing debugging messages for the router, or for a specific location.
sysdb		Turns on system database multilink debugging messages for the router, or for a specific location.
location <i>node-id</i>		(Optional) Specifies the location of a line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation. If you include the location <i>node-id</i> keyword argument, then debugging messages are turned on for the specified location only.

Defaults The default is that debugging is turned off.

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco XR 12000 Series Router.

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

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

Task ID	Task ID	Operations
	hdlc	read

Examples

The following example shows how to turn on all multilink debugging messages for the entire router:

```
RP/0/0/CPU0:router# debug multilink all
```

The following example shows how to turn on multilink error debugging messages for a specific location:

```
RP/0/0/CPU0:router# debug multilink location 0/4/CPU0
```

Related Commands

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

debug ppp all

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

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

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

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

Defaults The default is that debugging is turned off.

Command Modes EXEC

Command History	Release	Modification
	Release 3.3.0	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	ppp	read

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

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

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

debug ppp authentication

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

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

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

Syntax Description	location node-id	(Optional) Specifies a location of the line card. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults	The default is that debugging is turned off.
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Command Modes	EXEC
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Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID	Task ID	Operations
	ppp	read

Examples

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

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

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

Related Commands

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

debug ppp multilink

To enable debugging of Point-to-Point Protocol (PPP) multilink events, use the **debug ppp multilink** command in EXEC mode. To disable debugging, use the **no** form of this command.

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

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

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

Defaults The default is that debugging is turned off.

Command Modes EXEC

Command History	Release	Modification
	Release 3.5.0	This command was introduced on the Cisco XR 12000 Series Router.

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

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

Task ID	Task ID	Operations
	ppp	read

Examples

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

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

The following example shows how to use the **debug ppp multilink** command for a specific location:

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

Related Commands

Command	Description
debug ppp all	Enables all PPP debugging.
debug multilink	Turs on multilink debugging messages for a router or for a specific location.

debug ppp negotiation

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

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

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

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

Defaults The default is that debugging is turned off.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	Added the process keyword.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	ppp	read

Examples

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

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

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

debug ppp negotiation

```

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

```

Related Commands

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

debug ppp packet

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

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

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

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

Defaults The default is that debugging is turned off.

Command Modes EXEC

Command History	Release	Modification
	Release 3.3.0	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	ppp	read

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

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

debug ppp packet**Related Commands**

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



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

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

debug spa devobject

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

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

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

Syntax Description	Parameter	Description
	location <i>node-id</i>	Displays debugging information for a node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
	job <i>job-id</i>	Displays debugging information for a job.
	process <i>pid</i>	Displays debugging information for a process.

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa error

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

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

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

Syntax Description	Parameter	Description
	job <i>job-id</i>	Displays debugging information for a job.
	process <i>pid</i>	Displays debugging information for a process.
	location <i>node-id</i>	Displays debugging information for a node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa info

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

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

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

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

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa job

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

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

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

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

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	The location <i>node-id</i> keyword argument was added to the debug spa job command.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa location

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

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

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

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

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa lwm

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

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

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

Syntax Description	Parameter	Description
	job <i>job-id</i>	Displays debugging information for a job.
	process <i>pid</i>	Displays debugging information for a process.
	location <i>node-id</i>	Displays debugging information for a node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa oir

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

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

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

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

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa periodic

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

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

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

Syntax Description	Parameter	Description
	job <i>job-id</i>	Displays debugging information for a job.
	process <i>pid</i>	Displays debugging information for a process.
	location <i>node-id</i>	Displays debugging information for a node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa plugin

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

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

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

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

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa process

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

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

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

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

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa show

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

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

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

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

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa sysdb

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

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

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

Syntax Description	Parameter	Description
	job <i>job-id</i>	Displays debugging information for a job.
	process <i>pid</i>	Displays debugging information for a process.
	location <i>node-id</i>	Displays debugging information for a node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa trace

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

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

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

Syntax Description	Parameter	Description
	location <i>node-id</i>	Displays debugging information for a node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
	job <i>job-id</i>	Displays debugging information for a job.
	process <i>pid</i>	Displays debugging information for a process.

Defaults No default behavior or values

Command Modes Privileged EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1 and the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-lr	read, write

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

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

debug spa-bridge error

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

debug spa-bridge error

no debug spa-bridge error

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Privileged EXEC

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	The debug spa-bridge error command was moved from the root-lr task ID to the ip-services task ID.
Release 3.5.0	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
	ip-services	read, write

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

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

debug spa-bridge oir

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

debug spa-bridge oir

no debug spa-bridge oir

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Privileged EXEC

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	The debug spa-bridge oir command was moved from the root-lr task ID to the ip-services task ID.
Release 3.5.0	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
	ip-services	read, write

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

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

debug spa-bridge show

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

debug spa-bridge show

no debug spa-bridge show

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Privileged EXEC

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	The debug spa-bridge show command was moved from the root-lr task ID to the ip-services task ID.
Release 3.5.0	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
	ip-services	read, write

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

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

debug spa-bridge trace

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

debug spa-bridge trace

no debug spa-bridge trace

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes Privileged EXEC

Release	Modification
Release 3.2	This command was introduced on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	The debug spa-bridge trace command was moved from the root-Ir task ID to the ip-services task ID.
Release 3.5.0	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
	ip-services	read, write

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

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



Link Bundling Debug Commands on Cisco IOS XR Software

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

debug bundlemgr local packets

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

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

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

Syntax Description		
location <i>node-id</i>	(Optional) Specifies the line card to debug. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.	
port	(Optional) Specifies the physical interface that is running LACP. The <i>type</i> argument is entered in the <i>rack/slot/module</i> notation	
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.	
<i>instance</i>	Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> • <i>rack</i>—Chassis number of the rack. • <i>slot</i>—Physical slot number of the card. • <i>module</i>—Module number. A physical layer interface module (PLIM) is always 0. • <i>port</i>—Physical port number of the interface. For more information about the syntax for the router, use the question mark (?) online help function.	

Defaults The default value is off.

Command Modes EXEC

Command History	Release	Modification
	Release 3.3.0	This command was introduced on the Cisco CRS-1.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
bundle	read

Examples

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

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

Related Commands

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

debug bundlemgr local state

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

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

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

Syntax Description		
location <i>node-id</i>	(Optional) Specifies the line card to debug. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.	
port	(Optional) Specifies the physical interface that is running LACP.	
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.	
<i>instance</i>	Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> • <i>rack</i>—Chassis number of the rack. • <i>slot</i>—Physical slot number of the card. • <i>module</i>—Module number. A physical layer interface module (PLIM) is always 0. • <i>port</i>—Physical port number of the interface. For more information about the syntax for the router, use the question mark (?) online help function.	

Defaults The default value is off.

Command Modes EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
bundle	read

Examples

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

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

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

debug bundlemgr local state**Related Commands**

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

debug bundlemgr distrib state

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

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

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

Syntax Description

port	(Optional) Specifies the physical interface that is running LACP.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>instance</i>	Physical interface instance. Naming notation is rack/slot/module/port and a slash between values is required as part of the notation. <ul style="list-style-type: none"> • rack—Chassis number of the rack. • slot—Physical slot number of the card. • module—Module number. A physical layer interface module (PLIM) is always 0. • port—Physical port number of the interface. For more information about the syntax for the router, use the question mark (?) online help function.

Defaults

The default value is off.

Command Modes

EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID	Task ID	Operations
	bundle	read

Examples

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

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

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

Related Commands

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



Bidirectional Forwarding Detection Debug Commands on Cisco IOS XR Software

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

debug bfd client-api

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

debug bfd client-api

no debug bfd client-api

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes EXEC

Command History

Release	Modification
Release 3.2	This command was introduced on the Cisco CRS-1.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

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

Examples

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

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

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

Related Commands

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

debug bfd errors

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

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

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

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

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	bgp	read
	<i>or</i> ospf	read
	<i>or</i> isis	read
	<i>or</i> mpols-te	read

Examples

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

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

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

Related Commands

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

debug bfd filter

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

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

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

Syntax Description	
interface	(Optional) Limit the output to the specified interface.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>instance</i>	<p>Either a physical interface instance or a virtual interface instance as follows:</p> <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>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.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
ipv4 ACL name	Specifies the debug output that is filtered based on a match for the access list specified by <i>name</i> .

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID	Task ID	Operations
	bgp	read
	<i>or</i> ospf	read
	<i>or</i> isis	read
	<i>or</i> mpols-te	read

Examples

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

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

Related Commands	Command	Description
	debug bfd ipv4	Debugs information for IPv4 sessions.

debug bfd fsm

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

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

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

Syntax Description	location <i>node-id</i> (Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
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Defaults	If you do not enable the location filter, the default value is to enable debugging on all locations.
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.2</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.2	This command was introduced on the Cisco CRS-1.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification										
Release 3.2	This command was introduced on the Cisco CRS-1.										
Release 3.3.0	No modification.										
Release 3.4.0	No modification.										
Release 3.5.0	No modification.										

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>bgp</td> <td>read</td> </tr> <tr> <td>or ospf</td> <td>read</td> </tr> <tr> <td>or isis</td> <td>read</td> </tr> <tr> <td>or mpols-te</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	bgp	read	or ospf	read	or isis	read	or mpols-te	read
Task ID	Operations										
bgp	read										
or ospf	read										
or isis	read										
or mpols-te	read										

Examples

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

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

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

Related Commands

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

debug bfd ipv4

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

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

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

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

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

Command Modes EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

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

Examples

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

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

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

Related Commands

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

debug bfd lib

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

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

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

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

Defaults The default value is to enable debugging for all clients.

Command Modes EXEC

Command History	Release	Modification
	Release 3.2	This command was introduced on the Cisco CRS-1.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	bgp	read
	<i>or</i> ospf	read
	<i>or</i> isis	read
	<i>or</i> mpols-te	read

Examples

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

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

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

Related Commands

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

debug bfd process

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

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

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

Syntax Description	location <i>node-id</i> (Optional) Specifies debug information to enable a specified location (for example, 0/2/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.										
Defaults	If you do not enable the location filter, the default value is to enable debugging on all locations.										
Command Modes	EXEC										
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.2</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.2	This command was introduced on the Cisco CRS-1.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification										
Release 3.2	This command was introduced on the Cisco CRS-1.										
Release 3.3.0	No modification.										
Release 3.4.0	No modification.										
Release 3.5.0	No modification.										
Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p> <p>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.</p>										
Task ID	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>bgp</td> <td>read</td> </tr> <tr> <td>or ospf</td> <td>read</td> </tr> <tr> <td>or isis</td> <td>read</td> </tr> <tr> <td>or mpols-te</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	bgp	read	or ospf	read	or isis	read	or mpols-te	read
Task ID	Operations										
bgp	read										
or ospf	read										
or isis	read										
or mpols-te	read										

Examples

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

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

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

Related Commands

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

■ debug bfd process



ASIC Driver Debug Commands on Cisco IOS XR Software

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

debug asic-scan

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

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

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

Syntax Description

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

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID	Task ID	Operations
	drivers	read

Examples

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

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

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

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

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

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

debug cctl

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

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

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

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

Defaults No default behavior or values

Command Modes Admin EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	The following keywords were removed from the debug cctl command syntax: <ul style="list-style-type: none"> • alarm • all • api • edm • errors • helperfunc • ideeprom • internalapi • monitor • obfl • reset • trap
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID	Task ID	Operations
	system	read

Examples

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

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

debug cetftp

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

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

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

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

Defaults No default behavior or values

Command Modes Administrative EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	The debug cetftp command was moved from EXEC mode to administrative EXEC mode.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	root-system	read

Examples

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

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

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

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

Related Commands

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

debug cpuctrl api

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
drivers	read, write

Examples

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

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

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

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

Related Commands

Command	Description
debug cpuctrl asic-error	Turns on asic error debugging messages for the CPU driver.
debug cpuctrl asic-info	Turns on asic info debugging messages for the CPU driver.
debug cpuctrl asic-error	Turns on all debugging messages from the CPU controller driver.
debug cpuctrl entryexit	Turns on all entry and exit messages from CPU controller driver.
debug cpuctrl error	Turns on error messages from the CPU controller.
debug cpuctrl fatal	Turns on fatal messages from CPU controller driver.
debug cpuctrl info	Turns on informational messages from the CPU controller.
debug cpuctrl location	Turns on all debugging messages from the CPU controller driver on a specific node.

Command	Description
show controllers cpuctrl cdma	Displays information about the CPU controller Code Division Multiplex Access (CDMA) engine.
show controllers cpuctrl clients	Displays information about all CPU controller clients on the router, or for specific CPU controller clients.
show controllers cpuctrl devices	Displays information about the CPU controller devices on the router.
show controllers cpuctrl internal	Displays information about the internal CPU controller.
show controllers cpuctrl ports	Displays port information for the specified CPU controller ASIC.
show controllers cpuctrl summary	Displays summarized information about all CPU controller ASICs on the router or on a specific node.

debug cpuctrl asic-error

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 3.3.0	This command was introduced on the Cisco CRS-1.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

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

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

Related Commands

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

debug cpuctrl asic-info

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 3.3.0	This command was introduced on the Cisco CRS-1.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

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

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

Related Commands

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

debug cpuctrl detail

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

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

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

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

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

Related Commands

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

debug cpuctrl entryexit

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

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

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

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

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

Related Commands

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

debug cpuctrl error

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

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

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

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

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

Related Commands

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

debug cpuctrl fatal

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

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

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

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

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

Related Commands

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

debug cpuctrl info

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

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

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

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

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

Related Commands

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

debug cpuctrl location

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

debug cpuctrl location *node-id*

no debug cpuctrl location *node-id*

Syntax Description	<p>location <i>node-id</i></p> <p>Specifies a node on which to turn on all debugging messages from the CPU driver.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification														
Release 2.0	This command was introduced on the Cisco CRS-1.														
Release 3.0	No modification.														
Release 3.2	No modification.														
Release 3.3.0	No modification.														
Release 3.4.0	No modification.														
Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>drivers</td> <td>read, write</td> </tr> </tbody> </table>	Task ID	Operations	drivers	read, write
Task ID	Operations				
drivers	read, write				

Examples

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

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

Related Commands

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

debug egressq

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

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

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

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

Defaults

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

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
drivers	read, write

Examples

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

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

Related Commands

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

debug ether

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	On the Cisco XR 12000 Series Router, the debug ether command was updated to include the following syntax: <ul style="list-style-type: none"> • all • errors • im • info • location node-id
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
drivers	read, write

Examples

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

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

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

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

Related Commands

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

debug fabricq

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

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

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

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

Defaults

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

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
drivers	read

Examples

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

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

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

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

Related Commands

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

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

debug fcram

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read

Examples

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

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

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

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

debug generic

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

debug generic

no debug generic

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes EXEC

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	basic-services	read, write

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

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

debug gsp-em

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

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

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

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

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
sys-mgr	read

Examples

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

```
RP/0/RP0/CPU0:router# debug gsp-em enet-addr
```

The following example shows how to display information pertaining to low Ethernet receive streams for a specific node (the CPU node in Slot 2):

```
RP/0/RP0/CPU0:router# debug gsp-em enet-rx-lo location 0/2/CPU0
```

debug gsp-fab

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

```
debug gsp-fab {fab-addr | fab-error | fab-replay | fab-rx | fab-rx-frr | fab-rx-hi | fab-rx-lo |
fab-states | fab-tx | fab-tx-frr | fab-tx-hi | fab-tx-lo} [location node-id]
```

```
no debug gsp-fab {fab-addr | fab-error | fab-replay | fab-rx | fab-rx-frr | fab-rx-hi | fab-rx-lo |
fab-states | fab-tx | fab-tx-frr | fab-tx-hi | fab-tx-lo} [location node-id]
```

Syntax Description	
fab-addr	Debugs the setting and unsetting of the fabric address.
fab-error	Tracks fabric DLL errors.
fab-replay	Debugs the fabric address replay.
fab-rx	Tracks GSP fabric receive.
fab-rx-frr	Tracks GSP fabric receive FRR queue.
fab-rx-hi	Tracks GSP fabric receive high priority queue.
fab-rx-lo	Tracks GSP fabric receive low queue.
fab-states	Debugs fabric DLL states.
fab-tx	Tracks GSP fabric transmit.
fab-tx-frr	Tracks GSP fabric transmit FRR queue.
fab-tx-hi	Tracks GSP fabric transmit hi queue.
fab-tx-lo	Tracks GSP fabric transmit low queue.
location node-id	(Optional) Specifies a node on whose GSP fabric support information you want to display. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
sys-mgr	read

Examples

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

```
RP/0/RP0/CPU0:router# debug gsp-fab fab-addr
```

The following example shows how to enable the tracking of fabric DLL errors on a specific node (the CPU node in Slot 2):

```
RP/0/RP0/CPU0:router# debug gsp-fab fab-error location 0/2/CPU0
```

debug ingressq

To display debugging information related to the ingress queue manager for all nodes installed in the router, use the **debug ingressq** command in EXEC mode. To disable debugging information related to the ingress queue manager for all nodes installed in the router, use the **no** form of this command.

debug ingressq

no debug ingressq

Syntax Description This command has no arguments or keywords.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read

Examples The following example shows how to display information related to the ingress queue manager for all nodes installed in the router:

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

debug ingressq**Related Commands**

Command	Description
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq api

To turn on debugging messages from the ingress queue API DLL, use the **debug ingressq api** command in EXEC mode. To disable debugging messages from the ingress queue API DLL, use the **no** form of this command.

debug ingressq api [**errors** | **fatal** | **info**] [**location** *node-id*]

no debug ingressq api [**errors** | **fatal** | **info**] [**location** *node-id*]

Syntax Description

errors	(Optional) Turns on error messages from the ingress queue API DLL.
fatal	(Optional) Turns on fatal messages from the ingress queue API DLL.
info	(Optional) Turns on info messages from the ingress queue API DLL.
location <i>node-id</i>	(Optional) Specifies a node on which to turn on messages from the ingress queue API DLL. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	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.

■ debug ingressq api

Task ID	Task ID	Operations
	drivers	read

Examples

The following example shows how to enable all messages from the ingress queue API DLL on all nodes installed in the router:

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

The following example shows how to enable error messages from the ingress queue API DLL on a specific node (the CPU in Slot 0):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq asic

To enable debugging messages from the ingress queue ASIC DLL, use the **debug ingressq asic** command in EXEC mode. To disable debugging messages from the ingress queue ASIC DLL, use the **no** form of this command.

```
debug ingressq asic [cdma | detail | eio | error | fatal | gaspp | info | intr | pio] [location node-id]
```

```
no debug ingressq asic [cdma | detail | eio | error | fatal | gaspp | info | intr | pio] [location node-id]
```

Syntax Description	
cdma	(Optional) Turns on detailed CDMA debug messages from the ingress queue ASIC DLL.
detail	(Optional) Turns on detailed debug messages from the ingress queue ASIC DLL.
eio	(Optional) Turns on EIO messages from the ingress queue ASIC DLL.
error	(Optional) Turns on error messages from the ingress queue ASIC DLL.
fatal	(Optional) Turns on fatal messages from the ingress queue ASIC DLL.
gaspp	(Optional) Turns on GASPP messages from the ingress queue ASIC DLL.
info	(Optional) Turns on informational messages from the ingress queue ASIC DLL.
intr	(Optional) Turns on error interrupt messages from the ingress queue ASIC DLL.
pio	(Optional) Turns on detailed PIO debug messages from the ingress queue ASIC DLL.
location <i>node-id</i>	(Optional) Specifies a node on which to turn on messages from the ingress queue ASIC DLL. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to enable all messages from the ingress queue ASIC DLL on all nodes installed in the router:

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

The following example shows how to enable messages from the ingress queue ASIC DLL on a specific node (the CPU in Slot 2):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq detail

To turn on detailed debug messages from the ingress queue, use the **debug ingressq detail** command in EXEC mode. To disable detailed debug messages from the ingress queue, use the **no** form of this command.

debug ingressq detail [**location** *node-id*]

no debug ingressq detail [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on detailed debug messages from the ingress queue.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
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Release 3.4.0	No modification.														
Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>drivers</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	drivers	read
Task ID	Operations				
drivers	read				

Examples

The following example shows how to enable detailed debug messages from the ingress queue on all nodes installed in the router:

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

The following example shows how to enable detailed debug messages from the ingress queue on a specific node (the CPU in Slot 0):

```
RP/0/RP0/CPU0:router# debug ingressq detail location 0/0/CPU0
```

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq entryexit

To turn on entry and exit messages from the ingress queue, use the **debug ingressq entryexit** command in EXEC mode. To disable entry and exit messages from the ingress queue, use the **no** form of this command.

debug ingressq entryexit [**location** *node-id*]

no debug ingressq entryexit [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on entry and exit messages from the ingress queue.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
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Release 2.0	This command was introduced on the Cisco CRS-1.														
Release 3.0	No modification.														
Release 3.2	No modification.														
Release 3.3.0	No modification.														
Release 3.4.0	No modification.														
Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>drivers</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	drivers	read
Task ID	Operations				
drivers	read				

Examples

The following example shows how to enable entry and exit messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq entryexit
```

The following example shows how to enable entry and exit messages from the ingress queue on a specific node (the CPU in Slot 2):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq error

To turn on error messages from the ingress queue, use the **debug ingressq error** command in EXEC mode. To disable error messages from the ingress queue, use the **no** form of this command.

debug ingressq error [**location** *node-id*]

no debug ingressq error [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on error messages from the ingress queue.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification														
Release 2.0	This command was introduced on the Cisco CRS-1.														
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Release 3.2	No modification.														
Release 3.3.0	No modification.														
Release 3.4.0	No modification.														
Release 3.5.0	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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>drivers</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	drivers	read
Task ID	Operations				
drivers	read				

Examples

The following example shows how to enable error messages from the ingress queue on all nodes installed in the router:

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

The following example shows how to enable error messages from the ingress queue on a specific node (the CPU in Slot 2):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq fatal

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

debug ingressq fatal [**location** *node-id*]

no debug ingressq fatal [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on fabric messages from the ingress queue.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.3.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.3.0	This command was introduced on the Cisco CRS-1.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification								
Release 3.3.0	This command was introduced on the Cisco CRS-1.								
Release 3.4.0	No modification.								
Release 3.5.0	No modification.								

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>drivers</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	drivers	read
Task ID	Operations				
drivers	read				

Examples	<p>The following example shows how to enable fatal messages from the ingress queue on all nodes installed in the router:</p>
-----------------	--

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

debug ingressq fatal

The following example shows how to enable fatal messages from the ingress queue on a specific node (the CPU in Slot 2):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq fabric

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

debug ingressq fabric [**location** *node-id*]

no debug ingressq fabric [**location** *node-id*]

Syntax Description	location <i>node-id</i>	(Optional) Specifies a node on which to turn on fabric messages from the ingress queue. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Enter the show platform command to see the location of all nodes installed in the router.
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i> .
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Debugging output is assigned high priority in the CPU process and, therefore, can affect system performance. For more information about the impact on system performance when using debug commands, refer to Using Debug Commands on Cisco IOS XR Software.

Task ID	Task ID	Operations
	drivers	read

Examples

The following example shows how to enable fabric messages from the ingress queue on all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug ingressq fabric
```

The following example shows how to enable fabric messages from the ingress queue on a specific node (the CPU in Slot 2):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq info

To turn on informational messages from the ingress queue, use the **debug ingressq info** command in EXEC mode. To disable informational messages from the ingress queue, use the **no** form of this command.

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

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

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on informational messages from the ingress queue.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
-----------------	-------------------------------

Command Modes	EXEC
----------------------	------

Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
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Release 3.4.0	No modification.														
Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>drivers</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	drivers	read
Task ID	Operations				
drivers	read				

Examples

The following example shows how to enable informational messages from the ingress queue on all nodes installed in the router:

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

The following example shows how to enable informational messages from the ingress queue on a specific node (the CPU in Slot 2):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug ingressq location

To display debugging information related to the ingress queue manager on a specific node, use the **debug ingressq location** command in EXEC mode. To disable debugging information related to the ingress queue manager on a specific node, use the **no** form of this command.

debug ingressq location *node-id*

no debug ingressq location *node-id*

Syntax Description	<p><i>node-id</i></p> <p>Specifies a node whose ingress queue manager information you want to display.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification														
Release 2.0	This command was introduced on the Cisco CRS-1.														
Release 3.0	No modification.														
Release 3.2	No modification.														
Release 3.3.0	No modification.														
Release 3.4.0	No modification.														
Release 3.5.0	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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>drivers</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	drivers	read
Task ID	Operations				
drivers	read				

Examples

The following example shows how to display information related to the ingress queue manager for a specific node (the CPU0 node installed in Slot 2):

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

Related Commands

Command	Description
debug ingressq	Displays information related to the ingress queue manager for all nodes installed in the router.
show controllers ingressq statistics	Displays ingress queue manager statistics.

debug pfilter-ea

To turn on debugging messages related to the pfilter electrical absorption (EA), use the **debug pfilter-ea** command in EXEC mode. To turn off debugging messages that are related to the pfilter EA, use the **no** form of this command.

On the Cisco CRS-1:

```
debug pfilter-ea {all | errors | info | rlb} [location node-id]
```

```
no debug pfilter-ea {all | errors | info | rlb} [location node-id]
```

On the Cisco XR 12000 Series Router:

```
debug pfilter-ea {all / detail | errors | info}
```

```
no debug pfilter-ea {all / detail | errors | info}
```

Syntax Description	
all	Turns on pfilter EA error debug messages.
errors	Turns on pfilter electrical absorption (EA) error messages.
info	Turns on pfilter electrical absorption (EA) informational messages.
rlb	Turns on detailed pfilter EA Range Logic Block (RLB) debug messages. Note The rlb node-id keyword argument is available on the Cisco CRS-1 only.
detail	Turns on detailed pfilter EA error debug messages. Turns on detailed pfilter EA Range Logic Block (RLB) debug messages. Note The detail node-id keyword argument is available on the Cisco XR 12000 Series Router only.
location node-id	(Optional) Specifies a node on which to turn on pfilter-EA RLB messages. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router. Note The location node-id keyword argument is available on the Cisco CRS-1 only.

Defaults No default behavior or values

Command Modes EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
acl	read

Examples

The following example shows how to turn on error messages related to the pfilter EA for all nodes installed in the router:

```
RP/0/RP0/CPU0:router# debug pfilter-ea all
```

The following example shows how to turn on all error messages related to the pfilter EA for a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug pfilter-ea all location 0/2/CPU0
```

Related Commands

Command	Description
debug pfilter-ea	Turns on detailed pfilter EA debug messages for a specific node, or for all nodes installed in the router.

debug pladv

To enable physical layer interface module (PLIM) link ASIC debugging on a router, use the **debug pladv** command in EXEC mode. To disable PLIM link ASIC debugging on a router, use the **no** form of this command.

```
debug pladv [api [error | info [job jobid | process string] | job jobid | process string] trace [job jobid | process string]] | eio | error | info | int | memory | periodic | trace] [location node-id]
```

```
no debug pladv api [api [error | info [job jobid | process string] | job jobid | process string] trace [job jobid | process string]] | eio | error | info | int | memory | periodic | trace] [location node-id]
```

Syntax Description	
api	(Optional) Displays debugging information related to the platform client API calls on the physical layer interface module (PLIM) link ASIC.
error	(Optional) Turns on API errors.
info	(Optional) Enables physical layer interface module (PLIM) link ASIC interrupts.
job <i>jobid</i>	(Optional) Specifies a job. Range is from 0 through 4294967295.
process <i>string</i>	(Optional) Specifies a process name or ID.
trace	(Optional) Turns on turn on PLIM link ASIC tracing.
eio	(Optional) Displays debugging information related to physical layer interface module (PLIM) link ASIC Elastic I/O (EIO) training.
error	(Optional) Enables physical layer interface module (PLIM) link ASIC error messages.
info	(Optional) Enables physical layer interface module (PLIM) link ASIC informational messages.
int	(Optional) Enables physical layer interface module (PLIM) link ASIC interrupt messages.
memory	(Optional) Enables physical layer interface module (PLIM) link ASIC memory debugging
periodic	(Optional) Enables physical layer interface module (PLIM) link ASIC periodic messages.
location <i>node-id</i>	(Optional) Specifies a node whose platform client API calls you want to display. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
drivers	read

Examples

The following example shows how to display information related to platform client API calls on the PLIM link ASIC for all nodes installed in a router:

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

LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:07 : pla_server[188]: -->pla_read_rmn
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: entering pla_periodic_handler
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: pla_periodic_handler: pla peiodic
timer
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: -->pla_update_gb_stats
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: --> pla_update_rmn
LC/0/2/CPU0:Jun 28 19:16:17 : pla_server[188]: -->pla_read_rmn
```

The following example shows how to display information related to PLA client API calls on the PLIM link ASIC for a specific node (the CPU in Slot 2):

```
RP/0/RP0/CPU0:router# debug pladv api trace location 0/2/CPU0
```

debug plim

To enable physical layer interface module (PLIM) debugging operations, use the **debug plim** command in EXEC mode. To disable PLIM debugging operations, use the **no** form of this command.

On the Cisco CRS-1:

```
debug plim {all | eio | errors | events | gaspp | im | info | mapping | operations | periodic | pio |
  trace} [job jobid | process string] [location node-id]
```

```
no debug plim {all | eio | errors | events | gaspp | im | info | mapping | operations | periodic | pio |
  trace} [job jobid | process string] [location node-id]
```

On the Cisco XR 12000 Series Router:

```
debug plim {all | eio | errors | events | gaspp | ge-4p-vlan {all | errors | info | periodic} | im | info |
  jdam {all | rtx-buf | sram | tcam | tx-port-map | vlan} | mapping | operations | periodic |
  pio | trace} [location node-id]
```

```
no debug plim {all | eio | errors | events | gaspp | ge-4p-vlan {all | errors | info | periodic} | im |
  info | jdam {all | rtx-buf | sram | tcam | tx-port-map | vlan} | mapping | operations |
  periodic | pio | trace} [location node-id]
```

Syntax Description

all	Enables all PLIM debugging options.
eio	Enables PLIM ASIC eio operations.
errors	Turns on PLIM errors.
events	Enables PLIM hardware event debugging.
gaspp	Enables PLIM ASIC Peek and Poke library debugging.
ge-4p-vlan	PLIM 4P GE VLAN Debugging Note The ge-4p-vlan keyword is available on the Cisco XR 12000 Series Router only.
im	Enables PLIM interface manager debugging.
info	Turns on PLIM driver informative messages.
jdram	Enables PLIM 4P GE JDAM debugging Note The jdram keyword is available on the Cisco XR 12000 Series Router only.
rtx-buf	Enables receive and transmit buffer configuration debugging on the PLIM 4P GE JDAM. Note The rtx-buf keyword is available on the Cisco XR 12000 Series Router only.
sram	Enables SRAM debugging on the PLIM 4P GE JDAM. Note The sram keyword is available on the Cisco XR 12000 Series Router only.
tcam	Enables TCAM debugging one the PLIM 4P GE JDAM. Note The tcam keyword is available on the Cisco XR 12000 Series Router only.

tx-port-map	Enables transmit port map configuration debugging PLIM 4P GE JDAM. Note The tx-port-map keyword is available on the Cisco XR 12000 Series Router only.
vlan	Enables PLIM Vlan debugging on the PLIM 4P GE JDAM. Note The vlan keyword is available on the Cisco XR 12000 Series Router only.
mapping	Enables PLIM hardware mapping debugging.
operations	Enables PLIM hardware operations debugging.
periodic	Enables PLIM hardware periodic processing debugging.
pio	Enables PLIM PIO access debugging.
trace	Enables verbose PLIM tracing.
job <i>jobid</i>	(Optional) Specifies a job. Range is from 0 through 4294967295. Note The job <i>jobid</i> keyword argument is available on the Cisco CRS-1 only.
process <i>string</i>	(Optional) Specifies a process name or ID. Note The process <i>string</i> keyword argument is available on the Cisco CRS-1 only.
location <i>node-id</i>	(Optional) Specifies a node on which to turn on platform manager messages from the hfr_pmlib DLL. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	drivers	read, write

Examples

The following example shows how to enable all PLIM debugging options on all nodes installed in a router:

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

The following example shows how to enable verbose PLIM tracing on a specific job (the job with the ID 205):

```
RP/0/RP0/CPU0:router# debug plim trace job 205
```

debug tcam-mgr cam entry update

To turn on TCAM manager cam entry update debug messages for all nodes installed in the router, or for a specific node, use the **debug tcam-mgr errors** command in EXEC mode. To disable TCAM manager error condition debug messages for all nodes installed in the router, use the **no** form of this command.

debug tcam-mgr cam entry update [**location** *node-id*]

no debug tcam-mgr cam entry update [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on TCAM manager error condition debug messages.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.3.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.3.0	This command was introduced on the Cisco CRS-1.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification								
Release 3.3.0	This command was introduced on the Cisco CRS-1.								
Release 3.4.0	No modification.								
Release 3.5.0	No modification.								

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>acl</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	acl	read
Task ID	Operations				
acl	read				

Examples

The following example shows how to enable cam entry update debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr cam entry update
```

The following example shows how to enable cam entry update debug messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr cam entry update location 0/2/CPU0
```

debug tcam-mgr chkpt

To turn on TCAM manager checkpointing operations debug messages, use the **debug tcam-mgr chkpt** command in EXEC mode. To disable TCAM manager checkpointing operations content or error debug messages, use the **no** form of this command.

debug tcam-mgr chkpt { **content** | **errors** } [**location** *node-id*]

no debug tcam-mgr chkpt { **content** | **errors** } [**location** *node-id*]

Syntax Description	content	Turns on content error messages.
	errors	Turns on run-time error messages.
	location	(Optional) Specifies a node on which to turn on TCAM manager checkpointing operations debug messages. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.
		Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	acl	read

Examples

The following example shows how to enable TCAM manager checkpointing operations content messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr chkpt content
```

The following example shows how to enable TCAM manager checkpointing operations error messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr chkpt error location 0/2/CPU0
```

debug tcam-mgr client

To turn on TCAM manager client dynamic link library (DLL) debug messages, use the **debug tcam-mgr client** command in EXEC mode. To disable TCAM manager client DLL debug messages, use the **no** form of this command.

```
debug tcam-mgr client {errors | info | ipc | notif |persistent-errors} [location node-id]
```

```
no debug tcam-mgr client {errors | info | ipc | notif |persistent-errors} [location node-id]
```

Syntax Description	
errors	Turns on TCAM manager run-time error messages.
info	Turns on informational messages from the TCAM manager client DLL.
ipc	Turns on IPC messages from the TCAM manager client to the server.
notif	Turns on notifications from the TCAM manager client to the client
persistent-errors	Turns on persistent TCAM manager error messages. Note TCAM manager error messages are typically due to incorrect API usage.
location node-id	(Optional) Specifies a node on which to turn on TCAM manager client DLL debug messages. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	acl	read

Examples

The following example shows how to enable informational messages from the TCAM manager client DLL for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr client info
```

The following example shows how to enable persistent TCAM manager error messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr client persistent-errors location 0/2/CPU0
```

debug tcam-mgr errors

To turn on TCAM manager error condition debug messages for all nodes installed in the router, or for a specific node, use the **debug tcam-mgr errors** command in EXEC mode. To disable TCAM manager error condition debug messages for all nodes installed in the router, use the **no** form of this command.

debug tcam-mgr errors [**location** *node-id*]

no debug tcam-mgr errors [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on TCAM manager error condition debug messages.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
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Release 3.4.0	No modification.														
Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>acl</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	acl	read
Task ID	Operations				
acl	read				

Examples

The following example shows how to enable error condition debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr errors
```

The following example shows how to enable error condition debug messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr errors location 0/2/CPU0
```

debug tcam-mgr events

To turn on TCAM manager non-resource allocation event messages, use the **debug tcam-mgr events** command in EXEC mode. To disable TCAM manager non-resource allocation event messages, use the **no** form of this command.

debug tcam-mgr events [**location** *node-id*]

no debug tcam-mgr events [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on TCAM manager non-resource allocation event messages.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
-----------------	-------------------------------

Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification														
Release 2.0	This command was introduced on the Cisco CRS-1.														
Release 3.0	No modification.														
Release 3.2	No modification.														
Release 3.3.0	No modification.														
Release 3.4.0	No modification.														
Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>acl</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	acl	read
Task ID	Operations				
acl	read				

Examples

The following example shows how to enable TCAM manager non-resource allocation event messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr events
```

The following example shows how to enable TCAM manager non-resource allocation event messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr events location 0/2/CPU0
```

debug tcam-mgr prefix-compress

To turn on TCAM manager IPv6 prefix compression debug messages, use the **debug tcam-mgr prefix-compress** command in EXEC mode. To disable TCAM manager IPv6 prefix compression debug messages, use the **no** form of this command.

```
debug tcam-mgr prefix-compress { errors | incremental-update-table | processing | profiling |
result | trace } [location node-id]
```

```
no debug tcam-mgr prefix-compress { errors | incremental-update-table | processing | profiling
| result | trace } [location node-id]
```

Syntax Description

errors	Turns on TCAM IPv6 prefix compression error messages.
incremental-update-table	Turns on TCAM IPv6 prefix compression incremental update table debug messages.
processing	Turns on TCAM IPv6 prefix compression processing messages.
profiling	Turns on TCAM IPv6 prefix compression profiling messages.
result	Turns on TCAM IPv6 prefix compression result messages.
trace	Turns on detailed TCAM IPv6 prefix compression trace messages.
location <i>node-id</i>	(Optional) Specifies a node on which to turn on TCAM manager IPv6 prefix compression debug messages. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the show platform command to see the location of all nodes installed in the router.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	The incremental-update-table and result keywords were added to the debug tcam-mgr prefix-compress command syntax.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID	Task ID	Operations
	acl	read

Examples

The following example shows how to enable TCAM IPv6 prefix compression error messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr prefix-compress errors
```

The following example shows how to enable detailed TCAM IPv6 prefix compression trace messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr prefix-compress trace location 0/2/CPU0
```

debug tcam-mgr processing

To turn on detailed TCAM manager event processing debug messages, use the **debug tcam-mgr processing** command in EXEC mode. To disable detailed TCAM manager event processing debug messages, use the **no** form of this command.

debug tcam-mgr processing [**location** *node-id*]

no debug tcam-mgr processing [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on detailed TCAM manager event processing debug messages.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
-----------------	-------------------------------

Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification														
Release 2.0	This command was introduced on the Cisco CRS-1.														
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Release 3.2	No modification.														
Release 3.3.0	No modification.														
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Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>acl</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	acl	read
Task ID	Operations				
acl	read				

Examples

The following example shows how to enable detailed TCAM manager event processing debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing errors
```

The following example shows how to enable detailed TCAM manager event processing debug messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing location 0/2/CPU0
```

debug tcam-mgr resalloc

To turn on TCAM manager resource allocation event messages, use the **debug tcam-mgr resalloc** command in EXEC mode. To disable TCAM manager resource allocation event messages, use the **no** form of this command.

debug tcam-mgr resalloc [**location** *node-id*]

no debug tcam-mgr resalloc [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on TCAM manager resource allocation event messages.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
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Release 2.0	This command was introduced on the Cisco CRS-1.														
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Release 3.3.0	No modification.														
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Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>acl</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	acl	read
Task ID	Operations				
acl	read				

Examples

The following example shows how to enable TCAM manager resource allocation event messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr resalloc
```

The following example shows how to enable TCAM manager resource allocation event messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr resalloc location 0/2/CPU0
```

debug tcam-mgr rlb

To turn on TCAM manager Range Logic Block (RLB) debug messages, use the **debug tcam-mgr rlb** command in EXEC mode. To disable TCAM manager RLB debug messages, use the **no** form of this command.

```
debug tcam-mgr rlb {errors | events | trace} [location node-id]
```

```
no debug tcam-mgr rlb {errors | events | trace} [location node-id]
```

Syntax Description		
errors		Turns on TCAM RLB debug error condition messages.
events		Turns on TCAM RLB debug messages for RLB use events.
trace		Turns on TCAM RLB debug messages for function call level trace.
location <i>node-id</i>		(Optional) Specifies a node on which to turn on TCAM manager RLB debug messages. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.
	Note	Enter the show platform command to see the location of all nodes installed in the router.

Defaults No default behavior or values

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	acl	read

Examples

The following example shows how to enable TCAM RLB debug error condition messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing errors
```

The following example shows how to enable TCAM RLB debug error condition messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr processing location 0/2/CPU0
```

debug tcam-mgr scrub

To scrub TCAM manager debug messages, use the **debug tcam-mgr scrub** command in EXEC mode. To disable detailed TCAM manager function level traces, use the **no** form of this command.

debug tcam-mgr scrub [**location** *node-id*]

no debug tcam-mgr scrub [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on detailed TCAM manager function level traces.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.3.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 3.3.0	This command was introduced on the Cisco CRS-1.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification								
Release 3.3.0	This command was introduced on the Cisco CRS-1.								
Release 3.4.0	No modification.								
Release 3.5.0	No modification.								

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>acl</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	acl	read
Task ID	Operations				
acl	read				

Examples

The following example shows how scrub TCAM manager debug messages for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr scrub
```

The following example shows how to scrub TCAM manager debug messages for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr scrub location 0/2/CPU0
```

debug tcam-mgr trace

To turn on detailed TCAM manager function level traces, use the **debug tcam-mgr trace** command in EXEC mode. To disable detailed TCAM manager function level traces, use the **no** form of this command.

debug tcam-mgr trace [**location** *node-id*]

no debug tcam-mgr trace [**location** *node-id*]

Syntax Description	<p>location <i>node-id</i> (Optional) Specifies a node on which to turn on detailed TCAM manager function level traces.</p> <p>The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 2.0</td> <td>This command was introduced on the Cisco CRS-1.</td> </tr> <tr> <td>Release 3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.2</td> <td>No modification.</td> </tr> <tr> <td>Release 3.3.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.4.0</td> <td>No modification.</td> </tr> <tr> <td>Release 3.5.0</td> <td>No modification.</td> </tr> </tbody> </table>	Release	Modification	Release 2.0	This command was introduced on the Cisco CRS-1.	Release 3.0	No modification.	Release 3.2	No modification.	Release 3.3.0	No modification.	Release 3.4.0	No modification.	Release 3.5.0	No modification.
Release	Modification														
Release 2.0	This command was introduced on the Cisco CRS-1.														
Release 3.0	No modification.														
Release 3.2	No modification.														
Release 3.3.0	No modification.														
Release 3.4.0	No modification.														
Release 3.5.0	No modification.														

Usage Guidelines	<p>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 <i>Configuring AAA Services on Cisco IOS XR Software</i> module of the <i>Cisco IOS XR System Security Configuration Guide</i>.</p>
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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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>acl</td> <td>read</td> </tr> </tbody> </table>	Task ID	Operations	acl	read
Task ID	Operations				
acl	read				

Examples

The following example shows how to enable detailed TCAM manager function level traces for all nodes installed in a router:

```
RP/0/RP0/CPU0:router# debug tcam-mgr trace
```

The following example shows how to enable detailed TCAM manager function level traces for a specific node (the CPU0 node in Slot 2):

```
RP/0/RP0/CPU0:router# debug tcam-mgr trace location 0/2/CPU0
```

■ debug tcam-mgr trace



Fabric Management Debug Commands on Cisco IOS XR Software

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

debug fabric driver

To debug the fabric driver, use the **debug fabric driver** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

```
debug fabric driver { access | basic | detail | fcm | fdi | functions | intr | topo } [process string | job jobid] [location node-id]
```

```
no debug fabric driver { access | basic | detail | fcm | fdi | functions | intr | topo } [process string | job jobid] [location node-id]
```

Syntax Description

access	(Optional) Reports any fabric ASIC register for read or write operations.
basic	(Optional) Reports any basic events or operations that are happening in the driver.
detail	(Optional) Reports more detailed operations that are happening in the driver.
fcm	(Optional) Reports the flow control related events that are happening in the driver.
fdi	(Optional) Reports the FDI messages that are exchanged between the driver and the control software.
functions	(Optional) Reports when critical interrupt handlers or important functions are invoked by the driver.
intr	(Optional) Reports the events that are happening when the fabric driver is processing interrupts.
topo	(Optional) Reports the topology download related events that are happening in the driver.
process <i>string</i>	(Optional) Specifies a process name or process identification (PID).
job <i>jobid</i>	(Optional) Specifies a job ID.
location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults

The default values are used to debug all processes and all locations.

Command Modes

Admin EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows how to display fabric topology information with the **debug fabric driver** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric driver topo location 0/SM0/SP
RP/0/RP0/CPU0:Router (admin)# process restart sfe_drvr location 0/SM0/SP

RP/0/RP0/CPU0:Router (admin)# SP/0/SM0/SP:Aug 15 12:32:21.783 : sfe_drvr[108][120]: Board
revision : 0x00.
SP/0/SM0/SP:Aug 15 12:32:22.875 : sfe_drvr[108]: sea_topo_msg_hdlr: Received topology
config message
SP/0/SM0/SP:Aug 15 12:32:22.894 : sfe_drvr[108]: sea_topo_save_topo_cfg: Received topology
config for ASIC s1/0/SM0/SP/0. Plane=0, node number = 0
SP/0/SM0/SP:Aug 15 12:32:22.895 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/0 :
Queue ID configured :1, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.897 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/1 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.899 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/2 :
Queue ID configured :2, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.901 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/3 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.903 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/4 :
Queue ID configured :5, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.905 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/5 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.906 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/6 :
Queue ID configured :1, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.909 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/7 :
Queue ID configured :255, old = 0.
SP/0/SM0/SP:Aug 15 12:32:22.911 : sfe_drvr[108]: sea_topo_save_tx_db: s1/0/SM0/SP/0/tx/8 :
Queue ID configured :2, old = 0.
```

Related Commands

Command	Description
debug fabric fdi	Debugs the fabric driver infrastructure.

debug fabric fdi

To debug the fabric driver infrastructure, use the **debug fabric fdi** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

```
debug fabric fdi { all | api | detail | errors } [process string | job jobid] [location node-id]
```

```
no debug fabric fdi { all | api | detail | errors } [process string | job jobid] [location node-id]
```

Syntax Description

all	(Optional) Prints all kinds of debug messages.
api	(Optional) Restricts output to messages that are related to application programming interface (API) usage by client programs.
detail	(Optional) Displays debug messages that give detail about API operations.
errors	(Optional) Displays additional information about errors that are encountered during an operation.
process <i>string</i>	(Optional) Specifies a process name or PID.
job <i>jobid</i>	(Optional) Specifies a job ID.
location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults

If **location**, **job**, and **process** keywords are omitted, output is not restricted to debug messages from a single location, job, or process. Thus, if all are omitted, output from all processes are displayed.

Command Modes

Admin EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

When enabled, large amounts of output are produced even in a normal operation.

Task ID	Task ID	Operations
	fabric	read

Examples

The example shows how to display debug messages for detailed API operations with the **debug fabric fdi** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fdi detail location 0/sm0/sp

SP/0/SM0/SP:Aug 15 04:03:45.632 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
SP/0/SM0/SP:Aug 15 04:03:47.003 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 0
SP/0/SM0/SP:Aug 15 04:03:47.003 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:47.005 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 1
SP/0/SM0/SP:Aug 15 04:03:47.006 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 1
SP/0/SM0/SP:Aug 15 04:03:47.008 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 2
SP/0/SM0/SP:Aug 15 04:03:47.009 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 2
SP/0/SM0/SP:Aug 15 04:03:48.634 : fgid_consumer[107]: get_connection: Thread 1 got lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:48.634 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
SP/0/SM0/SP:Aug 15 04:03:50.012 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 0
SP/0/SM0/SP:Aug 15 04:03:50.017 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:50.020 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 1
SP/0/SM0/SP:Aug 15 04:03:50.021 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 1
SP/0/SM0/SP:Aug 15 04:03:50.031 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 2
SP/0/SM0/SP:Aug 15 04:03:50.039 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 2
SP/0/SM0/SP:Aug 15 04:03:51.637 : fgid_consumer[107]: get_connection: Thread 1 got lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:51.637 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
SP/0/SM0/SP:Aug 15 04:03:53.046 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 0
SP/0/SM0/SP:Aug 15 04:03:53.046 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:53.048 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 1
SP/0/SM0/SP:Aug 15 04:03:53.049 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 1
SP/0/SM0/SP:Aug 15 04:03:53.051 : sfe_drvr[108]: get_connection: Thread 1 got lock for
conn 2
```

debug fabric fdi

```

SP/0/SM0/SP:Aug 15 04:03:53.052 : sfe_drvr[108]: free_connection: Thread 1 released lock
for conn 2
SP/0/SM0/SP:Aug 15 04:03:54.640 : fgid_consumer[107]: get_connection: Thread 1 got lock
for conn 0
SP/0/SM0/SP:Aug 15 04:03:54.640 : fgid_consumer[107]: free_connection: Thread 1 released
lock for conn 0
RP/0/RP0/CPU0:Router (admin)# no debug fabric fdi detail location 0/sm0/sp
RP/0/RP0/CPU0:Router (admin)#

```

Related Commands

Command	Description
debug fabric driver	Debugs the fabric driver.
debug fabric fsdb	Debugs the fabric FSDB server.

debug fabric fgid

To debug the fabric FGID software, use the **debug fabric fgid** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

```
debug fabric fgid { aggregator | allocator | batch-performance | bcdlconsumer | bcdlproducer |
errors | performance | restart | server } [process string | job jobid] [location node-id]
```

```
no debug fabric fgid { aggregator | allocator | batch-performance | bcdlconsumer |
bcdlproducer | errors | performance | restart | server } [process string | job jobid] [location
node-id]
```

Syntax Description	
aggregator	(Optional) Specifies the FGID aggregator process.
allocator	(Optional) Specifies the FGID allocator process.
batch-performance	(Optional) Specifies debug information for the fabric FGID batch performance.
bcdlconsumer	(Optional) Specifies the FGID BCDL consumer process.
bcdlproducer	(Optional) Specifies the FGID BCDL producer function.
errors	(Optional) Specifies debug information for the low-level fabric FGID errors.
performance	(Optional) Specifies debug information for the fabric FGID performance.
restart	(Optional) Specifies debug information for the low-level fabric FGID restart.
server	(Optional) Specifies the FGID server process.
process <i>string</i>	(Optional) Specifies a process name or PID.
job <i>jobid</i>	(Optional) Specifies a job ID.
location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults The default value is the management node that CLI runs.

Command Modes Admin EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
fabric	read

Examples

The example shows how to enable debugging information for the FGID server process with the **debug fabric fgid** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fgid server process fgid_server location
0/RP0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fgid client	Debugs the client library activities.

debug fabric fsdb

To debug the fabric FSDB server, use the **debug fabric fsdb** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

```
debug fabric fsdb { avail | detail | edm | errors | events | fled | mrl | status | structure | trap }
  [process string | job jobid] [location node-id]
```

```
no debug fabric fsdb { avail | detail | edm | errors | events | fled | mrl | status | structure | trap }
  [process string | job jobid] [location node-id]
```

Syntax Description		
avail	(Optional) Reports changes to reachability data that are downloaded to fabric hardware to route data around components that are unavailable.	
detail	(Optional) Reports low-level details of server calculation and internal operations.	
edm	(Optional) Reports operations that are related to the FSDB EDM (External Data Manager). The EDM is the mechanism which exports data from the server so that it can be output by show commands and other methods.	
errors	(Optional) Reports additional information about errors that are encountered during FSDB operation.	
events	(Optional) Reports external events as they are notified to the FSDB server for attention.	
fled	(Optional) Reports operations that are related to controlling the fabric LED boards.	
mrl	(Optional) Reports interactions between FSDB server instances and the fsdb_aserver process.	
status	(Optional) Reports details of calculations of fabric link status.	
structure	(Optional) Reports contents of certain internal data structures.	
trap	(Optional) Reports debug information about generating SNMP traps.	
process <i>string</i>	(Optional) Specifies a process name or PID.	
job <i>jobid</i>	(Optional) Specifies a job ID.	
location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.	

Defaults The default values are used to debug all processes and locations.

Command Modes Admin EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	No modification.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.

Usage Guidelines

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

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

When enabled, large amounts of output are produced even in a normal operation.

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows sample output to debug events with the **debug fabric fsdb** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fsdb events
RP/0/RP0/CPU0:Router (admin)# configure
RP/0/RP0/CPU0:Router (admin-config)# control fabric link port s3rx 0/sm1/sp/0/0 shut
RP/0/RP0/CPU0:Router (admin-config)# commit

SC/F0/SC0/CPU0:Aug 9 13:17:58.623 : fsdb_server[125]: fsdb_handle_status_change: received
oper status change for s2tx/F0/SM6/SP/1/0, New status is CTL_ONLY (11).
RP/0/RP0/CPU0:Aug 9 13:17:58.627 : config[65728]: %MGBL-LIBTARCFG-6-ADMIN_COMMIT :
Administration configuration committed by user 'lab'.
RP/0/RP0/CPU0:Aug 9 13:17:58.643 : fsdb_server[174]: fsdb_handle_status_change: received
oper status change for s3rx/0/SM1/SP/0/0, New status is DOWN (1).
RP/0/RP0/CPU0:Router (admin-config)# no control fabric link port s3rx 0/sm1/sp/0/0 shut
RP/0/RP0/CPU0:Router (admin-config)# commit
RP/0/RP0/CPU0:Aug 9 13:18:58.326 : config[65728]: %MGBL-LIBTARCFG-6-ADMIN_COMMIT :
Administration configuration committed by user 'lab'.
RP/0/RP0/CPU0:Aug 9 13:18:58.514 : fsdb_server[174]: fsdb_handle_status_change: received
oper status change for s3rx/0/SM1/SP/0/0, New status is UP (2).
SC/F0/SC0/CPU0:Aug 9 13:18:58.532 : fsdb_server[125]: fsdb_handle_status_change: received
oper status change for s2tx/F0/SM6/SP/1/0, New status is UP (2).
RP/0/RP0/CPU0:Router (admin-config)# end
RP/0/RP0/CPU0:Aug 9 13:19:10.762 : config[65728]: %MGBL-SYS-5-CONFIG_I : Configured from
console by lab
RP/0/RP0/CPU0:Router (admin)# no debug fabric fsdb events
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric driver	Debugs the fabric driver.

debug fabric fstats aggregator

To debug the fabric statistics aggregator, use the **debug fabric fstats aggregator** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

```
debug fabric fstats aggregator [all | edm | errors | pdu] [location node-id]
```

```
no debug fabric fstats aggregator [all | edm | errors | pdu] [location node-id]
```

Syntax Description	
all	(Optional) Enables all debugging options for the fabric statistics aggregator. Note You do not need to specify a particular location.
edm	(Optional) Specifies debug information for the fabric statistics aggregator EDM.
errors	(Optional) Specifies debug information for the fabric statistics aggregator errors.
pdu	(Optional) Specifies debug information for the related fabric statistics aggregator communication protocol data unit (PDU).
location node-id	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults The default value is the management node that the CLI runs.

Command Modes Admin EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	fabric	read

Examples

The example shows how to enable debugging information for the fabric statistics aggregator errors with the **debug fabric fstats aggregator** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fstats aggregator errors location 0/0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric fstats client	Debugs the fabric statistics client API.
debug fabric fstats server	Debugs the fabric statistics server.

debug fabric fstats client

To debug the fabric statistics client API, use the **debug fabric fstats client** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

debug fabric fstats client [**all** | **api** | **errors** | **pdu**] [**process** *string* | **job** *jobid*] [**location** *node-id*]

no debug fabric fstats client [**all** | **api** | **errors** | **pdu**] [**process** *string* | **job** *jobid*] [**location** *node-id*]

Syntax Description	
all	(Optional) Enables all debugging options for the fabric statistics client library. Note You do not need to specify a process, job, or location.
api	(Optional) Specifies debug information for the related fabric statistics client API calls.
errors	(Optional) Specifies debug information for the related fabric statistics client API errors.
pdu	(Optional) Specifies debug information for the related fabric statistics client API communication protocol data unit (PDU).
process <i>string</i>	(Optional) Specifies a process name or PID.
job <i>jobid</i>	(Optional) Specifies a job ID.
location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults The default value is the management node that the CLI runs.

Command Modes Admin EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	fabric	read

Examples

The example shows how to enable debugging information for the related fabric statistics client API calls with the **debug fabric fstats client** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fstats client api location 0/0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric fstats aggregator	Debugs the fabric statistics aggregator.
debug fabric fstats server	Debugs the fabric statistics server.
debug fgid client	Debugs the client library activities.

debug fabric fstats server

To debug the fabric statistics server, use the **debug fabric fstats server** command in Admin EXEC mode. To disable debugging, use the **no** form of this command.

```
debug fabric fstats server [access | all | edm | errors | pdu] [process string | job jobid] [location node-id]
```

```
no debug fabric fstats server [access | all | edm | errors | pdu] [process string | job jobid] [location node-id]
```

Syntax Description		
access	(Optional) Specifies debug information to access the fabric statistics server database.	
all	(Optional) Enables all debugging options for the fabric statistics client library.	Note You do not need to specify a process, job, or location.
edm	(Optional) Specifies debug information for the related fabric statistics server EDM.	
errors	(Optional) Specifies debug information for the fabric statistics server errors.	
pdu	(Optional) Specifies debug information for the related fabric statistics server communication PDU.	
process <i>string</i>	(Optional) Specifies a process name or PID.	
job <i>jobid</i>	(Optional) Specifies a job ID.	
location <i>node-id</i>	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.	

Defaults The default value is the management node that the CLI runs.

Command Modes Admin EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

Usage Guidelines

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

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

Task ID

Task ID	Operations
fabric	read

Examples

The following example shows how to enable debugging information for the fabric statistics server errors with the **debug fabric fstats server** command:

```
RP/0/RP0/CPU0:Router# admin
RP/0/RP0/CPU0:Router (admin)# debug fabric fstats server errors location 0/0/CPU0
RP/0/RP0/CPU0:Router (admin)#
```

Related Commands

Command	Description
debug fabric fstats aggregator	Debugs the fabric statistics aggregator.
debug fabric fstats client	Debugs the fabric statistics client API.

debug fabric server

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

```
debug fabric server { client | error | info | packet | srp } [process string | job jobid] [location node-id]
```

```
no debug fabric server { client | error | info | packet | srp } [process string | job jobid] [location node-id]
```

Syntax Description		
client	Displays debug messages that provide details about the client.	
error	Displays debug messages that provide details about the errors.	
info	Displays informational debug messages.	
packet	Displays debug messages that provide details about informational messages.	
srp	Displays debug messages that provide details about the standby RP ping packets.	
process string	(Optional) Specifies a process name or process identification (PID).	
job jobid	(Optional) Specifies a job ID.	
location node-id	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.	

Defaults The default values are used to debug all processes and all locations.

Command Modes EXEC

Command History	Release	Modification
	Release 3.4.0	This command was introduced on the Cisco CRS-1.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	fabric	read

Examples

The following example shows how to display fabric topology information with the **debug fabric server** command:

```
RP/0/RP0/CPU0:Router# debug fabric server
```

debug fgid client

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

```
debug fgid client [allocation | error | generic | location | messages] [process string] | [job num]
[location node-id]
```

```
no debug fgid client [allocation | error | generic | location | messages] [process string] | [job num]
[location node-id]
```

Syntax Description	
allocation	(Optional) Enables allocation debugging from the FGID client.
error	(Optional) Enables error messages from the FGID client.
generic	(Optional) Enables general generic events in the FGID client.
location	(Optional) Specifies a location.
messages	(Optional) Enables message tracking in the FGID client.
process string	(Optional) Specifies a process name or PID.
job num	(Optional) Specifies a job ID.
location node-id	(Optional) Specifies debug information to enable a specified location (for example, 0/0/CPU0). The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.

Defaults The default value is the management node that the CLI runs.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	No modification.
	Release 3.3.0	No modification.
	Release 3.4.0	No modification.
	Release 3.5.0	No modification.

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

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

Task ID	Task ID	Operations
	fabric	read

Examples

The following example shows how to enable debugging information for error messages from the FGID client with the **debug fgid client** command:

```
RP/0/RP0/CPU0:router# debug fgid client error process smith
RP/0/RP0/CPU0:router#
```

Related Commands

Command	Description
debug fabric fstats server	Debugs the fabric statistics server.
debug fabric fstats client	Debugs the fabric statistics client API.

■ debug fgid client



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