System Administration Command Reference for the Cisco NCS 6000 Series Routers

First Published: 2014-08-28

Last Modified: 2018-12-01

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED “AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

Cisco has more than 200 offices worldwide. Addresses and phone numbers are listed on the Cisco website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: https://www.cisco.com/c/en/us/about/legal/trademarks.html. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1721R)

© 2018 Cisco Systems, Inc. All rights reserved.

CONTENTS

PREFACE

Preface ix

Changes to This Document ix

Communications, Services, and Additional Information x

CHAPTER 1

AAA Commands 1

aaa authentication 2

aaa authentication login group tacacs 3

aaa authorization 4

aaa authorization commands group tacacs 6

aaa disaster-recovery 7

aaa accounting commands group tacacs 8

confdConfig aaa authOrder 9

confdConfig aaa authorization callback enabled 10

confdConfig aaa authorization enabled 11

confdConfig aaa externalAuthentication enabled 12

confdConfig aaa externalAuthentication executable 13

show tacacs-server request 14

show tacacs-server trace 15

show aaa 16

tacacs-server host 17

tacacs-server key 18

tacacs-server timeout 19

CHAPTER 2

Alarms Commands 21

show alarms 22

show alarms trace 24

CHAPTER 3 ASIC Commands 27

clear controller fabric 29
clear controller switch 31
show controller ccc ethernet 33
show controller ccc event-history 35
show controller ccc inventory 38
show controller ccc notif-history 40
show controller ccc oir-history 42
show controller ccc power 43
show controller ccc reset-history 44
show controller ccc register 45
show controller ccc trace 47
show controller fabric fgid information 49
show controller fabric fgid program-error 51
show controller fabric fgid resource 52
show controller fabric fgid statistics 54
show controller fabric fgid trace 56
show controller fabric fsdb-aggregator trace 58
show controller fabric fsdb-pla 60
show controller fabric fsdb-server trace 62
show controller fabric health 64
show controller fabric link port 66
show controller fabric plane 68
show controller fabric sfe 69
show controller fabric standby plane 71
show controller sfe driver 72
show controller sfe link-info rx 73
show controller sfe link-info tx 75
show controller sfe statistics 77
show controller sfe trace 79
show controllers slice 81
show controller slice_control FPGA 82
show controller slice_control context-info 93

show controller slice_control location 94
show controller switch fdb 105
show controller switch mlap 119
show controller switch reachable 121
show controller switch sdr 122
show controller switch sdr global-statistics 124
show controller switch sdr policers 125
show controller switch sdr port-statistics 126
show controller switch sfp 127
show controller switch statistics 130
show controller switch summary 132
show controller switch trace 133
show controller switch vlan 135

CHAPTER 4 **Clock Management Commands** 137
clock timezone 138
clock read-calendar 142
ntp authenticate 143
ntp authentication-key 144
ntp peer 145
ntp server 147
ntp trusted-key 148
show calendar 149
show clock 150
show ntp associations 151

CHAPTER 5 **Hardware Module Commands** 153
hw-module attention-led 154
hw-module location 155
hw-module logging onboard disable 157
hw-module reset auto disable 158
hw-module shutdown 159
show hw-module fpd 160
show inventory 162

show led 164
show platform 166
upgrade hw-module fpd 167

CHAPTER 6 Install Commands 169
install activate 170
install add 172
install backup 174
install deactivate 176
install extract 178
install prepare 179
install prepare issu 180
install activate issu 181
install activate issu load 182
install activate issu run 183
install deactivate issu 184
install activate issu cleanup 185
install activate issu abort 186
install remove 187
install verify packages 189
show install active 191
show install inactive 193
show install log 194
show install package 196
show install prepare 198
show install repository 199
show install request 200
show issu summary 201

CHAPTER 7 Process Control Commands 203
follow 204
process 206
show media 208
show memory 209

show memory compare 210
show memory heap 213
show processes 214
top 217

CHAPTER 8 SDR Management Commands 219
placement reoptimize 220
sdr location 221
sdr resources 222
sdr default-sdr re_pair 224
sdr default-sdr pairing-mode inter-rack 225
sdr default-sdr pairing-mode intra-rack 226
sh placement reoptimize 227
show sdr 228
show sdr default-sdr pairing 231
show sdr-manager trace 232

CHAPTER 9 Session Management Commands 235
session 236
user alias 238
user description 239
user session 240

CHAPTER 10 System Management Commands 243
activate advanced 244
attach location 245
environment 246
fpd auto-upgrade 248
interface 249
logging console 250
mgmt 251
power-mgmt action 252
power-mgmt redundancy 253
users 254

show card-inventory 256
show environment 257
show fm 260
show fpd package 261
show logging 265
show parser dump 267
show rack-inventory 268
show user 269
show version 270

Preface

This Preface contains these sections:

- Changes to This Document, on page ix
- Communications, Services, and Additional Information, on page x

Changes to This Document

This table lists technical changes made to this document since it was first released.

Date	Summary
September 2013	Initial release of this document.
January 2014	Republished with documentation updates for Cisco IOS XR Release 5.0.1 features.
January 2015	Republished with documentation updates for Cisco IOS XR Release 5.2.3 features: • ISSU • Dynamic slice reset
July 2017	Republished with documentation updates for Cisco IOS XRRelease 6.2.2 features.
September 2017	Republished with documentation updates for Cisco IOS XR Release 6.3.1 features.
March 2018	Republished with documentation updates for Cisco IOS XR Release 6.3.2 features.
March 2018	Republished with documentation updates for Cisco IOS XR Release 6.4.1 features.
July 2018	Republished with documentation updates for Cisco IOS XR Release 6.5.1 features.

Date	Summary
July 2018	Republished with documentation updates for Cisco IOS XR Release 6.4.2 features.
December 2018	Republished with documentation updates for Cisco IOS XR Release 6.6.1 features.

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business impact you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco Marketplace.
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

Cisco Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

AAA Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- aaa authentication, on page 2
- aaa authentication login group tacacs , on page 3
- aaa authorization, on page 4
- aaa authorization commands group tacacs , on page 6
- aaa disaster-recovery, on page 7
- aaa accounting commands group tacacs , on page 8
- confdConfig aaa authOrder , on page 9
- confdConfig aaa authorization callback enabled , on page 10
- confdConfig aaa authorization enabled , on page 11
- confdConfig aaa externalAuthentication enabled , on page 12
- confdConfig aaa externalAuthentication executable , on page 13
- show tacacs-server request , on page 14
- show tacacs-server trace , on page 15
- show aaa, on page 16
- tacacs-server host, on page 17
- tacacs-server key, on page 18
- tacacs-server timeout, on page 19

aaa authentication

To create users and user-groups for the System Admin VM, use the **aaa authentication** command in the System Admin Config mode. To delete users and user-groups, use the **no** form of this command.

aaa authentication {**groups group** *group-name* [{**gid** | **users**}] | **users user** *user-name* [{**gid** | **homedir** | **password** | **ssh_keydir** | **uid**}]}

Syntax Description

groups	Configures access groups.
group	Specifies a group.
group-name	Name of the group.
gid	Specifies a numeric value.
users	Configures users.
user	Specifies a user.
user-name	Name of the user.
homedir	Specifies an alphanumeric value.
password	Specifies a password for user authentication.
ssh_keydir	Specifies an alphanumeric value.
uid	Specifies a numeric value.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to create a new user- user1:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)# aaa authentication users user user1 gid 20 homedir dir password
 pwd ssh_keydir dir uid 10
```

This example shows how to create a new group- group1:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)# aaa authentication groups group group1 gid 10 users user1
```

aaa authentication login group tacacs

To enable remote authentication support using TACACS+ protocol, use the **aaa authentication login group tacacs** command. To disable remote authentication , use the **no** form of this command.

aaa authentication login group tacacs

This command has no keywords or arguments.

Command Default

AAA authentication is disabled.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command is introduced.

Examples

The following example shows how to use this command:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# aaa authentication login group tacacs
```

aaa authorization

To create command rules and data rules for authorization, use the **aaa authorization** command in the System Admin Config mode. To delete the command rules and data rules, use the **no** form of this command.

aaa authorization {**cmdrules cmdrule** [{*integer* | **range** *integer*}] [{**action** | **command** | **context** | **group** | **ops**}] | **datarules datarule** [{*integer* | **range** *integer*}] [{**action** | **context** | **group** | **keypath** | **namespace** | **ops**}]}

Syntax Description

cmdrules	Configures command rules.
cmdrule *integer*	Specifies the command rule number. The *integer* value ranges from 1 to 2,147,483,647. **Note** Numbers between 1 and 1000 are reserved for internal use. Specify an integer value that is greater than 1000.
range *integer*	Specifies the range of the command rules or data rules to be configured. The *integer* value ranges from 1 to 2,147,483,647.
action	Specifies whether the users are permitted or refrained from performing the operation specified for the **ops** keyword.
command	Specifies the command to which the command rule applies to. The command should be entered within double-quotes.
context	Specifies which type of connection the command rule or data rule applies to. The connection type can be netconf, cli, or xml.
group	Specifies the group to which the command rule or data rule applies to.
ops	Specifies whether the user has read, execute, or read and execute permission for the command.
datarules	Configures data rules.
datarule *integer*	Specifies the data rule number. The *integer* value ranges from 1 to 2,147,483,647. **Note** Numbers between 1 and 1000 are reserved for internal use. Specify an integer value that is greater than 1000.
keypath	Specifies the keypath of the data element. If you enter an asterisk '*' for keypath, it indicates that the command rule is applicable to all the configuration data.
namespace	Enter asterisk "*" to indicate that the data rule is applicable for all namespace values.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to create a command rule:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#aaa authorization cmdrules cmdrule 10 action accept command "show
 platform" context cli group group1 ops rx
```

This example shows how to create a data rule:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#aaa authorization datarules datarule 20 action accept context cli
 group group10 keypath * namespace * ops rwx
```

aaa authorization commands group tacacs

To enable remote authorization support using TACACS+ protocol, use the **aaa authorization commands group tacacs** command. To disable authorization for a function, use the **no** form of this command.

aaa authorization command group {**tacacs** | **none**}

Syntax Description

tacacs	Specifies that authorization has to be performed using TACACS+ protocol.
none	(Optional) Specifies that no authorization has to be performed.

Command Default

Authorization is disabled for all actions.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command is introduced.

Examples

The following example shows how to use this command to specify that TACACS+ authorization has to be performed:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# aaa authorization commands group tacacs
```

Examples

The following example shows how to use this command to specify that no authorization should be performed:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# aaa authorization commands group none
```

Examples

The following example shows how to use this command to specify that first TACACS+ authorization has to be performed and if it fails, no authorization should be performed:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# aaa authorization commands group tacacs none
```

aaa disaster-recovery

To configure a disaster-recovery user and password, use the **aaa disaster-recovery** command in the System Admin Config mode. To delete the disaster-recovery user and password, use the **no** form of this command.

aaa disaster-recovery username *username* **password** *password*

Syntax Description

username	Configures the username for the disaster-recovery user.
username	Specifies the username for the disaster-recovery user.
password	Configures the password for the disaster-recovery user.
password	Password for the disaster-recovery user.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Only an already existing user can be specified as a disaster-recovery user.

This example shows how to configure a disaster-recovery user:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)## aaa disaster-recovery username root user1 password pwd
```

aaa accounting commands group tacacs

To enable remote accounting support using TACACS+ protocol, use the **aaa accounting commands group tacacs** command. To disable remote accounting , use the **no** form of this command.

aaa accounting commands group tacacs

This command has no keywords or arguments.

Command Default

Authorization is disabled for all actions (equivalent to the method **none** keyword).

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Examples

The following example shows how to use this command:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# aaa accounting commands group tacacs
```

confdConfig aaa authOrder

To specify an order of authentication for AAA systems, use the **confdConfig aaa authOrder**command.

confdConfig aaa authOrder {**externalAuthentication** | **localAuthentication**}

Syntax Description

externalAuthentication	Specifies that external authentication should be performed based on the configured executable.
localAuthentication	Specifies that local authentication should be performed.

Command Default

By default the user is authenticated by using local authentication methods.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Examples

The following example shows how to define external authentication as the primary authentication mechanism:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# confdConfig aaa authOrder externalAuthentication
localAuthentication
```

confdConfig aaa authorization callback enabled

To enable application callbacks for authorization, use the **confdConfig aaa authorization callback enabled**command.

confdConfig aaa authorization callback enabled

This command has no keywords or arguments.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Examples

The following example shows how use this command:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# confdConfig aaa authorization callback enabled
```

confdConfig aaa authorization enabled

To enable external authorization, use the **confdConfig aaa authorization enabled**command.

confdConfig aaa authorization enabled

This command has no keywords or arguments.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Examples

The following example shows how use this command:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# confdConfig aaa authorization enabled
```

confdConfig aaa externalAuthentication enabled

To enable external authentication, use the **confdConfig aaa externalAuthentication enabled**command. To disable external authentication, use the **no** form of the command.

confdConfig aaa externalAuthentication enabled

This command has no keywords or arguments.

Command Default

By default the user is authenticated by using external authentication method.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Examples

The following example shows how to use this command:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# confdConfig aaa externalAuthentication enabled
```

confdConfig aaa externalAuthentication executable

To enable external authentication using an executable configured on the local host, use the **confdConfig aaa externalAuthentication enabled**command.

confdConfig aaa externalAuthentication enabled *chvrf 0 /opt/cisco/calvados/bin/calvados_login_aaa_proxy*

Syntax Description

chvrf 0 /opt/cisco/calvados/bin/calvados_login_aaa_proxy	File name and path of the executable configured on the local host that is used to enable external authentication.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Examples

The following example shows how use this command:

```
sysadmin-vm:0_RP0# configure
sysadmin-vm:0_RP0(config)# confdConfig aaa externalAuthentication executable  chvrf 0
/opt/cisco/calvados/bin/calvados_login_aaa_proxy
```

show tacacs-server request

To display information of send/receive/pending request information of TACACS+ servers, use the **show tacacs-server request** command in the System Admin EXEC mode.

show tacacs-server request

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

This command is used for diagnostics purpose only.

The following example shows the output of the **show tacacs-server request** command:

```
sysadmin-vm:0_RP0#show tacacs-server request

sysadmin-vm:0_RP0# tacacs-server requests ipv4 10.1.1.1 59
Server: 10.1.1.1/59 opens=0 closes=0 aborts=0 errors=0
        packets in=0 packets out=0 family=IPv4
```

show tacacs-server trace

To display TACACS+ server and client process information, use the **show tacacs-server trace** command in the System Admin EXEC mode.

show tacacs-server trace location *[all | node-id]*

Syntax Description

location*all* |*node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack*/*slot* notation. The *all*argument displays trace details of all the TACACS+ servers and client processes.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

This command is used for diagnostics purpose only.

The following example shows the output of the **show tacacs-server trace location***node-id* command:

```
sysadmin-vm:0_RP0#show tacacs-server trace location 0/RP0
```

The following example shows the output of the **show tacacs-server trace location *all*** command:

```
sysadmin-vm:0_RP0#show tacacs-server trace location all
```

show aaa

To display information about a privileged user and aaa trace details, use the **show aaa** command in System Admin EXEC mode.

show aaa {**privileged-access** | **trace** {**login** | **sync**} **location** *node-id*}

Syntax Description

privileged-access		Displays access data.
trace		Displays the trace data.
login		Displays login trace.
sync		Displays aaa sync trace.
location	*node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The **show aaa privileged-access** command displays information about the first user, current disaster-recovery user, who accessed the disaster-recovery account, and when was it last accessed.

The **show aaa trace** command is used only for diagnostics.

This example shows how to view privileged access user details:

```
sysadmin-vm:0_RP0#show aaa privileged-access
Fri Aug  30 10:27:24.170 UTC

Privileged-user, shell access and disaster-recovery user information
  Last access to shell via disaster-recovery account : None
  Privileged-user                                    : root
  Privileged-user attributes changed via admin CLI   : Yes
  Current disaster-recovery user                     : root
```

tacacs-server host

To specify a TACACS+ server and TCP port number, use the **tacacs-server host** command. To delete the specified name or address, use the **no** form of this command.

tacacs-server host host-name *port number*

Syntax Description

host *ipaddress or host-name*	Host or domain name or IP address of the TACACS+ server.
port-number	Specifies a server port number. Valid port numbers range from 1 to 65535.

Command Default

No TACACS+ host is specified.

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

You can use multiple **tacacs-server host** commands to specify additional hosts. Cisco IOS XR software searches for hosts in the order in which you specify them.

Examples

The following example shows how to specify a TACACS+ host with the IP address 209.165.200.226:

```
sysadmin-vm:0_RP0(config)# tacacs-server host 209.165.200.226
sysadmin-vm:0_RP0(config-tacacs-host)#
```

The following example shows that the default values from the **tacacs-server host** command are displayed from the **show run** command:

```
sysadmin-vm:0_RP0# show run

Building configuration...
!! Last configuration change at 13:51:56 UTC Mon Nov 14 2005 by lab
!
tacacs-server host 209.165.200.226 port 49
 timeout 5
!
```

tacacs-server key

To set the authentication encryption key used for all TACACS+ communications between the router and the TACACS+ daemon, use the **tacacs-server key** command. To disable the key, use the **no** form of this command.

tacacs-server key {*clear-text-key*}

Syntax Description

clear-text-key	Specifies an unencrypted (cleartext) shared key.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The key name entered must match the key used on the TACACS+ daemon. The key name applies to all servers that have no individual keys specified. All leading spaces are ignored; spaces within and after the key are not. If you use spaces in your key, do not enclose the key in quotation marks unless the quotation marks themselves are part of the key.

The key name is valid only when the following guidelines are followed:

The TACACS server key is used only if no key is configured for an individual TACACS server. Keys configured for an individual TACACS server always override this global key configuration.

Examples

The following example sets the authentication and encryption key to key1:

```
sysadmin-vm:0_RP0(config)# tacacs-server key key1
```

tacacs-server timeout

To set the interval that the server waits for a server host to reply, use the **tacacs-server timeout** command. To restore the default, use the **no** form of this command.

tacacs-server timeout *seconds*
no tacacs-server timeout *seconds*

Syntax Description

seconds	Integer that specifies the timeout interval (in seconds) from 1 to 1000.

Command Default

5 seconds

Command Modes

System Admin Config

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The TACACS+ server timeout is used only if no timeout is configured for an individual TACACS+ server. Timeout intervals configured for an individual TACACS+ server always override this global timeout configuration.

Examples

The following example shows the interval timer being changed to 10 seconds:

```
RP/0/RP0/CPU0:router(config)# tacacs-server timeout 10
```

Alarms Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- show alarms, on page 22
- show alarms trace, on page 24

show alarms

To display alarms related to System Admin in brief or detail, use the **show alarms** command in the System Admin EXEC mode.

show alarms [{**brief** [{**card** | **rack** | **system**}] [**location** *node-id*] [{**active** | **history** }] | **detail** [{**card** | **rack** | **system**}] [**location** *node-id*] [{**active** | **clients** | **history** | **stats**}]}]

Syntax Description

brief	Displays alarms in brief.
card	Displays card scope alarms related data.
rack	Displays rack scope alarms related data.
system	Displays system scope alarms related data.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
active	Displays active alarms.
history	Displays alarm history.
detail	Displays alarms in detail.
clients	Displays clients associated with the service.
stats	Displays service statistics.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example displays the output of the **show alarms brief** command:

```
sysadmin-vm:0_RP0#show alarms brief card location 0/1

Tue Aug  20 00:35:30.442 UTC

------------------------------------------------------------------------
History Alarms
------------------------------------------------------------------------
Location          Severity   Group     Set time            Description
                                       Clear time
------------------------------------------------------------------------
0/1               critical   environ   08/19/13 21:35:29   Vctrl1-VP1P2: ENVMON detects
high voltage alarm from a sensor
                                       08/19/13 21:35:29
```

```
0/1               minor      environ   08/19/13 21:35:29   MB Inlet: ENVMON detects an I2C
 access error
                                       08/19/13 21:35:29
0/1               major      environ   08/19/13 21:35:29   multiple sensors: ENVMON detects
 a sensor fault
                                       08/19/13 21:35:29
0/1               minor      environ   08/19/13 21:35:29   PCIe Die: ENVMON detects an I2C
 access error
                                      08/19/13 21:35:29
```

show alarms trace

To display debug trace information, use the **show alarms trace** command in the System Admin EXEC mode.

show alarms trace {**all** *trace-name*} **location** *node-id* [{**all** *trace-attribute*}]

Syntax Description

all	Displays trace information for all the trace buffers in the system.
trace-name	Displays trace information for a specific trace buffer name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
trace-attribute	Specifies the trace attribute.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command displays the alarm traces per card and is used for diagnostics only.

The following example shows the output of the **show alarms trace** command:

```
sysadmin-vm:0_RP0#show alarms trace info location 0/RP0 all

Fri Sep  13 08:01:03.901 UTC
02.58.38.585741952:alarm_mgr: starting CAPI NM  service initialization.
02.58.38.585762688:alarm_mgr: CAPI client (base) service initialization.
02.58.38.621692800:alarm_mgr: pm connect request completed normally.
02.58.38.690578432:alarm_mgr: starting CAPI client service <calv_alarm_nm> activation.
02.58.38.746492160:alarm_mgr: alarm service <calv_alarm_nm> activated.
02.58.39.459840512:calv_alarm_ds: connected to DS service.
02.58.41.340024832:alarm_mgr: connected to platform local service.
02.58.41.420551040:alarm_mgr: IP addres registration succeded.
02.58.41.420573568:alarm_mgr: pl nodeid registration succeded.
02.58.52.128728192:alarm_mgr: node IP address: 0xc0000001
02.58.52.128778240:alarm_mgr: starting CAPI client service <calv_alarm_nm> activation.
02.58.52.129173632:alarm_mgr: alarm service <calv_alarm_nm> activated.
02.58.52.341911808:alarm_mgr: service<calv_alarm_nm> client connection detected,hndl:
0x23bf380 me: 0x23290e0
02.58.52.341925760:alarm_mgr: new client detected service <calv_alarm_nm>, hndl: 0x23bf380
02.58.52.361801344:alarm_mgr: service<calv_alarm_nm> client connection detected, hndl:
0x23d16a0 me: 0x23290e0
02.58.52.361802752:alarm_mgr: new client detected service <calv_alarm_nm>, hndl:0x23d16a0

02.58.52.382194688:alarm_mgr: service <calv_alarm_nm> client registering
```

```
--More--
```

ASIC Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- clear controller fabric, on page 29
- clear controller switch, on page 31
- show controller ccc ethernet, on page 33
- show controller ccc event-history, on page 35
- show controller ccc inventory, on page 38
- show controller ccc notif-history, on page 40
- show controller ccc oir-history, on page 42
- show controller ccc power, on page 43
- show controller ccc reset-history, on page 44
- show controller ccc register, on page 45
- show controller ccc trace, on page 47
- show controller fabric fgid information, on page 49
- show controller fabric fgid program-error, on page 51
- show controller fabric fgid resource, on page 52
- show controller fabric fgid statistics, on page 54
- show controller fabric fgid trace, on page 56
- show controller fabric fsdb-aggregator trace, on page 58
- show controller fabric fsdb-pla, on page 60
- show controller fabric fsdb-server trace, on page 62
- show controller fabric health, on page 64
- show controller fabric link port, on page 66
- show controller fabric plane, on page 68
- show controller fabric sfe, on page 69
- show controller fabric standby plane, on page 71
- show controller sfe driver, on page 72
- show controller sfe link-info rx, on page 73
- show controller sfe link-info tx, on page 75
- show controller sfe statistics, on page 77
- show controller sfe trace, on page 79
- show controllers slice, on page 81

- show controller slice_control FPGA, on page 82
- show controller slice_control context-info, on page 93
- show controller slice_control location, on page 94
- show controller switch fdb, on page 105
- show controller switch mlap, on page 119
- show controller switch reachable, on page 121
- show controller switch sdr, on page 122
- show controller switch sdr global-statistics, on page 124
- show controller switch sdr policers, on page 125
- show controller switch sdr port-statistics, on page 126
- show controller switch sfp, on page 127
- show controller switch statistics, on page 130
- show controller switch summary, on page 132
- show controller switch trace, on page 133
- show controller switch vlan, on page 135

clear controller fabric

To clear fabric plane information, use the **clear controller fabric** command in the System Admin EXEC mode.

clear controller fabric {**counter** | **statistics**} **plane** {*plane-id* | **all**}

Syntax Description

counter	Clears the fabric up-down counters information.
statistics	Clears the fabric statistics counters information.
plane	Clears the fabric plane.
plane-id	Specifies the fabric plane number. Range is from 0 to 5.
all	Clears the fabric information for all planes

Command Default

Information for all planes is cleared.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To view the current status of the counters, execute the **show controller fabric plane all** command. Later, execute the **clear controller fabric** command to clear the necessary counter. To view the result of the **clear controller fabric** command, again execute the **show controller fabric plane all** command and notice the change.

This example shows how to view and clear the counters and later verify the result:

```
sysadmin-vm:0_RP0#show controller fabric plane all

Mon Jul  16 18:57:15.733 UTC

Plane Admin Plane    up->dn  up->mcast
Id    State State    counter   counter
--------------------------------------
0     UP    DN             0         0
1     UP    UP             0        23
2     UP    UP             0        22
3     UP    UP             0        19
4     UP    DN             0         0
5     UP    DN             0         0
>
sysadmin-vm:0_RP0# clear controller fabric counter plane 2
Mon Jul  16 18:58:08.122 UTC
sysadmin-vm:0_RP0# show controller fabric plane all
Mon Jul  16 18:58:18.654 UTC
```

```
Plane Admin Plane    up->dn  up->mcast
Id    State State    counter   counter
--------------------------------------
0     UP    DN             0         0
1     UP    UP             0        23
2     UP    UP             0         0
3     UP    UP             0        19
4     UP    DN             0         0
5     UP    DN             0         0
```

clear controller switch

To clear control plane Ethernet switch statistics, use the **clear controller switch** command in the System Admin EXEC mode.

clear controller switch {{**fdb** | **statistics**} **location** *node-id* | {**mlap** | **sdr**} **statistics location** *node-id*}

Syntax Description

fdb	Commands for clearing switch forwarding database
statistics	Clears the Ethernet switch, MLAP, or SDR interface statistics.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.
mlap	Clears MLAP statistics
sdr	Clears SDR packet statistics

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Even after clearing the counters, users may not be able to view the counter with zero entry. This is because the system is dynamic and the counters increment instantly.

To view the current status of the counters, execute the **show controller switch statistics** command. Later, execute the **clear controller switch** command to clear the necessary counter. To view the result of the **clear controller switch** command, again execute the **show controller switch statistics** command and notice the change.

The following example shows how to view and clear the counters, and then verify the result:

```
sysadmin-vm:0_RP0#show controller switch statistics location 0/LC0/LC-SW

Wed Aug  28 22:36:03.160 UTC
Rack  Card  Switch  Rack Serial Number
--------------------------------------
0     LC0   LC-SW   ABCDEFGHIJK

      Phys   State    Tx       Rx       Tx      Rx
Port  State  Changes  Packets  Packets  Errors  Errors  Connects To
-------------------------------------------------------------------------
0     Up     1        359550   135059   0       0       LC CPU (0)
2     Up     5        167398   349026   0       0       RP0
4     Up     5        23392    23460    0       0       RP1
6     Down   1        0        0        0       0       Slice 4
```

```
8     Up     1        253073   32683    0       0       CCC (RP0 Ctrl)
9     Up     1        23461    23386    0       0       CCC (RP1 Ctrl)
34    Down   1        0        0        0       0       Slice 1
36    Down   1        0        0        0       0       Slice 0
38    Down   1        0        0        0       0       Slice 2
39    Down   1        0        0        0       0       Slice 3
40    Down   0        0        0        0       0       Bao
41    Up     1        7727     0        0       0       Bao
42    Up     1        0        16338    0       0       Dbg Mgmt Eth0

sysadmin-vm:0_RP0# clear controller switch statistics location 0/LC0/LC-SW all
Wed Aug  28 22:36:32.358 UTC
Clear all switch port statistics ? [yes,no] yes
result Switch statistics cleared successfully.
sysadmin-vm:0_RP0# show controller switch statistics location 0/LC0/LC-SW
Wed Aug  28 22:36:44.457 UTC
Rack  Card  Switch  Rack Serial Number
--------------------------------------
0     LC0   LC-SW   ABCDEFGHIJK

      Phys   State    Tx       Rx       Tx      Rx
Port  State  Changes  Packets  Packets  Errors  Errors  Connects To
-------------------------------------------------------------------------
0     Up     0        126      40       0       0       LC CPU (0)
2     Up     0        74       123      0       0       RP0
4     Up     0        22       22       0       0       RP1
6     Down   0        0        0        0       0       Slice 4
8     Up     0        78       30       0       0       CCC (RP0 Ctrl)
9     Up     0        22       22       0       0       CCC (RP1 Ctrl)
34    Down   0        0        0        0       0       Slice 1
36    Down   0        0        0        0       0       Slice 0
38    Down   0        0        0        0       0       Slice 2
39    Down   0        0        0        0       0       Slice 3
40    Down   0        0        0        0       0       Bao
41    Up     0        4        0        0       0       Bao
42    Up     0        0        16       0       0       Dbg Mgmt Eth0
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

show controller ccc ethernet

To display ethernet status information from the ethernet registers, use the **show controller ccc ethernet** command in the System Admin EXEC mode.

show controller ccc ethernet {**counters** | **status**} [**location** *node_id*]

Syntax Description

counters	Displays ethernet information from the ethernet counters related registers.
status	Displays ethernet information from the ETHERNET_STATUS register.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC mode

Command History

Release	Modification
Release 5.2.3	This command was introduced.

Usage Guidelines

This command provides status for the internal control plane CCC Ethernet connections. Each CCC on the line card (LC) or fabric card (FC) has two dedicated backplane Ethernet connections, one each to the RP0 and RP1 slots. Each connection pass through an Ethernet switch. Hence, there are two segments for each connection, namely, LC/FC to switch, and switch to RP. The counters and link status are related for specific segment of the connection helping in precisely identifying the fault location. For instance, if Ethernet status of CCC on the LC0 does not report any problem (that is, no connectivity issues between LC and the Ethernet switch) but the "Uplink Connection Status" is "Not Available", it indicates that the issue for lack of Ethernet connectivity between CCC driver on RP and LC0 is on the segment connecting the switch and RP.

Example

This example shows how to view the ccc inventory details:

```
sysadmin-vm:0_RP0# show controller ccc ethernet status location 0/0
Thu Nov  6  15:40:19.177 UTC

  CCC Ethernet Status Information For Location: 0/0
  ------------------------------------------------------------------------------
  Uplink Connection Status to Master CCC Driver on 0/RP1: Available

  CCC Ethernet Port 0
  -------------------
           LINK_STATUS : Link Valid
             LINK_SYNC : Link Sync obtained
                RUDI_C : NOT SET
                RUDI_I : The core is receiving /I/ ordered sets
            RUDI_INVLD : NOT SET
             RXDISPERR : NOT SET
```

```
          RXNOTINTABLE : NOT SET

  CCC Ethernet Port 1
  -------------------
           LINK_STATUS : Link Valid
             LINK_SYNC : Link Sync obtained
                RUDI_C : NOT SET
                RUDI_I : The core is receiving /I/ ordered sets
            RUDI_INVLD : NOT SET
             RXDISPERR : NOT SET
          RXNOTINTABLE : NOT SET

sysadmin-vm:0_RP0# show controller ccc ethernet counters location 0/0

CCC Ethernet Counters Detail For Location: 0/0
  ---------------------------------------------------------------------------
  Ethernet Port 0                       Ethernet Port 1
  ---------------                       ---------------
    RX packets    : 1796109               RX packets    : 1820809
    RX bytes      : 265125327             RX bytes      : 266179825
    RX size errors: 0                     RX size errors: 0
    RX CRC errors : 0                     RX CRC errors : 0
    TX packets    : 1793201               TX packets    : 1818744
    TX bytes      : 168747236             TX bytes      : 170262340

  CCC-to-CCC Counter                    Response Packet Counters
  ------------------                    ------------------------
    Incoming local        : 4             Sent  : 3611922
    Incoming packet errors: 0             Resent: 0
    Incoming filtered     : 2122          Errors: 0
    Outgoing sent         : 11
    Outgoing resent       : 20

  Other Counters                        Push Packet Counters
  --------------                        --------------------
    Ethernet runt errors : 0              Sent  : 0
    Header errors        : 1552           Resent: 0
    Request received     : 3611918        Errors: 0
    CCC-to-CCC received  : 3456           Acks  : 0
    Unknown type received: 0              Nacks : 0
```

show controller ccc event-history

To display card state transition and event information from the CCC (card control chip), use the **show controller ccc event-history** command in the System Admin EXEC mode.

show controller ccc [**slave**] **event-history** {**brief** | **detail**} **location** *[node-id]*

Syntax Description

slave	Displays card state transitions tracked from the slave CCC driver. Do not use if only one RP is installed in the chassis.
detail	Displays detailed information about CCC event history.
brief	Displays brief information about CCC event history.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation. If node-id is not specified, the output is displayed for all nodes.

Command Default

Displays event history for master CCC driver.

Command Modes

System Admin EXEC mode

Command History

Release	Modification
Release 5.2.3	This command was introduced.

Example

This example shows ccc inventory details with some failure notifications:

```
sysadmin-vm:0_RP0# show controller ccc event-history brief location 0/2
Tue Aug  5  15:05:00.821 UTC

CCC Card Event History for: 0/2

Current State: POWER_UP_FAILED

  DATE   TIME (UTC)    STATE                  EVENT
  -----  ------------  ---------------------  ------------------------------
  08/05  14:55:17.449  POWER_UP_FAILED        ev_wdog_timeout
  08/05  14:45:31.265  CCC_DRIVER_INIT        if_pwr_up_failed
  08/05  14:45:31.260  CHECK_CCC_STATUS       if_pwr_up_failed_again
  08/05  14:45:31.258  GET_CCC_INFO           ev_get_ccc_info_done
  08/05  14:45:31.223  WAIT_ETH_READY        ev_eth_ready
  08/05  14:45:31.157  CHECK_UBLAZE_BOOT      ev_ublaze_boot_ok
  08/05  14:45:31.124  PON_UP_WARM            ev_ccc_reset_done
  08/05  14:45:17.489  CCC_IN_RESET           ev_pon_up_warm
  08/05  14:45:08.921  POWER_UP_FAILED        ev_pon_down_warm
  08/05  14:35:07.152  POWER_UP_FAILED        ev_wdog_timeout
  08/05  14:25:20.946  CCC_DRIVER_INIT        if_pwr_up_failed
  08/05  14:25:20.941  CHECK_CCC_STATUS       if_pwr_up_failed_again
  08/05  14:25:20.939  GET_CCC_INFO           ev_get_ccc_info_done
```

```
  08/05  14:25:20.923  WAIT_ETH_READY          ev_eth_ready
  08/05  14:25:20.887  CHECK_UBLAZE_BOOT       ev_ublaze_boot_ok
  08/05  14:25:20.830  PON_UP_WARM            ev_ccc_reset_done


sysadmin-vm:0_RP0# show controller ccc event-history detail location 0/2
Tue Aug  5  15:04:07.478 UTC

CCC Card Event History for: 0/2
  Event buffer info:
        Total number of events recorded: 692
        Number of events available for display: 255

  Current State: POWER_UP_FAILED

     EVENT #: 691 (record index = 179)
   TIMESTAMP: 2014/08/05 14:55:17.449979 UTC
       STATE: POWER_UP_FAILED
       EVENT: ev_wdog_timeout
  EVENT DESC: CCC watchdog timeout event
  ERROR INFO: wdog__0 SysAdmin VM Watchdog stage1:0

     EVENT #: 690 (record index = 178)
   TIMESTAMP: 2014/08/05 14:45:31.265829 UTC
       STATE: CCC_DRIVER_INIT
       EVENT: if_pwr_up_failed
  ERROR INFO: Failed to enable main power zone:
              failure detected in devices CPU VCC, DB main power (0x1f0d)

     EVENT #: 689 (record index = 177)
   TIMESTAMP: 2014/08/05 14:45:31.260310 UTC
       STATE: CHECK_CCC_STATUS
       EVENT: if_pwr_up_failed_again
  ERROR INFO: Failed to enable main power zone:
              failure detected in devices CPU VCC, DB main power (0x1f0d)

     EVENT #: 688 (record index = 176)
   TIMESTAMP: 2014/08/05 14:45:31.258124 UTC
       STATE: GET_CCC_INFO
       EVENT: ev_get_ccc_info_done
  EVENT DESC: Retrieval of CCC info is completed

     EVENT #: 687 (record index = 175)
   TIMESTAMP: 2014/08/05 14:45:31.223783 UTC
       STATE: WAIT_ETH_READY
       EVENT: ev_eth_ready
  EVENT DESC: Card Ethernet connection is ready

     EVENT #: 686 (record index = 174)
   TIMESTAMP: 2014/08/05 14:45:31.157299 UTC
       STATE: CHECK_UBLAZE_BOOT
       EVENT: ev_ublaze_boot_ok
  EVENT DESC: CCC MicroBlaze completed boot operation

     EVENT #: 685 (record index = 173)
   TIMESTAMP: 2014/08/05 14:45:31.124094 UTC
       STATE: PON_UP_WARM
       EVENT: ev_ccc_reset_done
  EVENT DESC: CCC RESET operation is completed

     EVENT #: 684 (record index = 172)
   TIMESTAMP: 2014/08/05 14:45:17.489647 UTC
       STATE: CCC_IN_RESET
       EVENT: ev_pon_up_warm
```

```
EVENT DESC: PON executing up_warm_reset entry code

   EVENT #: 683 (record index = 171)
 TIMESTAMP: 2014/08/05 14:45:08.921444 UTC
     STATE: POWER_UP_FAILED
     EVENT: ev_pon_down_warm
EVENT DESC: PON executing down_warm_reset entry code

   EVENT #: 682 (record index = 170)
 TIMESTAMP: 2014/08/05 14:35:07.152959 UTC
     STATE: POWER_UP_FAILED
     EVENT: ev_wdog_timeout
```

show controller ccc inventory

To display the CCC (card control chip) inventory information, use the **show controller ccc inventory** command in the System Admin EXEC mode.

show controller ccc inventory [{**detail** | **summary** | **status** | **version**}] [**location** *node-id*]

Syntax Description

detail	Displays CCC inventory detailed information
summary	Displays the card inventory summary.
status	Displays CCC status related information.
version	Displays CCC version information.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

Displays all the inventory information for all the nodes.

Command Modes

System Admin EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.
Release 5.2.3	The command output for the **summary** keyword was enhanced to display the card state information.

This example shows how to view the ccc inventory information:

```
sysadmin-vm:0_RP0#show controller ccc inventory detail

Inventory detail information for 0/RP0:
-------------------------------------------------------
Card Type                   = 1
Platform                    = 4
Board Type                  = 0x001e0800
Board HW Version            = 0.2
Card PID                    = NC6-RP (master)
Card Backplane Slot ID      = 0
Card Serial Number          = SAD160801NP
CCC FPGA Version            = 1.0.0
CCC HW Version              = 0x201
CCC Core Version            = 1.17
CCC PON Version             = 1.30
CCC Firmware Version        = 1.18
CCC FPGA Image type         = WORKING
CCC Mac Address 0           = e0:50:72:f4:e8:00
CCC Mac Address 1           = e0:50:72:f4:e8:01
Reboot Reason               = WARM START
Bios Version                = 9.9 PRIMARY
```

```
Zen FPGA Version            = 0.6.3
SDR/VF Mac address start    = e0:50:72:f4:e8:03
SDR/VF Mac address end      = e0:50:72:f4:e8:14

sysadmin-vm:0_RP0#show controller ccc inventory summary

CCC Inventory Summary :
                                  BP                    HW
Location Card Type                ID    Serial Number   Ver   Card State
-------------------------------------------------------------------------------
0/RP0    NC6-RP (master)          0     SAD15270129     0.1   CARD_READY
0/RP1    NC6-RP (slave)           1     SAD1527012P     0.1   CARD_READY
0/FC0    NC6-FC                   8     SAD1618002F     0.2   WAIT_DEV_INIT
0/FC1    NC6-FC                   9     SAD153901ZT     0.2   WAIT_DEV_INIT
0/FC4    NC6-FC                   12    SAL1803KQEY     1.0   PON_POWERING_UP
0/FC5    NC6-FC                   13    SAD16180043     0.2   WAIT_DEV_INIT
0/0      NC6-10X100G-M-K          16    SAL1650UCN9     0.4   PXE_BOOTING
0/4      NC6-10X100G-M-K          20    SAD154502XU     0.1   CARD_READY
```

Note The terms "master" and "slave" listed in the Card Type column is indicative of the CCC driver role, and not the active or stand-by state of the RP. On the router, CCC drivers on both RPs actively monitor all the modules in the system at the same time. Either of the CCC drivers can be elected as the master, and the other as the slave. However, only the CCC driver that has the "master" role performs the CCC FPD upgrade on the fabric cards.

show controller ccc notif-history

To display the card notification history from the CCC (card control chip), use the **show controller ccc notif-history** command in the System Admin EXEC mode.

show controller ccc [**slave**] **notif-history** {**brief** | **detail**} **location** *[node-id]*

Syntax Description

slave	Displays card notification history for the slave CCC driver. Do not use if only one RP is installed in the chassis.
detail	Displays detailed information about CCC notification history.
brief	Displays brief information about CCC notification history.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation. If node-id is not specified, the output is displayed for all nodes.

Command Default

Displays notification history for master CCC driver.

Command Modes

System Admin EXEC mode

Command History

Release	Modification
Release 5.2.3	This command was introduced.

Example

This example shows how to view the ccc inventory details:

```
sysadmin-vm:0_RP0# show controller ccc notif-history brief location 0/4
Thu Nov  6  16:26:56.829 UTC

CCC Card State Notification History for: 0/4

Card State Notification History as seen by Master (0/RP1)
  DATE   TIME (UTC)    NOTIF TYPE                 EVENT TYPE
  -----  ------------  -------------------------  --------------------------
  11/06  16:24:53.319  CARD_STATE_CHANGE          HW_EVENT_OK
  11/06  16:24:36.467  CARD_STATE_CHANGE          HW_EVENT_POWERED_ON
  11/06  16:24:12.294  CARD_STATE_CHANGE          HW_EVENT_RESET
  11/06  05:53:36.568  CARD_INSERTED              HW_EVENT_OK

sysadmin-vm:0_RP0# show controller ccc slave notif-history brief location 0/4
Thu Nov  6  16:27:04.280 UTC

CCC Card State Notification History for: 0/4

Card Satate Notification History as seen by Slave (0/RP0)
  DATE   TIME (UTC)    NOTIF TYPE                 EVENT TYPE
  -----  ------------  -------------------------  --------------------------
  11/06  16:24:53.349  CARD_STATE_CHANGE          HW_EVENT_OK
```

```
11/06  16:24:36.453  CARD_STATE_CHANGE          HW_EVENT_POWERED_ON
11/06  16:24:13.437  CARD_STATE_CHANGE          HW_EVENT_RESET
11/06  15:37:53.674  CARD_INSERTED              HW_EVENT_OK
```

show controller ccc oir-history

To display the (online insertion and removal) OIR events on the chassis, use the **show controller ccc oir-history** command in the System Admin EXEC mode.

show controller ccc [**slave**] **oir-history rack** *rack_number*

Syntax Description

slave	Displays card OIR history as tracked from the slave CCC driver. Do not use if only one RP is installed in the chassis.
rack *rack_number*	The OIR information is displayed for the cards on the specified rack.

Command Default

Displays OIR history from the master CCC driver.

Command Modes

System Admin EXEC mode

Command History

Release	Modification
Release 5.2.3	This command was introduced.

Example

This example shows how to view the ccc inventory details:

```
sysadmin-vm:0_RP0#  show controller ccc oir-history rack 0

Cards OIR History of rack: 0

OIR Events as seen by Master (0/RP0)-
  DATE   TIME (UTC)     EVENT        LOC     CARD TYPE            SERIAL NO
  -----  ------------   ----------   -----   ------------------   -----------
  10/09  16:59:14.280   INSERTED     0/0     NC6-10X100G-M-K      SAL1650UCN9
  10/09  16:58:49.064   REMOVED      0/0     NC6-10X100G-M-K      SAL1650UCN9
  10/09  16:58:40.215   INSERTED     0/FC0   NC6-FC               SAD1618002F
  10/09  16:58:18.158   REMOVED      0/FC0   NC6-FC               SAD1618002F
  10/09  16:52:38.251   DISCOVERED   0/FC0   NC6-FC               SAD1618002F
  10/09  16:52:38.129   DISCOVERED   0/0     NC6-10X100G-M-K      SAL1650UCN9
  10/09  16:52:37.990   DISCOVERED   0/FC4   NC6-FC               SAL1803KQEY
  10/09  16:52:37.865   DISCOVERED   0/FC1   NC6-FC               SAD153901ZT
  10/09  16:52:37.745   DISCOVERED   0/FC3   NC6-FC               SAL1803KQG3
  10/09  16:52:37.518   DISCOVERED   0/RP1   NC6-RP               SAD15270129
  10/09  16:52:26.256   DISCOVERED   0/RP0   NC6-RP               SAL171636WW
```

show controller ccc power

To display the card power information, use the **show controller ccc power** command in the System Admin EXEC mode.

show controller ccc power [{**detail** | **summary**}] [**location** *node-id*]

Syntax Description

detail	Displays the card power details.
summary	Displays the card power summary.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

Displays the power summary followed by the detailed power information for all nodes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to view the ccc (card control chip) power detailed information:

```
sysadmin-vm:0_RP0#show controller ccc power detail

Fri Jan  15 23:10:58.567 UTC

Power detail : Zone information for 0/RP0:
-----------------------------------------------------------
| Power Zone | Power Status | Power Contrl | Power Fault |
-----------------------------------------------------------
|   1        |   OK         |   SET        |   --        |
|   2        |   OK         |   SET        |   --        |
|   3        |   --         |   --         |   --        |
|   4        |   --         |   --         |   --        |
|   5        |   --         |   --         |   --        |
|   6        |   --         |   --         |   --        |


Power detail : Zone information for 0/RP1:
-----------------------------------------------------------
| Power Zone | Power Status | Power Contrl | Power Fault |
-----------------------------------------------------------
|   1        |   OK         |   SET        |   --        |
|   2        |   OK         |   SET        |   --        |
|   3        |   --         |   --         |   --        |
|   4        |   --         |   --         |   --        |
|   5        |   --         |   --         |   --        |
|   6        |   --         |   --         |   --        |
```

show controller ccc reset-history

To display the CCC (card control chip) reset-history information, use the **show controller ccc reset-history** command in the System Admin EXEC mode.

show controller ccc reset-history [{**onboard** | **onchip**}] [**location** *node-id*]

Syntax Description

onboard	Displays CCC reset history in onboard EEPROM.
onchip	Displays on-chip reset history entries since last CCC cold reset.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

Displays on-chip reset history followed by on-board reset history for all nodes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to view the controller ccc onchip reset-history:

```
sysadmin-vm:0_RP0#show controller ccc reset-history onchip location 0/1

Fri Jan  15 23:14:13.758 UTC

--location 0/1--
TimeofDay    : Sat Jan  1 17:11:29 2011
Uptime       : 17:11:50
Resets       : 2

    proc Reset        Reset        Register   Register   Reset
idx IDX  Source       Command      WORD0      WORD1      Time
--- ---- ------------ ------------ ---------- ---------- ----------
0   0    uBlaze       AssrtHR      0x00000B10 0x00000000 Thu Jan  1 00:00:00 1970
1   0    uBlaze       DeAssrtHR    0x00000B32 0x00000006 Thu Jan  1 00:00:06 1970
-More--
```

show controller ccc register

To display controller CCC (card control chip) register information, use the **show controller ccc register** command in System Admin EXEC mode.

show controller ccc register {**group** | **offset** *address* [**location** *node-id*] | **range** *start-address end-address* [**location** *node-id*]}

Syntax Description

group	Specifies the register group ID for ccc register information.
offset *address*	Specifies the offset address for ccc register information. Specify the address as a hexadecimal value. Range is from 0x0 to 0x17FFF.
range *start-address end-address*	Specifies the range for ccc register information. Specify a start address in hexadecimal format and an end address in hexadecimal format. Range for start address and end address is from 0x0 to 0x17FFF.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to display controller ccc register range information.

```
sysadmin-vm:0_RP0#show controller ccc register range 0x0 0x4 location 0/RP0
Fri Jan  15 23:17:42.492 UTC
            Register    Register
Location    Offset      Value
---------------------------------
0/rp0       0x0         0x111
            0x4         0x0
```

This example shows how to display controller ccc register group information.

```
sysadmin-vm:0_RP0# show controller ccc register group 0 location 0/RP0
Fri Jan  15 23:18:05.697 UTC
LOCATION  IDX  REGISTER NAME                OFFSET  VALUE
-----------------------------------------------------------------
0/RP0     0    HW_REVISION                 0x0     0x111
          1    GLOBAL_RESET_STATUS         0x4     0x0
          2    GLOBAL_RESET_COMMAND        0x8     0x0
          3    CARD_AND_SLOT               0xC     0x100
          4    ALPHA_MESSAGE               0x10    0x30304642
          5    CARD_PRESENCE               0x14    0x6C3FA2
          6    CARD_ALERT                  0x18    0x0
          7    HW_JUMPERS                  0x1C    0x0
          8    GPIO_INPUT_15_0             0x20    0x0
          9    GPIO_INPUT_31_16            0x24    0x0
```

```
10   GPIO_INPUT_47_32              0x28    0x0
11   GPIO_OUTPUT_15_0              0x2C    0x0
12   GPIO_OUTPUT_31_16             0x30    0x0
13   GPIO_OUTPUT_47_32             0x34    0x0
14   GPIO_OUTPUT_ENABLE_15_0       0x38    0x0
15   GPIO_OUTPUT_ENABLE_31_16      0x3C    0x0
16   GPIO_OUTPUT_ENABLE_47_32      0x40    0x0
17   GP_INTERRUPTS                 0x44    0xC049
18   CPU_SIGNALS                   0x48    0x40
19   POWER_ZONE_STATUS             0x4C    0x3
20   POWER_ZONE_CONTROL            0x50    0x3
```

show controller ccc trace

To display the CCC (card control chip) trace information, use the **show controller ccc trace** command in the System Admin EXEC mode.

show controller ccc trace {**all** *trace-name*} **location** *node-id* [{**all** *trace-attribute*}]

Syntax Description

trace-name	Trace name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack*/*slot* notation.
trace-attributes	Trace attribute.
all	Displays all the details.

Command Default

None

Command Modes

System Admin EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.
Release 5.2.3	New trace names were added.

This example shows how to view the controller ccc trace details:

```
sysadmin-vm:0_RP0#show controller ccc fpdmgr location 0/3

Mon Aug  12 11:06:13.956 UTC
----------------
12.15.56.012602880:Passing board hw version is 0.2 for fpd CCC FPGA
12.15.56.012882560:Creating instagt_handle rc = 0
12.15.56.551802880:SUCCESS: connected to sm
12.15.56.551987712:FPD register done 0x18362c0
12.15.56.552092032:Passing board hw version is 0.2 for fpd CCC Power-On
12.15.56.552096384:FPD register done 0x18aa630
12.15.56.552121600:Passing board hw version is 0.2 for fpd Ethernet Switch
12.15.56.552123392:FPD register done 0x18aa7e0
12.15.56.558257152:Connected to platform service successful,
saying hello12.15.56.558303488:Requesting nodeid12.15.56.558320512:Requesting
local ip address12.15.56.603181568:SM CONNECT CB returns 0
12.15.56.644174464:Platform nodeid registration response callback12.15.56.644229888:Got
my Nodeid 0/3 (R/S/I)12.15.56.727803264:ds_connect() returned success
12.15.56.727861888:Got ip address registration response
12.15.56.727969024:Got ip address callback
12.15.56.728066176:Activating fpd server with ip 0xc0004c01
12.15.56.785868288:SDORM init success
12.15.56.785995264:Set FPD Ethernet Switch state READY after SDROM ready
12.15.56.791157376:CLR FPD Ethernet Switch status GOLDEN
```

```
12.15.56.791162880:Get fpd Ethernet Switch image version 1.32
12.15.56.815722752:Set FPD CCC Power-On state READY after SDROM ready
12.15.56.815745536:CLR FPD CCC Power-On status GOLDEN
12.15.56.815746432:Get fpd CCC Power-On image version 1.30
12.15.56.816411392:Set FPD CCC FPGA state READY after SDROM ready
12.15.56.816432384:CLR FPD CCC FPGA status GOLDEN
12.15.56.816433280:Get fpd CCC FPGA image version 1.14
12.15.56.817161472:Connected to DS, searching for confd
12.15.56.862450048:ds_registered_service_cb called
12.15.56.862451328:ds_registered_service_cb: Status is 0
12.15.56.862451968:Checking has_spinfo
12.15.56.862452608:DS entry found
12.15.56.862453504:fpd_client_connect_confd called
12.15.56.862475520:No service info available for confd
12.15.56.862476160:Return from ds_registered_service_cb
12.15.56.862498048:Confd DS entry found notification
12.15.56.862498688:fpd_client_connect_confd called
12.15.56.862564480: fpd_client_connect_confd(362): DS entry(0) svc confd, ip=192.0.0.1,
port=4565, ha_role=ACTIVE issu_role=UNKNOWN, scope=SYSTEM
12.15.56.862585216:setup_fpd_confd_connection called on node location =
0/312.15.56.863445632:Registering Subscription Socket
12.15.56.894000000:Subscription point = 35
12.15.56.920322048:read_conf: return tmp is 1, (return code = 0)
12.15.56.920324096:FPD auto-upgrade DISABLED
12.15.59.492183808:successful connection to Instagt service
12.15.59.492184448:Start Install Agt Notification Registeration
12.15.59.492334336:instagt_register_for_notif rc=0
```

show controller fabric fgid information

To display the controller fabric FGID information, use the **show controller fabric fgid information** command in the System Admin EXEC mode.

show controller fabric fgid information {**all** | **id** *fgid*} [{**brief** | **detail** | **diagnostics**}]

Syntax Description

all	Displays all FGID information.
id *fgid*	Specifies the FGID number.
brief	Displays brief information.
detail	Displays information in detail.
diagnostics	Compares and displays FGID bitmap and SFE bitmap information

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

When the **diagnostics** keyword is used and if there is a mismatch between information present in the FGID manager and the SFE driver hardware, an error is displayed.

This example shows how to view the controller fabric fgid information:

```
sysadmin-vm:0_RP0#show controller fabric fgid information id 32240 diagnostics

Starting FGID: 32240
The requested number of FGIDs to display: 1

FGID Information:


FGID number:           32240

FGID Hex bitmap:
        0x0000000001000111 0000000000000000 0000000000000000 0000000000000000
        0x0000000000000000 0000000000000000 0000000000000000 0000000000000000
        0x0000000000000000 0000000000000000 0000000000000000 0000000000000000
        0x0000000000000000 0000000000000000 0000000000000000 0000000000000000
        0x0000000000000000 0000000000000000 0000000000000000 0000000000000000

FGID Binary bitmap:
        00000000000000000000000000000000000000010000000000000000100010001
        00000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000
```

```
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000
        00000000000000000000000000000000000000000000000000000000000000000000


FGID associated fabricq Ids:
[4] :=
        0/0/0, 0/0/4, 0/1/2, 0/4/0,

FGID associated client application:
client id = 2, client name = Jabed, SDR name = default-sdr

FGID bitmap at location 0/SM1/0, Status: ERR
s123: 00000000000000000000000000000000000000000000000000000000000000000000
     -00000000000000000000000000000000000000010000000000000000000000000000

FGID bitmap at location 0/SM1/1, Status: ERR
s123: 00000000000000000000000000000000000000000000000000000000000000000000
     -00000000000000000000000000000000000000010000000000000000000000000000

FGID bitmap at location 0/SM4/0, Status: ERR
s123: 00000000000000000000000000000000000000000000000000000000000000000000
     -00000000000000000000000000000000000000010000000000000000000000000000

FGID bitmap at location 0/SM4/1, Status: ERR
s123: 00000000000000000000000000000000000000000000000000000000000000000000
     -00000000000000000000000000000000000000010000000000000000000000000000
```

show controller fabric fgid program-error

To display the controller fabric FGID program-error, use the **show controller fabric fgid program-error** command in the System Admin EXEC mode.

show controller fabric fgid program-error {**all** | *startfgid endfgid*}

Syntax Description

all	Displays all FGID program-error.
startfgid	Specifies the start FGID id. Range is from 0 to 524287.
endfgid	Specifies the end FGID id. Range is from 0 to 524287.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command for diagnostics. Execution time of the command depends on the number of FGIDs. The total number of erroneous FGIDs are displayed. However, only 10 FGIDs that have errors are displayed. To identify if a particular FGID has an error, update the range of the FGID in the command.

This example shows how to view the controller fabric fgid program-error:

```
sysadmin-vm:0_RP0# show controller fabric fgid program-error 0 524287

Rack 0:
  Fgids: 32240  32241  32242  32243  32244  32245  32246  32247  32248  32249 ...
  Total: 14
```

show controller fabric fgid resource

To display the controller fabric FGID allocated resource information, use the **show controller fabric fgid resource** command in the System Admin EXEC mode.

show controller fabric fgid resource {**all** | **sdr** *sdr-name* {**all** | **application** *application-name* **id** *fgid-id* **elements** *num-elements*}}

Syntax Description

all	Displays FGID resource information for all SDRs on the current system.
sdr	Name of the SDR. The **default-sdr** is the only available option.
sdr-name	Specifies the name of the SDR. The **default-sdr** is the only available option.
all	Specifies all secure domain routers.
application	Specifies the allocated FGID resource per application.
application-name	Specifies the application name. The default available options are: • MRIB-ipv4-default • MRIB-ipv6-default **Note** The applications created by the users are also listed.
id *fgid-id*	Indicates the starting fgid number. Range is from 0 to 524288
elements *num-elements*	Indicates the fabric FGIDs. The number ranges from 0 to 524288.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Only if FGIDs are used by the application, the information is displayed.

This example shows how to view the controller fabric fgid resource information:

```
sysadmin-vm:0_RP0# show controller fabric fgid resource sdr default-sdr application some_app
 id 0 elements 524287


=====================================================
Displaying FGID Info for:
SDR: default-sdr          APPLICATION : some_app
  32240,  32241,  32242,  32243,  32244,  32245,  32246,  32247,  32248,  32249
  32250,  32251,  32252,  32253,  32254,  32255,  32256,  32257,  32258,  32259
  32260,  32261,  32262,  32263,  32264,  32265,  32266,  32267,  32268,  32269
  32270,  32271,  32272,  32273,  32274,  32275,  32276,  32277,  32278,  32279
  32280,  32281,  32282,  32283,  32284,  32285,  32286,  32287,  32288,  32289
  32290,  32291,  32292,  32293,  32294,  32295,  32296,  32297,  32298,  32299
  32300,  32301,  32302,  32303,  32304,  32305,  32306,  32307,  32308,  32309
  32310,  32311,  32312,  32313,  32314,  32315,  32316,  32317,  32318,  32319
  32320,  32321,  32322,  32323,  32324,  32325,  32326,  32327,  32328,  32329
  32330,  32331,  32332,  32333,  32334,  32335,  32336,  32337,  32338,  32339
  32340,  32341,  32342,  32343,  32344,  32345,  32346,  32347,  32348,  32349
  32350,  32351,  32352,  32353,  32354,  32355,  32356,  32357,  32358,  32359
  32360,  32361,  32362,  32363,  32364,  32365,  32366,  32367,  32368,  32369
  32370,  32371,  32372,  32373,  32374,  32375,  32376,  32377,  32378,  32379
  32380,  32381,  32382,  32383,  32384,  32385,  32386,  32387,  32388,  32389
  32390,  32391,  32392,  32393,  32394,  32395,  32396,  32397,  32398,  32399
  32400,  32401,  32402,  32403,  32404,  32405,  32406,  32407,  32408,  32409
  32410,  32411,  32412,  32413,  32414,  32415,  32416,  32417,  32418,  32419
  32420,  32421,  32422,  32423,  32424,  32425,  32426,  32427,  32428,  32429
  32430,  32431,  32432,  32433,  32434,  32435,  32436,  32437,  32438,  32439
  32440,  32441,  32442,  32443,  32444,  32445,  32446,  32447,  32448,  32449
  32450,  32451,  32452,  32453,  32454,  32455,  32456,  32457,  32458,  32459
  32460,  32461,  32462,  32463,  32464,  32465,  32466,  32467,  32468,  32469
  32470,  32471,  32472,  32473,  32474,  32475,  32476,  32477,  32478,  32479
  32480,  32481,  32482,  32483,  32484,  32485,  32486,  32487,  32488,  32489
  32490,  32491,  32492,  32493,  32494,  32495,  32496,  32497,  32498,  32499
  32500,  32501,  32502,  32503,  32504,  32505,  32506,  32507,  32508,  32509
  32510,  32511,  32512,  32513,  32514,  32515,  32516,  32517,  32518,  32519
  32520,  32521,  32522,  32523,  32524,  32525,  32526,  32527,  32528,  32529
  32530,  32531,  32532,  32533,  32534,  32535,  32536,  32537,  32538,  32539
  32540,  32541,  32542,  32543,  32544,  32545,  32546,  32547,  32548,  32549
  32550,  32551,  32552,  32553,  32554,  32555,  32556,  32557,  32558,  32559
  32560,  32561,  32562,  32563,  32564,  32565,  32566,  32567,  32568,  32569
  32570,  32571,  32572,  32573,  32574,  32575,  32576,  32577,  32578,  32579
  32580,  32581,  32582,  32583,  32584,  32585,  32586,  32587,  32588,  32589
  32590,  32591,  32592,  32593,  32594,  32595,  32596,  32597,  32598,  32599
  32600,  32601,  32602,  32603,  32604,  32605,  32606,  32607,  32608,  32609
  32610,  32611,  32612,  32613,  32614,  32615,  32616,  32617,  32618,  32619
  32620,  32621,  32622,  32623,  32624,  32625,  32626,  32627,  32628,  32629
  32630,  32631,  32632,  32633,  32634,  32635,  32636,  32637,  32638,  32639
```

show controller fabric fgid statistics

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

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

Syntax Description

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

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to view the controller fabric fgid resource statistical information:

```
sysadmin-vm:0_RP0#show controller fabric fgid statistics all

Fabric FGID Resource Statistics Information:

System wide Fabric multicast resource statistics:

        Total number of FGIDS in the system is 524288
        Current number of InUse FGIDS in the system is 0
        High Water Mark of InUse FGIDS in the system is 0

Per SDR basis Fabric multicast resource statistics:

                             SDR              Current       HighWater Mark
                            Name                FGIDs          InUse FGIDs
------------------------------------------------------------------------------
                     default-sdr                    0                     0
Per pool basis Fabric multicast resource statistics:

Pool                  Pool            Pool    Total  Current High Water Mark
```

```
ID                    Name            Type     FGIDs    FGIDs      InUse FGIDs
-------------------------------------------------------------------------------
0                      SDR          Shared    514048        0               0
1                  NON_SDR       Dedicated     10240        0
```

show controller fabric fgid trace

To display the FGID trace information, use the **show controller fabric fgid trace** command in the System Admin EXEC mode.

show controller fabric fgid trace {**all***trace-name*} **location** *node-id* [{**all***trace-attribute*}]

Syntax Description

trace-name	Trace name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation. **Note** Specify only the Route Processor (RP) location.
trace-attribute	Trace attribute.
all	Displays all the details.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command for FGID process diagnostics. This command displays information only from the Route Processor (RP).

This example shows how to view the controller fabric fgid trace information:

```
sysadmin-vm:0_RP0#show controller fabric fgid trace all location 0/RP0

Fri Aug  23 10:17:49.373 UTC
----------------
19.49.04.359137280:FGID Server CTRACE init done
19.49.04.409993216:  @msc_entity id="0/2123" display_name="fgid"
19.49.04.437780480:@msc_event entity_id="0/2123/2123" time="1376077744439000000"
label="connecting to pm_lib with endpoint (0x0, 2020) (hdl=0x0x27983c0)"
type="Connection" completed="false" @msc_source pairing_id="0/2123/con_0x27983c0"
type="Lane"
19.49.04.452984832:CIPC:CONN (hdl=0x2798810):cipc_connect():invoked on endpoint
(0.0.0.0, 2020)
19.49.04.454033408:FGID Server PM init done
19.49.04.541065216:  @msc_entity id="0/2123" display_name="fgid"
19.49.04.541065216:@msc_event entity_id="0/2123/2123" time="1376077744542000000"
label="requesting connection to platform_local (CAPI hdl=0x27b48f0, CIPC hdl = 0x27b5130)"

type="Connection" completed="false"
19.49.04.541065216:DS handle 0x27b48f0 instantiated for platform_local client handle
19.49.04.573046784:  @msc_entity id="0/2123" display_name="fgid"
```

```
19.49.04.583008256:@msc_event entity_id="0/2123/2123" time="1376077744584000000"
label="requesting connection to calvados_ds (CAPI hdl=0x27d7ac0, CIPC hdl = 0x27d7ef0)"
type="Connection" completed="false"
19.49.04.583008256:@msc_event entity_id="0/2123/2123" time="1376077744584000000"
label="connecting to calvados_ds with endpoint (0x7f000001, 7400) (hdl=0x0x27d7ac0)"
type="Connection" completed="false" @msc_source pairing_id="0/2123/con_0x2
--More--
```

show controller fabric fsdb-aggregator trace

To display the FSDB-aggregator trace information, use the **show controller fabric fsdb-aggregator trace** command in the System Admin EXEC mode.

show controller fabric fsdb-aggregator trace *trace-name* **location** *node-id* *trace-attribute*

Syntax Description

trace-name	Trace name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation. **Note** Specify only the Route Processor (RP) location.
trace-attribute	Trace attribute.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command for FSDB (fabric system database) aggregator functionality diagnostics. This command displays information only from the Route Processor (RP).

This example shows how to view the controller fabric fsdb-aggregator trace information:

```
sysadmin-vm:0_RP0#show controller fabric fsdb-aggregator trace all location 0/RP0
Fri Aug  23 10:41:12.553 UTC
----------------
19.49.03.688914432:FSDB Aggregator CTRACE init done
19.49.03.767557632:  @msc_entity id="0/2111" display_name="fsdbagg"
19.49.03.809500672:@msc_event entity_id="0/2111/2111" time="1376077743811000000"
label="connecting to pm_lib with endpoint (0x0, 2020) (hdl=0x0x15293c0)" type="Connection"
 completed="false" @msc_source pairing_id="0/2111/con_0x15293c0" type="Lane"
19.49.03.825753600:CIPC:CONN (hdl=0x1529810):cipc_connect():invoked on endpoint
(0.0.0.0, 2020)
19.49.03.826802176:FSDB Aggregator PM init done
19.49.03.973602816:  @msc_entity id="0/2111" display_name="fsdbagg"
19.49.03.973602816:@msc_event entity_id="0/2111/2111" time="1376077743975000000"
label="requesting connection to platform_local (CAPI hdl=0x1545900, CIPC hdl = 0x1546140)"
 type="Connection" completed="false"
19.49.03.973602816:DS handle 0x1545900 instantiated for platform_local client handle
19.49.04.011010048:  @msc_entity id="0/2111" display_name="fsdbagg"
19.49.04.036700160:@msc_event entity_id="0/2111/2111" time="1376077744037000000"
label="requesting connection to calvados_ds (CAPI hdl=0x1568ad0, CIPC hdl = 0x1568f00)"
type="Connection" completed="false"
19.49.04.036700160:@msc_event entity_id="0/2111/2111" time="1376077744037000000"
label="connecting to calvados_ds with endpoint (0x7f000001, 7400) (hdl=0x0x1568ad0)"
```

```
type="Connection" completed="false" @msc_source pairing_id="0/2111/con_0x1
--More--
```

show controller fabric fsdb-pla

To display plane availability status information, use the **show controller fabric fsdb-pla** command in the System Admin EXEC mode.

show controller fabric fsdb-pla rack {*rack-number* [**destination** *id*] | **all**}

Syntax Description

rack-number	Specifies the rack number. The value can range from 0 to 15 or from F0 to F3.
destination *id*	Indicates the destination. The *id* can range from 0 to 1023 or can be provided in the asic location format (R/S/A).
all	Displays plane availability status of all the racks.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Only one rack (R0) and **all** options are supported.

This example shows how to view the controller fabric plane availability status information:

```
sysadmin-vm:0_RP0#show controller fabric fsdb-pla rack 0 destination 1

Amba id: 1(0/0/1)
=======================
plane id:1
-----------------------------------------------------
Asic     Reachability mask                    Links
-----------------------------------------------------
0        0x0000200200000000-0000080000000000      3
1        0x0002022000000000-0000000000000000      3

plane id:2
-----------------------------------------------------
Asic     Reachability mask                    Links
-----------------------------------------------------
0        0x0000200200000000-0000080000000000      3
1        0x0002022000000000-0000000000000000      3

plane id:3
-----------------------------------------------------
Asic     Reachability mask                    Links
-----------------------------------------------------
0        0x0000200200000000-0000080000000000      3
```

```
1          0x0002022000000000-0000000000000000       3
```

show controller fabric fsdb-server trace

To display the FSDB-server information, use the **show controller fabric server trace** command in the System Admin EXEC mode.

show controller fabric fsdb-server trace {**all** *trace-name*} **location** *node-id* [{**all** *trace-attribute*}]

Syntax Description

trace-name	Trace name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation. **Note** Specify only the Route Processor (RP) location.
trace-attribute	Trace attribute.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command for FSDB (fabric system database) server functionality diagnostics. This command displays information only from the Route Processor (RP).

This example shows how to view the controller fabric fsdb-server trace information:

```
sysadmin-vm:0_RP0#show controller fabric fsdb-server trace all location 0/RP0

Fri Aug  23 10:35:06.638 UTC
----------------
19.49.03.090701824:FSDB Server CTRACE init done
19.49.03.177733632:  @msc_entity id="0/2104" display_name="fsdb"
19.49.03.242745344:@msc_event entity_id="0/2104/2104" time="1376077743244000000"
label="connecting to pm_lib with endpoint (0x0, 2020) (hdl=0x0x2501110)"
type="Connection" completed="false" @msc_source pairing_id="0/2104/con_0x2501110"
type="Lane"
19.49.03.249561088:CIPC:CONN (hdl=0x2501560):cipc_connect():invoked on endpoint
(0.0.0.0, 2020)
19.49.03.378535936:  @msc_entity id="0/2104" display_name="fsdb"
19.49.03.378535936:@msc_event entity_id="0/2104/2104" time="1376077743379000000"
label="requesting connection to platform_local (CAPI hdl=0x251d640, CIPC hdl = 0x251de80)"
 type="Connection" completed="false"
19.49.03.378535936:DS handle 0x251d640 instantiated for platform_local client handle
19.49.03.396886016:  @msc_entity id="0/2104" display_name="fsdb"
19.49.03.453509120:@msc_event entity_id="0/2104/2104" time="1376077743454000000"
label="requesting connection to calvados_ds (CAPI hdl=0x2540a00, CIPC hdl = 0x2540e30)"
type="Connection" completed="false"
19.49.03.453509120:@msc_event entity_id="0/2104/2104" time="1376077743454000000"
```

```
label="connecting to calvados_ds with endpoint (0x7f000001, 7400) (hdl=0x0x2540a00)"
 type="Connection" completed="false" @msc_source pairing_id="0/2104/con_0x2540a00"
type="Lane"
--More--
```

show controller fabric health

To display the general condition of the fabric sub-system, use the **show controller fabric health** command in the System Admin EXEC mode.

show controller fabric health

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the command for diagnostics only.

This example shows how to view the general information of the fabric controller:

```
sysadmin-vm:0_RP0#show controller fabric health

Mon Jul  23 08:30:56.170 UTC

Fabric System Health
--------------------
Flags: T - Total,      U - Up,         A - Admin Down
       L - LCC,        M - Mcast Down, Y - Yes
       F - FCC,        D - Down,       N - No or Not Ok
       V - Valid,

Collaborator Process State:
---------------------------
    FSDB Aggregator: OK
    +-----------+--+
    |Rack id    | 0|
    +-----------+--+
    |FSDB status|Ok|
    +-----------+--+
    |SFE status |Ok|
    +-----------+--+

Router Health:
-----------------

    Rack    Planes  SFE Asics      Fia Asics
    T/L/F   U/M/D/A T/U/D          T/U/D
    ------------------------------------------------------
    1/1/0   2/0/4/1 6/6/0          15/8/7

    Plane Admin Plane    Racks    Data
    id    state state    in issue drop/error
    ------------------------------------------------------------
    0     UP    DN       1        No
```

```
    1     DN    DN       1        Yes
    2     UP    UP       0        Yes
    3     UP    UP       0        Yes
    4     UP    DN       1        No
    5     UP    DN       1        No
    ------------------------------------------------------------

Rack Health:
-------------
    Rack: 0, Type: LCC

    SFE Asics  FIA Asics  Planes Amba
    T/U/D      T/U/D      U/M/D  T/V
    ----------------------------------------
    6/6/0      15/8/7     2/0/4  15/8

    Plane Plane    SFE Asics    Amba
    id    state    T/U/D        Reachable
    -------------------------------------
    0     DN       0/0/0        0
    1     DN       2/2/0        0
    2     UP       2/2/0        8
    3     UP       2/2/0        8
    4     DN       0/0/0        0
    5     DN       0/0/0        0
    -------------------------------------
```

show controller fabric link port

To display link information for a specific fabric port, use the **show controller fabric link port** command in the System Admin EXEC mode.

show controller fabric link port fia [{*link-location* | **all**}] [**state** {**down** | **mismatch** | **up**}] [{**brief** | **detail**}]
show controller fabric link port {**s1** | **s2** | **s3**} [{*link-location* | **all**}] [{**state** {**down** | **mismatch** | **up**} | **statistics**}] [{**brief** | **detail**}]

Syntax Description

port	Displays the link information for the selected fabric port: • fia • s1 • s3
fia	Displays the information of the fabric interface asic (fia) link port.
s1	Displays the information of the s1 link port.
s2	Displays the information of the s2 link port.
s3	Displays the information of the s3 link port.
statistics	Displays the statistics.
link-location	Displays the fabric link information for the specified link-location: • *R*—Rack. Range is from 0 to 15 or F0 to F3. • *S*—Slot. Range is from 0 to 7 or FC0 to FC11. • *A*—ASIC. Range is from 0 to 5. • *L*—Link. Range is from 0 to 127.
all	Displays all the fabric link information for specified ports.
state	Displays the link state.
down	Displays links information of the specified ports that are in down state.
mismatch	Displays links information of the specified ports whose operational state and admin state do not match.

up	Displays links information of the specified ports that are in up state.
brief	Displays summarized fabric link information.
detail	Displays detailed fabric link information.

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The supported link ports are FIA (fabric interface asic), s1, and s3.

This example shows how to view the controller fabric link port information:

```
sysadmin-vm:0_RP0#show controller fabric link port s1 0/FC1/0/3 detail

Mon Jul  23 08:34:55.121 UTC

Sfe Port      Admin   Other         Near-end   Far-end
R/S/A/P       /Oper   End           Bport      Bport
              State
------------------------------------------------------------
0/FC1/0/3     UP/DN   0/1/2/14
+-------------------------------------------------------------------------+
| Timestamp                            Event(s)                           |
+-------------------------------------------------------------------------+
2013 Jul 23 01:48:53.000                  OPER_DN
2013 Jul 23 02:08:22.000                  OPER_UP
2013 Jul 23 02:15:44.000                  OPER_DN
2013 Jul 23 02:15:47.4294                 OPER_UP
2013 Jul 23 02:18:00.000                  OPER_DN
```

show controller fabric plane

To display the system fabric plane information, use the **show controller fabric plane** command in the System Admin EXEC mode.

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

Syntax Description

plane-id	Plane number. Range is from 0 to 5.
all	Displays information about all the system fabric planes.
statistics	Displays plane statistics.
brief	Displays brief information about the system fabric plane or plane statistics.
detail	Displays detailed information about the system fabric plane or plane statistics.

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

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

This example shows how to view the system fabric plane information:

```
sysadmin-vm:0_RP0#show controller fabric plane 3
  Plane Admin Plane    up->dn  up->mcast
Id    State State    counter   counter
--------------------------------------
3     UP    DN             0         0
```

show controller fabric sfe

To display information about fabric ASICs, use the **show controller fabric sfe** command in the System Admin EXEC mode.

show controller fabric sfe {**b2b** | **fia** | **s123** | **s13** | **s2**} {*asic-location* | **all**} [{**brief** | **detail**}]

Syntax Description

b2b	Displays b2b (back to back) asic information.
fia	Displays fia (fabric interface asic) information
s123	Displays information about the s123 asic of the switch fabric element.
s13	Displays information about the s13 asic of the switch fabric element.
s2	Displays information about the s2 asic of the switch fabric element.
asic-location	Specifies the ASIC location: • *R*—Rack. Range is from 0 to 15 or F0 to F3. • *S*—Slot. Range is from 0 to 7 or FC0 to FC11. • *A*—ASIC. Range is from 0 to 5.
all	Displays all ASICs information about the switch fabric elements.
brief	Displays summarized information.
detail	Displays detailed information.

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To view the ASIC operating state, use the **show controller fabric sfe** command.

Note Only FIA and s123 asics are supported in this release. The b2b, s13, and s2 asics are not supported in this release.

This example shows how to view the detailed information about a specific switch fabric element:

```
sysadmin-vm:0_RP0# show controller fabric sfe s123 0/FC1/0 detail
Mon Jul  23 08:32:27.325 UTC

   Sfe          Admin    Oper
  R/S/A         State    State
-----------------------------
0/FC1/0         UP       UP
+-------------------------------------------------------------------------+
| Timestamp                           Event(s)                            |
+-------------------------------------------------------------------------+
2012 Jul 22 23:51:25.000                 OPER_UP

sysadmin-vm:0_RP0#
```

This example shows how to view the brief information about a specific switch fabric element:

```
sysadmin-vm:0_RP0#show controller fabric sfe s123 all
Wed Aug  7  09:00:44.600 UTC

   Sfe          Admin    Oper
  R/S/A         State    State
-----------------------------
0/FC0/0         UP       UP
0/FC0/1         UP       UP
```

show controller fabric standby plane

To display the system fabric plane information from the standby process of the FSDB aggregator, use the **show controller standby fabric plane** command in the System Admin EXEC mode.

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

Syntax Description

plane-id	Plane number. Range is from 0 to 5.
all	Displays information about all the system fabric planes.
statistics	Displays plane statistics.
brief	Displays brief information about the system fabric plane or plane statistics.
detail	Displays detailed information about the system fabric plane or plane statistics.

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the**show controller standby fabric plane** command for diagnostics only.

This example shows how to view the system fabric plane information from the standby process of the FSDB aggregator:

```
sysadmin-vm:0_RP0#show controller fabric standby plane 3
 Wed Aug  7  09:58:32.671 UTC

Plane Admin Plane    up->dn  up->mcast
Id    State State    counter   counter
--------------------------------------
3     UP    DN             0         0
```

show controller sfe driver

To display the sfe driver information, use the **show controller sfe driver rack** command in the System Admin EXEC mode.

show controller sfe driver rack *rack-number*

Syntax Description

rack-number	Specifies the rack number from which to display information.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The **show controller sfe driver rack** command is used to view whether the driver is connected with collaborator processes, libraries, and ASICs state. Used for diagnostics only.

This example shows how to view the controller sfe driver information from the rack:

```
sysadmin-vm:0_RP0#show controller sfe driver rack 0

Mon Aug  12 06:18:01.497 UTC
Mon Aug  12 06:18:01.518 UTC

================================================================================
SFE Driver information
================================================================================

Driver Version: 1   (1.1)

Functional role: Active,   ISSU role: NA
Rack: 0/RP0, Type: lcc, Number: 0, IP Address: 192.0.0.1
Startup time       : 1970 Jan  1 00:00:00.000
Availability Masks :
     Card: 0x1       Asic: 0x3       Exp Asic: 0x3
Unicast/Multicast (ratio) : 0
+-----------------------------------------------------------------+
|Process  | Connection | Registration| Connection | DLL          |
|/Lib     | status     | status      | requests   | registration |
+-----------------------------------------------------------------+
| PM      |  Active    |  n/a        |           1|  n/a         |
| PL-LOCAL|  Active    |  Active     |           1|  n/a         |
| FSDB    |  Active    |  Active     |           1|  n/a         |
| FGID    |  Active    |  Active     |           1|  n/a         |
| CM      |  Active    |  Active     |           1|  n/a         |
--More--
```

show controller sfe link-info rx

To display the sfe receiver link information, use the **show controller sfe link-info rx** command in the System Admin EXEC mode.

show controller sfe link-info rx *start-link-num end-link-num* {**flap** | **topo**} **instance** {*asic-instance* | **all**} **location** {*node-id* | **all**} [**detail**]

Syntax Description

start-link-num	Specifies the first value of a range of values.
end-link-num	Specifies the last value of a range of values.
flap	Displays link flap information.
topo	Displays topology information.
instance	Indicates an ASIC instance.
asic-instance	Displays link information for a specific ASIC instance. Range is from 0 to 5.
all	Displays link information of all ASIC instances.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
detail	Displays detailed information.

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **topo** keyword to view the topological information. When the **topo** keyword is used, the **Flag** column in the example output indicates the reason why the link is not operational.

To identify the number of times the link fluctuated, use the **flap** keyword. The **flap** keyword is used only for diagnostics. The **detail** keyword displays the link history information. When the **detail** keyword is used, the **Down Reason** column in the example output indicates the reason why the link is down.

This example shows how to view the controller sfe rx link information:

```
sysadmin-vm:0_RP0#show controller sfe link-info rx 2 3 topo instance all location all

Mon Aug  12 08:14:27.568 UTC

--------------------------------------------------------------------------------
```

```
Node ID: 0_RP0         Instance: 0

Flags:
   D - Power Down,   I - Init/deinit, T - Invalid Topo, B - Bad link conn
   E - Rcvr End Rst, F - No Far-end,  C - CRC error,    S - Size error
   G - Code Grp err, M - Misalign,    L - No Sig Lock,  R - No Reachability Cells
------------------------------------------------------------------------------
Link ID      Link  Asic  Plane  EN/    Flags        Far-End       Far-End
             Spd   Stg. /Group  Oper                Link (FSDB)   Link (HW)
            (Gbps)             Status
------------------------------------------------------------------------------
0/FC0/0/2     11.5  S1    0/0   UP/DN  D..........  NC            n/a
0/FC0/0/3     11.5  S1    0/0   UP/DN  D..........  NC            n/a

------------------------------------------------------------------------------More--
```

show controller sfe link-info tx

To display the sfe transmitter link information, use the **show controller sfe link-info rx** command in the System Admin EXEC mode.

show controller sfe link-info tx *start-link-num end-link-num* **instance** {*asic-instance* | **all**} **location** {*node-id* | **all**} [**detail**]

Syntax Description

start-link-num	Specifies the first value of a range of values.
end-link-num	Specifies the last value of a range of values.
instance	Indicates an ASIC instance.
asic-instance	Displays link information for a specific ASIC instance. Range is from 0 to 5.
all	Displays link information of all ASIC instances.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
detail	Displays detailed information.

Command Default

Brief information is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The **detail** keyword displays the link history information. When the **detail** keyword is used, the **Down Reason** column in the example output indicates the reason why the link is down.

This example shows how to view the controller sfe tx link information:

```
sysadmin-vm:0_RP0# show controller sfe link-info tx 0 1 instance 0 location 0/FC2 detail
Mon Aug  24 04:10:17.595 UTC
Mon Aug  24 04:10:17.622 UTC

--------------------------------------------------------------------------------
Node ID: 0_RP0         Instance: 0

Flags:
   D - Power Down,   I - Init/deinit, T - Invalid Topo, B - Bad link conn
   E - Rcvr End Rst, F - No Far-end,  C - CRC error,    S - Size error
   G - Code Grp err, M - Misalign,    L - No Sig Lock,  R - No Reachability Cells
--------------------------------------------------------------------------------
Link ID      Oper   Enable
```

```
             Status Status
-------------------------------------------------------------------------------
0/FC2/0/0      UP     UP
+-------------------------------------------------------------------------------+
| Timestamp                          Event(s)             Down Reasons      |
+-------------------------------------------------------------------------------+
2013 Aug 24 04:06:22.000    ADMIN_UP            ERROR_NONE  ............
2013 Aug 24 04:06:22.000    ADMIN_UP            ERROR_NONE  ............
2013 Aug 24 04:06:59.000              OPER_DN               D...........
2013 Aug 24 04:06:59.000              OPER_UP               ............

0/FC2/0/1      DN     UP
+-------------------------------------------------------------------------------+
| Timestamp                          Event(s)             Down Reasons      |
+-------------------------------------------------------------------------------+
2013 Aug 24 04:06:22.000    ADMIN_UP            ERROR_NONE  ............
2013 Aug 24 04:06:22.000    ADMIN_UP            ERROR_NONE  ............
2013 Aug 24 04:06:59.000              OPER_DN               D...........
```

show controller sfe statistics

To display the sfe (switch fabric element) statistics information, use the **show controller sfe statistics** command in the System Admin EXEC mode.

show controller sfe statistics block *block-stats* **instance** {*asic-instance* | **all**} **location** {*node-id* | **all**}

Syntax Description

block *block-stats*	Displays the statistics of the specified block. The value for *block-stats* can be one of the following: • CCS • DCH • DCMA • DCMB • DCl • ECI • FMAC • RTP
instance	Indicates an ASIC instance
asic-instance	Displays statistics for a specific ASIC.
all	Displays statistics for all asics or nodes.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Displays block level statistics of SFE asics.

This example shows how to view the controller sfe statistics information:

```
sysadmin-vm:0_RP0#show controller sfe statistics block CCS instance 0 location 0/FC0

Fri Jun  3  18:46:15.397 UTC
Device statistics:
```

```
==============================================================
Node: 0/0, Instance: 0
==============================================================
CCS statistics:
--------------------------------
CCS statistics:
--------------------------------
CCS0 UnreachableDestinationCellsCnt:  0
CCS1 UnreachableDestinationCellsCnt:  0
CCS0 CaptureFifoDiscardCnt:           0
CCS1 CaptureFifoDiscardCnt:           0
CCS0 CdmaLpCellsDiscardCnt:           0
CCS1 CdmaLpCellsDiscardCnt:           0
CCS0 CdmbLpCellsDiscardCnt:           0
CCS1 CdmbLpCellsDiscardCnt:           0
CCS0 CrpParityErrCnt:                 0
CCS1 CrpParityErrCnt:                 0
CCS0 Ecc1bErrCnt:                     0
CCS1 Ecc1bErrCnt:                     0
CCS0 Ecc2bErrCnt:                     0
CCS1 Ecc2bErrCnt:                     0
```

show controller sfe trace

To display the sfe trace information, use the **show controller fabric sfe trace** command in the System Admin EXEC mode.

show controller sfe trace {**all** *trace-name*} **location** *node-id* [{**all** *trace-attribute*}]

Syntax Description

trace-name	Trace buffer name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack*/*slot* notation.
trace-attribute	Trace attribute.
all	Displays all the details.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command for diagnostics of SFE driver process functionality.

This example shows how to view the controller sfe trace information:

```
sysadmin-vm:0_RP0# show controller sfe trace all location 0/RP0
Fri Jun  3  18:42:52.440 UTC
----------------
01.53.28.885023744:...Hardware environment
01.53.29.166642432:mc_phys_addr 0x00000000f8000000
01.53.29.223421440:  @msc_entity id="0/23783" display_name="sfe"
01.53.29.233022976:@msc_event entity_id="0/23783/23783" time="1307066009233023250"
label="connecting to pm_lib with endpoint (0x0, 2020) (hdl=0x0x2e2f690)" type="Connection"
 completed="false" @msc_source pairing_id="0/23783/con_0x2e2f690" type="Lane"
01.53.29.242850816:CIPC:CONN (hdl=0x2e2fae0):cipc_connect():invoked on endpoint (0.0.0.0,
2020)
01.53.29.243809792:[PL]: sfe_platform_local_client_init called...
01.53.29.250015744:  @msc_entity id="0/23783" display_name="sfe"
01.53.29.250038016:@msc_event entity_id="0/23783/23783" time="1307066009250038380"
label="requesting connection to platform_local (CAPI hdl=0x2e4ae50, CIPC hdl = 0x2e4b690)"
 type="Connection" completed="false"
01.53.29.250231296:DS handle 0x2e4ae50 instantiated for platform_local client handle
01.53.29.251497984:  @msc_entity id="0/23783" display_name="sfe"
01.53.29.260870912:@msc_event entity_id="0/23783/23783" time="1307066009260871320"
label="requesting connection to calvados_ds (CAPI hdl=0x2e6f570, CIPC hdl = 0x2e6f9a0)"
type="Connection" completed="false"
01.53.29.261379584:@msc_event entity_id="0/23783/23783" time="1307066009261380000"
label="connecting to calvados_ds with endpoint (0x7f000001, 7400) (hdl=0x0x2e6f570)"
type="Connection" completed="false" @msc_source pairing_id="0/23783/con_0x2e6f570" type="Lane"
01.53.29.268652800:CIPC:CONN (hdl=0x2e6f9a0):cipc_connect():invoked on endpoint (127.0.0.1,
 7400)
```

```
01.53.29.268868096:CIPC:INFO (hdl=0x2e6f9a0):socket_connect():async socket connection in
progress
01.53.29.268911360:[PL]: SFE driver request to setup a CAPI connection to PLFM.
01.53.29.273885696:  @msc_entity id="0/23783" display_name="sfe"
01.53.29.273908480:@msc_event entity_id="0/23783/23783" time="1307066009273908810"
label="requesting connection to ccc_driver (CAPI hdl=0x2e81d80, CIPC hdl = 0x2e87ed0)"
 type="Connection" completed="false"
01.53.29.273959168:DS handle 0x2e81d80 instantiated for ccc_driver client handle
01.53.29.274033152:  @msc_entity id="0/23783" display_name="sfe"
01.53.29.281644288:@msc_event entity_id="0/23783/23783" time="1307066009281644580"
label="requesting connection to calvados_ds (CAPI hdl=0x2eaa780, CIPC hdl = 0x2eaabb0)"
type="Connection" completed="false"
01.53.29.281968640:@msc_event entity_id="0/23783/23783" time="1307066009281968850"
label="connecting to calvados_ds with endpoint (0x7f000001, 7400) (hdl=0x0x2eaa780)"
type="Connection" completed="false" @msc_source pairing_id="0/23783/con_0x2eaa780" type="Lane"
01.53.29.282761472:CIPC:CONN (hdl=0x2eaabb0):cipc_connect():invoked on endpoint (127.0.0.1,
 7400)
01.53.29.282938112:CIPC:INFO (hdl=0x2eaabb0):socket_connect():async socket
```

show controllers slice

To display information about the operations done on a slice by slice manager proxy, use the **show controller slice** command in System Admin EXEC or XR EXEC mode.

System Admin EXEC Mode
show controllers slice[{**all**<*slice_number*>}] **reset-history**[{**summary** | **detail**}][**location** [*node-id*]]
XR EXEC Mode
show controllers

Syntax Description

all<*slice_number*>	Enter the specific slice number or all the slices for which the information is to be displayed. The slice number value ranges from 0 to 4.
reset-history [**summary** | **detail**]	Provides information about the reset history of the slice. The summary and detail options provides a brief output.
location [*node-id*]	Identifies the node you want to shut down. The node-id argument is expressed in the rack or slot notation.

Command Default

Status and information are displayed for all nodes in the system.

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

```
RP/0/RP0/CPU0:router# show controller slice 0 reset-history summary location 0/2
Fri Oct 17 05:40:27.318 UTC

======================================================================
               Slice Manager Slice Context: 0
======================================================================
| Timestamp              | Prev State     | Event         | Next State   |
======================================================================
|2014 Oct 17 05:19:08.127| UNKNOWN        | CFG SLICE     | PWR DOWN WAIT  |
|2014 Oct 17 05:19:09.679| PWR DOWN WAIT  | PWR DWN SUCESS | PWR UP         |
|2014 Oct 17 05:19:29.56 | PWR UP         | PWR UP SUCESS  | PWR UP DONE    |
|2014 Oct 17 05:23:39.327| PWR UP DONE    | CFG SLICE      | PWR DOWN WAIT  |
|2014 Oct 17 05:23:52.921| PWR DOWN WAIT  | PWR DWN SUCESS | PWR UP         |
|2014 Oct 17 05:24:13.637| PWR UP         | PWR UP SUCESS  | PWR UP DONE    |
```

show controller slice_control FPGA

To display information about a specific slice controller FPGA and the slices controlled by the FPGA on the node, use the **show controller slice_control FPGA** command in the System Admin EXEC mode.

show controller slice_control FPGA {**all** *fpga-number*} {{**clocking-devices** {**all** *device-number*} | **context-info** | **slice** {**all** *slice-number*} *slice-attributes*} **location** {**all** *node-id*} | **location** {**all** *node-id*}}

Syntax Description

fpga-number	FPGA number. Range is from 0 to 1.
clocking-devices	Displays the clocking device information.
device-number	Device number.
context-info	Displays the slice controller context information.
slice	Displays slice information.
slice-number	Slice number. Range is from 0 to 2.
slice-attributes	Slice attribute.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
all	Displays all the information.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command to display all the software and hardware information for the slice FPGA, and the devices that are connected to the slice FPGA, such as clocking chips, PHYs, optics, and sensors. If an FPGA number is stated in the command, then the information related to that specific FPGA is displayed. If **all** keyword is used, then information for all the FPGAs is displayed.

This example shows how to view the slice control information:

```
sysadmin-vm:0_RP0#show controller slice_control FPGA 0 location 0/0

Tue Apr  14 16:20:30.867 UTC
Tue Apr  14 16:20:30.908 UTC
Tue Apr 14 16:20:30 UTC 1970
Tue Apr  14 16:20:30.943 UTC
FPGA id: 0
---------------------------------
```

```
Slice controller context information:
--------------------------------------
Controller id       :0
Num Slices          :2
Oper State          :1
Hotplug Status      :1
Hotplug Desc        :0xa95ae0
PCI Handle          :0xc40590
PCI Irq_Desc        :0xa8e4a0
PCI MSI             :104
PCI Base_Address    :0x0
PCI Bus             :103
PCI Device          :0
PCI Virt_Address    :0x7f5fa7cad000
Num PLL             :4
c_hd                :0x6d98d0
d_hd                :0x6d98d0
i_hd                :0x6d98d0
fm_hdl              :(nil)
trace               :0x95e320
levm                :0x95c1e0

Clocking device information :
PLL device : 0
=====================================================================
pll_id   bus                mode       dev_addr   i2c_regs
=====================================================================
0        I2C_COMMON         LAN        0x68       0x7f5fa7cad040
1        I2C_COMMON         LAN        0x69       0x7f5fa7cad040
2        I2C_COMMON         LAN        0x6a       0x7f5fa7cad040
3        I2C_COMMON         LAN        0x6b       0x7f5fa7cad040
=====================================================================

Slice id: 0
------------------------
Slice summary info:
=============================================================
slice   num    num     num    num temp  num volt  num curr
id     phy   optics  eeprom  sensors   sensors   sensors
=============================================================
0       4     2       1       3         16        8

Current sensor information:
-------------------------------
curr_sensor id       :0
sensor id            :LTC4151_VP1P0_SRDS
dev addr             :17224
poll intvl           :10
delta                :5
raw data             :425
sensor value         :340
unit                 :3
last value           :336
send update          :false
num 1sec_intervals   :2

curr_sensor id       :1
sensor id            :LTC4151_VP1P5
dev addr             :17248
poll intvl           :10
delta                :5
raw data             :978
sensor value         :2608
unit                 :3
```

```
last value           :2610
send update          :false
num 1sec_intervals   :2

curr_sensor id       :2
sensor id            :UNKNOWN
dev addr             :17200
poll intvl           :10
delta                :5
raw data             :947
sensor value         :757
unit                 :3
last value           :756
send update          :false
num 1sec_intervals   :3

curr_sensor id       :3
sensor id            :LTC4151_VP0P9_AVS
dev addr             :17164
poll intvl           :10
delta                :5
raw data             :1570
sensor value         :2512
unit                 :3
last value           :2508
send update          :false
num 1sec_intervals   :3

curr_sensor id       :4
sensor id            :LTC4151_VP0P9_PITA
dev addr             :17188
poll intvl           :10
delta                :5
raw data             :69
sensor value         :55
unit                 :3
last value           :52
send update          :false
num 1sec_intervals   :3

curr_sensor id       :5
sensor id            :LTC4151_VP1P0_AMBA
dev addr             :17212
poll intvl           :10
delta                :5
raw data             :796
sensor value         :1273
unit                 :3
last value           :1272
send update          :false
num 1sec_intervals   :3

curr_sensor id       :6
sensor id            :LTC4151_VP1P0_AMBA_B
dev addr             :17236
poll intvl           :10
delta                :5
raw data             :667
sensor value         :533
unit                 :3
last value           :532
send update          :false
num 1sec_intervals   :3
```

```
curr_sensor id       :7
sensor id            :LTC4151_VP0P9_AVS_B
dev addr             :17176
poll intvl           :10
delta                :5
raw data             :1580
sensor value         :2528
unit                 :3
last value           :2528
send update          :false
num 1sec_intervals   :3

  ========================================================================
eeprom_id type                  bus                  i2c_regs
========================================================================
0         SLICE_EEPROM_GENNUM   SLICE_I2C_SHARED     0x7f5fa7cb1000

========================================================================
optics_id type                  bus                  i2c_regs
========================================================================
0         CXP                   SLICE_I2C_OPTICS_0   0x7f5fa7cb0000
1         CXP                   SLICE_I2C_OPTICS_1   0x7f5fa7cb0200

Optics id : 0
--------------------------
CXP information :
port_id              :0
signature            :0x43585020444c4c00
cxp_port_ready       :true
opaque               :0x6da260
nodeid               :0xa23a40
slice                :1
capabilities         :0x28aabaa34f9ff
vendor_name          :CISCO-AVAGO
vendor_part_num      :
vendor_rev_num       :01
vendor_serial_num    :AGF155220WD
passive              :false

   STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
============================================================
Channel              Status_Flag        Error_Flag
============================================================
0                    D-----             L---
1                    D-----             ----
2                    D-----             ----
3                    D-----             ----
4                    D-----             ----
```

```
5                    D-----              ----
6                    D-----              ----
7                    D-----              ----
8                    D-----              ----
9                    D-----              ----
 10                   D-----              ----
11                   D-----              L---

STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
============================================================
Channel              Status              Error
============================================================
0                    D-----              L--p
1                    ------              L--p
2                    ------              ----
3                    ------              L--p
4                    ------              ---p
  5                    ------              L--p
6                    ------              L--p
7                    ------              ---p
8                    ------              L---
9                    ------              ---p
10                   ------              L---
11                   D-----              ---p

========================================
Tx Channel           Equalization
========================================
0                    0x00
1                    0x00
2                    0x00
3                    0x00
4                    0x00
5                    0x00
6                    0x00
7                    0x00
8                    0x00
9                    0x00
10                   0x00
11                   0x00

================================================================
Rx Channel           Amplitude             De_Emphasis
================================================================
0                    0x03                  0x00
1                    0x03                  0x00
2                    0x03                  0x00
3                    0x03                  0x00
```

```
4                    0x03                0x00
5                    0x03                0x00
6                    0x03                0x00
7                    0x03                0x00
8                    0x03                0x00
9                    0x03                0x00
10                   0x03                0x00
11                   0x03                0x00

Optics id : 1
---------------------------
CXP information :
port_id              :1
signature            :0x43585020444c4c00
cxp_port_ready       :true
opaque               :0x6da490
nodeid               :0xa23a40
slice                :1
capabilities         :0x28aabaa34f9ff
vendor_name          :CISCO-AVAGO
vendor_part_num      :10-2790-01
vendor_rev_num       :01
vendor_serial_num    :AGF162920JA
passive              :false

  STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
============================================================
Channel              Status_Flag        Error_Flag
============================================================
0                    D-----             L---
1                    D-----             ----
2                    D-----             ----
3                    D-----             ----
4                    D-----             ----
5                    D-----             ----
6                    D-----             ----
7                    D-----             ----
8                    D-----             ----
 9                    D-----             ----
10                   D-----             ----
11                   D-----             L---

STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
```

```
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
=========================================================
Channel              Status             Error
=========================================================
0                    D-----             L--p
1                    ------             L--p
2                    ------             L---
3                    ------             ---p
4                    ------             L---
5                    ------             L--p
6                    ------             L--p
7                    ------             L---
8                    ------             L--p
9                    ------             ---p
10                   ------             L---
11                   D-----             ---p

=========================================
Tx Channel           Equalization
=========================================
0                    0x00
1                    0x00
2                    0x00
3                    0x00
4                    0x00
    5                    0x00
6                    0x00
7                    0x00
8                    0x00
9                    0x00
10                   0x00
11                   0x00

============================================================
Rx Channel           Amplitude            De_Emphasis
============================================================
0                    0x03                 0x00
1                    0x03                 0x00
2                    0x03                 0x00
3                    0x03                 0x00
4                    0x03                 0x00
5                    0x03                 0x00
6                    0x03                 0x00
7                    0x03                 0x00
8                    0x03                 0x00
9                    0x03                 0x00
10                   0x03                 0x00
11                   0x03                 0x00

=====================================================================
phy_id    type                   bus                  i2c_regs
=====================================================================
0         GENNUM                 SLICE_I2C_SHARED     0x7f5fa7cb1000
1         GENNUM                 SLICE_I2C_SHARED     0x7f5fa7cb1000
```

```
2         GENNUM                 SLICE_I2C_SHARED     0x7f5fa7cb1000
3         GENNUM                 SLICE_I2C_SHARED     0x7f5fa7cb1000

  Temperature sensor information:
-----------------------------------
temp_sensor id       :0
sensor id            :TMP421_PITA_DIE_REMOTE
dev addr             :17668
poll intvl           :10
delta                :1
raw data             :1174
sensor value         :73
unit                 :6
last value           :73
send update          :false
num 1sec_intervals   :1

temp_sensor id       :1
sensor id            :TMP421_AMBA_DIE_LOCAL
dev addr             :17672
poll intvl           :10
delta                :1
raw data             :875
sensor value         :54
unit                 :6
last value           :54
send update          :false
num 1sec_intervals   :1

temp_sensor id       :2
sensor id            :TMP421_AMBA_DIE_REMOTE
dev addr             :17676
poll intvl           :10
delta                :1
raw data             :827
sensor value         :51
unit                 :6
last value           :51
send update          :false
num 1sec_intervals   :1

Voltage sensor information:
-------------------------------
volt_sensor id       :0
sensor id            :LTC2978_VP0P9_AVS
dev addr             :8960
poll intvl           :10
delta                :16
raw data             :7781
sensor value         :949
unit                 :2
last value           :949
send update          :false
num 1sec_intervals   :1

   volt_sensor id       :1
sensor id            :LTC2978_VP1P5
dev addr             :8968
poll intvl           :10
delta                :27
raw data             :12286
sensor value         :1499
unit                 :2
last value           :1500
```

```
send update          :false
num 1sec_intervals   :2

volt_sensor id       :2
sensor id            :LTC2978_VP1P8
dev addr             :8976
poll intvl           :10
--More--0/RP0:Apr 14 16:21:25.384 : pm[1741]: %INFRA-Process_Manager-3-PROCESS_RESTART :
Process ael_mgbl restarted
delta                :16
raw data             :14747
sensor value         :1800
unit                 :2
last value           :1800
send update          :false
num 1sec_intervals   :2

volt_sensor id       :3
sensor id            :LTC2978_VP0P9
dev addr             :8984
poll intvl           :10
delta                :16
raw data             :7127
sensor value         :869
unit                 :2
last value           :869
send update          :false
num 1sec_intervals   :7

volt_sensor id       :4
sensor id            :LTC2978_VP1P0_PITA
dev addr             :8992
poll intvl           :10
delta                :18
raw data             :8191
sensor value         :999
unit                 :2
last value           :1000
send update          :false
num 1sec_intervals   :7

volt_sensor id       :5
sensor id            :LTC2978_VP0P9_PITA
dev addr             :9000
poll intvl           :10
delta                :16
raw data             :7374
sensor value         :900
unit                 :2
last value           :900
send update          :false
num 1sec_intervals   :7

volt_sensor id       :6
sensor id            :LTC2978_VP1P0_SRDS
dev addr             :9008
poll intvl           :10
delta                :18
raw data             :8193
sensor value         :1000
unit                 :2
last value           :999
send update          :false
num 1sec_intervals   :7
```

```
volt_sensor id       :7
sensor id            :LTC2978_VP1P0_AMBA
dev addr             :9016
poll intvl           :10
delta                :18
raw data             :8191
sensor value         :999
unit                 :2
last value           :999
send update          :false
num 1sec_intervals   :7

volt_sensor id       :8
sensor id            :LTC4151_VP1P0_SRDS
dev addr             :17228
poll intvl           :10
delta                :185
raw data             :430
sensor value         :10750
unit                 :2
last value           :10875
send update          :false
num 1sec_intervals   :7

volt_sensor id       :9
sensor id            :LTC4151_VP1P5
dev addr             :17252
poll intvl           :10
delta                :185
raw data             :430
sensor value         :10750
unit                 :2
last value           :10850
send update          :false
num 1sec_intervals   :7

  volt_sensor id       :10
sensor id            :UNKNOWN
dev addr             :17204
poll intvl           :10
delta                :185
raw data             :436
sensor value         :10900
unit                 :2
last value           :11000
send update          :false
num 1sec_intervals   :8

volt_sensor id       :11
sensor id            :LTC4151_VP0P9_AVS
dev addr             :17168
poll intvl           :10
delta                :185
raw data             :430
sensor value         :10750
unit                 :2
last value           :10875
send update          :false
num 1sec_intervals   :8

volt_sensor id       :12
sensor id            :LTC4151_VP0P9_PITA
dev addr             :17192
```

```
poll intvl           :10
delta                :185
raw data             :435
sensor value         :10875
unit                 :2
last value           :10975
send update          :false
num 1sec_intervals   :8

volt_sensor id       :13
sensor id            :LTC4151_VP1P0_AMBA
dev addr             :17216
poll intvl           :10
delta                :185
raw data             :431
sensor value         :10775
unit                 :2
last value           :10900
send update          :false
num 1sec_intervals   :8

volt_sensor id       :14
sensor id            :LTC4151_VP1P0_AMBA_B
dev addr             :17240
poll intvl           :10
delta                :185
raw data             :431
sensor value         :10775
unit                 :2
last value           :10900
send update          :false
num 1sec_intervals   :8

volt_sensor id       :15
sensor id            :LTC4151_VP0P9_AVS_B
dev addr             :17180
poll intvl           :10
delta                :185
raw data             :431
sensor value         :10775
unit                 :2
last value           :10900
send update          :false
num 1sec_intervals   :8
```

show controller slice_control context-info

To display the slice control context information, use the **show controller slice_control context-info** command in the System Admin EXEC mode.

show controller slice_control context-info location {**all** *node-id*}

Syntax Description

location *node-id*	Selects the target location. The *node-id* argument is expressed in the *rack/slot* notation.
all	Displays information from all the nodes.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command displays the software context and information for the slice FPGA.

This example shows how to view the slice control information:

```
sysadmin-vm:0_RP0#show controller slice_control context-info location 0/3

Mon Aug  12 17:54:20.121 UTC
Mon Aug  12 17:54:20.148 UTC
Mon Aug 12 17:54:20 UTC 2013
Mon Aug  12 17:54:20.175 UTC
Slice manager context information:
---------------------------------------
num controllers    :1
levm               :0x265d1e0
ccc_hdl            :0x2752910
trace              :0x265f320
xml_hdl            :0x2838de0
fm_hdl             :0x2837b80
sim                :false
debug              :false
card_type          :5507172
slot_num           :19
```

show controller slice_control location

To display all the information related to the slice control FPGAs, slice hardware, optics, clocking devices, PHYs, and sensors on a card, use the **show controller slice_control location** command in the System Admin EXEC mode.

show controller slice_control location {**all** *node-id*}

Syntax Description

node-id	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
all	Displays information from all the nodes.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command to display all the software and hardware information for the slice FPGA, and the devices that are connected to the slice FPGA, such as clocking chips, PHYs, optics, and sensors.

This example shows how to view the slice control information:

```
sysadmin-vm:0_RP0#show controller slice_control location 0/0
Fri Aug  30 20:08:24.778 UTC
Fri Aug  30 20:08:24.810 UTC
Fri Aug 30 16:08:24 EDT 2013
Fri Aug  30 20:08:24.838 UTC
Slice controller node : 0/0
========================================

Slice manager context information:
----------------------------------------
num controllers    :1
levm               :0x21be1e0
ccc_hdl            :0x22b3890
trace              :0x21c0320
xml_hdl            :0x2394f70
fm_hdl             :0x2393d10
sim                :false
debug              :false
card_type          :5507173
slot_num           :16

FPGA id: 0
--------------------------------
Slice controller context information:
----------------------------------------
Controller id       :0
Num Slices          :2
```

```
Oper State          :1
Hotplug Status      :1
Hotplug Desc        :0x22f7a60
PCI Handle          :0x22f1110
PCI Irq_Desc        :0x22f0420
PCI MSI             :103
PCI Base_Address    :0x0
PCI Bus             :103
PCI Device          :0
PCI Virt_Address    :0x7f1175ebf000
Num PLL             :4
c_hd                :0x6d8bb0
d_hd                :0x6d8bb0
i_hd                :0x6d8bb0
fm_hdl              :(nil)
trace               :0x21c0320
levm                :0x21be1e0

Clocking device information :
PLL device : 0
=====================================================================
pll_id   bus                mode       dev_addr   i2c_regs
=====================================================================
0        I2C_COMMON         LAN        0x68       0x7f1175ebf040
1        I2C_COMMON         LAN        0x69       0x7f1175ebf040
2        I2C_COMMON         LAN        0x6a       0x7f1175ebf040
3        I2C_COMMON         LAN        0x6b       0x7f1175ebf040
=====================================================================

Slice id: 0
------------------------
Slice summary info:
============================================================
slice   num    num     num    num temp  num volt  num curr
 id     phy   optics  eeprom  sensors   sensors   sensors
============================================================
0       4     2       1       3         16        8

Current sensor information:
--------------------------------
curr_sensor id       :0
sensor id            :LTC4151_VP1P0_SRDS
dev addr             :17224
poll intvl           :10
delta                :5
raw data             :1350
sensor value         :1080
unit                 :3
last value           :1080
send update          :false
num 1sec_intervals   :2

curr_sensor id       :1
sensor id            :LTC4151_VP1P5
dev addr             :17248
poll intvl           :10
delta                :5
raw data             :949
sensor value         :2530
unit                 :3
last value           :2530
send update          :false
num 1sec_intervals   :2
```

```
curr_sensor id       :2
sensor id            :UNKNOWN
dev addr             :17200
poll intvl           :10
delta                :5
raw data             :919
sensor value         :735
unit                 :3
last value           :734
send update          :false
num 1sec_intervals   :2

curr_sensor id       :3
sensor id            :LTC4151_VP0P9_AVS
dev addr             :17164
poll intvl           :10
delta                :5
raw data             :1356
sensor value         :2169
unit                 :3
last value           :2172
send update          :false
num 1sec_intervals   :2

curr_sensor id       :4
sensor id            :LTC4151_VP0P9_PITA
dev addr             :17188
poll intvl           :10
delta                :5
raw data             :55
sensor value         :44
unit                 :3
last value           :41
send update          :false
num 1sec_intervals   :2

curr_sensor id       :5
sensor id            :LTC4151_VP1P0_AMBA
dev addr             :17212
poll intvl           :10
delta                :5
raw data             :819
sensor value         :1310
unit                 :3
last value           :1307
send update          :false
num 1sec_intervals   :2

curr_sensor id       :6
sensor id            :LTC4151_VP1P0_AMBA_B
dev addr             :17236
poll intvl           :10
delta                :5
raw data             :826
sensor value         :660
unit                 :3
last value           :661
send update          :false
num 1sec_intervals   :2

curr_sensor id       :7
sensor id            :LTC4151_VP0P9_AVS_B
dev addr             :17176
poll intvl           :10
```

```
delta                :5
raw data             :1307
sensor value         :2091
unit                 :3
last value           :2089
send update          :false
num 1sec_intervals   :3

=============================================================================
eeprom_id type                   bus                  i2c_regs
=============================================================================
0         SLICE_EEPROM_GENNUM    SLICE_I2C_SHARED     0x7f1175ec3000

=============================================================================
optics_id type                   bus                  i2c_regs
=============================================================================
0         CXP                    SLICE_I2C_OPTICS_0   0x7f1175ec2000
1         CXP                    SLICE_I2C_OPTICS_1   0x7f1175ec2200

Optics id : 0
---------------------------
CXP information :
port_id              :0
signature            :0x43585020444c4c00
cxp_port_ready       :true
opaque               :0x6d9540
nodeid               :0x2286740
slice                :1
capabilities         :0x28aabaa34f9ff
vendor_name          :CISCO-AVAGO
vendor_part_num      :10-2790-01
vendor_rev_num       :01
vendor_serial_num    :AGF1632203T
passive              :false

STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
=============================================================
Channel              Status_Flag        Error_Flag
=============================================================
0                    D-----             L---
1                    ------             ----
2                    ------             ----
3                    ------             ----
4                    ------             ----
5                    ------             ----
6                    ------             ----
7                    ------             ----
8                    ------             ----
```

```
9                   ------              ----
10                  ------              ----
11                  D-----              ----

STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
============================================================
Channel             Status              Error
============================================================
0                   D-----              L--p
1                   ------              ----
2                   ------              ----
3                   ------              ----
4                   ------              ----
5                   ------              ----
6                   ------              ----
7                   ------              ----
8                   ------              ----
9                   ------              ----
10                  ------              ----
11                  D-----              ---p

=========================================
Tx Channel          Equalization
=========================================
0                   0x00
1                   0x00
2                   0x00
3                   0x00
4                   0x00
5                   0x00
6                   0x00
7                   0x00
8                   0x00
9                   0x00
10                  0x00
11                  0x00

================================================================
Rx Channel          Amplitude           De_Emphasis
================================================================
0                   0x03                0x00
1                   0x03                0x00
2                   0x03                0x00
3                   0x03                0x00
4                   0x03                0x00
5                   0x03                0x00
6                   0x03                0x00
7                   0x03                0x00
```

```
8                   0x03                0x00
9                   0x03                0x00
10                  0x03                0x00
11                  0x03                0x00

Optics id : 1
---------------------------
CXP information :
port_id             :1
No valid data.

STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
============================================================
Channel             Status_Flag        Error_Flag
============================================================
0                   No valid data.
1                   No valid data.
2                   No valid data.
3                   No valid data.
4                   No valid data.
5                   No valid data.
6                   No valid data.
7                   No valid data.
8                   No valid data.
9                   No valid data.
10                  No valid data.
11                  No valid data.

STATUS FLAGS
D - Channel Disabled
O - Channel Output Disabled
L - LOS Disabled
F - Fault Disabled
B - Bias Current Alarm Disabled
P - Power Alarm Disabled
T - Temperature Alarm Disabled
V - Vcc Alarm Disabled

ERROR FLAGS
L - LOS Alarm
F - Fault
B - High Bias Current        b - low Bias Current
P - High Power Alarm         p - Low Power Alarm
T - High Temperature Alarm   t - Low Temperature Alarm
V - High Vcc Alarm           v - Low Vcc Alarm
============================================================
Channel             Status             Error
============================================================
```

```
0                    No valid data.
  1                    No valid data.
2                    No valid data.
3                    No valid data.
4                    No valid data.
5                    No valid data.
6                    No valid data.
7                    No valid data.
8                    No valid data.
9                    No valid data.
10                   No valid data.
11                   No valid data.

========================================
Tx Channel           Equalization
========================================
0                    No valid data.
1                    No valid data.
2                    No valid data.
3                    No valid data.
4                    No valid data.
5                    No valid data.
6                    No valid data.
7                    No valid data.
8                    No valid data.
9                    No valid data.
10                   No valid data.
11                   No valid data.

============================================================
Rx Channel           Amplitude            De_Emphasis
============================================================
0                    No valid data.
1                    No valid data.
2                    No valid data.
3                    No valid data.
4                    No valid data.
5                    No valid data.
6                    No valid data.
7                    No valid data.
8                    No valid data.
9                    No valid data.
10                   No valid data.
11                   No valid data.

=========================================================================
phy_id    type                   bus                  i2c_regs
=========================================================================
0         GENNUM                 SLICE_I2C_SHARED     0x7f1175ec3000
1         GENNUM                 SLICE_I2C_SHARED     0x7f1175ec3000
2         GENNUM                 SLICE_I2C_SHARED     0x7f1175ec3000
3         GENNUM                 SLICE_I2C_SHARED     0x7f1175ec3000

Temperature sensor information:
-----------------------------------
temp_sensor id       :0
sensor id            :TMP421_PITA_DIE_REMOTE
dev addr             :17668
poll intvl           :10
delta                :1
raw data             :761
sensor value         :47
unit                 :6
last value           :47
```

```
send update          :false
num 1sec_intervals   :5

temp_sensor id       :1
sensor id            :TMP421_AMBA_DIE_LOCAL
dev addr             :17672
poll intvl           :10
delta                :1
raw data             :601
sensor value         :37
unit                 :6
last value           :37
send update          :false
num 1sec_intervals   :5

temp_sensor id       :2
sensor id            :TMP421_AMBA_DIE_REMOTE
dev addr             :17676
poll intvl           :10
delta                :1
raw data             :671
sensor value         :41
unit                 :6
last value           :41
send update          :false
num 1sec_intervals   :5

Voltage sensor information:
------------------------------
volt_sensor id       :0
sensor id            :LTC2978_VP0P9_AVS
dev addr             :8960
poll intvl           :10
delta                :16
raw data             :7783
sensor value         :950
unit                 :2
last value           :950
send update          :false
num 1sec_intervals   :5

volt_sensor id       :1
sensor id            :LTC2978_VP1P5
dev addr             :8968
poll intvl           :10
delta                :27
raw data             :12288
sensor value         :1500
unit                 :2
last value           :1500
send update          :false
num 1sec_intervals   :5

volt_sensor id       :2
sensor id            :LTC2978_VP1P8
dev addr             :8976
poll intvl           :10
delta                :16
raw data             :14743
sensor value         :1799
unit                 :2
last value           :1800
send update          :false
num 1sec_intervals   :5
```

```
volt_sensor id       :3
sensor id            :LTC2978_VP0P9
dev addr             :8984
poll intvl           :10
delta                :16
raw data             :7126
sensor value         :869
unit                 :2
last value           :870
send update          :false
num 1sec_intervals   :5

volt_sensor id       :4
sensor id            :LTC2978_VP1P0_PITA
dev addr             :8992
poll intvl           :10
delta                :18
raw data             :8192
sensor value         :1000
unit                 :2
last value           :999
send update          :false
num 1sec_intervals   :5

volt_sensor id       :5
sensor id            :LTC2978_VP0P9_PITA
dev addr             :9000
poll intvl           :10
delta                :16
raw data             :7372
sensor value         :899
unit                 :2
last value           :899
send update          :false
num 1sec_intervals   :5

volt_sensor id       :6
sensor id            :LTC2978_VP1P0_SRDS
dev addr             :9008
poll intvl           :10
delta                :18
raw data             :8192
sensor value         :1000
unit                 :2
last value           :999
send update          :false
num 1sec_intervals   :5

   volt_sensor id       :7
sensor id            :LTC2978_VP1P0_AMBA
dev addr             :9016
poll intvl           :10
delta                :18
raw data             :8193
sensor value         :1000
unit                 :2
last value           :1000
send update          :false
num 1sec_intervals   :6

volt_sensor id       :8
sensor id            :LTC4151_VP1P0_SRDS
dev addr             :17228
```

```
poll intvl           :10
delta                :185
raw data             :435
sensor value         :10875
unit                 :2
last value           :10850
send update          :false
num 1sec_intervals   :6

volt_sensor id       :9
sensor id            :LTC4151_VP1P5
dev addr             :17252
poll intvl           :10
delta                :185
raw data             :434
sensor value         :10850
unit                 :2
last value           :10825
send update          :false
num 1sec_intervals   :6

volt_sensor id       :10
sensor id            :UNKNOWN
dev addr             :17204
poll intvl           :10
delta                :185
raw data             :445
sensor value         :11125
unit                 :2
last value           :11175
send update          :false
num 1sec_intervals   :6

volt_sensor id       :11
sensor id            :LTC4151_VP0P9_AVS
dev addr             :17168
poll intvl           :10
delta                :185
raw data             :433
sensor value         :10825
unit                 :2
last value           :10800
send update          :false
num 1sec_intervals   :6

volt_sensor id       :12
sensor id            :LTC4151_VP0P9_PITA
dev addr             :17192
poll intvl           :10
delta                :185
raw data             :445
sensor value         :11125
unit                 :2
last value           :11200
send update          :false
num 1sec_intervals   :6

volt_sensor id       :13
sensor id            :LTC4151_VP1P0_AMBA
dev addr             :17216
poll intvl           :10
delta                :185
raw data             :433
sensor value         :10825
```

```
unit                :2
last value          :11000
send update         :false
num 1sec_intervals  :6

volt_sensor id      :14
sensor id           :LTC4151_VP1P0_AMBA_B
dev addr            :17240
poll intvl          :10
delta               :185
raw data            :434
sensor value        :10850
unit                :2
last value          :10825
send update         :false
num 1sec_intervals  :6

volt_sensor id      :15
sensor id           :LTC4151_VP0P9_AVS_B
dev addr            :17180
poll intvl          :10
delta               :185
raw data            :435
sensor value        :10875
unit                :2
last value          :11025
send update         :false
num 1sec_intervals  :7
```

show controller switch fdb

To display various FDB (forwarding database) details based on MAC address filters, source port filters, and VLAN, use the **show controller switch fdb** command in the System Admin EXEC mode. This command can also be used to view the location and statistics of the FDB.

show controller switch fdb [{**location** [*node-id*] | [{**mac** *mac-address* | **port** *port-number* | **statistics** | **vlan** *vlan-id*}] [**location** [**node-id**]]}]

Syntax Description

location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot/switch* notation.
mac *mac-address*	Displays the switch FDB information based on the MAC address.
port *port-number*	Displays the switch FDB information based on the source port filter.
statistics	Displays the FDB statistics.
vlan *vlan-id*	Displays the switch FDB information based on the VLAN filter.

Command Default

Displays statistics summary for each node.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Detailed information for a specific node is displayed if the **location** *node-id* keyword is specified.

This example shows how to display switch FDB information without any keyword:

```
sysadmin-vm:0_RP0# show controller switch fdb

Fri Aug  30 20:29:52.855 UTC
FDB Maintenance Counters For Switch 0/RP0/RP-SW
    Current shadow table entries: 127
    Maximum shadow table entries: 198
    Maximum hash chain depth:     1
    Number of entries added:      2318
    Number of entries deleted:    2191
    Number of entries updated:    0
    Number of FDB flushes:        1
    Address update messages:      2191
    New addresses:                2314
    Aged addresses:               2191
    Transplanted updates:         0
    Forwarding updates:           0
    Address insert errors:        0
    Address update errors:        0
    FDB memory errors:            0
    FDB allocation errors:        0
    Address updates queued:       0
```

```
    Address queue full:           No
    Forwarding updates queued:    0
    Forwarding queue full:        No

FDB Table Synchronization Information

FDB Instance  Total Entries  Static Entries
-------------------------------------------
0             127            4
1             127            4
2             127            4
3             127            4
Shadow        127            4

FDB Maintenance Counters For Switch 0/RP1/RP-SW
    Current shadow table entries: 134
    Maximum shadow table entries: 201
    Maximum hash chain depth:     1
    Number of entries added:      2325
    Number of entries deleted:    2191
    Number of entries updated:    0
    Number of FDB flushes:        1
    Address update messages:      2191
    New addresses:                2321
    Aged addresses:               2191
    Transplanted updates:         0
    Forwarding updates:           0
    Address insert errors:        0
    Address update errors:        0
    FDB memory errors:            0
    FDB allocation errors:        0
    Address updates queued:       0
    Address queue full:           No
    Forwarding updates queued:    0
    Forwarding queue full:        No

FDB Table Synchronization Information

FDB Instance  Total Entries  Static Entries
-------------------------------------------
0             134            4
1             134            4
2             134            4
3             134            4
Shadow        134            4

FDB Maintenance Counters For Switch 0/LC0/LC-SW
    Current shadow table entries: 123
    Maximum shadow table entries: 180
    Maximum hash chain depth:     1
    Number of entries added:      1167
    Number of entries deleted:    1044
    Number of entries updated:    0
    Number of FDB flushes:        1
    Address update messages:      1044
    New addresses:                1165
    Aged addresses:               1044
    Transplanted updates:         0
    Forwarding updates:           0
    Address insert errors:        0
    Address update errors:        0
    FDB memory errors:            0
    FDB allocation errors:        0
    Address updates queued:       0
```

```
    Address queue full:           No
    Forwarding updates queued:    0
    Forwarding queue full:        No

FDB Table Synchronization Information

FDB Instance  Total Entries  Static Entries
-----------------------------------------------
0             123            2
1             123            2
Shadow        123            2

FDB Maintenance Counters For Switch 0/LC1/LC-SW
    Current shadow table entries: 122
    Maximum shadow table entries: 179
    Maximum hash chain depth:     1
    Number of entries added:      1169
    Number of entries deleted:    1047
    Number of entries updated:    0
    Number of FDB flushes:        1
    Address update messages:      1047
    New addresses:                1167
    Aged addresses:               1047
    Transplanted updates:         0
    Forwarding updates:           0
    Address insert errors:        0
    Address update errors:        0
    FDB memory errors:            0
    FDB allocation errors:        0
    Address updates queued:       0
    Address queue full:           No
    Forwarding updates queued:    0
    Forwarding queue full:        No

FDB Table Synchronization Information

FDB Instance  Total Entries  Static Entries
-----------------------------------------------
0             122            2
1             122            2
Shadow        122            2

FDB Maintenance Counters For Switch 0/LC7/LC-SW
    Current shadow table entries: 123
    Maximum shadow table entries: 179
    Maximum hash chain depth:     1
    Number of entries added:      1180
    Number of entries deleted:    1057
    Number of entries updated:    0
    Number of FDB flushes:        1
    Address update messages:      1057
    New addresses:                1178
    Aged addresses:               1057
    Transplanted updates:         0
    Forwarding updates:           0
    Address insert errors:        0
    Address update errors:        0
    FDB memory errors:            0
    FDB allocation errors:        0
    Address updates queued:       0
    Address queue full:           No
    Forwarding updates queued:    0
    Forwarding queue full:        No
```

```
FDB Table Synchronization Information

FDB Instance  Total Entries  Static Entries
-------------------------------------------
0             123            2
1             123            2
Shadow        123            2

Rack  Card  Switch
------------------
0     RP0   RP-SW

FDB                                      Src                Synced
Index  MAC Address        VLAN           Port  Trap  Static  Cores
-------------------------------------------------------------------------
200    e0:50:bf:1c:f1:05  2049  (0x801)  16    No    No      0 1 2 3
396    00:b0:64:fd:51:68  513   (0x201)  36    No    No      0 1 2 3
504    e0:52:2d:4c:bd:03  2049  (0x801)  0     No    No      0 1 2 3
804    00:04:4d:d8:6a:c0  514   (0x202)  54    No    No      0 1 2 3
960    00:50:54:80:a5:fb  513   (0x201)  36    No    No      0 1 2 3
1724   e0:50:a0:bf:8c:00  2049  (0x801)  21    No    No      0 1 2 3
1896   00:00:0c:07:ac:02  513   (0x201)  36    No    No      0 1 2 3
1932   00:b0:64:fd:18:1c  513   (0x201)  36    No    No      0 1 2 3
2092   00:10:7b:e8:09:f8  513   (0x201)  36    No    No      0 1 2 3
2368   4c:4e:35:b6:48:ff  2049  (0x801)  40    No    No      0 1 2 3
2512   4c:4e:35:b6:49:0e  513   (0x201)  40    No    No      0 1 2 3
2513   4e:41:50:00:01:01  2050  (0x802)  18    No    No      0 1 2 3
2756   00:04:4d:da:5b:40  513   (0x201)  36    No    No      0 1 2 3
2984   00:13:80:31:74:80  513   (0x201)  36    No    No      0 1 2 3
3636   00:12:44:d9:f0:c0  513   (0x201)  36    No    No      0 1 2 3
3732   00:04:4d:da:3c:c0  513   (0x201)  36    No    No      0 1 2 3
4244   00:00:0c:07:ac:5a  513   (0x201)  36    No    No      0 1 2 3
4324   4e:41:50:00:07:01  2050  (0x802)  0     No    No      0 1 2 3
4356   00:17:5a:af:71:58  513   (0x201)  36    No    No      0 1 2 3
4568   b4:14:89:60:d8:80  513   (0x201)  36    No    No      0 1 2 3
4648   00:00:0c:07:ac:28  513   (0x201)  36    No    No      0 1 2 3
4772   00:00:0c:07:ac:32  513   (0x201)  36    No    No      0 1 2 3
5000   e2:3b:4f:77:04:03  2049  (0x801)  18    No    No      0 1 2 3
5296   00:04:4d:da:13:40  513   (0x201)  36    No    No      0 1 2 3
5588   00:00:0c:07:ac:3c  514   (0x202)  54    No    No      0 1 2 3
5624   e0:50:72:f4:dd:05  513   (0x201)  36    No    No      0 1 2 3
5712   e2:3b:4d:f0:93:00  2049  (0x801)  26    No    No      0 1 2 3
6092   00:04:4d:d8:4d:00  513   (0x201)  36    No    No      0 1 2 3
6552   e2:3b:43:46:6c:00  2049  (0x801)  5     No    No      0 1 2 3
6584   4e:41:50:00:00:12  2050  (0x802)  16    No    No      0 1 2 3
6656   6c:9c:ed:79:92:90  513   (0x201)  36    No    No      0 1 2 3
7572   4c:4e:35:b6:48:fb  2049  (0x801)  -     Yes   Yes     0 1 2 3
8432   46:70:39:1b:79:00  513   (0x201)  40    No    No      0 1 2 3
9048   88:43:e1:c2:b6:56  513   (0x201)  36    No    No      0 1 2 3
9240   00:0d:65:50:f3:1c  514   (0x202)  54    No    No      0 1 2 3
9356   00:04:4d:b2:47:00  514   (0x202)  54    No    No      0 1 2 3
9432   e2:3b:4f:77:04:00  2049  (0x801)  18    No    No      0 1 2 3
10596  00:b0:64:fd:56:14  513   (0x201)  36    No    No      0 1 2 3
11648  78:2b:cb:1e:0a:b3  513   (0x201)  36    No    No      0 1 2 3
12008  4e:41:50:00:00:11  2050  (0x802)  16    No    No      0 1 2 3
12344  00:00:0c:07:ac:01  513   (0x201)  36    No    No      0 1 2 3
12496  01:4d:4c:41:50:01  1025  (0x401)  -     Yes   Yes     0 1 2 3
12772  64:00:f1:42:09:12  514   (0x202)  54    No    No      0 1 2 3
12820  e4:d3:f1:a5:93:79  2049  (0x801)  32    No    No      0 1 2 3
12936  00:d0:97:6c:eb:00  513   (0x201)  36    No    No      0 1 2 3
12952  00:0d:5d:0a:5c:4c  514   (0x202)  54    No    No      0 1 2 3
13680  00:04:4d:da:2f:c0  513   (0x201)  36    No    No      0 1 2 3
13768  00:18:71:74:79:8e  514   (0x202)  54    No    No      0 1 2 3
13900  00:04:4d:bf:1e:40  513   (0x201)  36    No    No      0 1 2 3
```

```
13992  e0:52:2d:4c:bd:00  2049  (0x801)  0     No    No      0 1 2 3
14020  00:0d:5d:0a:52:06  514   (0x202)  54    No    No      0 1 2 3
14172  00:b0:64:fd:43:36  513   (0x201)  36    No    No      0 1 2 3
14392  e4:d3:f1:a5:93:76  2049  (0x801)  32    No    No      0 1 2 3
14456  00:0d:5d:0a:50:be  514   (0x202)  54    No    No      0 1 2 3
14808  00:b0:64:fd:18:4c  513   (0x201)  36    No    No      0 1 2 3
14944  fc:1f:87:cb:63:00  2049  (0x801)  4     No    No      0 1 2 3
14980  00:04:4d:da:64:80  513   (0x201)  36    No    No      0 1 2 3
15064  4e:41:50:00:10:01  2050  (0x802)  40    No    No      0 1 2 3
15392  00:0d:5d:0a:50:ec  513   (0x201)  36    No    No      0 1 2 3
15572  00:0d:5d:09:3c:5f  514   (0x202)  54    No    No      0 1 2 3
15620  01:4d:4c:41:50:01  2049  (0x801)  -     Yes   Yes     0 1 2 3
15780  00:10:7b:e8:70:4d  513   (0x201)  36    No    No      0 1 2 3
15796  00:0d:5d:0a:50:c2  513   (0x201)  36    No    No      0 1 2 3
15816  00:0d:5d:0a:52:bf  513   (0x201)  36    No    No      0 1 2 3
15888  4c:4e:35:b6:48:fc  2049  (0x801)  40    No    No      0 1 2 3
16808  00:0d:5d:0a:50:fa  514   (0x202)  54    No    No      0 1 2 3
16868  00:16:47:e4:b0:70  513   (0x201)  36    No    No      0 1 2 3
17368  00:04:4d:da:14:c0  513   (0x201)  36    No    No      0 1 2 3
17520  00:04:4d:da:53:00  513   (0x201)  36    No    No      0 1 2 3
17712  4c:4e:35:b6:48:fc  513   (0x201)  40    No    No      0 1 2 3
18116  00:13:80:44:f9:a0  513   (0x201)  36    No    No      0 1 2 3
18364  00:0d:5d:0a:52:bd  513   (0x201)  36    No    No      0 1 2 3
18496  00:11:43:5a:f4:c4  513   (0x201)  36    No    No      0 1 2 3
19388  00:10:7b:3b:9c:48  513   (0x201)  36    No    No      0 1 2 3
19604  00:b0:64:fd:17:e2  513   (0x201)  36    No    No      0 1 2 3
19772  00:0d:5d:0a:d8:fe  513   (0x201)  36    No    No      0 1 2 3
19976  00:1c:f6:37:b0:00  513   (0x201)  36    No    No      0 1 2 3
20044  00:12:44:d9:f0:c0  514   (0x202)  54    No    No      0 1 2 3
20144  4e:41:50:00:11:01  2050  (0x802)  32    No    No      0 1 2 3
20364  42:80:8f:09:d1:78  513   (0x201)  36    No    No      0 1 2 3
20444  00:0d:5d:0a:50:a7  513   (0x201)  36    No    No      0 1 2 3
20632  00:04:4d:da:2d:80  513   (0x201)  36    No    No      0 1 2 3
20652  00:60:f4:fa:21:00  513   (0x201)  36    No    No      0 1 2 3
20884  00:04:4d:d8:47:40  513   (0x201)  36    No    No      0 1 2 3
20896  b4:14:89:60:d8:80  514   (0x202)  54    No    No      0 1 2 3
20924  00:1c:58:38:52:68  513   (0x201)  36    No    No      0 1 2 3
21060  00:04:4d:d9:f3:80  513   (0x201)  36    No    No      0 1 2 3
21268  00:0d:5d:0a:50:c4  513   (0x201)  36    No    No      0 1 2 3
21332  00:04:4d:d8:7d:40  513   (0x201)  36    No    No      0 1 2 3
21436  00:04:4d:d8:74:80  513   (0x201)  36    No    No      0 1 2 3
21476  00:0d:5d:0a:52:a3  513   (0x201)  36    No    No      0 1 2 3
21568  64:00:f1:41:ff:de  513   (0x201)  36    No    No      0 1 2 3
21968  e2:3b:4d:f0:ea:00  2049  (0x801)  10    No    No      0 1 2 3
22364  e2:3b:4d:f0:1d:00  2049  (0x801)  20    No    No      0 1 2 3
22368  4e:41:50:00:07:15  2050  (0x802)  0     No    No      0 1 2 3
22840  e0:50:bf:1c:f1:00  2049  (0x801)  16    No    No      0 1 2 3
22860  00:04:4d:da:35:c0  513   (0x201)  36    No    No      0 1 2 3
23168  4e:41:50:00:01:11  2050  (0x802)  18    No    No      0 1 2 3
23876  00:04:4d:da:55:00  513   (0x201)  36    No    No      0 1 2 3
26016  00:11:92:19:76:41  513   (0x201)  36    No    No      0 1 2 3
26184  00:0b:be:aa:fe:85  513   (0x201)  36    No    No      0 1 2 3
26228  00:0d:5d:0a:50:af  513   (0x201)  36    No    No      0 1 2 3
26592  4c:4e:35:b6:48:f9  2049  (0x801)  38    No    No      0 1 2 3
26632  00:1c:c0:4b:e5:72  513   (0x201)  36    No    No      0 1 2 3
26816  00:0e:83:47:6f:06  513   (0x201)  36    No    No      0 1 2 3
27188  4c:4e:35:b6:48:f9  1025  (0x401)  37    No    No      0 1 2 3
27380  e8:04:62:1d:47:c0  513   (0x201)  36    No    No      0 1 2 3
27620  e4:d3:f1:a5:93:7c  2049  (0x801)  32    No    No      0 1 2 3
28088  00:12:00:42:3d:80  513   (0x201)  36    No    No      0 1 2 3
28264  e0:50:bf:1c:f1:03  2049  (0x801)  16    No    No      0 1 2 3
28420  00:10:7b:e8:09:b7  513   (0x201)  36    No    No      0 1 2 3
28504  e0:52:2d:4c:bd:05  2049  (0x801)  0     No    No      0 1 2 3
28532  00:04:4d:da:5e:40  513   (0x201)  36    No    No      0 1 2 3
```

```
28704  01:4d:4c:41:50:00  2049  (0x801)  -     Yes   Yes     0 1 2 3
28888  00:1a:4b:f8:a4:34  513   (0x201)  36    No    No      0 1 2 3
29104  00:04:4d:da:18:c0  513   (0x201)  36    No    No      0 1 2 3
29284  00:b0:64:fd:43:50  513   (0x201)  36    No    No      0 1 2 3
29412  e4:d3:f1:a5:93:78  1025  (0x401)  34    No    No      0 1 2 3
29472  00:d0:97:6c:f8:80  514   (0x202)  54    No    No      0 1 2 3
29628  00:04:4d:b2:1e:80  513   (0x201)  36    No    No      0 1 2 3
29924  4e:41:50:00:07:12  2050  (0x802)  0     No    No      0 1 2 3
30020  00:00:0c:46:e4:f8  513   (0x201)  36    No    No      0 1 2 3
30200  64:00:f1:42:07:da  514   (0x202)  54    No    No      0 1 2 3
30364  00:04:4d:b4:38:80  513   (0x201)  36    No    No      0 1 2 3
32040  e2:3b:4f:77:04:05  2049  (0x801)  18    No    No      0 1 2 3
32184  4e:41:50:00:00:01  2050  (0x802)  16    No    No      0 1 2 3
32572  4c:4e:35:b6:48:fe  514   (0x202)  40    No    No      0 1 2 3

Total table entries: 127

Rack  Card  Switch
-----------------
0     RP1   RP-SW

FDB                                      Src                Synced
Index  MAC Address        VLAN           Port  Trap  Static  Cores
-------------------------------------------------------------------------
396    00:b0:64:fd:51:68  513   (0x201)  36    No    No      0 1 2 3
504    e0:52:2d:4c:bd:03  2049  (0x801)  32    No    No      0 1 2 3
804    00:04:4d:d8:6a:c0  514   (0x202)  54    No    No      0 1 2 3
960    00:50:54:80:a5:fb  513   (0x201)  36    No    No      0 1 2 3
1724   e0:50:a0:bf:8c:00  2049  (0x801)  32    No    No      0 1 2 3
1896   00:00:0c:07:ac:02  513   (0x201)  36    No    No      0 1 2 3
1932   00:b0:64:fd:18:1c  513   (0x201)  36    No    No      0 1 2 3
2092   00:10:7b:e8:09:f8  513   (0x201)  36    No    No      0 1 2 3
2368   4c:4e:35:b6:48:ff  2049  (0x801)  32    No    No      0 1 2 3
2512   4e:41:50:00:01:01  2050  (0x802)  32    No    No      0 1 2 3
2756   00:04:4d:da:5b:40  513   (0x201)  36    No    No      0 1 2 3
2920   e0:50:a0:bf:8c:00  1025  (0x401)  5     No    No      0 1 2 3
2984   00:13:80:31:74:80  513   (0x201)  36    No    No      0 1 2 3
3636   00:12:44:d9:f0:c0  513   (0x201)  36    No    No      0 1 2 3
3732   00:04:4d:da:3c:c0  513   (0x201)  36    No    No      0 1 2 3
4244   00:00:0c:07:ac:5a  513   (0x201)  36    No    No      0 1 2 3
4324   4e:41:50:00:07:01  2050  (0x802)  32    No    No      0 1 2 3
4356   00:17:5a:af:71:58  513   (0x201)  36    No    No      0 1 2 3
4568   b4:14:89:60:d8:80  513   (0x201)  36    No    No      0 1 2 3
4648   00:00:0c:07:ac:28  513   (0x201)  36    No    No      0 1 2 3
4772   00:00:0c:07:ac:32  513   (0x201)  36    No    No      0 1 2 3
5000   e2:3b:4f:77:04:03  2049  (0x801)  32    No    No      0 1 2 3
5196   e2:3b:43:46:6c:00  1025  (0x401)  21    No    No      0 1 2 3
5296   00:04:4d:da:13:40  513   (0x201)  36    No    No      0 1 2 3
5588   00:00:0c:07:ac:3c  514   (0x202)  54    No    No      0 1 2 3
5624   e0:50:72:f4:dd:05  513   (0x201)  36    No    No      0 1 2 3
5712   e2:3b:4d:f0:93:00  2049  (0x801)  32    No    No      0 1 2 3
6092   00:04:4d:d8:4d:00  513   (0x201)  36    No    No      0 1 2 3
6552   e2:3b:43:46:6c:00  2049  (0x801)  32    No    No      0 1 2 3
6584   4e:41:50:00:00:12  2050  (0x802)  32    No    No      0 1 2 3
6656   6c:9c:ed:79:92:90  513   (0x201)  36    No    No      0 1 2 3
7044   e2:3b:4d:f0:93:00  1025  (0x401)  10    No    No      0 1 2 3
7572   4c:4e:35:b6:48:fb  2049  (0x801)  32    No    No      0 1 2 3
9048   88:43:e1:c2:b6:56  513   (0x201)  36    No    No      0 1 2 3
9356   00:04:4d:b2:47:00  514   (0x202)  54    No    No      0 1 2 3
9432   e2:3b:4f:77:04:00  2049  (0x801)  32    No    No      0 1 2 3
9468   00:16:47:e4:b0:57  513   (0x201)  36    No    No      0 1 2 3
10508  e2:3b:4f:77:04:00  1025  (0x401)  2     No    No      0 1 2 3
10596  00:b0:64:fd:56:14  513   (0x201)  36    No    No      0 1 2 3
11648  78:2b:cb:1e:0a:b3  513   (0x201)  36    No    No      0 1 2 3
```

```
12008  4e:41:50:00:00:11  2050  (0x802)  32    No    No      0 1 2 3
12344  00:00:0c:07:ac:01  513   (0x201)  36    No    No      0 1 2 3
12496  01:4d:4c:41:50:01  1025  (0x401)  -     Yes   Yes     0 1 2 3
12772  64:00:f1:42:09:12  514   (0x202)  54    No    No      0 1 2 3
12820  e4:d3:f1:a5:93:79  2049  (0x801)  40    No    No      0 1 2 3
12936  00:d0:97:6c:eb:00  513   (0x201)  36    No    No      0 1 2 3
12952  00:0d:5d:0a:5c:4c  514   (0x202)  54    No    No      0 1 2 3
13680  00:04:4d:da:2f:c0  513   (0x201)  36    No    No      0 1 2 3
13768  00:18:71:74:79:8e  514   (0x202)  54    No    No      0 1 2 3
13804  e4:d3:f1:a5:93:76  1025  (0x401)  37    No    No      0 1 2 3
13900  00:04:4d:bf:1e:40  513   (0x201)  36    No    No      0 1 2 3
13992  e0:52:2d:4c:bd:00  2049  (0x801)  32    No    No      0 1 2 3
14020  00:0d:5d:0a:52:06  514   (0x202)  54    No    No      0 1 2 3
14172  00:b0:64:fd:43:36  513   (0x201)  36    No    No      0 1 2 3
14260  fc:1f:87:cb:63:00  1025  (0x401)  20    No    No      0 1 2 3
14392  e4:d3:f1:a5:93:76  2049  (0x801)  38    No    No      0 1 2 3
14456  00:0d:5d:0a:50:be  514   (0x202)  54    No    No      0 1 2 3
14808  00:b0:64:fd:18:4c  513   (0x201)  36    No    No      0 1 2 3
14944  fc:1f:87:cb:63:00  2049  (0x801)  32    No    No      0 1 2 3
14980  00:04:4d:da:64:80  513   (0x201)  36    No    No      0 1 2 3
15064  4e:41:50:00:10:01  2050  (0x802)  32    No    No      0 1 2 3
15228  e0:52:2d:4c:bd:00  1025  (0x401)  16    No    No      0 1 2 3
15392  00:0d:5d:0a:50:ec  513   (0x201)  36    No    No      0 1 2 3
15572  00:0d:5d:09:3c:5f  514   (0x202)  54    No    No      0 1 2 3
15620  01:4d:4c:41:50:01  2049  (0x801)  -     Yes   Yes     0 1 2 3
15780  00:10:7b:e8:70:4d  513   (0x201)  36    No    No      0 1 2 3
15796  00:0d:5d:0a:50:c2  513   (0x201)  36    No    No      0 1 2 3
15816  00:0d:5d:0a:52:bf  513   (0x201)  36    No    No      0 1 2 3
15888  4c:4e:35:b6:48:fc  2049  (0x801)  32    No    No      0 1 2 3
16808  00:0d:5d:0a:50:fa  514   (0x202)  54    No    No      0 1 2 3
17368  00:04:4d:da:14:c0  513   (0x201)  36    No    No      0 1 2 3
17520  00:04:4d:da:53:00  513   (0x201)  36    No    No      0 1 2 3
18116  00:13:80:44:f9:a0  513   (0x201)  36    No    No      0 1 2 3
18364  00:0d:5d:0a:52:bd  513   (0x201)  36    No    No      0 1 2 3
18496  00:11:43:5a:f4:c4  513   (0x201)  36    No    No      0 1 2 3
18740  e4:d3:f1:a5:93:79  513   (0x201)  40    No    No      0 1 2 3
19388  00:10:7b:3b:9c:48  513   (0x201)  36    No    No      0 1 2 3
19604  00:b0:64:fd:17:e2  513   (0x201)  36    No    No      0 1 2 3
19772  00:0d:5d:0a:d8:fe  513   (0x201)  36    No    No      0 1 2 3
19976  00:1c:f6:37:b0:00  513   (0x201)  36    No    No      0 1 2 3
20044  00:12:44:d9:f0:c0  514   (0x202)  54    No    No      0 1 2 3
20144  4e:41:50:00:11:01  2050  (0x802)  40    No    No      0 1 2 3
20364  42:80:8f:09:d1:78  513   (0x201)  36    No    No      0 1 2 3
20444  00:0d:5d:0a:50:a7  513   (0x201)  36    No    No      0 1 2 3
20632  00:04:4d:da:2d:80  513   (0x201)  36    No    No      0 1 2 3
20652  00:60:f4:fa:21:00  513   (0x201)  36    No    No      0 1 2 3
20884  00:04:4d:d8:47:40  513   (0x201)  36    No    No      0 1 2 3
20896  b4:14:89:60:d8:80  514   (0x202)  54    No    No      0 1 2 3
20924  00:1c:58:38:52:68  513   (0x201)  36    No    No      0 1 2 3
21060  00:04:4d:d9:f3:80  513   (0x201)  36    No    No      0 1 2 3
21268  00:0d:5d:0a:50:c4  513   (0x201)  36    No    No      0 1 2 3
21332  00:04:4d:d8:7d:40  513   (0x201)  36    No    No      0 1 2 3
21436  00:04:4d:d8:74:80  513   (0x201)  36    No    No      0 1 2 3
21476  00:0d:5d:0a:52:a3  513   (0x201)  36    No    No      0 1 2 3
21568  64:00:f1:41:ff:de  513   (0x201)  36    No    No      0 1 2 3
21740  e0:50:bf:1c:f1:00  1025  (0x401)  0     No    No      0 1 2 3
21848  12:e8:cb:51:07:4b  513   (0x201)  40    No    No      0 1 2 3
21968  e2:3b:4d:f0:ea:00  2049  (0x801)  32    No    No      0 1 2 3
22364  e2:3b:4d:f0:1d:00  2049  (0x801)  32    No    No      0 1 2 3
22368  4e:41:50:00:07:15  2050  (0x802)  32    No    No      0 1 2 3
22532  e2:3b:4d:f0:ea:00  1025  (0x401)  26    No    No      0 1 2 3
22636  00:16:47:e4:b0:75  514   (0x202)  54    No    No      0 1 2 3
22840  e0:50:bf:1c:f1:00  2049  (0x801)  32    No    No      0 1 2 3
22860  00:04:4d:da:35:c0  513   (0x201)  36    No    No      0 1 2 3
```

```
23168  4e:41:50:00:01:11  2050  (0x802)  32    No    No      0 1 2 3
23176  e2:3b:4d:f0:1d:00  1025  (0x401)  4     No    No      0 1 2 3
23876  00:04:4d:da:55:00  513   (0x201)  36    No    No      0 1 2 3
26016  00:11:92:19:76:41  513   (0x201)  36    No    No      0 1 2 3
26184  00:0b:be:aa:fe:85  513   (0x201)  36    No    No      0 1 2 3
26228  00:0d:5d:0a:50:af  513   (0x201)  36    No    No      0 1 2 3
26592  4c:4e:35:b6:48:f9  2049  (0x801)  32    No    No      0 1 2 3
26632  00:1c:c0:4b:e5:72  513   (0x201)  36    No    No      0 1 2 3
26816  00:0e:83:47:6f:06  513   (0x201)  36    No    No      0 1 2 3
27188  4c:4e:35:b6:48:f9  1025  (0x401)  34    No    No      0 1 2 3
27380  e8:04:62:1d:47:c0  513   (0x201)  36    No    No      0 1 2 3
27620  e4:d3:f1:a5:93:7c  2049  (0x801)  40    No    No      0 1 2 3
28088  00:12:00:42:3d:80  513   (0x201)  36    No    No      0 1 2 3
28264  e0:50:bf:1c:f1:03  2049  (0x801)  32    No    No      0 1 2 3
28420  00:10:7b:e8:09:b7  513   (0x201)  36    No    No      0 1 2 3
28532  00:04:4d:da:5e:40  513   (0x201)  36    No    No      0 1 2 3
28704  e4:d3:f1:a5:95:38  513   (0x201)  40    No    No      0 1 2 3
28888  00:1a:4b:f8:a4:34  513   (0x201)  36    No    No      0 1 2 3
29104  00:04:4d:da:18:c0  513   (0x201)  36    No    No      0 1 2 3
29284  00:b0:64:fd:43:50  513   (0x201)  36    No    No      0 1 2 3
29412  e4:d3:f1:a5:93:78  1025  (0x401)  -     Yes   Yes     0 1 2 3
29472  00:d0:97:6c:f8:80  514   (0x202)  54    No    No      0 1 2 3
29496  e4:d3:f1:a5:93:7b  514   (0x202)  40    No    No      0 1 2 3
29628  00:04:4d:b2:1e:80  513   (0x201)  36    No    No      0 1 2 3
29924  4e:41:50:00:07:12  2050  (0x802)  32    No    No      0 1 2 3
30020  00:00:0c:46:e4:f8  513   (0x201)  36    No    No      0 1 2 3
30200  64:00:f1:42:07:da  514   (0x202)  54    No    No      0 1 2 3
30364  00:04:4d:b4:38:80  513   (0x201)  36    No    No      0 1 2 3
32184  4e:41:50:00:00:01  2050  (0x802)  32    No    No      0 1 2 3
32244  01:4d:4c:41:50:00  1025  (0x401)  -     Yes   Yes     0 1 2 3

Total table entries: 134

Rack  Card  Switch
------------------
0     LC0   LC-SW

FDB                                       Src                 Synced
Index  MAC Address        VLAN            Port  Trap  Static  Cores
-------------------------------------------------------------------------
4      00:0d:5d:0a:5c:33  513   (0x201)   42    No    No      0 2
200    e0:50:bf:1c:f1:05  2049  (0x801)   0     No    No      0 2
328    00:1c:58:38:52:3e  513   (0x201)   42    No    No      0 2
396    00:b0:64:fd:51:68  513   (0x201)   42    No    No      0 2
476    00:b0:64:fd:18:a4  513   (0x201)   42    No    No      0 2
477    00:b0:64:fd:20:ab  513   (0x201)   42    No    No      0 2
504    e0:52:2d:4c:bd:03  2049  (0x801)   2     No    No      0 2
960    00:50:54:80:a5:fb  513   (0x201)   42    No    No      0 2
1688   00:0d:5d:0a:50:76  513   (0x201)   42    No    No      0 2
1896   00:00:0c:07:ac:02  513   (0x201)   42    No    No      0 2
1932   00:b0:64:fd:18:1c  513   (0x201)   42    No    No      0 2
2092   00:10:7b:e8:09:f8  513   (0x201)   42    No    No      0 2
2136   00:0d:5d:0a:50:b3  513   (0x201)   42    No    No      0 2
2512   4e:41:50:00:01:01  2050  (0x802)   2     No    No      0 2
2756   00:04:4d:da:5b:40  513   (0x201)   42    No    No      0 2
2984   00:13:80:31:74:80  513   (0x201)   42    No    No      0 2
3636   00:12:44:d9:f0:c0  513   (0x201)   42    No    No      0 2
3732   00:04:4d:da:3c:c0  513   (0x201)   42    No    No      0 2
4096   00:b0:64:fd:4b:fc  513   (0x201)   42    No    No      0 2
4244   00:00:0c:07:ac:5a  513   (0x201)   42    No    No      0 2
4324   4e:41:50:00:07:01  2050  (0x802)   2     No    No      0 2
4356   00:17:5a:af:71:58  513   (0x201)   42    No    No      0 2
4568   b4:14:89:60:d8:80  513   (0x201)   42    No    No      0 2
4648   00:00:0c:07:ac:28  513   (0x201)   42    No    No      0 2
```

```
4772   00:00:0c:07:ac:32  513   (0x201)  42    No    No      0 2
5000   e2:3b:4f:77:04:03  2049  (0x801)  2     No    No      0 2
5296   00:04:4d:da:13:40  513   (0x201)  42    No    No      0 2
5448   e0:50:bf:1c:f1:03  513   (0x201)  0     No    No      0 2
5624   e0:50:72:f4:dd:05  513   (0x201)  42    No    No      0 2
6092   00:04:4d:d8:4d:00  513   (0x201)  42    No    No      0 2
6312   00:1a:6c:40:e0:20  513   (0x201)  42    No    No      0 2
6584   4e:41:50:00:00:12  2050  (0x802)  34    No    No      0 2
6656   6c:9c:ed:79:92:90  513   (0x201)  42    No    No      0 2
7092   1e:f5:5c:2a:09:38  513   (0x201)  0     No    No      0 2
7096   00:0d:5d:0a:52:46  513   (0x201)  42    No    No      0 2
7112   00:18:71:4d:48:42  513   (0x201)  42    No    No      0 2
7532   00:10:7b:e8:09:d2  513   (0x201)  42    No    No      0 2
7572   4c:4e:35:b6:48:fb  2049  (0x801)  2     No    No      0 2
9048   88:43:e1:c2:b6:56  513   (0x201)  42    No    No      0 2
10484  00:0d:5d:0a:50:e8  513   (0x201)  42    No    No      0 2
10596  00:b0:64:fd:56:14  513   (0x201)  42    No    No      0 2
10732  00:0d:5d:0a:50:dc  513   (0x201)  42    No    No      0 2
11648  78:2b:cb:1e:0a:b3  513   (0x201)  42    No    No      0 2
12008  4e:41:50:00:00:11  2050  (0x802)  36    No    No      0 2
12344  00:00:0c:07:ac:01  513   (0x201)  42    No    No      0 2
12496  01:4d:4c:41:50:01  1025  (0x401)  -     Yes   Yes     0 2
12820  e4:d3:f1:a5:93:79  2049  (0x801)  2     No    No      0 2
12936  00:d0:97:6c:eb:00  513   (0x201)  42    No    No      0 2
13680  00:04:4d:da:2f:c0  513   (0x201)  42    No    No      0 2
13900  00:04:4d:bf:1e:40  513   (0x201)  42    No    No      0 2
14172  00:b0:64:fd:43:36  513   (0x201)  42    No    No      0 2
14808  00:b0:64:fd:18:4c  513   (0x201)  42    No    No      0 2
14980  00:04:4d:da:64:80  513   (0x201)  42    No    No      0 2
15064  4e:41:50:00:10:01  2050  (0x802)  2     No    No      0 2
15392  00:0d:5d:0a:50:ec  513   (0x201)  42    No    No      0 2
15620  01:4d:4c:41:50:01  2049  (0x801)  -     Yes   Yes     0 2
15780  00:10:7b:e8:70:4d  513   (0x201)  42    No    No      0 2
15796  00:0d:5d:0a:50:c2  513   (0x201)  42    No    No      0 2
15816  00:0d:5d:0a:52:bf  513   (0x201)  42    No    No      0 2
15888  4c:4e:35:b6:48:fc  2049  (0x801)  2     No    No      0 2
15928  00:10:7b:3b:80:52  513   (0x201)  42    No    No      0 2
15964  e0:50:bf:1c:f1:79  513   (0x201)  0     No    No      0 2
17368  00:04:4d:da:14:c0  513   (0x201)  42    No    No      0 2
17520  00:04:4d:da:53:00  513   (0x201)  42    No    No      0 2
17640  00:0d:5d:0a:50:9c  513   (0x201)  42    No    No      0 2
18092  00:10:7b:e8:09:bf  513   (0x201)  42    No    No      0 2
18116  00:13:80:44:f9:a0  513   (0x201)  42    No    No      0 2
18132  00:b0:64:fd:18:aa  513   (0x201)  42    No    No      0 2
18360  a0:00:b0:01:c1:a2  513   (0x201)  42    No    No      0 2
18364  00:0d:5d:0a:52:bd  513   (0x201)  42    No    No      0 2
18496  00:11:43:5a:f4:c4  513   (0x201)  42    No    No      0 2
19388  00:10:7b:3b:9c:48  513   (0x201)  42    No    No      0 2
19604  00:b0:64:fd:17:e2  513   (0x201)  42    No    No      0 2
19772  00:0d:5d:0a:d8:fe  513   (0x201)  42    No    No      0 2
19976  00:1c:f6:37:b0:00  513   (0x201)  42    No    No      0 2
20144  4e:41:50:00:11:01  2050  (0x802)  2     No    No      0 2
20364  42:80:8f:09:d1:78  513   (0x201)  42    No    No      0 2
20444  00:0d:5d:0a:50:a7  513   (0x201)  42    No    No      0 2
20632  00:04:4d:da:2d:80  513   (0x201)  42    No    No      0 2
20652  00:60:f4:fa:21:00  513   (0x201)  42    No    No      0 2
20884  00:04:4d:d8:47:40  513   (0x201)  42    No    No      0 2
20924  00:1c:58:38:52:68  513   (0x201)  42    No    No      0 2
21060  00:04:4d:d9:f3:80  513   (0x201)  42    No    No      0 2
21268  00:0d:5d:0a:50:c4  513   (0x201)  42    No    No      0 2
21332  00:04:4d:d8:7d:40  513   (0x201)  42    No    No      0 2
21436  00:04:4d:d8:74:80  513   (0x201)  42    No    No      0 2
21476  00:0d:5d:0a:52:a3  513   (0x201)  42    No    No      0 2
21568  64:00:f1:41:ff:de  513   (0x201)  42    No    No      0 2
```

```
21740  e0:50:bf:1c:f1:00  1025  (0x401)  9     No    No       0 2
22304  00:b0:64:fd:1f:0a  513   (0x201)  42    No    No       0 2
22516  78:2b:cb:1e:0a:b1  513   (0x201)  42    No    No       0 2
22840  e0:50:bf:1c:f1:00  2049  (0x801)  8     No    No       0 2
22860  00:04:4d:da:35:c0  513   (0x201)  42    No    No       0 2
23568  00:0d:5d:0a:51:f2  513   (0x201)  42    No    No       0 2
23876  00:04:4d:da:55:00  513   (0x201)  42    No    No       0 2
25596  00:0d:5d:0a:22:32  513   (0x201)  42    No    No       0 2
26016  00:11:92:19:76:41  513   (0x201)  42    No    No       0 2
26184  00:0b:be:aa:fe:85  513   (0x201)  42    No    No       0 2
26228  00:0d:5d:0a:50:af  513   (0x201)  42    No    No       0 2
26536  00:b0:64:fd:43:60  513   (0x201)  42    No    No       0 2
26632  00:1c:c0:4b:e5:72  513   (0x201)  42    No    No       0 2
26816  00:0e:83:47:6f:06  513   (0x201)  42    No    No       0 2
27048  00:15:62:c9:3d:00  513   (0x201)  42    No    No       0 2
27380  e8:04:62:1d:47:c0  513   (0x201)  42    No    No       0 2
28088  00:12:00:42:3d:80  513   (0x201)  42    No    No       0 2
28264  e0:50:bf:1c:f1:03  2049  (0x801)  0     No    No       0 2
28420  00:10:7b:e8:09:b7  513   (0x201)  42    No    No       0 2
28532  00:04:4d:da:5e:40  513   (0x201)  42    No    No       0 2
28668  00:0d:5d:0a:50:e6  513   (0x201)  42    No    No       0 2
28888  00:1a:4b:f8:a4:34  513   (0x201)  42    No    No       0 2
29104  00:04:4d:da:18:c0  513   (0x201)  42    No    No       0 2
29284  00:b0:64:fd:43:50  513   (0x201)  42    No    No       0 2
29412  e4:d3:f1:a5:93:78  1025  (0x401)  4     No    No       0 2
29628  00:04:4d:b2:1e:80  513   (0x201)  42    No    No       0 2
29696  00:0d:5d:0a:52:74  513   (0x201)  42    No    No       0 2
30020  00:00:0c:46:e4:f8  513   (0x201)  42    No    No       0 2
30316  00:1c:58:38:5a:b8  513   (0x201)  42    No    No       0 2
30364  00:04:4d:b4:38:80  513   (0x201)  42    No    No       0 2
31308  00:0d:5d:0a:52:ab  513   (0x201)  42    No    No       0 2
31348  00:19:d1:e3:07:78  513   (0x201)  42    No    No       0 2
31764  00:16:47:e4:b0:66  513   (0x201)  42    No    No       0 2
32184  4e:41:50:00:00:01  2050  (0x802)  0     No    No       0 2
32464  00:11:85:69:d0:f9  513   (0x201)  42    No    No       0 2

Total table entries: 123

Rack  Card  Switch
------------------
0     LC1   LC-SW

FDB                                      Src                Synced
Index  MAC Address        VLAN           Port  Trap  Static  Cores
-------------------------------------------------------------------
4      00:0d:5d:0a:5c:33  513   (0x201)  42    No    No       0 2
328    00:1c:58:38:52:3e  513   (0x201)  42    No    No       0 2
396    00:b0:64:fd:51:68  513   (0x201)  42    No    No       0 2
476    00:b0:64:fd:18:a4  513   (0x201)  42    No    No       0 2
477    00:b0:64:fd:20:ab  513   (0x201)  42    No    No       0 2
504    e0:52:2d:4c:bd:03  2049  (0x801)  2     No    No       0 2
960    00:50:54:80:a5:fb  513   (0x201)  42    No    No       0 2
1688   00:0d:5d:0a:50:76  513   (0x201)  42    No    No       0 2
1896   00:00:0c:07:ac:02  513   (0x201)  42    No    No       0 2
1932   00:b0:64:fd:18:1c  513   (0x201)  42    No    No       0 2
2092   00:10:7b:e8:09:f8  513   (0x201)  42    No    No       0 2
2136   00:0d:5d:0a:50:b3  513   (0x201)  42    No    No       0 2
2512   4e:41:50:00:01:01  2050  (0x802)  0     No    No       0 2
2756   00:04:4d:da:5b:40  513   (0x201)  42    No    No       0 2
2984   00:13:80:31:74:80  513   (0x201)  42    No    No       0 2
3636   00:12:44:d9:f0:c0  513   (0x201)  42    No    No       0 2
3732   00:04:4d:da:3c:c0  513   (0x201)  42    No    No       0 2
4096   00:b0:64:fd:4b:fc  513   (0x201)  42    No    No       0 2
4244   00:00:0c:07:ac:5a  513   (0x201)  42    No    No       0 2
```

```
4324   4e:41:50:00:07:01  2050  (0x802)  2     No    No      0 2
4356   00:17:5a:af:71:58  513   (0x201)  42    No    No      0 2
4568   b4:14:89:60:d8:80  513   (0x201)  42    No    No      0 2
4648   00:00:0c:07:ac:28  513   (0x201)  42    No    No      0 2
4772   00:00:0c:07:ac:32  513   (0x201)  42    No    No      0 2
5000   e2:3b:4f:77:04:03  2049  (0x801)  0     No    No      0 2
5296   00:04:4d:da:13:40  513   (0x201)  42    No    No      0 2
5624   e0:50:72:f4:dd:05  513   (0x201)  42    No    No      0 2
6092   00:04:4d:d8:4d:00  513   (0x201)  42    No    No      0 2
6312   00:1a:6c:40:e0:20  513   (0x201)  42    No    No      0 2
6656   6c:9c:ed:79:92:90  513   (0x201)  42    No    No      0 2
7096   00:0d:5d:0a:52:46  513   (0x201)  42    No    No      0 2
7112   00:18:71:4d:48:42  513   (0x201)  42    No    No      0 2
7532   00:10:7b:e8:09:d2  513   (0x201)  42    No    No      0 2
7572   4c:4e:35:b6:48:fb  2049  (0x801)  2     No    No      0 2
9048   88:43:e1:c2:b6:56  513   (0x201)  42    No    No      0 2
9432   e2:3b:4f:77:04:00  2049  (0x801)  8     No    No      0 2
10484  00:0d:5d:0a:50:e8  513   (0x201)  42    No    No      0 2
10508  e2:3b:4f:77:04:00  1025  (0x401)  9     No    No      0 2
10596  00:b0:64:fd:56:14  513   (0x201)  42    No    No      0 2
10732  00:0d:5d:0a:50:dc  513   (0x201)  42    No    No      0 2
11648  78:2b:cb:1e:0a:b3  513   (0x201)  42    No    No      0 2
12344  00:00:0c:07:ac:01  513   (0x201)  42    No    No      0 2
12496  01:4d:4c:41:50:01  1025  (0x401)  -     Yes   Yes     0 2
12592  00:16:47:e4:b0:67  513   (0x201)  42    No    No      0 2
12820  e4:d3:f1:a5:93:79  2049  (0x801)  2     No    No      0 2
12936  00:d0:97:6c:eb:00  513   (0x201)  42    No    No      0 2
13680  00:04:4d:da:2f:c0  513   (0x201)  42    No    No      0 2
13900  00:04:4d:bf:1e:40  513   (0x201)  42    No    No      0 2
14172  00:b0:64:fd:43:36  513   (0x201)  42    No    No      0 2
14808  00:b0:64:fd:18:4c  513   (0x201)  42    No    No      0 2
14980  00:04:4d:da:64:80  513   (0x201)  42    No    No      0 2
15064  4e:41:50:00:10:01  2050  (0x802)  2     No    No      0 2
15392  00:0d:5d:0a:50:ec  513   (0x201)  42    No    No      0 2
15620  01:4d:4c:41:50:01  2049  (0x801)  -     Yes   Yes     0 2
15780  00:10:7b:e8:70:4d  513   (0x201)  42    No    No      0 2
15796  00:0d:5d:0a:50:c2  513   (0x201)  42    No    No      0 2
15816  00:0d:5d:0a:52:bf  513   (0x201)  42    No    No      0 2
15888  4c:4e:35:b6:48:fc  2049  (0x801)  2     No    No      0 2
15928  00:10:7b:3b:80:52  513   (0x201)  42    No    No      0 2
17340  e2:3b:4f:77:04:79  513   (0x201)  0     No    No      0 2
17368  00:04:4d:da:14:c0  513   (0x201)  42    No    No      0 2
17460  aa:93:c3:2b:71:7e  513   (0x201)  0     No    No      0 2
17520  00:04:4d:da:53:00  513   (0x201)  42    No    No      0 2
17640  00:0d:5d:0a:50:9c  513   (0x201)  42    No    No      0 2
18092  00:10:7b:e8:09:bf  513   (0x201)  42    No    No      0 2
18116  00:13:80:44:f9:a0  513   (0x201)  42    No    No      0 2
18132  00:b0:64:fd:18:aa  513   (0x201)  42    No    No      0 2
18360  a0:00:b0:01:c1:a2  513   (0x201)  42    No    No      0 2
18364  00:0d:5d:0a:52:bd  513   (0x201)  42    No    No      0 2
18496  00:11:43:5a:f4:c4  513   (0x201)  42    No    No      0 2
19388  00:10:7b:3b:9c:48  513   (0x201)  42    No    No      0 2
19604  00:b0:64:fd:17:e2  513   (0x201)  42    No    No      0 2
19772  00:0d:5d:0a:d8:fe  513   (0x201)  42    No    No      0 2
19976  00:1c:f6:37:b0:00  513   (0x201)  42    No    No      0 2
20144  4e:41:50:00:11:01  2050  (0x802)  2     No    No      0 2
20364  42:80:8f:09:d1:78  513   (0x201)  42    No    No      0 2
20444  00:0d:5d:0a:50:a7  513   (0x201)  42    No    No      0 2
20632  00:04:4d:da:2d:80  513   (0x201)  42    No    No      0 2
20652  00:60:f4:fa:21:00  513   (0x201)  42    No    No      0 2
20884  00:04:4d:d8:47:40  513   (0x201)  42    No    No      0 2
20924  00:1c:58:38:52:68  513   (0x201)  42    No    No      0 2
21060  00:04:4d:d9:f3:80  513   (0x201)  42    No    No      0 2
21268  00:0d:5d:0a:50:c4  513   (0x201)  42    No    No      0 2
```

```
21332  00:04:4d:d8:7d:40  513   (0x201)  42    No    No      0 2
21436  00:04:4d:d8:74:80  513   (0x201)  42    No    No      0 2
21476  00:0d:5d:0a:52:a3  513   (0x201)  42    No    No      0 2
21568  64:00:f1:41:ff:de  513   (0x201)  42    No    No      0 2
22304  00:b0:64:fd:1f:0a  513   (0x201)  42    No    No      0 2
22516  78:2b:cb:1e:0a:b1  513   (0x201)  42    No    No      0 2
22860  00:04:4d:da:35:c0  513   (0x201)  42    No    No      0 2
23168  4e:41:50:00:01:11  2050  (0x802)  34    No    No      0 2
23568  00:0d:5d:0a:51:f2  513   (0x201)  42    No    No      0 2
23876  00:04:4d:da:55:00  513   (0x201)  42    No    No      0 2
25596  00:0d:5d:0a:22:32  513   (0x201)  42    No    No      0 2
26016  00:11:92:19:76:41  513   (0x201)  42    No    No      0 2
26184  00:0b:be:aa:fe:85  513   (0x201)  42    No    No      0 2
26228  00:0d:5d:0a:50:af  513   (0x201)  42    No    No      0 2
26536  00:b0:64:fd:43:60  513   (0x201)  42    No    No      0 2
26632  00:1c:c0:4b:e5:72  513   (0x201)  42    No    No      0 2
26792  e2:3b:4f:77:04:03  513   (0x201)  0     No    No      0 2
26816  00:0e:83:47:6f:06  513   (0x201)  42    No    No      0 2
27048  00:15:62:c9:3d:00  513   (0x201)  42    No    No      0 2
27380  e8:04:62:1d:47:c0  513   (0x201)  42    No    No      0 2
28088  00:12:00:42:3d:80  513   (0x201)  42    No    No      0 2
28264  e0:50:bf:1c:f1:03  2049  (0x801)  2     No    No      0 2
28420  00:10:7b:e8:09:b7  513   (0x201)  42    No    No      0 2
28532  00:04:4d:da:5e:40  513   (0x201)  42    No    No      0 2
28668  00:0d:5d:0a:50:e6  513   (0x201)  42    No    No      0 2
28888  00:1a:4b:f8:a4:34  513   (0x201)  42    No    No      0 2
29104  00:04:4d:da:18:c0  513   (0x201)  42    No    No      0 2
29284  00:b0:64:fd:43:50  513   (0x201)  42    No    No      0 2
29412  e4:d3:f1:a5:93:78  1025  (0x401)  4     No    No      0 2
29628  00:04:4d:b2:1e:80  513   (0x201)  42    No    No      0 2
29696  00:0d:5d:0a:52:74  513   (0x201)  42    No    No      0 2
30020  00:00:0c:46:e4:f8  513   (0x201)  42    No    No      0 2
30316  00:1c:58:38:5a:b8  513   (0x201)  42    No    No      0 2
30364  00:04:4d:b4:38:80  513   (0x201)  42    No    No      0 2
31308  00:0d:5d:0a:52:ab  513   (0x201)  42    No    No      0 2
31348  00:19:d1:e3:07:78  513   (0x201)  42    No    No      0 2
32040  e2:3b:4f:77:04:05  2049  (0x801)  0     No    No      0 2
32184  4e:41:50:00:00:01  2050  (0x802)  2     No    No      0 2
32464  00:11:85:69:d0:f9  513   (0x201)  42    No    No      0 2

Total table entries: 122

Rack  Card  Switch
------------------
0     LC7   LC-SW

FDB                                      Src                Synced
Index  MAC Address        VLAN           Port  Trap  Static  Cores
-------------------------------------------------------------------
4      00:0d:5d:0a:5c:33  513   (0x201)  42    No    No      0 2
328    00:1c:58:38:52:3e  513   (0x201)  42    No    No      0 2
396    00:b0:64:fd:51:68  513   (0x201)  42    No    No      0 2
476    00:b0:64:fd:18:a4  513   (0x201)  42    No    No      0 2
477    00:b0:64:fd:20:ab  513   (0x201)  42    No    No      0 2
504    e0:52:2d:4c:bd:03  2049  (0x801)  0     No    No      0 2
508    b6:aa:1c:40:27:e2  513   (0x201)  0     No    No      0 2
960    00:50:54:80:a5:fb  513   (0x201)  42    No    No      0 2
1688   00:0d:5d:0a:50:76  513   (0x201)  42    No    No      0 2
1896   00:00:0c:07:ac:02  513   (0x201)  42    No    No      0 2
1932   00:b0:64:fd:18:1c  513   (0x201)  42    No    No      0 2
2092   00:10:7b:e8:09:f8  513   (0x201)  42    No    No      0 2
2136   00:0d:5d:0a:50:b3  513   (0x201)  42    No    No      0 2
2513   4e:41:50:00:01:01  2050  (0x802)  2     No    No      0 2
2756   00:04:4d:da:5b:40  513   (0x201)  42    No    No      0 2
```

```
2984   00:13:80:31:74:80  513   (0x201)  42    No    No      0 2
3636   00:12:44:d9:f0:c0  513   (0x201)  42    No    No      0 2
3732   00:04:4d:da:3c:c0  513   (0x201)  42    No    No      0 2
4096   00:b0:64:fd:4b:fc  513   (0x201)  42    No    No      0 2
4244   00:00:0c:07:ac:5a  513   (0x201)  42    No    No      0 2
4324   4e:41:50:00:07:01  2050  (0x802)  0     No    No      0 2
4356   00:17:5a:af:71:58  513   (0x201)  42    No    No      0 2
4568   b4:14:89:60:d8:80  513   (0x201)  42    No    No      0 2
4648   00:00:0c:07:ac:28  513   (0x201)  42    No    No      0 2
4772   00:00:0c:07:ac:32  513   (0x201)  42    No    No      0 2
5000   e2:3b:4f:77:04:03  2049  (0x801)  2     No    No      0 2
5296   00:04:4d:da:13:40  513   (0x201)  42    No    No      0 2
5624   e0:50:72:f4:dd:05  513   (0x201)  42    No    No      0 2
6092   00:04:4d:d8:4d:00  513   (0x201)  42    No    No      0 2
6312   00:1a:6c:40:e0:20  513   (0x201)  42    No    No      0 2
6656   6c:9c:ed:79:92:90  513   (0x201)  42    No    No      0 2
7096   00:0d:5d:0a:52:46  513   (0x201)  42    No    No      0 2
7112   00:18:71:4d:48:42  513   (0x201)  42    No    No      0 2
7532   00:10:7b:e8:09:d2  513   (0x201)  42    No    No      0 2
7572   4c:4e:35:b6:48:fb  2049  (0x801)  2     No    No      0 2
9048   88:43:e1:c2:b6:56  513   (0x201)  42    No    No      0 2
10484  00:0d:5d:0a:50:e8  513   (0x201)  42    No    No      0 2
10596  00:b0:64:fd:56:14  513   (0x201)  42    No    No      0 2
10732  00:0d:5d:0a:50:dc  513   (0x201)  42    No    No      0 2
11648  78:2b:cb:1e:0a:b3  513   (0x201)  42    No    No      0 2
12100  00:16:47:e4:b0:76  513   (0x201)  42    No    No      0 2
12344  00:00:0c:07:ac:01  513   (0x201)  42    No    No      0 2
12496  01:4d:4c:41:50:01  1025  (0x401)  -     Yes   Yes     0 2
12820  e4:d3:f1:a5:93:79  2049  (0x801)  2     No    No      0 2
12936  00:d0:97:6c:eb:00  513   (0x201)  42    No    No      0 2
13680  00:04:4d:da:2f:c0  513   (0x201)  42    No    No      0 2
13900  00:04:4d:bf:1e:40  513   (0x201)  42    No    No      0 2
13992  e0:52:2d:4c:bd:00  2049  (0x801)  8     No    No      0 2
14172  00:b0:64:fd:43:36  513   (0x201)  42    No    No      0 2
14808  00:b0:64:fd:18:4c  513   (0x201)  42    No    No      0 2
14980  00:04:4d:da:64:80  513   (0x201)  42    No    No      0 2
15064  4e:41:50:00:10:01  2050  (0x802)  2     No    No      0 2
15228  e0:52:2d:4c:bd:00  1025  (0x401)  9     No    No      0 2
15392  00:0d:5d:0a:50:ec  513   (0x201)  42    No    No      0 2
15620  01:4d:4c:41:50:01  2049  (0x801)  -     Yes   Yes     0 2
15780  00:10:7b:e8:70:4d  513   (0x201)  42    No    No      0 2
15796  00:0d:5d:0a:50:c2  513   (0x201)  42    No    No      0 2
15816  00:0d:5d:0a:52:bf  513   (0x201)  42    No    No      0 2
15888  4c:4e:35:b6:48:fc  2049  (0x801)  2     No    No      0 2
15928  00:10:7b:3b:80:52  513   (0x201)  42    No    No      0 2
17368  00:04:4d:da:14:c0  513   (0x201)  42    No    No      0 2
17520  00:04:4d:da:53:00  513   (0x201)  42    No    No      0 2
17640  00:0d:5d:0a:50:9c  513   (0x201)  42    No    No      0 2
18092  00:10:7b:e8:09:bf  513   (0x201)  42    No    No      0 2
18116  00:13:80:44:f9:a0  513   (0x201)  42    No    No      0 2
18132  00:b0:64:fd:18:aa  513   (0x201)  42    No    No      0 2
18360  a0:00:b0:01:c1:a2  513   (0x201)  42    No    No      0 2
18364  00:0d:5d:0a:52:bd  513   (0x201)  42    No    No      0 2
18496  00:11:43:5a:f4:c4  513   (0x201)  42    No    No      0 2
19388  00:10:7b:3b:9c:48  513   (0x201)  42    No    No      0 2
19604  00:b0:64:fd:17:e2  513   (0x201)  42    No    No      0 2
19772  00:0d:5d:0a:d8:fe  513   (0x201)  42    No    No      0 2
19976  00:1c:f6:37:b0:00  513   (0x201)  42    No    No      0 2
20144  4e:41:50:00:11:01  2050  (0x802)  2     No    No      0 2
20364  42:80:8f:09:d1:78  513   (0x201)  42    No    No      0 2
20444  00:0d:5d:0a:50:a7  513   (0x201)  42    No    No      0 2
20632  00:04:4d:da:2d:80  513   (0x201)  42    No    No      0 2
20652  00:60:f4:fa:21:00  513   (0x201)  42    No    No      0 2
20884  00:04:4d:d8:47:40  513   (0x201)  42    No    No      0 2
```

```
20924  00:1c:58:38:52:68  513   (0x201)  42    No    No      0 2
20940  e0:52:2d:4c:bd:79  513   (0x201)  0     No    No      0 2
21060  00:04:4d:d9:f3:80  513   (0x201)  42    No    No      0 2
21268  00:0d:5d:0a:50:c4  513   (0x201)  42    No    No      0 2
21332  00:04:4d:d8:7d:40  513   (0x201)  42    No    No      0 2
21436  00:04:4d:d8:74:80  513   (0x201)  42    No    No      0 2
21476  00:0d:5d:0a:52:a3  513   (0x201)  42    No    No      0 2
21568  64:00:f1:41:ff:de  513   (0x201)  42    No    No      0 2
22304  00:b0:64:fd:1f:0a  513   (0x201)  42    No    No      0 2
22368  4e:41:50:00:07:15  2050  (0x802)  6     No    No      0 2
22516  78:2b:cb:1e:0a:b1  513   (0x201)  42    No    No      0 2
22860  00:04:4d:da:35:c0  513   (0x201)  42    No    No      0 2
23568  00:0d:5d:0a:51:f2  513   (0x201)  42    No    No      0 2
23876  00:04:4d:da:55:00  513   (0x201)  42    No    No      0 2
25596  00:0d:5d:0a:22:32  513   (0x201)  42    No    No      0 2
26016  00:11:92:19:76:41  513   (0x201)  42    No    No      0 2
26184  00:0b:be:aa:fe:85  513   (0x201)  42    No    No      0 2
26228  00:0d:5d:0a:50:af  513   (0x201)  42    No    No      0 2
26536  00:b0:64:fd:43:60  513   (0x201)  42    No    No      0 2
26632  00:1c:c0:4b:e5:72  513   (0x201)  42    No    No      0 2
26816  00:0e:83:47:6f:06  513   (0x201)  42    No    No      0 2
27048  00:15:62:c9:3d:00  513   (0x201)  42    No    No      0 2
27380  e8:04:62:1d:47:c0  513   (0x201)  42    No    No      0 2
28088  00:12:00:42:3d:80  513   (0x201)  42    No    No      0 2
28264  e0:50:bf:1c:f1:03  2049  (0x801)  2     No    No      0 2
28420  00:10:7b:e8:09:b7  513   (0x201)  42    No    No      0 2
28504  e0:52:2d:4c:bd:05  2049  (0x801)  0     No    No      0 2
28532  00:04:4d:da:5e:40  513   (0x201)  42    No    No      0 2
28668  00:0d:5d:0a:50:e6  513   (0x201)  42    No    No      0 2
28888  00:1a:4b:f8:a4:34  513   (0x201)  42    No    No      0 2
29104  00:04:4d:da:18:c0  513   (0x201)  42    No    No      0 2
29284  00:b0:64:fd:43:50  513   (0x201)  42    No    No      0 2
29412  e4:d3:f1:a5:93:78  1025  (0x401)  4     No    No      0 2
29628  00:04:4d:b2:1e:80  513   (0x201)  42    No    No      0 2
29696  00:0d:5d:0a:52:74  513   (0x201)  42    No    No      0 2
29924  4e:41:50:00:07:12  2050  (0x802)  34    No    No      0 2
30020  00:00:0c:46:e4:f8  513   (0x201)  42    No    No      0 2
30316  00:1c:58:38:5a:b8  513   (0x201)  42    No    No      0 2
30364  00:04:4d:b4:38:80  513   (0x201)  42    No    No      0 2
31308  00:0d:5d:0a:52:ab  513   (0x201)  42    No    No      0 2
31348  00:19:d1:e3:07:78  513   (0x201)  42    No    No      0 2
31448  e0:52:2d:4c:bd:03  513   (0x201)  0     No    No      0 2
32184  4e:41:50:00:00:01  2050  (0x802)  2     No    No      0 2
32464  00:11:85:69:d0:f9  513   (0x201)  42    No    No      0 2

Total table entries: 123
```

show controller switch mlap

To display various MLAP (minimal loop avoidance protocol) details, use the **show controller switch mlap**command in the System Admin EXEC mode.

show controller switch mlap [{**detail** [**location** *node-id port-number*] | **statistics** [**location** *node-id*] | **location** [*node-id*] | **reachable** | **trace** {**all** *trace-name*} **location** *node-id* [{**all** *trace-attribute*}]}]

Syntax Description

detail	Displays detailed MLAP (minimal loop avoidance protocol) information for a single switch port.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.
port-number	Specifies the switch port.
statistics	Displays MLAP switch statistics data.
reachable	Lists all control plane Ethernet switches serviced by MLAP.
trace	Displays the MLAP trace information.
trace-name	Trace name.
trace-attribute	Trace attribute.

Command Default

Displays statistics summary for each node.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Displays MLAP information for only RPs (Router Processors).

This example shows how to display detailed MLAP information for a single switch port:

```
sysadmin-vm:0_RP0# show controller switch mlap detail location 0/RP0/RP-SW 2
Tue Aug  13 08:19:17.156 UTC
MLAP Summary Information For Internal Switch Port 2 (0/RP0/RP-SW)
    Rack serial number:             FMP12160201
    Connects to:                    LC6
    Physical port state:            Down
    Administrative port state:      Up
    Port protocol state:            Down
```

```
    Forwarding state:               -
    Protocol type:                  Internal
    Good protocol packets sent:     0
    Good protocol packets received: 0
    Set VLAN requests:              0
    Set VLAN responses:             0
    Protocol packet send errors:    0
    Protocol packet receive errors: 0
    Protocol state changes:         1
MLAP Detailed Information For Internal Endpoint
    Port MLAP owner:                  RP0
    Card controlling packet path:     Unknown
    Peer MLAP protocol flags:         Ignore-Data
    Peer idle count to endpoint:      5
    This active connection mask:      0x0000200000800006
    Peer active connection mask:      0x0000000000000000
    Connected endpoint card type:     Unknown
.
.
.
```

show controller switch reachable

To list all control plane Ethernet switches to which connectivity is established, use the **show controller switch reachable** command in the System Admin EXEC mode.

show controller switch reachable

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command to verify connectivity between various nodes in the system.

Example

This example shows how to list the control place Ethernet switches:

```
sysadmin-vm:0_RP0#show controller switch reachable

Rack  Card  Switch
--------------------
0     RP0   RP-SW
0     RP1   RP-SW
0     LC3   LC-SW
```

show controller switch sdr

To display the control plane Ethernet port statistics information specific to an SDR, use the **show controller switch sdr** command in the System Admin EXEC mode.

show controller switch sdr {**1** | **2**} **port-statistics location** [*node-id*]

Syntax Description

sdr 1	Indicates the admin plane.
sdr 2	Indicates the first SDR created in the system. By default, the value for sdr 2 is **default-sdr**.
port-statistics	Displays the SDR port statistics.
location *node-id*	Selects the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.

Command Default

Displays information for all the nodes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to view the SDR port statistics information:

```
sysadmin-vm:0_RP0#show controller switch sdr 1 port-statistics location 0/LC3/LC-SW

Tue Aug  13 05:17:04.962 UTC
Switch  Traffic  Packet     Traffic
Port    Type     Direction  Class    Conforming  Exceeding  Dropped
-------------------------------------------------------------------
0       IPC      Rx         0        1113702     0          0
                            1        0           0          0
                            2        0           0          0
                            3        0           0          0
                            4        0           0          0
                            5        0           0          0
                            6        0           0          0
                            7        87755       0          0
                 Tx         -        3493443     0          0
        MgmtEth  Rx         0        0           0          0
                            1        0           0          0
                            2        0           0          0
                            3        0           0          0
                            4        0           0          0
                            5        0           0          0
                            6        0           0          0
                            7        0           0          0
                 Tx         -        1507838     0          0
2       IPC      Rx         0        1282246     0          0
                            1        0           0          0
```

```
--More--
```

show controller switch sdr global-statistics

To display the SDR global-statistics summary, use the **show controller switch sdr global-statistics** command in the System Admin EXEC mode.

show controller switch sdr global-statistics location [*node-id*]

Syntax Description

location *node-id*	Selects the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.

Command Default

Displays information for all nodes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to view the SDR global statistics information:

```
sysadmin-vm:0_RP0#show controller switch sdr global-statistics location 0/LC3/LC-SW

Tue Aug  13 05:43:51.230 UTC
                     Traffic  Traffic
SDR ID  SDR Name     Type     Class    Conforming  Exceeding  Dropped
-------------------------------------------------------------------------
1       Calvados     IPC      0        1473518     0          0
                              1        0           0          0
                              2        0           0          0
                              3        0           0          0
                              4        0           0          0
                              5        0           0          0
                              6        0           0          0
                              7        2573111     0          0
                     MgmtEth  0        1534353     0          0
                              1        0           0          0
                              2        0           0          0
                              3        0           0          0
                              4        0           0          0
                              5        0           0          0
                              6        0           0          0
                              7        0           0          0
2       default-sdr  IPC      0        6904586     0          0
                              1        0           0          0
                              2        0           0          0
                              3        0           0          0
--More--
```

show controller switch sdr policers

To display the SDR policers summary, use the **show controller switch sdr policers** command in the System Admin EXEC mode.

show controller switch sdr policers location [*node-id*]

Syntax Description

location *node-id*	Selects the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.

Command Default

Displays information for all nodes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To display CoS (class of service) parameters for an SDR, use this command.

This example shows how to view the SDR policers summary:

```
sysadmin-vm:0_RP0#show controller switch sdr policers location 0/LC3/LC-SW

Tue Aug  13 06:02:04.950 UTC
controller switch sdr policers location 0/LC3/LC-SW
Summary Policer Information for Switch 0/LC3/LC-SW
    Port Policing Enabled:              Yes
    Port Committed Burst Size (bytes):  102400
    Port Peak Burst Size (bytes):       204800
    Port Policer MRU (bytes):           10240
    Global Policing Enabled:            No
    Global Committed Burst Size (bytes): 102400
    Global Peak Burst Size (bytes):     204800
    Global Policer MRU (bytes):         10240

                     SDR     SDR     CoS  CoS   CoS   CoS   CoS   CoS   CoS   CoS   CoS
SDR ID  SDR Name     CIR(%)  PIR(%)  B/W  0(%)  1(%)  2(%)  3(%)  4(%)  5(%)  6(%)  7(%)
-------------------------------------------------------------------------------------------
1       Calvados     20      90      CIR  20    5     5     10    10    10    20    20
                                     PIR  100   50    50    50    100   100   100   100
2       default-sdr  40      90      CIR  20    5     5     10    10    10    20    20
```

show controller switch sdr port-statistics

To display the SDR port-statistics summary, use the **show controller switch sdr port-statistics** command in the System Admin EXEC mode.

show controller switch sdr port-statistics location [*node-id*] [*port-number*]

Syntax Description

location *node-id*	Selects the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.
port-number	Displays SDR port-statistics of the specified port.

Command Default

Displays information for all the nodes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command to display packet statistics for each of the traffic class.

This example shows how to view the SDR port-statistics summary:

```
sysadmin-vm:0_RP0#show controller switch sdr port-statistics location 0/LC3/LC-SW

Tue Aug  13 06:18:01.250 UTC
Switch  SDR               Traffic  Packet
Port    ID   SDR Name     Type     Direction  Conforming  Exceeding  Dropped
-------------------------------------------------------------------------------
0       1    Calvados     IPC      Rx         1215851     0          0
                                   Tx         3531794     0          0
                          MgmtEth  Rx         0           0          0
                                   Tx         1525602     0          0
        2    default-sdr  IPC      Rx         6153150     0          0
                                   Tx         8294939     0          0
                          MgmtEth  Rx         0           0          0
                                   Tx         0           0          0
2       1    Calvados     IPC      Rx         3532095     0          0
                                   Tx         2349934     0          0
        2    default-sdr  IPC      Rx         8294945     0          0
                                   Tx         6153144     0          0
4       1    Calvados     IPC      Rx         809583      0          0
                                   Tx         809583      0          0
        2    default-sdr  IPC      Rx         0           0          0
                                   Tx         0           0          0
6       2    default-sdr  IPC      Rx         0           0          0
                                   Tx         0           0          0
8       1    Calvados     IPC      Rx         1134092     0          0
                                   Tx         2559058     0          0
--More--
```

show controller switch sfp

To display the SFP (Small Form-Factor Pluggable) information, use the **show controller switch sfp** command in the System Admin EXEC mode.

show controller switch sfp {**detail location** *node-id port-number* | **summary location** [*node-id*] [*port-number*]}

Syntax Description

detail	Displays the SFP information in detail.
port-number	Displays the SFP information of the specified port. Range is from 0 to 59.
summary	Displays the summary of SFP information.
location *node-id*	Selects the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.

Command Default

If *node-id* is not specified for the **show controller switch sfp summary location** command, then the information for all the nodes is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

SFPs are supported only on the RP (Route Processors).

This example shows how to view the SFP detailed information:

```
sysadmin-vm:0_RP0#show controller switch sfp detail location 0/RP0/RP-SW 54

Fri Aug  30 19:49:58.155 UTC
SFP EEPROM Data for Switch Port 54
    Transceiver Type:                          SFP
    Transceiver Code:                          SFP-1G-LX
    Encoding:                                  8B/10B
    Bit Rate (Mbps):                           1300
    Link Reach for 9u Fiber (kilometers):      10
    Link Reach for 9u Fiber (meters):          10000
    Link Reach for 50u (OM2) Fiber (meters):   550
    Link Reach for 62.5u (OM1) Fiber (meters): 550
    Vendor Name:                               CISCO-FINISAR
    Vendor OUI:                                00.90.65
    Vendor Part #:                             FTLF1318P2BCL-CS (Rev. 0000)
    Laser Wavelength (nano-meters):            1310
    Implemented Options:                       LOS,TxDisable
    Vendor Serial #:                           FNS11250BP3
    Date Code (yy/mm/dd):                      07/06/18 (lot code:   )
    Diagnostic Monitoring:                     AvePwrMon
    Enhanced Options:
```

```
SFP MSA Data
    0x0000: 03 04 07 00 00 00 02 00 : 00 00 00 01 0D 00 0A 64  ...............d
    0x0010: 37 37 00 00 43 49 53 43 : 4F 2D 46 49 4E 49 53 41  77..CISCO.FINISA
    0x0020: 52 20 20 20 00 00 90 65 : 46 54 4C 46 31 33 31 38  R......eFTLF1318
    0x0030: 50 32 42 43 4C 2D 43 53 : 30 30 30 30 05 1E 00 EB  P2BCL.CS0000....
    0x0040: 00 12 00 00 46 4E 53 31 : 31 32 35 30 42 50 33 20  ....FNS11250BP3.
    0x0050: 20 20 20 20 30 37 30 36 : 31 38 20 20 08 00 00 D5  ....070618......

Threshold Data
    Temperature
        Alarm High:   -0.004 C
        Warning High: -0.004 C
        Warning Low:  -0.004 C
        Alarm Low:    -0.004 C
    Voltage
        Alarm High:   6.554 Volt
        Warning High: 6.554 Volt
        Warning Low:  6.554 Volt
        Alarm Low:    6.554 Volt
    Bias
        Alarm High:   131.070 mAmps
        Warning High: 131.070 mAmps
        Warning Low:  131.070 mAmps
        Alarm Low:    131.070 mAmps
    Tx Power
        Alarm High:   6.554 mW (8.16 dBm)
        Warning High: 6.554 mW (8.16 dBm)
        Warning Low:  6.554 mW (8.16 dBm)
        Alarm Low:    6.554 mW (8.16 dBm)
    Rx Power
        Alarm High:   6.554 mW (8.16 dBm)
        Warning High: 6.554 mW (8.16 dBm)
        Warning Low:  6.554 mW (8.16 dBm)
        Alarm Low:    6.554 mW (8.16 dBm)

Real Time Data
    Temperature:            -0.004 C
    Voltage:                6.554 Volt
    Bias:                   131.070 mAmps
    Tx Power:               6.554 mW (8.16 dBm)
    Rx Power:               6.554 mW (8.16 dBm)
    Current Status/Control:
DataReadyBar,RxLOS,TxFault,SoftRateSel0Eq1,RateSel0Eq1,RateSel1Eq1,SoftTxDisable,TxDisable

SFP A2 Data [Lower]
    0x0000: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................
    0x0010: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................
    0x0020: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................
    0x0030: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................
    0x0040: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................
    0x0050: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................
    0x0060: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................
    0x0070: FF FF FF FF FF FF FF FF : FF FF FF FF FF FF FF FF  ................

Cisco SFP Information
    CLEI Code:              CN8ID42AAA
    Part Number:            30-1299-01 (ver: V01 )
    Minimum Temperature (C): 251
    Maximum Temperature (C): 70
    Product Id:             GLC-LH-SM

SFP A2 Data [Upper]
    0x0080: 43 4E 38 49 44 34 32 41 : 41 41 33 30 2D 31 32 39  CN8ID42AAA30.129
```

```
0x0090: 39 2D 30 31 56 30 31 20 : 4B FB 46 00 00 00 00 D5  9.01V01.K.F.....
0x00A0: 00 00 00 00 00 00 00 00 : 00 00 00 00 00 00 00 00  ................
0x00B0: 00 00 00 00 00 00 00 00 : 00 00 00 00 00 00 AA AA  ................
0x00C0: 47 4C 43 2D 4C 48 2D 53 : 4D 20 20 20 20 20 20 20  GLC.LH.SM.......
0x00D0: 20 20 20 20 20 20 20 20 : 20 20 20 20 20 20 20 24  ................
0x00E0: 00 00 00 00 00 00 00 00 : 00 00 00 00 00 00 00 00  ................
0x00F0: 00 00 00 00 00 00 00 00 : 00 40 00 40 00 00 00 00  ................
```

show controller switch statistics

To display switch statistics, use the **show controller switch statistics** command in the System Admin EXEC mode.

show controller switch statistics {**detail** [**location** *node-id port-number*] | **location** [*node-id*] [*port-number*]}

Syntax Description

detail	Displays detailed switch port statistics.
location *node-id*	Specifies the location from which to display information. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.
port-number	Displays switch statistics of the specified port. Range is from 0 to 59.

Command Default

If *node-id* is not specified for the **show controller switch statistics location** command, then the information for all the nodes is displayed.

Also, if the **show controller switch statistics detail** command is used without the **location** keyword, then the information for all the ports on all the nodes is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command displays statistics for all the internal ports present in the Ethernet switch. It also displays connectivity information between each switch port and nodes in the system.

This example shows how to display the switch statistics information:

```
sysadmin-vm:0_RP0# show controller switch statistics location 0/RP0/RP-SW
Thu Aug  29 12:17:32.631 UTC
Rack  Card  Switch  Rack Serial Number
-------------------------------------
0     RP0   RP-SW   FMP12160201

      Phys   State    Tx       Rx       Tx      Rx
Port  State  Changes  Packets  Packets  Errors  Errors  Connects To
-------------------------------------------------------------------------------
0     Down   1        0        0        0       0       LC7
2     Down   1        0        0        0       0       LC6
4     Up     1        2209750  1783057  0       0       FC0
5     Down   0        0        0        0       0       FC1
6     Down   1        0        0        0       0       LC5
8     Down   1        0        0        0       0       LC4
10    Down   0        0        0        0       0       FC2
16    Down   1        0        0        0       0       LC0
18    Down   1        0        0        0       0       LC1
20    Down   0        0        0        0       0       FC5
```

```
21    Down   0        0        0        0       0       FC4
22    Down   1        0        0        0       0       LC2
24    Up     11       1474511  913984   0       0       LC3
26    Down   0        0        0        0       0       FC3
32    Up     11       2219574  1788393  0       0       RP1 Card (RP0 Ctrl)
34    Up     11       142616   142622   0       0       RP1 Card (RP1 Ctrl)
```

The following example shows how to display the switch statistics information in detail:

```
sysadmin-vm:0_RP0#show controller switch statistics detail location 0/RP0/RP-SW 2

                          Phys   Port
Rack  Card  Switch  Port  State  Speed    Connects To
-----------------------------------------------------
0     RP0   RP-SW   2     Down   10-Gbps  LC6

 Rx Unicast Packets:     0
 Rx Multicast Packets:   0
 Rx Broadcast Packets:   0
 Rx Flow Control:        0
 Rx Good Octets:         0
 Rx Bad Octets:          0
 Rx FIFO Overrun:        0
 Rx Undersize:           0
 Rx Fragments:           0
 Rx Oversize:            0
 Rx Jabber:              0
 Rx Errors:              0
 Rx Bad CRC:             0
 Rx Collisions:          0
 Tx Unicast Packets:     0
 Tx Multicast Packets:   0
 Tx Broadcast Packets:   0
--More--
```

show controller switch summary

To display the switch status summary, use the **show controller switch summary** command in the System Admin EXEC mode.

show controller switch summary [**location** [*node-id*] [*port-number*]]

Syntax Description

location *node-id*	Selects the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.
port-number	Displays switch status summary of the specified port.

Command Default

Displays information for all the nodes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command is used to display the status of each port on the switch.

This example shows how to view the switch summary status:

```
sysadmin-vm:0_RP0#show controller switch summary location 0/RP0/RP-SW

Fri Aug  16 06:05:56.205 UTC
Rack  Card  Switch  Rack Serial Number
--------------------------------------
0     RP0   RP-SW   FMP12160201

      Phys   Admin  Port     Protocol  Forward
Port  State  State  Speed    State     State       Connects To
-------------------------------------------------------------------------
0     Down   Up     10-Gbps  Down      -           LC7
2     Down   Up     10-Gbps  Down      -           LC6
4     Up     Up     1-Gbps   Active    Forwarding  FC0
5     Down   Up     1-Gbps   Down      -           FC1
6     Down   Up     10-Gbps  Down      -           LC5
8     Down   Up     10-Gbps  Down      -           LC4
10    Down   Up     1-Gbps   Down      -           FC2
16    Down   Up     10-Gbps  Down      -           LC0
18    Down   Up     10-Gbps  Down      -           LC1
20    Down   Up     1-Gbps   Down      -           FC5
21    Down   Up     1-Gbps   Down      -           FC4
22    Down   Up     10-Gbps  Down      -           LC2
24    Up     Up     10-Gbps  Active    Forwarding  LC3
26    Down   Up     1-Gbps   Down      -           FC3
32    Up     Up     10-Gbps  Active    Forwarding  RP1 Card (RP0 Ctrl)
34    Up     Up     10-Gbps  -         Forwarding  RP1 Card (RP1 Ctrl)
--More--
```

show controller switch trace

To display the switch trace information, use the **show controller switch trace** command in the System Admin EXEC mode.

show controller switch trace {**all** *trace-name*} **location** *node-id* [{**all** *trace-attribute*}]

Syntax Description

trace-name	Trace name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
trace-attribute	Trace attribute.
all	Displays all the details.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Used for diagnostics only.

This example shows how to view the switch trace information:

```
sysadmin-vm:0_RP0#show controller switch trace system_event location 0/RP0 all

Sat Sep  14 05:52:52.133 UTC
02.58.39.459393536:* *** Starting ESD *** *
02.58.39.459511168:Init: Basic initialization complete. Entering main event hand
                                                ler
02.58.42.114090368:Event: CCC cardinfo: ESD personality configured as RP0 (cmdli
                                                ne ignored)
02.58.42.114091648:Event: CCC cardinfo: platform set as Production Panini
02.58.42.114172800:INV: Skip starting of the RP switch till chassis info is rece
                                                ived.
02.58.42.114238336:INV: In Non-dual router mode
02.58.42.114239232:INV: Starting RP switch from chassisinfo_cb.
02.58.42.215374208:Event: CCC information received. Start switch
02.58.42.255279360:CCC PON: flag (0x1) indicates PON will program Black Vlan tra
                                                nslations for all SDR's
02.58.42.270560768:HWID:Board Type 0x1e0800 SLOT:0 HWID:|3c08:3_10.0
02.58.42.270562432:HWID:Board Type 0x1e0800 SLOT:0 HWID:|3c08:3_11.0
02.58.42.270562944:HWID:Board Type 0x1e0800 SLOT:0 HWID:|3c08:3_12.0
02.58.42.270563456:HWID:Board Type 0x1e0800 SLOT:0 HWID:|3c08:3_13.0
02.58.44.112152704:Event: Switch Status Online. Init CPSS and config switch
02.58.44.112175488:Init: Switch is capable of hotplug and reset
02.58.44.112237056:Reg read for is_restart, reg 0x2800c1c, data 0x0
02.58.44.112240512:Init: Is NOT RESTART
02.58.44.112242304:SPI: Version read from flash 1.32
```

```
02.58.44.112242688:SPI: Version: OK 1.32
02.58.44.112248960:CPSS HA: Is ENABLED. Start HA recovery
02.58.44.324463616:CPSS HA: Recovery complete
02.58.44.326155136:Info: CPSS Version: CPSS 4.0.2 Release
02.58.44.326188288:Info: Switch Device Information
  Type         : 0xE01F11AB
  Revision     : 3
  Family       : 14
  Max port num : 59
02.58.44.375312512:Init: CPSS initialization done. Start switch configutation
02.58.44.375330048:Init: Last exit was due to power cycle or unknown reason
02.58.44.375524096:Init: Before cpps based switch init, Global Config Register 0x58,
0x881e4003
02.58.44.379397888:SPI: Data verify OK: Config Verify Calv Black Vlan Xlate: OK
02.58.44.380258816:SPI: Data verify OK: existing config OK: expected Calv vlans exist on
ports
02.58.44.470336384:SPI: Existing SPI based switch initial config is OK
02.58.44.471564032:Init: TXQ Config is ENABLED. Init OK
--More--
```

show controller switch vlan

To display the control plane Ethernet VLAN information, use the **show controller switch vlan** command in the System Admin EXEC mode.

show controller switch vlan {[*vlan-id*] **location** [*node-id*] | **information location** [*node-id*] | **membership location** [*node-id*] | **rules location** [*node-id*] [*port-number*]}

Syntax Description

vlan-id	Specifies the VLAN ID.
information	Displays the allocated VLANs for each SDR.
membership	Lists the switch port membership of VLANs.
rules	Displays VLAN rule summary.
port-number	Displays VLAN rule information of the specified port.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack*/*slot*/*switch* notation.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command to view the VLANs allocated to an SDR.

This example shows how to view the controller switch VLAN information:

```
sysadmin-vm:0_RP0#show controller switch vlan information location 0/LC3/LC-SW

Fri Aug  16 10:03:17.881 UTC
SDR
Identifier  SDR Name     VLAN           VLAN Use
-----------------------------------------------------------------
1           Calvados     513   (0x201)  Calvados Management
                         1025  (0x401)  Calvados RP1 Hosted IPC
                         2049  (0x801)  Calvados RP0 Hosted IPC
2           default-sdr  1026  (0x402)  SDR 2 RP1 Hosted IPC
                         2050  (0x802)  SDR 2 RP0 Hosted IPC
```

Clock Management Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- clock timezone, on page 138
- clock read-calendar, on page 142
- ntp authenticate, on page 143
- ntp authentication-key, on page 144
- ntp peer, on page 145
- ntp server, on page 147
- ntp trusted-key, on page 148
- show calendar, on page 149
- show clock, on page 150
- show ntp associations, on page 151

clock timezone

To set the time zone for display, use the **clock timezone** command in System Admin Config mode or XR Config mode. To remove the time zone setting, use the **no** form of this command.

clock timezone *zone region*
no clock timezone

Syntax Description

zone	Name of the time zone to be displayed when standard time is in effect.
region	Sets the offset according to the region specified.

Command Default

UTC

Command Modes

System Admin Config mode

XR Config mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This table lists common time zone acronyms used for the *zone* argument.

Table 1: Common Time Zone Acronyms

Acronym	Time Zone Name and UTC Offset
Europe	
GMT	Greenwich Mean Time, as UTC.
BST	British Summer Time, as UTC plus 1 hour.
IST	Irish Summer Time, as UTC plus 1 hour.
WET	Western Europe Time, as UTC.
WEST	Western Europe Summer Time, as UTC plus 1 hour.
CET	Central Europe Time, as UTC plus 1 hour.
CEST	Central Europe Summer Time, as UTC plus 2 hours.
EET	Eastern Europe Time, as UTC plus 2 hours.
EEST	Eastern Europe Summer Time, as UTC plus 3 hours.

Acronym	Time Zone Name and UTC Offset
MSK	Moscow Time, as UTC plus 3 hours.
MSD	Moscow Summer Time, as UTC plus 4 hours.
United States and Canada	
AST	Atlantic Standard Time, as UTC minus 4 hours.
ADT	Atlantic Daylight Time, as UTC minus 3 hours.
ET	Eastern Time, either as EST or EDT, depending on place and time of year.
EST	Eastern Standard Time, as UTC minus 5 hours.
EDT	Eastern Daylight Saving Time, as UTC minus 4 hours.
CT	Central Time, either as CST or CDT, depending on place and time of year.
CST	Central Standard Time, as UTC minus 6 hours.
CDT	Central Daylight Saving Time, as UTC minus 5 hours.
MT	Mountain Time, either as MST or MDT, depending on place and time of year.
MST	Mountain Standard Time, as UTC minus 7 hours.
MDT	Mountain Daylight Saving Time, as UTC minus 6 hours.
PT	Pacific Time, either as PST or PDT, depending on place and time of year.
PST	Pacific Standard Time, as UTC minus 8 hours.
PDT	Pacific Daylight Saving Time, as UTC minus 7 hours.
AKST	Alaska Standard Time, as UTC minus 9 hours.
AKDT	Alaska Standard Daylight Saving Time, as UTC minus 8 hours.
HST	Hawaiian Standard Time, as UTC minus 10 hours.
Australia	
WST	Western Standard Time, as UTC plus 8 hours.
CST	Central Standard Time, as UTC plus 9.5 hours.
EST	Eastern Standard/Summer Time, as UTC plus 10 hours (plus 11 hours during summer time).

This table lists an alternative method for referring to time zones, in which single letters are used to refer to the time zone difference from UTC. Using this method, the letter Z is used to indicate the zero meridian,

equivalent to UTC, and the letter J (Juliet) is used to refer to the local time zone. Using this method, the International Date Line is between time zones M and Y.

Table 2: Single-Letter Time Zone Designators

Letter Designator	Word Designator	Difference from UTC
Y	Yankee	UTC minus 12 hours.
X	Xray	UTC minus 11 hours.
W	Whiskey	UTC minus 10 hours.
V	Victor	UTC minus 9 hours.
U	Uniform	UTC minus 8 hours.
T	Tango	UTC minus 7 hours.
S	Sierra	UTC minus 6 hours.
R	Romeo	UTC minus 5 hours.
Q	Quebec	UTC minus 4 hours.
P	Papa	UTC minus 3 hours.
O	Oscar	UTC minus 2 hours.
N	November	UTC minus 1 hour.
Z	Zulu	Same as UTC.
A	Alpha	UTC plus 1 hour.
B	Bravo	UTC plus 2 hours.
C	Charlie	UTC plus 3 hours.
D	Delta	UTC plus 4 hours.
E	Echo	UTC plus 5 hours.
F	Foxtrot	UTC plus 6 hours.
G	Golf	UTC plus 7 hours.
H	Hotel	UTC plus 8 hours.
I	India	UTC plus 9 hours.
K	Kilo	UTC plus 10 hours.
L	Lima	UTC plus 11 hours.
M	Mike	UTC plus 12 hours.

This example shows how to set the time zone to IST Asia/Calcutta:

```
sysadmin-vm:0_RP0# config
sysadmin-vm:0_RP0(config)# clock timezone IST Asia/Calcutta
```

clock read-calendar

To manually copy the hardware clock (calendar) settings into the software clock, use the **clock read-calendar** command in XR EXEC modeSystem Admin EXEC mode.

clock read-calendar

Syntax Description

This command has no keywords or arguments.

Command Default

Read calendar is disabled.

Command Modes

XR EXEC mode

System Admin EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The *calendar clock* is a hardware system clock that runs continuously, even if the router is powered off or rebooted. The hardware system clock is separate from the software clock settings, which are erased when the router is power cycled or rebooted.

Use the **clock read-calendar** command to manually copy the hardware clock setting into the software clock.

In the following example, the hardware clock settings are copied to the software clock with the **clock read-calendar** command. The **show clock** command is then entered to display the new software clock settings.

```
sysadmin-vm:0_RP0# clock read-calendar
sysadmin-vm:0_RP0# show clock
  Thu Jul  18 14:56:51.888 UTC
Thu Jul 18 14:56:52 UTC 2013
```

ntp authenticate

To enable Network Time Protocol (NTP) authentication, use the **ntp authenticate** command in the System Admin Config or XR Config mode. To restore the system to its default condition, use the **no** form of this command.

ntp authenticate
no ntp authenticate

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin Config

XR Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the authenticate command to enable NTP authentication. When NTP authentication is enabled, the system does not synchronize to a time source unless it carries one of the authentication keys specified by the trusted-key command. NTP synchronization will not take place until valid authentication credentials are available with the source.

The following example shows how to enable ntp authentication:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#ntp authenticate
```

ntp authentication-key

To define an authentication key for a trusted Network Time Protocol (NTP) time source, use the **ntp authentication-key** command in the System Admin Config and XR Config modes. To restore the system to its default condition, use the **no** form of this command.

ntp authentication-key *key-number* **md5** {**clear** | **encrypted**} *key-name*
no ntp authentication-key *key-number* **md5** {**clear** | **encrypted**} *key-name*

Syntax Description

key-number	Authentication key. A number in the range from 1 to 65535.
md5	Provides message authentication support using the Message Digest 5 (MD5) algorithm.
clear	Specifies that the key value entered after this keyword is unencrypted.
encrypted	Specifies that the key value entered after this keyword is encrypted.
key-number	Key value. The maximum length is 32 characters.

Command Default

No authentication key is defined for NTP.

Command Modes

System Admin Config

XR Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the authentication-key command to define authentication keys for use with trusted NTP time sources. Use the **authentication-key** command only after enabling authentication.

This example shows how to configure the system to synchronize only to systems providing authentication key 42 in their NTP packets:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#ntp authentication-key 42 md5 clear key1
```

ntp peer

To configure the system clock to synchronize a peer or to be synchronized by a peer, use the **ntp peer** command in the System Admin Config mode. To remove the peer command from the configuration file and restore the system to its default condition with respect to the command, use the **no** form of this command.

ntp peer *peer-name* [{[**key-id** *id*] | [**prefer**] | [**version** *number*]}]
no ntp peer *peer-name* [{[**key-id** *id*] | [**prefer**] | [**version** *number*]}]

Syntax Description

peer-name	Name of the NTP peer.
key-id *key-id*	Defines the authentication key, where the *key-id* argument is the authentication key to use when packets are sent to this peer. The authentication key is also used for packets received from the peer. By default, no authentication key is used.
prefer	Makes this peer the preferred peer that provides synchronization.
version *number*	Defines the Network Time Protocol (NTP) version number, where the *number* argument is a value from 1 to 4. The default is 4.

Command Default

No peers are configured by default.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **ntp peer** command to allow this machine to synchronize with the peer, or conversely.

Caution Although using the **prefer** keyword can help reduce the switching among peers, you should avoid using the keyword because it interferes with the source selection mechanism of NTP and can result in a degradation of performance.

Note To change the configuration of a specific IP address from peer to server or from server to peer, use the **no** form of the peer or server command to remove the current configuration before you perform the new configuration. If you do not remove the old configuration before performing the new configuration, the new configuration does not overwrite the old configuration.

The **key-id** *key-id* argument is effective only if authentication is enabled.

To verify if the configuration is applied, users can execute the **show running-config ntp** command. To verify the state of the ntp association, users can execute the **show ntp associations** command.

The following example shows how to configure ntp peer:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#ntp peer test key-id 2
```

ntp server

To allow the system clock to be synchronized by a time server, use the **ntp server** command in the System Admin Config mode. To remove the **ntp server** command from the configuration file and restore the system to its default condition with respect to this command, use the **no** form of this command.

ntp server *server-name* [{[**key-id** *id*] | [**prefer**] | [**version** *number*]}]
no ntp server *server-name* [{[**key-id** *id*] | [**prefer**] | [**version** *number*]}]

Syntax Description

server-name	Name or the IP address of the NTP server.
key-id *key-id*	Defines the authentication key, where the *key-id* argument is the authentication key to use when packets are sent to this server. By default, no authentication key is used.
prefer	Makes this server the preferred server that provides synchronization.
version *number*	Defines the Network Time Protocol (NTP) version number, where the *number* argument is a value from 1 to 4. The default is 4.

Command Default

No servers are configured by default.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Using the **prefer** keyword reduces switching back and forth among servers.

Note To change the configuration of a specific IP address from peer to server or from server to peer, use the **no** form of the peer or server command to remove the current configuration before you perform the new configuration. If you do not remove the old configuration before performing the new configuration, the new configuration does not overwrite the old configuration.

The **key-id** *key-id* argument is effective only if authentication is enabled.

To verify if the configuration is applied, users can execute the **show running-config ntp** command. To verify the state of the ntp association, users can execute the **show ntp associations** command.

The following example shows how to configure ntp server:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#ntp server test key-id 2
```

ntp trusted-key

To designate a Network Time Protocol (NTP) trusted key, use the **ntp trusted-key** command in the System Admin Config and XR Config modes. To remove the trusted-key command from the configuration file and restore the system to its default condition with respect to this command, use the **no** form of this command.

ntp trusted-key *key-number*
no ntp trusted-key *key-number*

Syntax Description

key-number	Authentication key number to be trusted. Range is from 1 to 65535.

Command Default

No NTP trusted key is designated.

Command Modes

System Admin Config

XR Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The **ntp trusted-key** command is effective only if authentication is enabled.

If authentication is enabled, use the trusted-key command to define one or more key numbers (corresponding to the keys defined with the authentication-key [NTP] command) that a NTP system must provide in its NTP packets for this system to synchronize to it. Because the other system must know the correct authentication key, this precaution provides protection against accidentally synchronizing the system to a system that is not trusted.

The following example shows how to designate an ntp trusted key:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#ntp authentication-key 1 md5 060506324F41 7
sysadmin-vm:0_RP0(config)#ntp trusted-key 1
sysadmin-vm:0_RP0(config)#ntp clock-period 17179865
sysadmin-vm:0_RP0(config)#ntp server 12.0.0.1 key 1
```

show calendar

To display the system time and date, use the **show calendar** command in the System Admin EXEC and XR EXEC mode.

show calendar

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The time format of the **show calendar** output depends on the time format set using the **clock timezone** command.

The following example shows sample output from the **show calendar** command:

```
sysadmin-vm:0_RP0# show calendar
Thu Jul  18 17:32:28.640 UTC
```

show clock

To display the system clock, use the **show clock** command in the System Admin EXEC mode.

show clock [**trace** {**timezone_config** | **timezone_notify**} {**all** *trace-name*} **location** *node-id* [*trace-attribute*]]

Syntax Description

trace-name	Trace buffer name.
timezone_config	Displays timezone configuration traces.
timezone_notify	Displays timezone notify traces.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
trace-attribute	Trace attribute.
all	Displays all the details.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The time format of the **show clock** output depends on the time format set using the **clock timezone** command

This example shows how to view the output of the **show clock** command:

```
sysadmin-vm:0_RP0#show clock

Thu Aug  22 07:29:17.225 UTC
Thu Aug 22 07:29:17 UTC 2013
```

show ntp associations

To display the status of Network Time Protocol (NTP) associations and to view the nodes participating in the NTP synchronization, use the **show ntp associations** command in System Admin EXEC mode.

show ntp associations

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows the sample output of the **show ntp associations** command:

```
sysadmin-vm:0_RP0#show ntp associations
Mon Aug  19 20:23:22.775 UTC
     remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
external:
 12.28.59.200    10.81.254.131    2 u   15   64    1    0.186    0.138   0.000
internal:
 192.0.4.1       127.0.0.1       12 u    4   64    1    0.171   17.240   0.000
```

Hardware Module Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- hw-module attention-led, on page 154
- hw-module location, on page 155
- hw-module logging onboard disable, on page 157
- hw-module reset auto disable, on page 158
- hw-module shutdown, on page 159
- show hw-module fpd, on page 160
- show inventory, on page 162
- show led, on page 164
- show platform, on page 166
- upgrade hw-module fpd, on page 167

hw-module attention-led

To enable attention-LED for a specific node, use the **hw-module attention-led** command in the System Admin Config mode. To disable the attention-LED, use the **no** form of this command.

hw-module attention-led location *node-id*
no hw-module attention-led location *node-id*

Syntax Description

location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

Disabled.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show led** command in the System Admin EXEC mode to verify the output of the **hw-module attention-led** command.

This example shows how to enable attention-LED and then verify the output using the **show led** command:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#hw-module attention-led location 0/3
sysadmin-vm:0_RP0(config-location-0/3)#commit
Tue Aug  27 18:59:28.740 UTC
Commit complete.
sysadmin-vm:0_RP0(config-location-0/3)#exit
Tue Aug  27 18:59:32.439 UTC
sysadmin-vm:0_RP0(config)#exit
Tue Aug  27 18:59:34.285 UTC

sysadmin-vm:0_RP0#show led location 0/3
Tue Aug  27 18:59:59.723 UTC
============================================================
Location  LED Name                      Mode         Color
============================================================
0/3
         0/3-Attention LED             WORKING     BLUE
         0/3-Status LED                WORKING     GREEN
```

hw-module location

To recover the RP (route processor) and SC (shelf controller) card or all the nodes in a system, use the **hw-module location** command in Sysadmin EXEC mode.

System Admin EXEC Mode
hw-module location *[node-id|all]* **bootmedia** *[recovery-partition|usb|network]* **reload**

Syntax Description

node-id|all	Node whose hardware attributes you want to configure. The *node-id* is expressed in the *rack/slot* notation in the System Admin EXEC mode and represented in the rack/slot/module format in the XR EXEC mode. To confgure all nodes, use *all* . **Note** Enter the **show platform** command to see the location of all nodes installed in the router.
recovery-partition	Recovers the router using the recovery image in the hard disk partition.

Command Default

None

Command Modes

System Admin EXEC

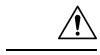
Command History

Release	Modification
Release 5.0.0	This command was introduced.
Release 5.2.3	A reload of the hardware after the slice is shutdown using the **reload** keyword is not required as the slice is dynamically reset.
Release 5.2.5	Introduced keyword **bootmedia recovery-partition**. This keyword can be used in conjunction with the hw-module location command only in the Sysadmin mode.

Usage Guidelines

To reset a specific node, or to put a node into maintenance mode, use the **hw-module location** command in System Admin EXEC mode.

The **force** keyword forces an immediate reload or shutdown of the router without waiting for an orderly system shutdown.



Caution A forced reload or shutdown can corrupt the file system. Therefore, use the **force** keyword only when a normal reload or shutdown does not work.

To ensure that the router has recovered from the forced shutdown, perform a normal reload after restarting the router.

The following example shows how to change the state of the hardware module to offline to perform diagnostics:

```
sysadmin-vm:0_RP0#hw-module location 0/3 offline
Take hardware module offline ? [no,yes] yes
```

The following example shows how to recover a router from a state of disaster, using the recovery image in the hard disk partition.:

```
sysadmin-vm:0_RP0#hw-module location 0/RP1 bootmedia recovery-partition
```

hw-module logging onboard disable

To disable onboard failure logging (OBFL), use the **hw-module logging onboard disable** command in System Admin Config mode. To enable OBFL again, use the **no** form of this command.

hw-module location *node-id* **logging onboard disable**
no hw-module location *node-id* **logging onboard disable**

Syntax Description

location *node-id*	Enables or disables OBFL for the designated node. The *node-id* argument is entered in the *rack/slot* notation.

Command Default

By default, OBFL logging is enabled.

Command Modes

System Admin Config mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

When the OBFL feature is disabled, existing OBFL logs are preserved. To resume OBFL data collection, enable the OBFL feature again.

Note If a new node is inserted, and OBFL is enabled for that slot, then OBFL is enabled for the new node. If a card is removed from a router and inserted into a different router, the card assumes the OBFL configuration for the new router.

Examples

The following example shows how to disable OBFL for a card:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)# hw-module location 0/1 logging onboard disable
```

hw-module reset auto disable

To disable the node reset feature on a specific node, use the **hw-module reset auto disable** command in System Admin Config mode. To reenable the reset feature on a specific node, use the **no** form of this command.

hw-module reset auto disable location *node-id*
no hw-module reset auto disable location *node-id*

Syntax Description

location *node-id*	Identifies the node on which you want to disable the auto reset feature in case of errors. The *node-id* argument is entered in the *rack/slot* notation.

Command Default

The node reset feature is disabled for all nodes.

Command Modes

System Admin Config

Command History

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to disable the reset feature on a node:

```
sysadmin-vm:0_RP0# config
sysadmin-vm:0_RP0(config)# hw-module reset auto disable location 0/1
sysadmin-vm:0_RP0(config-location-0/1)# commit
Tue Aug  27 19:47:37.841 UTC
Commit complete.
sysadmin-vm:0_RP0(config-location-0/3)# exit
Tue Aug  27 19:47:37.841 UTC
sysadmin-vm:0_RP0(config)# exit
```

hw-module shutdown

To administratively shut down a specific node, use the **hw-module shutdown** command in System Admin Config mode. To return a node to the up state, use the **no** form of this command.

hw-module shutdown location *node-id*
no hw-module shutdown location *node-id*

Syntax Description

location *node-id*	Identifies the node you want to shut down. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

Nodes are in the up state when the system is powered on and when the software boots on the cards.

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Nodes that are shut down do not have power.

Route processors (RPs), Fan tray (FT), and Power tray (PT) cannot be shutdown using the **hw-module shutdown** command.

Enter the **show platform** command in System Admin EXEC mode to display the results of the **hw-module shutdown** command.

This example shows how to shutdown the node 0/1 and view the result using the **show platform** command:

```
sysadmin-vm:0_RP0#config
Tue Aug  27 12:47:40.391 UTC
Entering configuration mode terminal
sysadmin-vm:0_RP0# hw-module shutdown location 0/1
sysadmin-vm:0_RP0(config-location-0/1)# commit
Tue Aug  27 12:47:57.307 UTC
Commit complete.
sysadmin-vm:0_RP0(config-location-0/1)# exit
Tue Aug  27 12:48:00.171 UTC
sysadmin-vm:0_RP0(config)# exit
Tue Aug  27 12:48:02.619 UTC
sysadmin-vm:0_RP0# show platform location 0/1
Tue Aug  27 12:48:20.766 UTC
Location  Card Type              HW State      SW State      Config State
------------------------------------------------------------------------------
0/1       NC6-10X100G-M        PRESENT       SW_INACTIVE   SHUT
```

show hw-module fpd

To display the hardware module information, use the **show hw-module fpd** command in the System Admin EXEC mode.

show hw-module [**location** {**node-id** | **all**}] **fpd** [*fpd-name*]

Syntax Description

fpd-name	Displays information about the field-programmable device (FPD). The value for the *fpd-name* argument can be one of the following: • BAO-MB FPGA • BIOS FPD • CCC FPGA • CCC Power-On • CPU Complex FPD • Ethernet Switch • Fantray FPGA • PM0-DT-PriMCU • PM0-DT-Sec5vMCU • PM0-DT-Sec54vMCU • PM1-DT-PriMCU • PM1-DT-Sec5vMCU • PM1-DT-Sec54vMCU • PM2-DT-PriMCU • PM2-DT-Sec5vMCU • PM2-DT-Sec54vMCU • Slice-1 GN2411
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
all	Displays hardware module information from all the nodes.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

The following example shows how to view the output of **show hw-module** command:

```
sysadmin-vm:0_RP0#show hw-module fpd Slice-1\ GN2411

Mon Aug  19 09:03:30.797 UTC
                                                                    FPD Versions
                                                                   ================
Location      Card type     HWver   FPD device       Status    Running Download
--------------------------------------------------------------------------------
0/3           NC6-10X100G-M 1.0     Slice-1 GN2411   READY       2.07    2.07
```

show inventory

To retrieve and display information about all the Cisco products that are installed in the router, use the **show inventory** command in System Admin EXEC or XR EXEC mode.

System Admin EXEC Mode
show inventory [{**all** | **chassis** | **fan** | **location** {*node-id*} | **power** | **raw**}]
XR EXEC Mode
show inventory [{*locationspecifier* | **all** | **location** {*locationspecifier* | **all**} | **oid** | **raw**}]

Syntax Description

all	(Optional) Displays inventory information for all the physical entities in the chassis.
location {*node-id*}	(Optional) Displays inventory information for a specific node, or for all nodes in the chassis.
raw	(Optional) Displays raw information about the chassis for diagnostic purposes.
chassis	(Optional) Displays inventory information for the entire chassis.
locationspecifier	(Optional) Displays the name of the location.
oid	(Optional) Displays OID information about the chassis.
fan	(Optional) Displays inventory information for the fans.
power	(Optional) Displays inventory information for the power supply.

Command Default

All inventory information for the entire chassis is displayed.

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Enter the **show inventory** command with the **raw** keyword to display every RFC 2737 entity installed in the router, including those without a PID, unique device identifier (UDI), or other physical identification.

If any of the Cisco products do not have an assigned PID, the output displays incorrect PIDs, and version ID (VID) and serial number (SN) elements may be missing.

For UDI compliance products, the PID, VID, and SN are stored in EEPROM. Use the **show inventory** command to display this information.

The following example shows partial sample output from the **show inventory** command with the **raw** keyword:

```
sysadmin-vm:0_RP0# show inventory raw
```

```
Tue Aug  27 13:32:31.730 UTC

 Name: Rack 0-Chassis        Descr: NCS 6008-8-Slot Chassis
 PID: N/A                    VID: N/A                    SN: N/A

 Name: Rack 0-LineCard Chassis backplane  Descr: NCS 6008-8-Slot Chassis Backplane
 PID: N/A                    VID: N/A                    SN: N/A

 Name: Rack 0-MidPlane IDPROM  Descr: NCS 6008-8-Slot Chassis
 PID: NCS-6008        VID: V01                   SN: SAD12345678

 Name: Rack 0-Line Card Slot 0  Descr: NCS 6008-8-Slot Line Card Slot
 PID: N/A                    VID: N/A                    SN: N/A

 Name: 0/0-Card              Descr: NCS 6000 10x100G Multi-Service CXP P0
 PID: N/A                    VID: N/A                    SN: N/A

 Name: 0/0-Motherboard       Descr: Motherboard Module
 PID: N/A                    VID: N/A                    SN: N/A
--More--
```

Table 1 describes the significant fields shown in the display.

Table 3: show inventory Field Descriptions

Field	Description
NAME	Hardware for which the inventory information is displayed. If you are displaying the chassis inventory, this field shows “chassis.” If you are displaying raw inventory, or all inventory information for all nodes in the chassis, this field shows the node name in partially qualified format. For a node, the NAME is expressed in *rack/slot* notation.
DESCR	Describes the chassis or the node. Chassis descriptions provide the name of the chassis and its Gbps. Node descriptions provide the type of node and its software version.
PID	Physical model name of the chassis or node.
VID	Physical hardware revision of the chassis or node.
SN	Physical serial number for the chassis or node.

show led

To display LED information for the router, or for a specific LED location, use the **show led** command in System Admin EXEC mode.

show led [{**location** [*node-id*] | **trace** {**all***trace-name*} **location** *node-id* [{**all***trace-attributes*}]}]

Syntax Description

location *node-id*	Specifies the node for which to display LED information. The *node-id* argument is entered in the *rack/slot* notation.
trace	Displays LED debug traces information.
trace-name	Trace name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
trace-attribute	Trace attribute.
all	Displays all the details.

Command Default

If no node is specified, information about all LEDs on the router is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Enter the **show platform** command to see the location of all nodes installed in the router.

The following example sample output from the **show led** command with the keyword:

```
sysadmin-vm:0_RP0# show led
Tue Aug  27 13:44:33.770 UTC
============================================================
Location  LED Name                       Mode         Color
============================================================
0/0
          0/0-Attention LED              WORKING     OFF
          0/0-Status LED                 WORKING     GREEN
0/1
          0/1-Attention LED               -           -
          0/1-Status LED                  -           -
0/RP0
          0/RP0-Attention LED            WORKING     OFF
          0/RP0-Status LED               WORKING     GREEN
          0/RP0-Alarm Minor LED          WORKING     AMBER
          0/RP0-Alarm Major LED          WORKING     AMBER
          0/RP0-Alarm Critical LED       WORKING     OFF
0/RP1
          0/RP1-Attention LED            WORKING     OFF
          0/RP1-Status LED               WORKING     GREEN
```

```
          0/RP1-Alarm Minor LED         WORKING     AMBER
          0/RP1-Alarm Major LED         WORKING     AMBER
          0/RP1-Alarm Critical LED      WORKING     OFF
0/FC0
          0/FC0-Attention LED           WORKING     OFF
```

Table 4: show led location Field Descriptions

Field	Description
LOCATION	Location of the node. LOCATION is expressed in the *rack/slot* notation.
LED Name	Name of the LED.
MODE	Current operating mode of the specified node.
COLOR	Color of the LED.

show platform

To display information and status for each node in the system, use the **show platform** command in System Admin EXEC or XR EXEC mode.

System Admin EXEC Mode
show platform [{**detail** | **slices**}] [**location** [*node-id*]]
XR EXEC Mode
show platform

Syntax Description

detail	Displays details of node type and state.
slices	Displays summary of node forwarding slices.
location *node-id*	Specifies the target node. The *node-id* argument is entered in the *rack/slot* notation.

Command Default

Status and information are displayed for all nodes in the system.

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.
Release 5.2.3	The output for the **detail** keyword captures card failure events and the reason for failure when **show platform** command is run in System Admin EXEC mode.

Usage Guidelines

The **show platform** command provides a summary of the nodes in the system, including node type and status.

For NCS 6008, EP1 will be displayed as, **Not allowed online**, until the required license is bought.

The following example shows sample output from the **show platform** command:

```
sysadmin-vm:0_RP0#show platform
Wed Aug  28 06:49:49.822 UTC
Location  Card Type                HW State      SW State      Config State
------------------------------------------------------------------------------
0/RP0     NC6-RP                   OPERATIONAL   OPERATIONAL   NSHUT
0/RP1     NC6-RP                   OPERATIONAL   OPERATIONAL   NSHUT
0/FC0     NC6-FC                   OPERATIONAL   N/A           NSHUT
0/FT0     P-L-FANTRAY              OPERATIONAL   N/A           NSHUT
0/FT1     P-L-FANTRAY              OPERATIONAL   N/A           NSHUT
0/3       NC6-10X100G-M            OPERATIONAL   OPERATIONAL   NSHUT
0/PT1     NCS-AC-PWRTRAY           OPERATIONAL   N/A           NSHUT
```

upgrade hw-module fpd

To manually upgrade the current field-programmable device (FPD) image package on a module, use the **upgrade hw-module fpd** command in System Admin EXEC mode.

upgrade hw-module location {*node-id* | **all**} **fpd** {*fpd-type* | **all**} [**force**]

Syntax Description

all	Upgrades all FPD images on the selected module.
fpga-type	Upgrades a specific field-programmable gate array (FPGA) image on the module. Use the **show fpd package** command to view all available FPGA images available for a specific module.
force	(Optional) Forces the update of the indicated FPD image package on a shared port adapter (SPA) that meets the minimum version requirements. Without this option, the manual upgrade upgrades only incompatible FPD images.
location {*node-id* |**all**}	Specifies the node for which to upgrade the FPD image. The *node-id* argument is expressed in the *rack/slotsubslot* notation. Use the **all** keyword to indicate all nodes.

Command Default

None

Command Modes

System Admin EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Note The use of the force option when doing a fpd upgrade is not recommended except under explicit direction from Cisco engineering or TAC.

Note It is recommended to upgrade all FPGAs on a given node using the **upgrade hw-module fpd all location** {**all** | *node-id*} command. Do not upgrade the FPGA on a node using the **upgrade hw-module fpd** <*individual-fpd*> **location** {**all** | *node-id*} as it may cause errors in booting the card.

During the upgrade procedure, the module must be offline (shut down but powered).

Naming notation for the *node-id* argument is *rack/slotsubslot*; a slash between values is required as part of the notation.

- *rack* —Chassis number of the rack.
- *slot* —Physical slot number of the SPA interface processor (SIP).

This example shows how to upgrade the Ethernet Switch and view the output using the **show hw-module fpd** command:

```
sysadmin-vm:0_RP0# upgrade hw-module location 0/RP0 fpd Ethernet
sysadmin-vm:0_RP0# show hw-module fpd
Tue Aug  27 14:54:10.200 UTC
                                                                    FPD Versions
                                                                   ================
Location      Card type     HWver   FPD device       Status     Running Download
-------------------------------------------------------------------------------
0/0           NC6-10X100G-M 0.2     CCC FPGA         READY        1.14    1.14
0/0           NC6-10X100G-M 0.2     BAO-MB FPGA      READY        1.00    1.00
0/0           NC6-10X100G-M 0.2     CCC Power-On     READY        1.30    1.30
0/0           NC6-10X100G-M 0.2     Ethernet Switch  READY        1.32    1.32
0/0           NC6-10X100G-M 0.2     BIOS FPD         READY        9.10    9.10
0/0           NC6-10X100G-M 1.0     Slice-1 GN2411   READY        2.07    2.07
0/1           NC6-10X100G-M 0.2     CCC FPGA         READY        1.14    1.14
0/1           NC6-10X100G-M 0.2     BAO-MB FPGA      READY        1.00    1.00
0/1           NC6-10X100G-M 0.2     CCC Power-On     READY        1.30    1.30
0/1           NC6-10X100G-M 0.2     Ethernet Switch  READY        1.32    1.32
0/1           NC6-10X100G-M 0.2     BIOS FPD         READY        9.10    9.10
0/1           NC6-10X100G-M 1.0     Slice-1 GN2411   READY        2.07    2.07
0/RP0         NC6-RP        0.1     CCC FPGA         UPGD SKIP    1.00    1.00
0/RP0         NC6-RP        0.1     CCC Power-On     UPGD SKIP    1.30    1.30
0/RP0         NC6-RP        0.1     Ethernet Switch  UPGD SKIP    1.32    1.32
0/RP0         NC6-RP        0.1     CPU Complex FPD  UPGD SKIP    3.06    3.06
0/RP0         NC6-RP        0.1     BIOS FPD         UPGD SKIP    9.10    9.10
0/RP1         NC6-RP        0.1     CCC FPGA         READY        1.00    1.00
0/RP1         NC6-RP        0.1     CCC Power-On     READY        1.30    1.30
```

Install Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- install activate, on page 170
- install add, on page 172
- install backup, on page 174
- install deactivate, on page 176
- install extract, on page 178
- install prepare, on page 179
- install prepare issu, on page 180
- install activate issu, on page 181
- install activate issu load, on page 182
- install activate issu run, on page 183
- install deactivate issu, on page 184
- install activate issu cleanup, on page 185
- install activate issu abort, on page 186
- install remove, on page 187
- install verify packages, on page 189
- show install active, on page 191
- show install inactive, on page 193
- show install log, on page 194
- show install package, on page 196
- show install prepare, on page 198
- show install repository, on page 199
- show install request, on page 200
- show issu summary, on page 201

install activate

To add software functionality to the active software set, use the **install activate** command in EXEC or System Admin EXEC mode or XR EXEC mode.

EXEC Mode:

install activate {*device*:*package* | **id** *add-id*} [**auto-abort-timer** *time*] [**location** *node-id*] [{**asynchronous** | **synchronous**}] [**parallel-reload**] [**prompt-level** {**default** | **none**}] [**test**] [**pause sw-change**]

Administration EXEC Mode:

install activate {*package* | **id** *add-id*}

Syntax Description

package	Enter the package name(s) separated by space. Example: ncs6k.iso ncs6k_upgrade.iso **Note** Multiple packages can be activated at one time. Up to 64 packages can be specified in a single **install activate** command. However, the number of packages is limited based on the length of the character entered. The character length should not exceed 1024.
id *add-id*	Specifies the ID number of an **install add** operation. The command activates all packages that were added in the specified **install add** operation. The ID number of an **install add** operation is indicated in the syslog displayed during the operation and in the output of the **show install log** command. Up to 64 **install add** operations can be specified.

Command Default

The **install activate** command can be executed without any keywords if the **install prepare** is already executed.

EXEC Mode

- Package is activated on all supported nodes for the SDR.
- Operation is performed in asynchronous mode: The **install activate** command runs in the background, and the EXEC prompt is returned as soon as possible.

Command Modes

EXEC

System Admin EXEC mode

XR EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **install activate** command to activate ISO images, software packages or SMUs for all valid cards. Information within the package is used to verify compatibility with the target cards and with the other active software. Actual activation is performed only after the package compatibility and application program interface (API) compatibility checks have passed.

Specifying Packages to Activate

You can either use the **id** *add-id* keyword and argument to activate all packages that were added in one or more specific **install add** operations, or specify packages by name. The operation ID of an **install add** operation is indicated in the syslog displayed during the operation and in the output of the **show install log** command. If you specify packages according to operation ID, all the packages that were added by the specified operation must still be on the router.

Note Activating a Software Maintenance Update (SMU) does not cause any earlier SMUs, or the package to which the SMU applies, to be automatically deactivated.

Activating a Package for a Specific SDR

- To activate a package for a specific SDR from administration EXEC mode, use the **install activate** command with the **sdr** *sdr-name* keyword and argument.
- To activate a package when logged into an SDR, use the **install activate** command in EXEC mode.

Note Some packages do not support SDR-specific activation and can only be activated for all SDRs simultaneously from administration EXEC mode. For detailed instructions, see the *Managing Cisco IOS XR Software Packages* module of *System Management Configuration Guide for Cisco NCS 6000 Series Routers*.

In this example, an SMU file, **ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu**, is activated to the active software set.

```
sysadmin-vm:0_RP0# install activate ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu

result Wed Sep 18 05:35:06 2013 Install operation 8 (install activate) started by user
'root' will continue asynchronously.
sysadmin-vm:0_RP0# 0/3:Sep 18 00:35:09.189 : pm[1736]:
%INFRA-Process_Manager-3-PROCESS_RESTART : Process slice_manager restarted
LC/0/3/CPU0:Sep 18 00:37:39.942 : npu_driver[122]: %PLATFORM-NPU-3-SW_ERROR : Slice Manager
 disconnect notification received, Success
sysadmin-vm:0_RP0# Wed Sep 18 05:36:10 2013 Install operation 8 completed successfully.
sysadmin-vm:0_RP0# 0/RP0:Sep 18 00:36:10.075 : inst_mgr[3768]:
%INFRA-INSTMGR-6-OPERATION_SUCCESS : Install operation 8 completed successfully

sysadmin-vm:0_RP0# install commit
```

install add

To copy the contents of the ISO image, package, and SMUs to the software repository, use the **install add** command in EXEC or System Admin EXEC mode or XR EXEC mode.

Administration EXEC Mode:

install add source *source-path package-name*

EXEC Mode:

install add [{**source** *source-path* | **tar**}] *file* [**activate** [**pause sw-change**] [**auto-abort-timer** *time*] [**location** *node-id*]] [{**asynchronous** | **synchronous**}] [**parallel-reload**] [**prompt-level** {**default** | **none**}]

Syntax Description

source *source*	Specifies the source location of the packages. The source location can be one of the following: • **harddisk:** • **ftp:**//*username@server:/package_path* • **tftp:**//*package_path*
package name	Enter the package name(s) separated by space. Example: tftp://server/directory/ file1 file2 file3

Command Default

Packages are added to the software repository, but are not activated.

The operation is performed in asynchronous mode. The **install add** command runs in the background, and the EXEC prompt is returned as soon as possible.

Command Modes

EXEC

XR EXEC mode

System Admin EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.
Release 5.0.1	Support of ftp and sftp protocols was introduced.

Usage Guidelines

Use the **install add** command to unpack the package software files from an ISO image, tar file, package, and SMUs and copy them to the software repository.

You can use ftp, tftp, or sftp protocols to transfer files from the network server to the router. ftp and sftp protocols are supported from R5.0.1. In case of ftp and sftp protocols, you need to enter password within 60 seconds to continue with the install add operation. Else, the operation is aborted. To use ftp and sftp protocols on the XR VM, it is mandatory that the *ncs6k-k9sec package* has been installed on the router.

- From administration EXEC mode, the package software files are added to all route processors (RPs) installed in the . If the **install add** command is entered without specifying an SDR, then the package files are added to all RPs in .

- From EXEC mode, the package software files are added to the RPs only for the SDR to which you are logged in.

In this example, an SMU file is added to the router's software repository. The file's TFTP server folder path and name (**ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu**) are specified.

```
sysadmin-vm:0_RP0# install add source
tftp://223.255.254.254/auto/tftp-infra/wmori/ng-install/images/40I/sysadmin-smu/
ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu

result Wed Sep 18 05:06:24 2013 Install operation 3 (install add) started by user 'root'
will continue asynchronously.
sysadmin-vm:0_RP0# Wed Sep 18 05:06:30 2013 Install operation 3 completed successfully.
sysadmin-vm:0_RP0# 0/RP0:Sep 18 00:06:30.471 : inst_mgr[3768]:
%INFRA-INSTMGR-6-OPERATION_SUCCESS : Install operation 3 completed successfully

sysadmin-vm:0_RP0# install commit
```

install backup

To create a hard disk recovery partition and copy the recovery image to this partition, use the **install backup** command in the System Admin EXEC mode. It is important to note that this command is executed in the System Admin EXEC mode only.

Note **When you create a disaster recovery partition for the first time (if a hard disk recovery partition does not exist), the entire hard disk is formatted. So ensure that you backup the important data or files such as logs, configurations, and trace files from XR and Calvados hard disks to a location outside the system.**

install backup /harddisk:/ *tar-file-path* **location** *destination*

Syntax Description

tar-file-path	Enter the location in the hard disk and name of the recovery image file in `.tar` format. For example, `/harddisk:/dr-boot.tar` . Ensure that there is no space between the keyword /harddisk:/ and the recovery image file name. **Note** If you are creating the hard disk recovery partition in a location where the `confd_helper` process is running in SysAdmin plane, the `confd_helper` process is restarted. This results in the user being logged out of SysAdmin mode. Log in to SysAdmin mode to check the install operation logs or to perform any Sysadmin operation.
destination	The *destination* argument is expressed in the rack/slot notation.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.2.5	This command is introduced.

This example show how to use the **install backup** command. The *tar* file (recovery image) location and the destination location are specified. This command creates a hard disk partition and copies the recovery image to the hard disk of the RP and SC card. If a partition already exists, the recovery image is updated.

```
sysadmin-vm:0_RP0# install backup /harddisk:/dr-boot.tar location 0/RP0
sysadmin-vm:0_RP0# install commit
```

install deactivate

To remove a package from the active software set, use the **install deactivate** command in EXEC or System Admin EXEC mode or XR EXEC mode.

EXEC Mode:
install deactivate {**id** *add-id* | *device***:***package*} [**auto-abort-timer** *time*] [**location** *node-id*] [{**asynchronous** | **synchronous**}] [**parallel-reload**] [**prompt-level** {**default** | **none**}] [**test**] [**pause sw-change**]
install deactivate {*package* | **id** *add-id*}

Syntax Description

package	Enter the package name(s) separated by space. Example: ncs6k.iso ncs6k_upgrade.iso **Note** Multiple packages can be deactivated at one time. Up to 64 packages can be specified in a single **install deactivate** command. However, the number of packages is limited based on the length of the character entered. The character length should not exceed 1024.
id *add-id*	Specifies the ID number of an **install add** operation. The command deactivates all packages that were added in the specified **install add** operation. The ID number of an **install add** operation is indicated in the syslog displayed during the operation and in the output of the **show install log** command. Up to 16 **install add** operations can be specified.

Command Default

The **install deactivate** operation is performed in asynchronous mode: The command runs in the background, and the router prompt is returned as soon as possible.

Administration EXEC mode: The package is deactivated on all supported nodes in the system.

EXEC mode: The package is deactivated on all supported nodes for the SDR.

Command Modes

EXEC

System Admin EXEC mode

XR EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Deactivating a package removes the activated package from the active software set from all nodes. When a deactivation is attempted, the system runs an automatic check to ensure that the package is not required by other active packages. The deactivation is permitted only after all compatibility checks have passed.

The following conditions apply to software deactivation:

- A feature package cannot be deactivated if active packages need it to operate.

Specifying Packages to Deactivate

You can either use the **id** *add-id* keyword and argument to deactivate all packages that were added in one or more specific **install add** operations, or specify packages by name. The operation ID of an **install add** operation is indicated in the syslog displayed during the operation and in the output of the **show install log** command. If you specify packages according to operation ID, all the packages that were added by the specified operation must still be on the router.

Command Modes

Note To enter administration EXEC mode, you must be logged in to the owner SDR and have root-system access privileges.

Router Reloads

If the deactivation requires a router reload, a confirmation prompt appears.

This example shows how to deactivate a package. Here, the SMU file **ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu** is deactivated.

```
sysadmin-vm:0_RP0# install deactivate install deactivate
ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu

result Wed Sep 18 05:45:49 2013 Install operation 9 (install deactivate) started by user
'root' will continue asynchronously.
sysadmin-vm:0_RP0# LC/0/3/CPU0:Sep 18 00:48:22.153 : npu_driver[122]: %PLATFORM-NPU-3-SW_ERROR
 : Slice Manager disconnect notification received, Success
0/3:Sep 18 00:45:50.978 : pm[1736]: %INFRA-Process_Manager-3-PROCESS_RESTART : Process
slice_manager restarted
Wed Sep 18 05:45:51 2013 Install operation 9 completed successfully.
sysadmin-vm:0_RP0# 0/RP0:Sep 18 00:45:51.260 : inst_mgr[3768]:
%INFRA-INSTMGR-6-OPERATION_SUCCESS : Install operation 9 completed successfully

sysadmin-vm:0_RP0# install commit
```

install extract

To extract individual ISO images from the main ISO package and place the installable files in the repository, use the **install extract** command in the System Admin EXEC or XR EXEC mode. Executing this command from XR VM extracts only the xr.ios package. Executing this command in

install extract *package-name*

Syntax Description

package-name	Enter package names separated by space. For example, ncs6k-mini-x-5.2.3.09 ncs6k-mcast-5.2.3.09 ncs6k-mpls-5.2.3.09

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

In this example, the ISO image is extracted from the main package **ncs6k-mini-x-5.2.3.09I**.

```
sysadmin-vm:0_RP0# install extract ncs6k-mini-x-5.2.3.09I
sysadmin-vm:0_RP0# install commit
```

install prepare

To prepare the installable files (ISO image, packages and SMUs) for activation, use the **install prepare** command in the System Admin EXEC or XR EXEC mode. This command performs pre-activation checks and the loads individual components of the installable files on to the router setup. The advantage of preparing the installable files is that the time required for subsequent activation is considerably reduced.

install prepare { *package-name* | **clean** | **id** *id* }

Syntax Description

package-name	Enter package name(s) separated by space. Example: ncs6k-mini-x-5.2.3.09 ncs6k-mcast-5.2.3.09 ncs6k-mpls-5.2.3.09
clean	The prepare operation is undone.
id *id*	Specifies the ID of the add operation whose packages are to be prepared.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.
Release 5.0.1	Support for ISO images was introduced.

In this example, the SMU file **ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu** is prepared for activation:

```
sysadmin-vm:0_RP0# install prepare ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu

result Wed Sep 18 05:18:45 2013 Install operation 4 (install prepare) started by user 'root'
 will continue asynchronously.
sysadmin-vm:0_RP0# Wed Sep 18 05:18:46 2013 Install operation 4 completed successfully.
sysadmin-vm:0_RP0# 0/RP0:Sep 18 00:18:46.600 : inst_mgr[3768]:
%INFRA-INSTMGR-6-OPERATION_SUCCESS : Install operation 4 completed successfully

sysadmin-vm:0_RP0# install commit
```

install prepare issu

To prepare the installable files (ISO image, packages and SMUs) for activation using In-Service Software Upgrade (ISSU), use the **install prepare issu** command in the System Admin EXEC or XR EXEC mode. This command performs pre-activation checks and the loads individual components of the installable files in the router setup. The advantage of preparing the installable files is that the time required for subsequent activation is reduced considerably.

install prepare issu*package-name*

Syntax Description

package-name	Enter package names separated by space. For example, ncs6k-mini-x-5.2.3.09 ncs6k-mcast-5.2.3.09 ncs6k-mpls-5.2.3.09

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

In this example, the **ncs6k-sysadmin-5.0.0.40I** package is prepared for activation using ISSU.

```
sysadmin-vm:0_RP0# install prepare issu ncs6k-sysadmin-5.0.0.40I

Fri Jan 16 08:15:06.145 UTC
Jan 16 08:15:07 Install operation 1 started by :
  install prepare issu ncs6k-sysadmin-5.2.3.14I host-5.2.314I
Jan 16 08:15:07 Package list:
Jan 16 08:15:07     ncs6k-sysadmin-5.2.3.14I
Jan 16 08:15:07     host-5.2.314I
Jan 16 08:15:08 Install operation will continue in the background

sysadmin-vm:0_RP0# install commit
```

install activate issu

To add software functionality to the active software set, use the **install activate issu** command in XR EXEC mode.

install activate issu[abort-disable][preserve-state]*[package-name]* | *[install-add-id]*

Syntax Description

abort-disable	Disables ISSU aborts initiated by applications and turns off the abort timer. Manually aborting the ISSU installation is supported.
preserve-state	Preserves the state of secondary VM if ISSU is aborted. If an ISSU procedure is aborted due to errors, the secondary VMs are cleared by default. This keyword preserves the state of the secondary VM.
package-name	Enter package name separated by space. For example, ncs6k-mini-x-5.2.3.09 ncs6k-mcast-5.2.3.09 ncs6k-mpls-5.2.3.09
install-add-id	Specify the ID of package to be activated.

Command Default

None

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

In this example, three packages, including multicast and MPLS packages, are activated using ISSU:

```
RP/0/RP0/CPU0:router# install activate issu ncs6k-x-5.2.3.09I ncs6k-mcast-5.2.3.09I
ncs6k-mpls-5.2.3.09I
RP/0/RP0/CPU0:router# install commit
```

install activate issu load

To run the load prepare phase to the active software set, use the **install activate issu load** command in System Admin EXEC or XR EXEC mode. This command downloads the new image (V2) to all nodes in the router. The new image is checked for compatibility to ensure that the router can be upgraded.

install activate issuload[abort-disable][preserve-state]*[package-name]* | *[install-add-id]*

Syntax Description

abort-disable	Disables ISSU aborts initiated by applications and turns off the abort timer. Manually aborting the ISSU installation is supported.
preserve-state	Preserves the state of secondary VM if ISSU is aborted. If an ISSU procedure is aborted due to errors, the secondary VMs are cleared by default. This keyword preserves the state of the secondary VM.
package-name	Enter package name separated by space. For example, ncs6k-x-5.2.3.09I ncs6k-mcast-5.2.3.09I ncs6k-mpls-5.2.3.09I .
install-add-id	Specify the ID of package to be activated.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

In this example, the load preparation phase for ISSU activation is enabled for three packages, including multicast and MPLS packages.

```
sysadmin-vm:0_RP0# install activate issu load ncs6k-x-5.2.3.09I ncs6k-mcast-5.2.3.09I
ncs6k-mpls-5.2.3.09I
sysadmin-vm:0_RP0# install commit
```

install activate issu run

To start ISSU version switch from old version (V1) to new version (V2) of the software, use the **install activate issu run** command in XR EXEC mode. All the packages that have been prepared are activated to make the package configurations active on the router. This command is issued from the old version (V1).

install activate issurun

This command has no keywords or arguments.

Command Default

None

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

This example show how to start the version switch of v1 to v2 versions of a package:

```
RP/0/RP0/CPU0:router# install activate issu run
RP/0/RP0/CPU0:router# install commit
```

install deactivate issu

To remove an Software Maintenance Updates (SMU) package from the active software set using ISSU, use the **install deactivate issu** command in XR EXEC mode. If an ISSU session is in progress, this command is blocked until the ISSU session is complete.

install deactivate issu*[SMU-name]* | *[install-add-id]*

Syntax Description

SMU-name	Enter SMU name separated by space.
install-add-id	Specify the ID of package to be deactivated.

Command Default

None

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

In this example, three packages from the active software set are deactivated using ISSU:

```
RP/0/RP0/CPU0:router# install deactivate issu ncs6k-x-5.2.3.09I ncs6k-mcast-5.2.3.09I
ncs6k-mpls-5.2.3.09I
RP/0/RP0/CPU0:router# install commit
```

install activate issu cleanup

To initiate shutdown of VMs with previous versions (V1) after running the activation command, use the **install activate issu cleanup** command in the XR EXEC mode. The *Cleanup* phase concludes the ISSU process and the new software runs on all nodes in the system.

install activate issucleanup

This command has no keywords or arguments.

Command Default

None

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

This example shows how to initiate shutdown of VMs with previous versions (V1).

```
RP/0/RP0/CPU0:router# install activate issu cleanup
RP/0/RP0/CPU0:router# install commit
```

install activate issu abort

To initiate exiting ISSU process, use the **install activate issu abort** command in the XR EXEC mode. ISSU aborts if the command is executed before ISSU *Run* phase starts. If the command is used after the *Run* phase, the **install activate issu abort** command is rejected. When ISSU process stops, the state of activities for new version (v2) such as v2 VMs and partitions are cleared.

install activate issuabort

This command has no arguments or keywords.

Command Default

None

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

This example shows how to abort an ISSU process.

```
RP/0/RP0/CPU0:router# install activate issu abort
RP/0/RP0/CPU0:router# install commit
```

install remove

To delete inactive packages from the software repository, use the **install remove** command in EXEC or System Admin EXEC orXR EXEC mode.

EXEC Mode:
install remove {*device*:*package* | **inactive**} [**prompt-level** {**default** | **none**}] [{**asynchronous** | **synchronous**}] [**test**]
install remove {*package* | **id** *add-id*}

Syntax Description

package	Enter the package name(s) separated by space. Example: ncs6k.iso ncs6k_upgrade.iso **Note** Multiple packages can be removed at one time. Up to 64 packages can be specified in a single **install remove** command. However, the number of packages is limited based on the length of the character entered. The character length should not exceed 1024.
id *add-id*	Specifies the ID number of an **install add** operation. The command deletes all packages that were added in the specified **install add** operation. The ID number of an **install add** operation is indicated in the syslog displayed during the operation and in the output of the **show install log** command. Up to 16 **install add** operations can be specified.

Command Default

The operation is performed in asynchronous mode: The **install remove** command runs in the background, and the EXEC prompt is returned as soon as possible.

Command Modes

EXEC

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Note Only inactive packages can be removed.

- To remove all packages that were added in one or more specific **install add** operations, use the **id** *add-id* keyword and argument. The operation ID of an **install add** operation is indicated in the syslog displayed during the operation and in the output of the **show install log** command. If you specify packages according to operation ID, all the packages that were added by the specified operation must still be on the router.

Command Modes

- To remove all inactive packages from the boot device in the system or SDR, use the **install remove** command with the **inactive** keyword.

In this example, the inactive **ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu** SMU file is deleted from the software repository.

```
sysadmin-vm:0_RP0# install remove ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu

result Wed Sep 18 05:48:05 2013 Install operation 10 (install remove) started by user 'root'
 will continue asynchronously.
sysadmin-vm:0_RP0# 0/RP0:Sep 18 00:48:09.050 : inst_mgr[3768]:
%INFRA-INSTMGR-6-OPERATION_SUCCESS : Install operation 10 completed successfully
Wed Sep 18 05:48:09 2013 Install operation 10 completed successfully.

sysadmin-vm:0_RP0# install commit
```

install verify packages

To verify packages installed on the router, use the **install verify packages** command in the System Admin EXEC mode. The command checks for any anomalies present in the installed packages. This command can be run after each system upgrade, or after activation or deactivation of packages and SMUs. Additionally it also checks if a hard disk recovery partition exists on a node in the hard disk.

install verify packages [**location** *node-id*]

Syntax Description

location	Executes target process on the designated node.
node-id	The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.1	This command was introduced.

Usage Guidelines

The output of **install verify packages** command is saved in a log file. Status of the command is captured as part of the log file which can be viewed using `show install log` command. Any anomaly found in the installation is reported in the log.

This example shows how to verify a package in the location **0/RP1**:

```
sysadmin-vm:0_RP0# install verify packages location 0/RP1

Sun Jan  12 20:37:09.796 UTC
Sun Jan  12 20:37:10.588 UTC
result Sun Jan 12 20:37:11 2014 Install operation 2 (install verify) started by user 'root'
 will continue asynchronously.
sysadmin-vm:0_RP0# Node 0/RP1  replied.check show install log 2 for detailed log
sysadmin-vm:0_RP0# Sun Jan 12 20:37:46 2014 Install operation 2 completed successfully.

sysadmin-vm:0_RP0# install commit
```

This example shows the output of the command when a hard disk recovery partition exists:

```
sysadmin-vm:0_RP0# install verify packages location 0/RP1

Fri Feb  5  01:01:51.970 UTC
result Fri Feb  5 01:01:52 2016 Install operation 124 (install verify) started by user
'root' will continue asynchronously.
sysadmin-vm:0_RP0# Node 0/RP1  replied.check 'show install log 124 detail' for detailed log
sysadmin-vm:0_RP0# Fri Feb  5 01:02:15 2016 Install operation 124 completed successfully.

sysadmin-vm:0_RP0# install commit
```

```
sysadmin-vm:0_RP0# show install log 124
Fri Feb  5  01:02:43.400 UTC
log 124
  Feb 05 01:01:51 Admin install operation 124 started by user 'root'
Feb 05 01:01:51 install verify packages location 0/RP0
Feb 05 01:02:15 Disaster Recovery Partition found
./system_image.iso 833443840
MD5: a1954e06e972d516505e24d31b0236a8 ./system_image.iso
./EFI/Recovery/grub.cfg 516
MD5: 525ce5b5b65701c3942afefd3d4a3249 ./EFI/Recovery/grub.cfg
./EFI/Recovery/grub.efi 887836
MD5: 4abf58ec0fd23255d42e1548aeae2e3e ./EFI/Recovery/grub.efi
Feb 05 01:02:15 Node 0/RP0  completed verification successfully

Feb 05 01:02:15 Install operation 124 completed successfully.
Feb 05 01:02:15 Ending 'install verify' operation 124.
```

This example shows the output of the log file for the **install verify packages** command in which anomalies are detected:

```
sysadmin-vm:0_RP0# show install log 17
Thu Jan  2 13:17:52.973 UTC
Jan 02 13:17:00 Install operation 17 started by root:
  install verify packages
Jan 02 13:17:02 Action 1: install verify action started
Jan 02 13:17:02 Install operation will continue in the background
Jan 02 13:17:30 Anomaly Detected on 0/1/CPU0 --> needs repair
Jan 02 13:17:30 Node 0/1/CPU0
SOFTWARE PROFILE VERIFICATION START
No inconsistencies found
SOFTWARE PROFILE VERIFICATION END
PACKAGE VERIFICATION START
RPM detected 'missing
/opt/cisco/XR/packages/iosxr-infra-5.0.1.14I.CSCxr11111.lc-1.0.0/lib/librmf_plfm.so'


iosxr-infra-5.0.1.14I.CSCxr11111.lc-1.0.0 : ANOMALIES found

PACKAGE VERIFICATION END
RPMDB VERIFICATION START
No inconsistencies found
RPMDB VERIFICATION END
SYMLINK VERIFICATION START
No inconsistencies found
SYMLINK VERIFICATION END
LOADPATH VERIFICATION START
No inconsistencies found
LOADPATH VERIFICATION END
Jan 02 13:17:30 0/1/CPU0 completed verification successfully
Jan 02 13:17:30 Install operation 17 finished successfully
Jan 02 13:17:32 Ending operation 17
```

If any installation has an issue, uninstall and then reinstall the corresponding package afresh. If this does not resolve the issue, contact Cisco TAC with the output of the **show tech-support install** command.

show install active

To display active packages, use the **show install active** command in System Admin EXEC or XR EXEC mode.

show install active

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show install active** command to display the active software set for all nodes.

For Superceded SMUs

The **show install active** command doesnot display superceded SMUs. To get details of the superceded SMUs, use the **show install superceded** command.

The following example illustrates sample output from the **show install active** command :

```
sysadmin-vm:0_RP0# show install active
 Node 0/RP0 [RP]
    Boot Partition: calvados_lv0
    Active Packages: 2
       ncs6k-sysadmin-5.0.0.40I version=5.0.0.40I [Boot image]
       ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i

 Node 0/RP1 [RP]
    Boot Partition: calvados_lv0
    Active Packages: 2
       ncs6k-sysadmin-5.0.0.40I version=5.0.0.40I [Boot image]
       ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i

 Node 0/3 [LC]
    Boot Partition: calvados_lv0
    Active Packages: 2
       ncs6k-sysadmin-5.0.0.40I version=5.0.0.40I [Boot image]
       ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
```

Table 5: show install active Field Descriptions

Boot Partition	Location where the node stores the active software.

Boot Image	Location on the DSC of the active minimum boot image (MBI) used to boot the node.
Active Packages	Active packages loaded on the node.

show install inactive

To display the inactive packages , use the **show install inactive** command in System Admin EXEC or XR EXEC mode.

show install inactive

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show install inactive** command to display the inactive packages .

Note Use the **show install active** command to determine the device used as the boot device.

The following example shows sample output from the **show install inactive** command:

```
sysadmin-vm:0_RP0# show install inactive

 Node 0/RP0 [RP]
    Inactive Packages:
       ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
 Node 0/RP1 [RP]
    Inactive Packages:
       ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
 Node 0/3 [LC]
    Inactive Packages:
       ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
```

Table 6: show install inactive Field Descriptions

Field	Description
Inactive Packages	Inactive packages present on the load.

show install log

To display the details of installation requests, use the **show install log** command in System Admin EXEC or XR EXEC mode.

show install log [{*install-id*}]

Syntax Description

install-id	(Optional) Identifier assigned to an installation operation.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Enter the **show install log** command with no arguments to display a summary of all installation operations, including the changes to files and the processes impacted by each request. Specify the *install-id* argument to display details for a specific operation.

The *install-id* argument is listed beside each operation in the **show install log** summary and is attached to messages from that operation. For example, the third installation operation has “Install 3:” attached to all its status messages.

This example shows how to display the summary of installation requests:

```
sysadmin-vm:0_RP0# show install log
Sep 17 07:33:12 Admin install operation 1 started by user 'root'
Sep 17 07:33:12 install add source
tftp://223.255.254.254/auto/tftp-infra/wmori/ng-install/images/40I/sysadmin-smu/
ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu
Sep 17 07:33:38 Sending abort command to all nodes
Sep 17 07:33:38 Sending remove command to all nodes
Sep 17 07:33:41 Install operation 1 failed (Unable to connect to 223.255.254.254 server on
 node 0/RP1 where install service is running).
Sep 17 07:33:41 Ending 'install add' operation 1
Sep 17 07:39:59 Admin install operation 2 started by user 'root'
Sep 17 07:39:59 install add source
tftp://223.255.254.254/auto/tftp-infra/wmori/ng-install/images/40I/sysadmin-smu/
ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu
Sep 17 07:40:25 Sending abort command to all nodes
Sep 17 07:40:25 Sending remove command to all nodes
Sep 17 07:40:26 Install operation 2 failed (Unable to connect to 223.255.254.254 server on
 node 0/RP1 where install service is running).
Sep 17 07:40:26 Ending 'install add' operation 2
Sep 18 05:06:23 Admin install operation 3 started by user 'root'
Sep 18 05:06:23 install add source
tftp://223.255.254.254/auto/tftp-infra/wmori/ng-install/images/40I/sysadmin-smu/
ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i.smu
Sep 18 05:06:30 Packages added:
Sep 18 05:06:30 ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
```

```
Sep 18 05:06:30 Install operation 3 completed successfully.
Sep 18 05:06:30 Ending 'install add' operation 3
Sep 18 05:18:44 Admin install operation 4 started by user 'root'
Sep 18 05:18:44 install prepare ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
Sep 18 05:18:45 Sending prepare command to all nodes
Sep 18 05:18:46 Install operation 4 completed successfully.
Sep 18 05:18:46 Ending 'install prepare' operation 4
```

This example shows how to display the output of show install log 7:

```
sysadmin-vm:0_RP0# show install log 4
Sep 18 05:18:44 Admin install operation 4 started by user 'root'
Sep 18 05:18:44 install prepare ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
Sep 18 05:18:45 Sending prepare command to all nodes
Sep 18 05:18:46 Install operation 4 completed successfully.
Sep 18 05:18:46 Ending 'install prepare' operation 4
```

show install package

To display information about a package, use the **show install package** command in System Admin EXEC or XR EXEC mode.

show install package *package-name* [{**detail** | **verbose**}]

Syntax Description

package	Enter the package name.
detail	(Optional) Displays detailed information including impact to processes and nodes, vendor information, card support, and component information.
verbose	(Optional) Displays the information included in the keyword, plus information about dynamic link libraries (DLLs).

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show install package** command with the **detail** keyword to display the version of the package, name of the manufacturer, name of the package, date and time when the package was built, and source directory where the package was built.

Use the **show install package** command with the **verbose** keyword to display the same information as the **detail** keyword, plus additional information about DLLs.

For additional information about the status of installed software packages, use the **show install active** and **show install inactive** commands.

The following sample output from the **show install package** command lists all packages that are available on the router:

```
sysadmin-vm:0_RP0# show install package
package ncs6k-sysadmin-5.0.0.40I
  Filename          : ncs6k-sysadmin
            Version           : 5.0.0.40I
            ISO Type          : calvados
            RPM count         : 23

  ISO Contents      :
      ncs6k-sysadmin-boot.all
      ncs6k-sysadmin-boot.lc
      ncs6k-sysadmin-boot.rp
      ncs6k-sysadmin-boot.sc
```

```
ncs6k-sysadmin-fabric.all
ncs6k-sysadmin-fabric.rp
ncs6k-sysadmin-hostos.all
ncs6k-sysadmin-hostos.rp
ncs6k-sysadmin-mgbl.all
ncs6k-sysadmin-mgbl.lc
ncs6k-sysadmin-mgbl.rp
ncs6k-sysadmin-mgbl.sc
ncs6k-sysadmin-platform.all
ncs6k-sysadmin-platform.lc
ncs6k-sysadmin-platform.rp
ncs6k-sysadmin-platform.sc
ncs6k-sysadmin-shared.all
ncs6k-sysadmin-shared.lc
ncs6k-sysadmin-shared.rp
ncs6k-sysadmin-system.all
ncs6k-sysadmin-system.lc
ncs6k-sysadmin-system.rp
ncs6k-sysadmin-topo.all
```

show install prepare

To display the ISO image, packages and SMUs that are in the prepared state and are ready for activation, use the **show install prepare** command in the System Admin EXEC or XR EXEC mode.

show install prepare

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

The following example shows the output of **show install prepare** command:

```
sysadmin-vm:0_RP0#show install prepare
Wed Sep  18 05:20:58.309 UTC
 Prepared Boot Image: NONE
 Prepared Boot Partition: NONE
 Restart Type: Process restart
 Prepared Packages: 1
     ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i


 Use the "install activate" command to activate the prepared packages.
 Use the "install prepare clean" command to undo the install prepare operation.
```

show install repository

To display the packages in the repository, use the **show install repository** command in the System Admin EXEC or XR EXEC mode.

show install repository [**all**]

Syntax Description

all	Displays the ISO images, SMUs, and software packages present in the software repository of all VMs.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

The following example shows the output of the **show install repository all** command:

```
sysadmin-vm:0_RP0#show install repository all
Thu Aug  22 13:48:37.520 UTC
Admin repository
--------------------
ncs6k-sysadmin-5.0.0.40I
ncs6k-sysadmin-5.0.0.40I.CSCui05185-0.0.7.i

XR repository
-------------
ncs6k-5.0.0.40I.CSCuj17596-0.0.3.i
ncs6k-k9sec-5.0.0.40I
ncs6k-xr-5.0.0.40I


Host repository
---------------
host-5.0.0.40I
```

show install request

To display the list of incomplete installation requests, running and queued, use the **show install request** command in System Admin EXEC or XR EXEC mode.

show install request

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The software processes only one installation request at a time. The **show install request** command displays any incomplete request that is currently running.

Note The default of installation commands is asynchronous mode, meaning that the command runs in the background and the EXEC prompt is returned as soon as possible.

The following example shows sample output from the **show install request** command:

```
sysadmin-vm:0_RP0# show install request
Wed Sep  18 05:35:49.102 UTC
 User root, Op Id 8
 install activate
 ncs6k-sysadmin-5.0.0.40I.CSCui84128-0.0.9.i
```

The following example shows sample output from the **show install request** command when no installation operations are running:

```
sysadmin-vm:0_RP0# show install request
 No install operation in progress
```

show issu summary

To display the summary of the ISSU installation process, use the **show issu summary** command in the XR EXEC mode.

show issu summary

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.2.3	This command was introduced.

The following example shows the output of **show issu summary** command:

```
RP/0/RP0/CPU0:router# show issu summary
Mon Jan 23 11:11:02.912 UTC
Last ISSU operation completed successfully.
List of ISSU phases:
---------------------------------------------------------------
Phase name      : Prep Phase
Status          : Completed
Start time      : Mon Jan 23 10:20:59 2012
Complete time   : Mon Jan 23 10:24:19 2012
---------------------------------------------------------------
Phase name      : Load Phase
Status          : Completed
Start time      : Mon Jan 23 10:24:23 2012
Complete time   : Mon Jan 23 10:33:46 2012
---------------------------------------------------------------
Phase name      : Run Phase
Status          : Completed
Start time      : Mon Jan 23 10:34:26 2012
Complete time   : Mon Jan 23 10:34:26 2012
---------------------------------------------------------------
Phase name      : Cleanup Phase
Status          : Completed
Start time      : Mon Jan 23 10:35:36 2012
Complete time   : Mon Jan 23 10:35:36 2012
===============================================================
```

Process Control Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- follow, on page 204
- process, on page 206
- show media, on page 208
- show memory, on page 209
- show memory compare, on page 210
- show memory heap, on page 213
- show processes, on page 214
- top, on page 217

follow

To unobtrusively debug a live process or a live thread in a process, use the **follow process** command in XR EXEC modeSystem Admin EXEC mode.

follow process [{*pid* | **location** *node-id*}]

Syntax Description

pid	Follows the process with the process ID (PID) specified for the *pid* argument.
location *node-id*	Follows the target process on the designated node. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

Entering the **follow process** command without any keyword displays the stack information of the live processes with all the threads, heap memory usage, and register values.

Command Modes

XR EXEC mode

System Admin EXEC mode

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use this command to unintrusively debug a live process or a live thread in a process. This command is particularly useful for debugging deadlock and livelock conditions, for examining the contents of a memory location or a variable in a process to determine the cause of a corruption issue, or in investigating issues where a thread is stuck spinning in a loop. A livelock condition is one that occurs when two or more processes continually change their state in response to changes in the other processes.

The following actions can be specified with this command:

- Follow all live threads of a given process or a given thread of a process and print stack trace in a format similar to core dump output.
- Display register values and status information of the target process.

Take a snapshot of the execution path of a thread asynchronously to investigate performance-related issues by specifying a high number of iterations with a zero delay.

This example shows how to use the **follow process** command:

```
sysadmin-vm:0_RP0# follow process 1 location 0/RP0

Location : 0/RP0

************************************************************

2013-09-20 01:57:30
Text address        Size        Library name
-----------------------------------------
00007f4b8a66c000 48 r-x--   libnss_files-2.12.so
```

```
00007f4b8a879000 1444 r-x--   libc-2.12.so
00007f4b8abec000 48 r-x--   libpci.so
00007f4b8adf9000 32 r-x--   librt-2.12.so
00007f4b8b002000 248 r-x--   libdbus-1.so.3.4.0
00007f4b8b241000 96 r-x--   libpthread-2.12.so
00007f4b8b45e000 128 r-x--   ld-2.12.so
-----------------------------------------
#0  0x00007f4b8a955c83 in select+0x13 from /lib64/libc-2.12.so
#1  0x000000000041f974 in ?? () from /sbin/init
#2  0x0000000000404b9d in ?? () from /sbin/init
#3  0x00007f4b8a897cce in __libc_start_main+0xfe from /lib64/libc-2.12.so
#4  0x0000000000404659 in ?? () from /sbin/init
```

process

To terminate or restart a process, use the **process** command in the System Admin EXEC mode.

process {**crash** | **restart**} *executable-name* {*IID* **location** *node-id* | **location** *node-id*}

Syntax Description

crash	Ends a process. All active services hosted by the process that have high availability enabled are switched off and the process restarts.
restart	Restarts a process.
executable-name	Executable name of the process to be crashed or restarted. Supplying an executable name for the executable-name argument performs the action for all the simultaneously running instances of the process, if applicable.
IID	Process instance ID of the process to be crashed or restarted. Supplying a process ID for the *IID* argument performs the action for only the process instance associated with the process ID.
location *node-id*	Crashes or restarts a process on the designated node. The *node-id* argument is entered in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Under normal circumstances, processes are started and restarted automatically by the operating system as required. If a process crashes, it is automatically restarted.

Use this command to manually stop or restart individual processes.

Caution Manually stopping or restarting a process can seriously impact the operation of a router. Use these commands only under the direction of a Cisco Technical Support representative.

process restart

The **process restart** command restarts a process, such as a process that is not functioning optimally.

This example shows how to restart a process:

```
sysadmin-vm:0_RP0# process restart syslogd_helper location 0/3

proc-action-status User root (127.0.0.1) requested restart for process syslogd_helper(0)
at 0/3  'Sending signal 15 to process syslogd_helper(IID 0) pid=1801'
```

show media

To display the current state of the disk storage media, use the **show media** command in System Admin EXEC mode.

show media location {*node-id* | **all**}

Syntax Description

location {*node-id* | **all**}	(Optional) Specifies the node where the file system is located. The *node-id* argument is expressed in the *rack/slot* notation. Use the **all** keyword to indicate all nodes.

Command Default

The disk storage media for the active RP is displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show media** command to view the status of the storage media on your system.

The following example displays the output of the **show media** command:.

```
sysadmin-vm:0_RP0#show media
Partition                      Size     Used  Percent    Avail
rootfs:                        2.0G     471M      26%     1.4G
log:                           494M      84M      18%     385M
config:                        494M      24M       5%     445M
disk0:                         965M      31M       4%     886M
harddisk:                       20G     185M       1%      19G
-------------------------------------------------------
rootfs: = root file system (read-only)
log: = system log files (read-only)
config: = configuration storage (read-only)
```

Table 7: show media Field Descriptions

Field	Description
Partition	Partition on the disk.
Size	Size of the partition.
Used	Partition size used.
Percent	Percentage used.
Avail	Available free partition space.

show memory

To display the available physical memory and memory usage information of processes on the router, use the **show memory** command in System Admin EXEC and XR EXEC mode.

show memory [{**location** *node-id* | **pid** *pid* [**location** *node-id*] | **summary** [**location** *node-id*]}]

Syntax Description

location *node-id*	Displays the available physical memory from the designated node. The *node-id* argument is entered in the *rack/slot* notation.
pid *pid*	Displays memory usage of the specified process.
summary	Displays a summary of the physical memory and memory usage information.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To display detailed memory information for the entire router, enter the **show memory** command without any parameters.

This example shows how to display the output of the **show memory location** command:

```
sysadmin-vm:0_RP0#show memory location 0/RP0
Tue Aug  20 00:49:41.649 UTC
**********************************************************


Location : 0/RP0

**********************************************************

Tue Aug 20 00:49:41 UTC 2013
1:   /sbin/init
Address           Kbytes     RSS    Anon  Locked Mode   Mapping
0000000000400000     204       -       -       - r-x--  init
0000000000632000       4       -       -       - rw---  init

Address - Memory Address
Kbytes - Memory Size
RSS - Resident Set Size (portion of mem in RAM)
Anon - Non-shared Anonymous
Locked - locked memory
Mode - Read/Write/Executable mode
Mapping - process Mapping
```

show memory compare

To display details about heap memory usage for all processes on the router at different moments in time and compare the results, use the **show memory compare** command in System Admin EXEC and XR EXEC mode.

show memory compare {**start** | **end** | **report**}

Syntax Description

start	Takes the initial snapshot of heap memory usage for all processes on the router and sends the report to a temporary file named /tmp/memcmp_start.out.
end	Takes the second snapshot of heap memory usage for all processes on the router and sends the report to a temporary file named /tmp/memcmp_end.out. This snapshot is compared with the initial snapshot when displaying the heap memory usage comparison report.
report	Displays the heap memory comparison report, comparing heap memory usage between the two snapshots of heap memory usage.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show memory compare** command to display details about the heap memory usage of all processes on the router at different moments in time and compare the results. This command is useful for detecting patterns of memory usage during events such as restarting processes or configuring interfaces.

Use the following steps to create and compare memory snapshots:

1. Enter the **show memory compare** command with the **start** keyword to take the initial snapshot of heap memory usage for all processes on the router.
2. Perform the test you want to analyze.
3. Enter the **show memory compare** command with the **end** keyword to take the snapshot of heap memory usage to be compared with the initial snapshot.
4. Enter the **show memory compare** command with the **report** keyword to display the heap memory usage comparison report.

This example shows sample output from the **show memory compare** command with the **report** keyword:

```
sysadmin-vm:0_RP0# show memory compare start
Tue Aug  20 11:50:45.860 UTC
sysadmin-vm:0_RP0# show memory compare end
Tue Aug  20 11:50:57.311 UTC
```

```
sysadmin-vm:0_RP0# show memory compare report

PID       NAME            MEM BEFORE  MEM AFTER   DIFFERENCE  MALLOCS
-------------------------------------------------------------------------
21416  malloc_dump          34731       34731       0           0
21414  sh                   39652       39640       -12         0
21411  show_memory_common   984         984         0           0
8340   ntpd                 69033       69033       0           0
5172   inst_mgr             1800118     1800118     0           0
5166   fsdbagg              14907247    14907247    0           0
5175   fsdb_server          15475470    15475470    0           0
5177   led_mgr              3347339     3347339     0           0
5176   envmon_ui            889094      889094      0           0
5169   esdma                8954927     8954927     0           0
5164   fit_mgbl             952067      952067      0           0
5174   fab_fgid_service     9014924     9014924     0           0
5173   confd_helper         8018190     8018190     0           0
5171   debug_agent          8146830     8146830     0           0
5170   gaspp_mgbl           1285020     1285020     0           0
5168   ael_mgbl             787101      787101      0           0
5165   fpdserv              1149685     1149685     0           0
5167   ssh_key_server       661086      661086      0           0
2052   sfe_driver           35005323    35005323    0           0
2066   zen                  5083246     5083246     0           0
2017   ccc_driver           8872747     8882315     9568        1
2053   shelf_mgr            30666121    30666121    0           0
2031   esd                  6335087     6334783     -304        -2
2049   sdr_mgr              4366258     4366258     0           0
2025   dumper               616144      616144      0           0
2035   inst_agent           1820469     1820469     0           0
2062   syslogd_relay        657904      657904      0           0
2030   envmon               7853186     7853330     144         2
2041   ntp_helper           701348      701348      0           0
2539   ssh                  202441      202441      0           0
2015   bios_fpd             2950893     2950893     0           0
2042   obfl_mgr             2686006     2686006     0           0
2018   cm                   13755230    13755230    0           0
2047   obfl_show            686286      686286      0           0
2024   ds                   7826821     7826821     0           0
2060   syslogd_helper       912664      912664      0           0
2014   aaad                 804327      804327      0           0
2019   debug_client         577975      577975      0           0
2016   calv_alarm_mgr       2077250     2077250     0           0
2065   wdmon                3557984     3558056     72          1
2064   vm_manager           3149588     3149588     0           0
2037   mlap                 1520260     1520260     0           0
2056   ssh_key_client       612824      612824      0           0
2055   ship_server          778066      778066      0           0
2063   timezone_config      711110      711110      0           0
1744   pm                   7875584     7875584     0           0
```

Table 8: show memory compare report Field Descriptions

Field	Description
PID	Process ID.
name	Process name.
mem before	Heap memory usage at start (in bytes).

Field	Description
mem after	Heap memory usage at end (in bytes).
difference	Difference in heap memory usage (in bytes).
mallocs	Number of unfreed allocations made during the test period.
restarted	Indicates if the process was restarted during the test period.

show memory heap

To display information about the heap space for a process, use the **show memory heap** command in System Admin EXEC and XR EXEC mode.

show memory heap *pid*

Syntax Description

pid	Process ID

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows the sample output from the **show memory heap** command:

```
sysadmin-vm:0_RP0#show memory heap 1933
Tue Aug  20 01:06:11.282 UTC

statistics (1933:vm_manager)

Global data:
 current usage:        3147787 bytes
 Wrapper uses:          109560 bytes(hash:32728)
 total high wm:        7342424 bytes
 current objs:            2401 entry
 malloc_db/malloc:       79946 times / 79946 times
 calloc_db/calloc:        1067 times / 1067 times
 realloc_db/realloc:     26342 times / 26342 times
 realloc_null:           25644 times
 realloc_db_miss :           0 times
 realloc_relocate:          39 times
 free_db/free:          104256 times / 104722 times
 free_null:                466 times
 free_db_miss:               0 times
 error:                      0 times
```

show processes

To display information about active processes, use the **show processes** command in System Admin EXEC mode.

show processes {*process-name* {[{**detail** | **run**}] **location** *node-id* | **location** *node-id*} | **aborts location** *node-id* | **all location** *node-id* | **blocked** [{*PID* | **extended** | **location** *node-id*}] | **family** [{*PID* | **location** *node-id*}] | **files** [{*PID* | **details** | **location** *node-id*}] | **location** [{**all***node-id*}] | **mandatory location** *node-id* | **memory** [{*PID* | **location** *node-id*}] | **services** {*service-name* | **active** | **all** | **run** | **standby**} **location** *node-id* | **signal** [{*PID* | **location** *node-id*}] | **startup location** *node-id* | **threadname** [{*PID* | **location** *node-id*}]}

Syntax Description

process-name	Name of the executable.
detail	Displays detailed information of the process.
run	Displays information of running processes.
location *node-id*	Displays information about the active processes from a designated node. The *node-id* argument is entered in the *rack/slot* notation.
aborts	Displays process abort information.
all	Displays summary process information for all processes.
blocked	Displays details about reply, send, and mutex blocked processes.
PID	Displays process ID.
extended	Displays blocked processes in detail.
family	Displays the process session and family information.
files	Displays information about open files and open communication channels.
mandatory	Displays process data for mandatory processes.
memory	Displays information about the text, data, and stack usage for processes.
services *service name*	Displays service data for processes.
active	Displays active services data.
standby	Displays standby services data.
signal	Displays the signal options for blocked, pending, ignored, and queued signals.

startup	Displays process data for processes created at startup.
threadname	Displays thread names.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show processes** command to display process level information across the system.

The **show processes** command with the **memory** keyword displays details of memory usage for a given process as shown in the following example:

```
sysadmin-vm:0_RP0# show process memory

PID         Text       Data      Stack    Dynamic Process
=========================================================
1         204 KB     204 KB     136 KB   14932 KB init
12680      16 KB      48 KB     136 KB    3852 KB sleep
12747      32 KB    8432 KB     136 KB   24776 KB cmdptywrapper
12751      12 KB    8508 KB     136 KB   74040 KB show_processes_
12754     724 KB    8456 KB     136 KB   25832 KB sh
1299      724 KB     208 KB     136 KB   11280 KB oom.sh
1305      724 KB     208 KB     136 KB   11280 KB oom.sh
1443      476 KB     540 KB     136 KB   14984 KB dhclient
1486       28 KB     188 KB     136 KB    6104 KB syslogd
1490       20 KB    3056 KB     136 KB    6864 KB klogd
1545      224 KB     204 KB     136 KB   13172 KB lldpad
1557      308 KB     204 KB     136 KB   12844 KB dbus-daemon
1588      412 KB     444 KB     136 KB   23252 KB sshd
1593      412 KB     444 KB     136 KB   23252 KB sshd
1602      192 KB     372 KB     136 KB   11120 KB xinetd
1618       40 KB     692 KB     524 KB    7008 KB crond
1630      792 KB   49720 KB     136 KB   83164 KB libvirtd
1711      116 KB     636 KB     136 KB    4540 KB udevd
1712      116 KB     636 KB     136 KB    4540 KB udevd
1722      324 KB   16164 KB     136 KB  148164 KB pm
```

Table 9: show processes memory Field Descriptions

Field	Description
PID	Process ID.
Text	Size of text region (process executable).
Data	Size of data region (initialized and uninitialized variables).
Stack	Size of process stack.
Dynamic	Size of dynamically allocated memory.

Field	Description
Process	Process name.

top

To display real-time view of running processes in different locations, use the **top** command in the System Admin EXEC and XR EXEC modes.

top [{**dumbtty** | **location** *node-id* [**dumbtty**]}]

Syntax Description

dumbtty	Displays the output of the command as if on a dumb terminal (the screen is not refreshed).
location *location*	Specifies the target location. The node-id argument is expressed in *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The **top** command provides a real-time list of CPU intensive tasks running in the system. To terminate the display and return to the system prompt, enter the **Ctrl+C** keys. Using the **dumbtty** option does not overwrite the logs but instead updates the real-time list one after the other.

This example displays the different processes running on 0/0:

```
sysadmin-vm:0_RP0#top location 0/0 dumbtty

Tue Aug  20 01:09:28.534 UTC
************************************************************
Location : 0/0
************************************************************
top - 01:09:29 up  3:35,  1 user,  load average: 0.00, 0.00, 0.00
Tasks: 170 total,   2 running, 168 sleeping,   0 stopped,   0 zombie
Cpu(s):  0.5%us,  0.4%sy,  0.0%ni, 98.9%id,  0.1%wa,  0.0%hi,  0.1%si,  0.0%st
Mem:    916860k total,   374500k used,   542360k free,    12080k buffers
Swap:    14444k total,     6200k used,     8244k free,    31736k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 1764 root      20   0  140m 3844 2256 S  2.0  0.4   0:13.18 syslogd_helper
    1 root      20   0 14932 1080 1000 S  0.0  0.1   0:01.83 init
    2 root      20   0     0    0    0 S  0.0  0.0   0:00.00 kthreadd
    3 root      RT   0     0    0    0 S  0.0  0.0   0:00.00 migration/0
    4 root      20   0     0    0    0 S  0.0  0.0   0:00.27 ksoftirqd/0
    5 root      RT   0     0    0    0 S  0.0  0.0   0:00.00 watchdog/0
    6 root      20   0     0    0    0 S  0.0  0.0   0:00.61 events/0
    7 root      20   0     0    0    0 S  0.0  0.0   0:00.00 cpuset
    8 root      20   0     0    0    0 S  0.0  0.0   0:00.00 khelper
```

SDR Management Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- placement reoptimize, on page 220
- sdr location, on page 221
- sdr resources, on page 222
- sdr default-sdr re_pair, on page 224
- sdr default-sdr pairing-mode inter-rack, on page 225
- sdr default-sdr pairing-mode intra-rack, on page 226
- sh placement reoptimize, on page 227
- show sdr, on page 228
- show sdr default-sdr pairing, on page 231
- show sdr-manager trace, on page 232

placement reoptimize

To reoptimize the placement of processes to provide high availability, use the **placement reoptimize** command in the System Admin EXEC mode.

placement reoptimze

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

None

This example shows how to initiate a placement reoptimization of processes:

```
sysadmin-vm:0_RP0#placement reoptimize
 Mon Jun 26 21:50:26.030 UTC
--------------------------------------------------------------------------------
Group-Name          Current-Placement             Reoptimized-Placement
--------------------------------------------------------------------------------
central-services    0/RP0/CPU1(0/RP1/CPU1)        0/RP0/CPU1(0/RP1/CPU1)
v4-routing          1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
netmgmt             1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
mcast-routing       0/RP0/CPU1(0/RP1/CPU1)        0/RP0/CPU1(0/RP1/CPU1)
v6-routing          1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
Group_0_1           0/RP0/CPU1(0/RP1/CPU1)        0/RP0/CPU1(0/RP1/CPU1)
Group_0_0           1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
--------------------------------------------------------------------------------
Do you want to proceed with the reoptimization[y/n]y
Triggering reoptimize
Migration running in the background
Please don't trigger one more migration
```

sdr location

To reload, start, or shutdown a secure domain router (SDR), use the **sdr location** command in the System Admin EXEC mode.

sdr *sdr-name* **location** {*node-id* | **all**} {**reload** [{**coredump** | **force**}] | **shut** | **start**}

Syntax Description

sdr-name	Name of the SDR, **default-sdr** or **named-SDR** .
node-id	Selects the target location. The *node-id* is expressed in the rack/slot notation.
all	Selects all the nodes.
reload	Reloads the XR VM on the node.
coredump	Performs the VM core dump and then reloads the SDR.
force	Forces shutdown and does not wait for an orderly system shutdown.
shut	Shuts down the XR VM on the node.
start	Starts the XR VM on the node.

Command Default

A single SDR named **default-sdr** is configured on the router and started. In case of SOST mode, a single SDR named default-sdr is configured on the router and started. In case of SOMT mode, one or more Named-SDRs is/are configured on the router and started.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

None

This example shows how to reload the SDR:

```
sysadmin-vm:0_RP0#sdr default-sdr location 0/1 reload
```

sdr resources

To allocate resources for a secure domain router (SDR), use the **sdr resources** command in System Admin Config mode. To remove the allocated resources, use the **no** form of this command.

sdr {*sdr-name* | **default-sdr**} **resources** {**card-type** {**lc** | **RP**} [{**vm-cpu** *num-of-cpus* | **vm-memory** *memory-size* }] | **disk-space-size** *disk-space-size* | **fgid** *fgid* | **mgmt_ext_vlan** *ext-vlan-id*}

Syntax Description

sdr-name	Specifies the name of the SDR. Permitted values are 1 to 30 characters (0-9,a-z,A-Z,-,_).
default-sdr	Specifies the default SDR.
card-type	Specifies the type of the card, that is RP or LC.
vm-cpu *num-of-cpus*	Specifies the number of VM CPUs.
vm-memory *memory-size*	Speicifies the VM memory size in gigabytes.
disk-space-size *disk-space-size*	Specifies the size of the SDR disk space, as an unsigned integer.
fgid *fgid*	Specifies the fragment ID of the SDR, as an unsigned integer ranging from 25000 to 524288.
mgmt_ext_vlan *ext-vlan-id*	Specifies the management external VLAN for the SDR.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command must be used to fine tune the physical memory resources of each Cisco ASR 9000 High Density 100GE Ethernet line card in order to achieve full scale with Cisco IOS XR 64-bit BNG.

This command enforces to reboot the LC XR-VMs to adjust the requested resources like VM memory.

Task ID

Task ID	Operation
system	read

This example shows how to fine tune the memory for LC XR-VM by configuring resources for secure domain router:

```
RP/0/RP0/CPU0:router#admin
sysadmin-vm:0_RSP1# config
```

```
sysadmin-vm:0_RSP1(config)# sdr default-sdr resources card-type lc vm-memory 21
```

sdr default-sdr re_pair

To initiate re-pairing of RPs in the currently defined secure domain routers (SDRs), use the **sdr default-sdr re_pair** command in the System Admin EXEC mode.

```
sdr   default-sdrre_pair
```

Syntax Description

default-sdr	Shows the details of the default SDR.
re_pair	Activates the re-pairing of RPs in the defined SDR.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

None

This example shows how to display the pairing of the default SDR:

```
sysadmin-vm:0_RP0#sdr default-sdr re_pair
 Fri May 19 21:22:36.625 UTC
Current Configuration
    0/RP0 1/RP1
    1/RP0 2/RP1
    2/RP0 0/RP1
Re_Paired Configuration
    0/RP0 1/RP1
    1/RP0 0/RP1
Would you like to proceed ? [yes/no]:  yes
Proceeding with action
```

sdr default-sdr pairing-mode inter-rack

To enable pairing RPs between racks in a diasy chain algorithm defined secure domain routers (SDRs), use the **sdr default-sdr pairing-mode inter-rack** command in the System Admin EXEC mode. The inter-rack mode of pairing provides high availability against rack failures.

sdr`default-sdr` **pairing-modeinter-rack**

Syntax Description

default-sdr	Shows the details of the default SDR.
pairing-mode	Specifies the pairing mode of RPs.
inter-rack	Enables the pairing of RPs between racks in a configuration.

Command Default

A single SDR named **default-sdr** is configured on the router and started. In case of SOST mode, a single SDR named default-sdr is configured on the router and started. In case of SOMT mode, one or more Named-SDRs is/are configured on the router and started.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

None

This example shows how to enable inter-rack pairing:

```
sysadmin-vm:0_RP0#sdr default-sdr pairing-mode inter-rack
```

sdr default-sdr pairing-mode intra-rack

To enable pairing of RPs within a rack, use the **sdr default-sdr pairing-mode intra-rack** command in the System Admin EXEC mode. The intra-rack mode of pairing is the defaut pairing mechanism as defined in the SDR.

sdr default-sdrpairing-modeintra-rack

Syntax Description

default-sdr	Shows the details of the default SDR.
pairing-mode	Specifies the pairing mode of RPs.
intra-rack	Enables the pairing of RPs within a rack in a configuration.

Command Default

A single SDR named **default-sdr** is configured on the router and started. In case of SOST mode, a single SDR named default-sdr is configured on the router and started. In case of SOMT mode, one or more Named-SDRs is/are configured on the router and started.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

None

This example shows how to enable inter-rack pairing:

```
sysadmin-vm:0_RP0#sdr default-sdr pairing-mode intra-rack
```

sh placement reoptimize

To show the predictions from reoptimizing the placement of processes to provide high availability, use the **sh placement reoptimize** command in the System Admin EXEC mode.

shplacement reoptimze

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

None

This example shows how to see the predictions for a placement reoptimization of processes:

```
sysadmin-vm:0_RP0#sh placement reoptimize
Mon Jun 26 21:49:24.504 UTC
------------------------------------------------------------------------------
Group-Name          Current-Placement             Reoptimized-Placement
------------------------------------------------------------------------------
central-services    0/RP0/CPU1(0/RP1/CPU1)        0/RP0/CPU1(0/RP1/CPU1)
v4-routing          1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
netmgmt             1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
mcast-routing       0/RP0/CPU1(0/RP1/CPU1)        0/RP0/CPU1(0/RP1/CPU1)
v6-routing          1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
Group_0_1           0/RP0/CPU1(0/RP1/CPU1)        0/RP0/CPU1(0/RP1/CPU1)
Group_0_0           1/RP0/CPU1(NONE)              0/RP0/CPU1(0/RP1/CPU1)
```

show sdr

To display information about the currently defined secure domain routers (SDRs), pairing details, and reboot history, use the **show sdr location** command in the System Admin EXEC mode.

show sdr [**sdr-name** `detail` [{**location** [*node-id*] | **pairing** | **reboot-history location** [*node-id*]}]]

Syntax Description

sdr-name	Name of the SDR, **default-sdr** or **named-SDR**.
location *node-id*	Selects the target location. The *node-id* is expressed in the *rack/slot* notation.
pairing	Displays the detailed information of the SDR.
pairing	Displays the SDR pairing information.
reboot-history	Displays the reboot history of the SDR.

Command Default

Displays all SDRs in the system.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

This example shows how to display the detailed information of the SDR:

```
sysadmin-vm:0_RP0# show sdr Internet-SDR detail
Sat Aug  27 06:05:36.757 UTC
------SDR Detail at location 0/RP0/VM1------
 SDR Id                          2
 IP Address of VM                192.0.0.4
 MAC address of VM               64:F6:9D:78:FD:36
 Boot Partition                  /dev/panini_vol_grp/xr_lv0
 Data Partition                  /dev/pci_disk1/xr_data_lv0
 Big Disk Partition              /dev/pci_disk1/ssd_disk1_xr_2
 VM Id                           1
 VM CPUs                         4
 VM Memory[in MB]                11264
 Card Type                       RP_Card
 Card Serial                     SAL19058TGE
 Rack Type                       Line_Card_Controller
 Chassis Serial                  FLM184073K4
 Hardware Version                0.4
 Management External VLAN        12
 VM State                        RUNNING
 Start Time                      "08/11/2016 00:33:12"
 Reboot Count(Since VM Carving)  1
 Reboot Count(Since Card Reload) 1
               08/11/2016 00:33:12 FIRST_BOOT
------SDR Detail at location 0/RP1/VM1------
```

```
 SDR Id                          2
 IP Address of VM                192.0.4.4
 MAC address of VM               4C:4E:35:B6:94:BC
 Boot Partition                  /dev/panini_vol_grp/xr_lv0
 Data Partition                  /dev/pci_disk1/xr_data_lv0
 Big Disk Partition              /dev/pci_disk1/ssd_disk1_xr_2
 VM Id                           1
 VM CPUs                         4
 VM Memory[in MB]                11264
 Card Type                       RP_Card
 Card Serial                     SAL1830XFD5
 Rack Type                       Line_Card_Controller
 Chassis Serial                  FLM184073K4
 Hardware Version                0.4
 Management External VLAN        12
 VM State                        RUNNING
 Start Time                      "08/11/2016 00:33:01"
 Reboot Count(Since VM Carving)  1
 Reboot Count(Since Card Reload) 1
               08/11/2016 00:33:01 FIRST_BOOT
------SDR Detail at location 0/6/VM1------
 SDR Id                          2
 IP Address of VM                192.0.88.3
 MAC address of VM               E2:3B:46:4F:8D:05
 Boot Partition                  /dev/panini_vol_grp/xr_lv0
 Data Partition                  /dev/panini_vol_grp/xr_data_lv0
 Big Disk Partition              (null)
 VM Id                           1
 VM CPUs                         3
 VM Memory[in MB]                6383
 Card Type                       LC_Card
 Card Serial                     SAD161300T5
 Rack Type                       Line_Card_Controller
 Chassis Serial                  FLM184073K4
 Hardware Version                0.2
 Management External VLAN        12
 VM State                        RUNNING
 Start Time                      "08/11/2016 00:32:48"
 Reboot Count(Since VM Carving)  1
 Reboot Count(Since Card Reload) 1
               08/11/2016 00:32:48 FIRST_BOOT
```

This example shows how to display the SDR pairing information:

```
sysadmin-vm:0_RP0# show sdr Internet-SDR pairing
Sat Aug  27 06:01:08.174 UTC
 Pairing Mode  AUTOMATIC
 SDR Lead
   Node 0 0/RP0
   Node 1 0/RP1
 Pairs
   Pair Name Pair0
    Node 0   0/RP0
    Node 1   0/RP1
```

This example shows the output of the **show sdr** command:

```
This example shows the output of the show sdr <sdr-name> reboot-history

sysadmin-vm:0_RP0# show sdr Internet-SDR reboot-history
Sat Aug  27 06:06:42.315 UTC

             Reboots
             Since
```

```
Location     Created   Reason
------------------------------------------------------------------------
0/RP0/VM1    1
                       08/11/2016 00:33:12 FIRST_BOOT
0/RP1/VM1    1
                       08/11/2016 00:33:01 FIRST_BOOT
0/6/VM1      1
                       08/11/2016 00:32:48 FIRST_BOOT

sysadmin-vm:0_RP0#show sdr
Fri Aug  23 10:22:21.540 UTC
sdr default-sdr
 location 0/RP0
  sdr-id             2
  IP Address of VM   192.0.0.4
  MAC address of VM  E0:50:07:FA:99:06
  VM State           RUNNING
  start-time         2013-08-23T10:17:34.33455+00:00
  Last Reload Reason CARD_SHUTDOWN
  Reboot Count       1
 location 0/RP1
  sdr-id             2
  IP Address of VM   192.0.4.4
  MAC address of VM  E2:3A:D7:21:9E:06
  VM State           RUNNING
  start-time         2013-08-23T10:17:33.387279+00:00
  Last Reload Reason CARD_SHUTDOWN
  Reboot Count       1
 location 0/0
  sdr-id             2
  IP Address of VM   192.0.64.3
  MAC address of VM  E0:50:91:A2:D7:05
  VM State           RUNNING
  start-time         2011-01-01T00:04:20.921688+00:00
  Last Reload Reason CARD_SHUTDOWN
  Reboot Count       1
 location 0/1
  sdr-id             2
  IP Address of VM   192.0.68.3
  MAC address of VM  E2:3B:41:C3:83:05
  VM State           RUNNING
  start-time         2011-01-01T00:07:09.249358+00:00
  Last Reload Reason CARD_SHUTDOWN
  Reboot Count       1
```

show sdr default-sdr pairing

To display information about the pairing details of the currently defined secure domain routers (SDRs), use the **show sdr default-sdr pairing** command in the System Admin EXEC mode.

show`sdr` **default-sdrpairing**

Syntax Description

default-sdr	Shows the details of the default SDR.
pairing	Displays the pairing of RPS in the SDR.

Command Default

A single SDR named **default-sdr** is configured on the router and started. In case of SOST mode, a single SDR named default-sdr is configured on the router and started. In case of SOMT mode, one or more Named-SDRs is/are configured on the router and started.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.3.1	This command was introduced.

Usage Guidelines

None

This example shows how to display the pairing of the default SDR:

```
sysadmin-vm:0_RP0#show sdr default-sdr pairing
 Fri May 19 21:23:039.938 UTC
 Pairing Mode  INTER-RACK
 SDR Lead
   Node 0 0/RP0
   Node 1 1/RP1
 Pairs
   Pair Name Pair0
    Node 0   0/RP0
    Node 1   1/RP1
 Pairs
   Pair Name Pair1
    Node 0   1/RP0
    Node 1   0/RP1
```

show sdr-manager trace

To display SDR manager trace details, use the **show sdr-manager trace** command in the System Admin EXEC mode.

show sdr-manager trace {**all** *trace-name*} **location** *node-id* [{**all** *trace-attribute*}]

Syntax Description

trace-name	Trace buffer name.
location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.
trace-attributes	Trace attribute.
all	Displays all the details.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 6.1.2	This command was introduced.

Usage Guidelines

This command displays the SDR manager debug traces that are meant only for diagnostics.

This example shows how to display the SDR manager trace details:

```
sysadmin-vm:0_RP0#show sdr-manager trace all location 0/0 timestamp

Fri Aug  9  07:02:28.644 UTC
06.55.47.185784448:1376031347185784662:sdr_mgr SDR MGR started
06.55.47.187332096:1376031347187332362:  @msc_entity id="0/19581" display_name="sdr_mgr"
06.55.47.187343744:1376031347187344066:@msc_event entity_id="0/19581/19581"
time="1376031347187344066" label="requesting connection to syslog (CAPI hdl=0x1bcad60, CIPC
 hdl = 0x1bcb0a0)" type="Connection" completed="false"
06.55.47.187395968:1376031347187396272:DS handle 0x1bcad60 instantiated for syslog client
handle
06.55.47.187745024:1376031347187745236:  @msc_entity id="0/19581" display_name="sdr_mgr"
06.55.47.188629504:1376031347188629812:@msc_event entity_id="0/19581/19581"
time="1376031347188629812"
label="requesting connection to calvados_ds (CAPI hdl=0x1bee4a0, CIPC hdl = 0x1bee8d0)"
type="Connection" completed="false"
06.55.47.188833024:1376031347188833246:@msc_event entity_id="0/19581/19581"
time="1376031347188833246" label="connecting to calvados_ds with endpoint (0x7f000001, 7400)

hdl=0x0x1bee4a0)" type="Connection" completed="false"
@msc_source pairing_id="0/19581/con_0x1bee4a0" type="Lane"
06.55.47.189353600:1376031347189353766:CIPC:CONN (hdl=0x1bee8d0):cipc_connect():
invoked on endpoint (127.0.0.1, 7400)
06.55.47.189588736:1376031347189588924:CIPC:INFO (hdl=0x1bee8d0):socket_connect():
async socket connection in progress
```

```
06.55.47.190383488:1376031347190383718:SMIL: set 0x1afa8d0 created
06.55.47.190388352:1376031347190388492:DEBUG: sdr_main_fsa_init
```

Session Management Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- session, on page 236
- user alias, on page 238
- user description, on page 239
- user session, on page 240

session

To configure global default CLI session parameters, use the **session** command in the System Admin Config mode.

session {**autowizard** [{**false** | **true**}] | **complete-on-space** [{**false** | **true**}] | **display-level** *[display-value]* | **history** *size* | **idle-timeout** *[timeout-value]* | **ignore-leading-space** [{**false** | **true**}] | **paginate** [{**false** | **true**}] | **prompt1** [**string**] | **prompt2** [**string**] | **show-defaults** [{**false** | **true**}]}

Syntax Description

false	Negates the parameter option. The same parameter will be available for setting it later.
true	Sets the parameter option effective. The parameter will be set.
autowizard	Automatically queries user for mandatory elements.
complete-on-space	Enables or disables completion on space.
display-level *[display-value]*	Specifies maximum depth to show when displaying configuration. The value must be an unsigned long integer and the range is 1 to 64.
history *[size]*	Specifies the history size. The value must be an unsigned long integer and the range is 0 to 8192.
idle-timeout *[timeout-value]*	Specifies the CLI idle-timeout in seconds. The value must be an unsigned long integer and the range is 0 to 8192.
ignore-leading-space	Ignores leading whitespace.
paginate	Paginates output from CLI commands
prompt1 [**string**]	Prompt for operational mode.
prompt2 [**string**]	Prompt for configure mode.
show-defaults	Displays default values when showing the configuration.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows how to enable session autowizard:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#session autowizard true
```

user alias

To create command alias, use the **user alias** command in the System Admin Config mode. To delete the user alias, use the **no** form of this command.

user *user-name* **alias** *alias-name* [**expansion** *command-syntax*]
no user *user-name* **alias** *alias-name* [**expansion** *command-syntax*]

Syntax Description

user-name	Name of the user. The *user-name* argument can be only one word. Spaces and quotation marks are not allowed.
alias *alias-name*	Name of the command alias. The *alias-name* argument can be only one word. Spaces and quotation marks are not allowed.
expansion *command-syntax*	Specifies the original command syntax. The command-syntax must be specified within double quotes.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

The following example shows how to set an alias to specific commands that the defined user can configure:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#user sess
sysadmin-vm:0_RP0(config-user-sess)#alias sessiongroup
sysadmin-vm:0_RP0(config-alias-sessiongroup)#
```

user description

To create user description, use the **user description** command in the System Admin Config mode. To delete the user description, use the **no** form of this command.

user *user-name* **description** *string* [**alias** *alias-name* [**expansion** *command-syntax*]]
no *user-name* **user-name description** *string* [**alias** *alias-name* [**expansion** *command-syntax*]]

Syntax Description

user-name	Name of the user. The *user-name* argument can be only one word. Spaces and quotation marks are not allowed.
description *string*	Creates user description.
alias *alias-name*	Name of the command alias. The *alias-name* argument can be only one word. Spaces and quotation marks are not allowed.
expansion *command-syntax*	Specifies the original command syntax. The command-syntax must be specified within double quotes.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

The following example shows how to add description to the defined user:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#user sess
sysadmin-vm:0_RP0(config-user-sess)# description sessioncommandsuser
```

user session

To configure user specific default CLI session parameters, use the **user session** command in the System Admin Config mode. To remove the configured user specific session parameters, use the no form of this command.

user *user-name* **session** {**autowizard** [{**false** | **true**}] | **complete-on-space** [{**false** | **true**}] | **display-level** *[display-value]* | **history** *size* | **idle-timeout** *[timeout-value]* | **ignore-leading-space** [{**false** | **true**}] | **paginate** [{**false** | **true**}] | **prompt1** [**string**] | **prompt2** [**string**] | **show-defaults** [{**false** | **true**}]}
no user *user-name* **session**

Syntax Description

user-name	Name of the user. The *user-name* argument can be only one word. Spaces and quotation marks are not allowed.
false	Negates the parameter option. The same parameter will be available for setting it later.
true	Sets the parameter option effective. The parameter will be set.
autowizard	Automatically queries user for mandatory elements.
complete-on-space	Enables or disables completion on space.
display-level *[display-value]*	Specifies maximum depth to show when displaying configuration. The value must be an unsigned long integer and the range is 1 to 64.
history *[size]*	Specifies the history size. The value must be an unsigned long integer and the range is 0 to 8192.
idle-timeout *[timeout-value]*	Specifies the CLI idle-timeout in seconds. The value must be an unsigned long integer and the range is 0 to 8192.
ignore-leading-space	Ignores leading whitespace.
paginate	Paginates output from CLI commands
prompt1 [**string**]	Prompt for operational mode.
prompt2 [**string**]	Prompt for configure mode.
show-defaults	Displays default values when showing the configuration.

Command Default

If no user specific session parameters are defined, then the values defined for the global CLI session parameters are applicable.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

The following example shows how to configure command line interface session parameters for the defined user:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#user sess session autowizard true
```

System Management Commands

To use these commands in System Admin VM, you must be in a user group associated with appropriate command rules and data rules. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- activate advanced, on page 244
- attach location, on page 245
- environment, on page 246
- fpd auto-upgrade, on page 248
- interface, on page 249
- logging console, on page 250
- mgmt, on page 251
- power-mgmt action, on page 252
- power-mgmt redundancy, on page 253
- users, on page 254
- show card-inventory, on page 256
- show environment, on page 257
- show fm, on page 260
- show fpd package, on page 261
- show logging, on page 265
- show parser dump, on page 267
- show rack-inventory, on page 268
- show user, on page 269
- show version, on page 270

activate advanced

To enable access to advanced system admin commands and configurations used for debugging purpose, use the **activate advanced** command in System Admin EXEC mode.

activate advanced

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command should not be used unless specifically requested by Cisco TAC or another Cisco support representative.

This example shows sample output from the **activate advanced** command:

```
sysadmin-vm:0_RP0# activate advanced
Advanced commands must be used carefully. Continue? [yes,NO] yes
Tue Aug  29 20:05:16.635 UTC
sysadmin-vm:0_RP0#
```

attach location

To connect to a host from a remote location, use the **attach location** command in the System Admin EXEC and XR EXEC modes.

attach location *node-id*

Syntax Description

node-id	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Users can attach the host only to RP and LC nodes.

When this command is executed, the user gets into the (low-level) shell prompt of the remote node specified.

This example shows how to attach the host to the node:

```
sysadmin-vm:0_RP0#attach location 0/RP0

exec chvrf 2 bash
^@[sysadmin-vm:0_RP0:~]$ exec chvrf 2 bash
[sysadmin-vm:0_RP0:~]$
```

environment

To configure environment parameters for the chassis, use the environment variable in the System Admin Config mode.

environment {**air-filter** **replaced** *date* | **router** **altitude** *meters*}

Syntax Description

air-filter	Configures chassis air filter status.
replaced *date*	Specifies air filter replacement date. Enter the date using the *yyyy-mm-dd* format.
router	Configures chassis environment properties.
altitude *meters*	Specifies the chassis altitude above sea level in meters. Valid values are from 1 to 4000.

Command Default

Router altitude is disabled by default.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.
Release 6.1.2	The **high-altitude** keyword has been replaced with the **altitude** *meters* keyword.

Usage Guidelines

Use the **environment router altitude** *meters* command to increase the fan speed based on the specified altitude. When the altitude is above 6000 ft (1829 m), the fan speed increases.

Use the **environment air-filter replaced** *date* command to specify the date you replaced the air filter. After 6 months, you will be prompted once to replace the air filter if you receive a high-temperature alarm:

```
%PKT_INFRA-FM-6-FAULT_INFO : Fan filter replacement warning :DECLARE :0: Fan Tray filter
replacement interval has been exceeded. Last filter reset time 2016-07-01
```

Note The filter replacement warning is only displayed once after the first high-temperature warning.

This example shows how to configure the router altitude:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#environment router altitude 1430
sysadmin-vm:0_RP0(config)#commit
Sun Jul 30 17:49:25.310 UTC
Commit complete.
```

This example shows how to configure the router air-filter replacement date:

```
sysadmin-vm:0_RP0(config)#environment air-filter replaced 2016-07-30
```

```
sysadmin-vm:0_RP0(config)#commit
Sun Jul 30 17:49:53.312 UTC
Commit complete.
```

fpd auto-upgrade

To enable the automatic upgrade of FPD images during a software upgrade, use the **fpd auto-upgrade** command in System Admin Config mode. To disable automatic FPD upgrades, use the **no** form of this command.

fpd auto-upgrade [{**disable** | **enable**}]
no fpd auto-upgrade

Syntax Description

disable	Disables automatic upgrade of FPD images.
enable	Enables automatic upgrade of FPD images.

Command Default

FPD automatic upgrade is disabled by default.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Users are recommended to enable automatic upgrade of FPD on the system.

This example shows how to enable fpd auto-upgrade:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#fpd auto-upgrade enable
sysadmin-vm:0_RP0(config)# commit
Sat Aug  31 00:39:44.503 UTC
Commit complete.
sysadmin-vm:0_RP0(config)# end
```

interface

To configure the management interface, use the **interface** command in the System Admin Config mode. To disable the management interface, use the **no** form of this command.

interface MgmtEth *location*

Syntax Description

location	Specifies the location of the management Ethernet interface.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command is applicable only for RP nodes.

This example shows how to configure the management ethernet interface:

```
sysadmin-vm:0_RP0# config
sysadmin-vm:0_RP0(config)# interface MgmtEth 0/RP0/0/0

sysadmin-vm:0_RP0(config-MgmtEth-0/RP0/0/0)# ipv4 address 12.28.59.104/16

sysadmin-vm:0_RP0(config-MgmtEth-0/RP0/0/0)# default-gw 12.28.0.1
sysadmin-vm:0_RP0(config-MgmtEth-0/RP0/0/0)#commit
Wed Aug  28 17:56:25.562 UTC
Commit complete.
sysadmin-vm:0_RP0(config-MgmtEth-0/RP0/0/0)#end
Wed Aug  28 17:56:28.307 UTC
sysadmin-vm:0_RP0# show running-config interface MgmtEth
Wed Aug  28 17:56:32.444 UTC
interface MgmtEth 0/RP0/0/0
 ipv4 address 12.28.59.104/16
 default-gw 12.28.0.1
!
sysadmin-vm:0_RP0#
```

logging console

To modify message logging facilities for a group, use the **logging console** command in the System Admin Config mode. To disable message logging facilities, use the **no** form of this command.

logging console {**alert** | **critical** | **debug** | **disable** | **emergency** | **error** | **informational** | **notice** | **warning**}
no logging console

Syntax Description

alert	Indicates immediate action is required
critical	Indicates critical conditions.
debug	Indicates debugging messages.
disable	Disables logging.
emergency	Indicates that the system is unusable.
error	Indicates error conditions.
informational	Indicates informational messages.
notice	Indicates normal but significant conditions.
warning	Indicated warning conditions.

Command Default

Logging is set to Warning.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **logging console** command to prevent debugging messages from flooding your screen.

The logging console is for the console terminal. Use the **logging console disable** command to disable console logging completely.

Use the **no logging console** command to return the configuration to the default setting.

This example shows how to disable logging:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)# logging console disable
```

mgmt

To configure IP address of the management interface, use the **mgmt** command in the System Admin Config mode. To clear the IP address assigned to the management interface, use the **no** form of this command.

mgmt {**ipv4** [{*A.B.C.D/subnet_bits* | *A.B.C.D subnet_ip*}] | **ipv6** [{*IPv6address/prefix* | *Address Prefix_ipv6 address*}]}

Syntax Description

ipv4	Specifies an IPv4 address.
ipv6	Specifies an IPv6 address.
A.B.C.D/subnet_bits	Assigns an IPv4 address and subnet mask to the interface in the specified format.
A.B.C.D subnet_ip	Assigns an IPv4 address and subnet mask to the interface in the specified format.
IPv6address/prefix	Assigns an IPv6 address and prefix in the specified format.
Address Prefix_ipv6 address	Assigns an IPv6 address and prefix in the specified format.

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

This command does not configure the physical management interface. It is similar to configuring ipv4 or ipv6 virtual address to the management interfaces.

This example shows how to configure the IP address of the management interface:

```
sysadmin-vm:0_RP0# config
sysadmin-vm:0_RP0(config)# mgmt ipv4 12.28.59.104/16
sysadmin-vm:0_RP0(config)# commit
Sat Aug  31 00:41:20.910 UTC
Commit complete.
sysadmin-vm:0_RP0(config)# end
Sat Aug  31 00:41:21.211 UTC
sysadmin-vm:0_RP0#
```

power-mgmt action

To control the power budget so as to not exceed the power capacity, use the **power-mgmt action** command in the System Admin Config mode. To disable the power budget control, use the **no** form of this command.

power-mgmt action disable location *chassis-id*

Syntax Description

disable	Disables the power budget control.
location *chassis-id*	Specifies the target location to disable the power budget control. Enter the chassis identifier.

Command Default

Power budget control is enabled by default.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Power-management action is done at the chassis level.

This example shows you how to disable the chassis power management control:

```
sysadmin-vm:0_RP0# config
sysadmin-vm:0_RP0(config)# power-mgmt action disable location 10
```

power-mgmt redundancy

To disable power tray level redundancy and convert to power module redundancy, use the **power-mgmt redundancy-num-pms** command in the System Admin Config mode. To restore default power tray level redundancy, use the **no** form of this command.

power-mgmt redundancy-num-pms [*integer*]
no power-mgmt redundancy-num-pms [*integer*]

Syntax Description

integer	Number of redundant power modules that the user wants to configure. The total number of functioning power modules in the system is at least *integer* number more than the number of power modules needed to support the power required for all the cards in the system. Range of *integer* is from 0 to 12. 0 means no power redundancy is required.

Command Default

Power tray level redundancy is the default option.

The router has two power shelves where each power shelf contains three power trays for LCC (line card chassis) and two power trays for FCC (fabric card chassis).

Power tray level redundancy indicates that both power shelves contain sufficient functioning power modules to support power required for all the cards in the system.

Command Modes

System Admin Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

If the system is planned to have power tray level (N+N) power redundancy, then the power redundancy mode need not be configured as that is the default mode.

If the system is planned to have power module redundancy (N+x), then this command can be used to set the number of power modules required for power redundancy.

This example shows how to disable power tray level redundancy and convert it to power module level redundancy:

```
sysadmin-vm:0_RP0#config
sysadmin-vm:0_RP0(config)#power-mgmt redundancy-num-pms 2
sysadmin-vm:0_RP0(config)#commit
Tue Sep  3  12:17:53.891 UTC
Commit complete.
```

users

To configure a user and associate the user with an authentication group, use the **user** command. To delete a user from the specified user group, use the **no** form of this command.

user *user-name*
no user *user-name*

Syntax Description

user-name	Name of the user to be added to the users list.

Command Default

None

Command History

Release	Modification
Release 5.2.3	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
aaa	read, write

Examples

The following example shows how to add a user *user1* to the list of users in user group *grp1*:

```
sysadmin-vm:0_RP0(config)#aaa authentication groups group grp1
sysadmin-vm:0_RP0(config-group-grp1)# users user1
Wed Nov  19 15:50:11.706 UTC
sysadmin-vm:0_RP0(config-group-grp1)# commit
```

This example shows how to view that the user *user1* is successfully added to user group *grp1*:

```
sysadmin-vm:0_RP0# show running-config aaa authentication groups group grp1
Wed Nov  19 15:51:32.679 UTC
aaa authentication groups group grp1
 gid   100
 users "%%__system_user__%% user1"
!
```

This example shows how to delete the user *user1* from user group *grp1*:

```
sysadmin-vm:0_RP0(config-group-grp1)# no users user1
Wed Nov  19 15:53:28.961 UTC
sysadmin-vm:0_RP0(config-group-grp1)# commit
```

This example shows how to delete all the users from user group *grp1*:

```
sysadmin-vm:0_RP0(config-group-grp1)# no users
```

```
Wed Nov  19 15:55:41.121 UTC
sysadmin-vm:0_RP0(config-group-grp1)# commit
```

show card-inventory

To display System Admin Manager card inventory information, use the **show card-inventory** command in the System Admin EXEC mode.

show card-inventory [**location** *node-id*]

Syntax Description

location *node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The **location** keyword can be used only with RP and LC nodes. However, the output displays information about all the cards (RP, LC, and FC)

Example

This example shows sample output from the **show card-inventory** command:

```
sysadmin-vm:0_RP0# show card-inventory location 0/3

card-inventory location 0/3
 SAD160801NG
  card_type     RP
  card_state    OPERATIONAL
  card_sw_state OPERATIONAL
  card_slot     1
 SAD160801NP
  card_type     RP
  card_state    OPERATIONAL
  card_sw_state OPERATIONAL
  card_slot     0
 SAD161300T6
  card_type     LC
  card_state    OPERATIONAL
  card_sw_state OPERATIONAL
  card_slot     19
 SAD1618003Z
  card_type     FABRIC
  card_state    PRESENT
  card_sw_state UNKNOWN
  card_slot     8
 SAD162001MS
  card_type     LC
.
.
.
```

show environment

To display hardware information of the router, use the **show environment** command in System Admin EXEC mode.

show environment [{**all** | **current** | **fan** | **power** | **temperatures** | **trace** | **voltages** }] [**location** *node-id*]

Syntax Description

all	(Optional) Displays information for all environmental monitor parameters.
current	(Optional) Displays current information.
fan	(Optional) Displays information about the fan.
power	(Optional) Displays power supply voltage.
temperatures	(Optional) Displays system temperature information.
trace	(Optional) Displays trace data for environment monitoring.
voltages	(Optional) Displays system voltage information.
location *node-id*	(Optional) Node whose information you want to display. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

All environmental monitor parameters are displayed.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The show environment command displays information about the hardware that is installed in the system, including fans, LEDs, system power, voltages, current, and temperature information.

This example shows how to displays current information at the specified location:

```
sysadmin-vm:0_RP0#show environment current location 0/3
================================================================================
Location  Sensor                       Value
                                       (mA)
================================================================================
0/3
          VRM12 VCC In CS                468
          VRM12 VSA In CS                250
          VRM12 VCC Out CS              5500
          VRM12 VSA Out CS              3000
          Hot Swap(HS_0) CS             4500
          VP3P3 MB CS                   1590
```

```
          VP1P8 MB CS                    350
          VP1P0 MB CS                   1010
          VP0P9 MB CS                    400
          VP0P9_GN MB CS                  20
          VP1P5_DDR3 MB CS               160
          VP1P05 MB CS                   360
          CPU VCC CS                     710
          VP2P5 MB CS                   1110
          Slice 1 VP1P0_SRDS CS          680
          Slice 1 VP1P5 CS              2450
          Slice 1 PITA VP1P0 CS          725
          Slice 1 VP0P9 AVS A CS        2102
```

This example shows how to display fan information at the specified location:

```
sysadmin-vm:0_RP0# show environment fan location 0/FT0

==============================================================================
                              Fan speed (rpm)
Location     FRU Type         FAN_0   FAN_1   FAN_2   FAN_3   FAN_4   FAN_5
==============================================================================
0/FT0        P-L-FANTRAY       2680    2720    2680    2720    2720    2720
sysadmin-vm:0_RP0#
--

sysadmin-vm:0_RP0# show environment power location 0/FC0
Fri Sep  20 02:47:11.268 UTC

==============================================================================
   Location     Card Type            Power       Status
                                     Allocated
                                     Watts
==============================================================================
   0/FC0        NC6-FC                 150       ON
```

This example shows how to display temperature information at the specified location:

```
sysadmin-vm:0_RP0# show environment temperatures location 0/FC0

==============================================================================
Location  Sensor                      Value   Crit Major Minor Minor Major  Crit
                                    (deg C)   (Lo) (Lo)  (Lo)  (Hi)  (Hi)   (Hi)
==============================================================================
0/FC0
          Inlet                        27    -10    -5     0    50    60     75
          HotSpot                      32    -10    -5     0    95   100    105
          Outlet                       29    -10    -5     0    95   100    105
          PCIe Die                     47    -10    -5     0   105   115    120
```

This example shows how to display voltages information at the specified location:

```
sysadmin-vm:0_RP0# show environment voltages location 0/FC0

==============================================================================
Location  Sensor                      Value   Crit Minor Minor  Crit
                                      (mV)    (Lo) (Lo)  (Hi)   (Hi)
==============================================================================
0/FC0
          Hot Swap(HS_0) VS          55309  48600 49950 58050 59400
          Standby rails(IMON_0)       9975   8000  8500 11500 12210
          Common rails(IMON_1)        9950   8000  8500 11500 12210
          PS_0 Stdby VP1P2            1200   1080  1110  1290  1320
          PS_0-Stdby VP3P3            3298   2970  3050  3550  3630
          PS_0-Ref VP2P5              2499   2250  2310  2690  2750
          PS_0-IBV DIV4               2492   2000  2215  2875  3053
          PS_0-PB VP7P0 DIV2          3499   3150  3240  3760  3850
```

```
PS_0-PCIE VP1P8              1800   1620  1665  1935  1980
PS_0-PCIE VP0P9               900    810   830   970   990
PS_0-VP12P0                  9937   8000  8500 11500 12210
PS_2 FE0 VDDC                1000    900   925  1075  1100
PS_2 FE0 TRVDD                999    900   925  1075  1100
PS_2 FE0 FTRVDD               999    900   925  1075  1100
PS_2 FE0 VP3P3               3299   2970  3050  3550  3630
PS_2 FE1 VDDC                1000    900   925  1075  1100
PS_2 FE1 TRVDD                999    900   925  1075  1100
PS_2 FE1 FTRVDD               999    900   925  1075  1100
PS_2 FE1 VP3P3               3299   2970  3050  3550  3630
PS_2-VP12P0                 10031   8000  8500 11500 12210
Falafel 0 core               9925   8000  8500 11500 12210
Falafel 0 SerDes             9950   8000  8500 11500 12210
Falafel 0 3.3V               9900   8000  8500 11500 12210
Falafel 1 core               9925   8000  8500 11500 12210
Falafel 1 SerDes             9950   8000  8500 11500 12210
Falafel 1 3.3V               9925   8000  8500 11500 12210
```

show fm

To display fault management information, use the show fm command in the System Admin EXEC and XR EXEC modes.

show fm location *node-id*

Syntax Description

location *node-id*	Specifies the node ID to which fault management is to be scoped. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

This example shows the sample output from the **show fm** command:

```
sysadmin-vm:0_RP0# show fm location 0/3
Fri Aug  2  06:22:21.925 UTC

----------------------------------------
            Fault List Brief
----------------------------------------
           fault  fault
subsystem  type   tag    name
-------------------------------------------------
4          10     100    Shutdown card
4          14     1      Temperature alarm
4          14     2      High Voltage alarm
4          14     3      Low Voltage alarm
4          14     4      Sensor fault alarm
4          14     5      out of tolerance fault
4          14     6      I2C Access error


----------------------------------------
            Fault Detailed Info
----------------------------------------
  detail fm_subsystem_id 4
  detail fm_fault_type 10
  detail fm_fault_tag 100
  detail name        "Shutdown card"
.
.
.
```

show fpd package

To display field-programmable device (FPD) package information, use the **show fpd package** command in System Admin EXEC mode.

show fpd package

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

If there are multiple FPD images for your card, use the **show fpd package** command to determine which FPD image to use if you only want to upgrade a specific FPD type.

This example shows sample output from the **show fpd package** command:

```
sysadmin-vm:0_RP0# show fpd package

================================ ============================================
                                        Field Programmable Device Package
                                 ============================================
                                           Req      SW       Min Req   Min Req
Card Type            FPD Description       Reload   Ver      SW Ver    Board Ver
================== ========================== ====== ======= ======== =========
NC6-4-10X100G-M-K    BAO-MB FPGA             NO      1.00      1.00      0.0
                     BAO-DB FPGA             NO      1.00      1.00      0.0
                     Slice-0 GN2411          YES     2.07      2.07      0.0
                     Slice-1 GN2411          YES     2.07      2.07      0.0
                     Slice-2 GN2411          YES     2.07      2.07      0.0
                     Slice-3 GN2411          YES     2.07      2.07      0.0
                     Slice-4 GN2411          YES     2.07      2.07      0.0
                     S2 GN2411               YES     2.07      2.07      0.0
                     S3 GN2411               YES     2.07      2.07      0.0
                     S4 GN2411               YES     2.07      2.07      0.0
                     CCC FPGA                YES     1.14      1.14      0.0
                     CCC Power-On            YES     1.30      1.30      0.0
                     Ethernet Switch         YES     1.32      1.32      0.0
                     BIOS FPD                YES     9.10      9.10      0.0
                     SB Certificates         NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
NC6-FC               CCC FPGA                YES     1.13      1.13      0.0
                     CCC Power-On            YES     1.30      1.30      0.0
                     SB Certificates         NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
NC6-10X100G-L-K      BAO-MB FPGA             NO      1.00      1.00      0.0
                     BAO-DB FPGA             NO      1.00      1.00      0.0
                     S2 GN2411               YES     3.01      3.01      2.0
                     S3 GN2411               YES     3.01      3.01      2.0
                     S4 GN2411               YES     3.01      3.01      2.0
                     S2 GN2411               YES     2.07      2.07      0.0
```

```
                    S3 GN2411                 YES     2.07      2.07      0.0
                    S4 GN2411                 YES     2.07      2.07      0.0
                    CCC FPGA                  YES     1.14      1.14      0.0
                    CCC Power-On              YES     1.30      1.30      0.0
                    Ethernet Switch           YES     1.32      1.32      0.0
                    BIOS FPD                  YES     9.10      9.10      0.0
                    SB Certificates           NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
NC6-6-10X100G-L-K   BAO-MB FPGA               NO      1.00      1.00      0.0
                    BAO-DB FPGA               NO      1.00      1.00      0.0
                    Slice-0 GN2411            YES     2.07      2.07      0.0
                    Slice-1 GN2411            YES     2.07      2.07      0.0
                    Slice-2 GN2411            YES     2.07      2.07      0.0
                    Slice-3 GN2411            YES     2.07      2.07      0.0
                    Slice-4 GN2411            YES     2.07      2.07      0.0
                    S2 GN2411                 YES     2.07      2.07      0.0
                    S3 GN2411                 YES     2.07      2.07      0.0
                    S4 GN2411                 YES     2.07      2.07      0.0
                    CCC FPGA                  YES     1.14      1.14      0.0
                    CCC Power-On              YES     1.30      1.30      0.0
                    Ethernet Switch           YES     1.32      1.32      0.0
                    BIOS FPD                  YES     9.10      9.10      0.0
                    SB Certificates           NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
PROTO-CXP-2XPITA    BAO-MB FPGA               NO      1.00      1.00      0.0
                    Slice-0 GN2411            YES     3.01      3.01      2.0
                    Slice-1 GN2411            YES     3.01      3.01      2.0
                    Slice-0 GN2411            YES     2.07      2.07      0.0
                    Slice-1 GN2411            YES     2.07      2.07      0.0
                    CCC FPGA                  YES     1.14      1.14      0.0
                    CCC Power-On              YES     1.30      1.30      0.0
                    Ethernet Switch           YES     1.32      1.32      0.0
                    BIOS FPD                  YES     9.10      9.10      0.0
                    SB Certificates           NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
NC6-FANTRAY         Fantray FPGA              NO      2.01      2.01      0.0
--------------------------------------------------------------------------------
NC6-10X100G-M-P     BAO-MB FPGA               NO      1.00      1.00      0.0
                    BAO-DB FPGA               NO      1.00      1.00      0.0
                    Slice-0 GN2411            YES     3.01      3.01      2.0
                    Slice-1 GN2411            YES     3.01      3.01      2.0
                    Slice-0 GN2411            YES     2.07      2.07      0.0
                    Slice-1 GN2411            YES     2.07      2.07      0.0
                    Slice-2 GN2411            YES     3.01      3.01      2.0
                    Slice-3 GN2411            YES     3.01      3.01      2.0
                    Slice-4 GN2411            YES     3.01      3.01      2.0
                    Slice-2 GN2411            YES     2.07      2.07      0.0
                    Slice-3 GN2411            YES     2.07      2.07      0.0
                    Slice-4 GN2411            YES     2.07      2.07      0.0
                    S2 GN2411                 YES     3.01      3.01      2.0
                    S3 GN2411                 YES     3.01      3.01      2.0
                    S4 GN2411                 YES     3.01      3.01      2.0
                    S2 GN2411                 YES     2.07      2.07      0.0
                    S3 GN2411                 YES     2.07      2.07      0.0
                    S4 GN2411                 YES     2.07      2.07      0.0
                    CCC FPGA                  YES     1.14      1.14      0.0
                    CCC Power-On              YES     1.30      1.30      0.0
                    Ethernet Switch           YES     1.32      1.32      0.0
                    BIOS FPD                  YES     9.10      9.10      0.0
                    SB Certificates           NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
NC6-10X100G-M-K     BAO-MB FPGA               NO      1.00      1.00      0.0
                    BAO-DB FPGA               NO      1.00      1.00      0.0
                    S2 GN2411                 YES     3.01      3.01      2.0
```

```
                    S3 GN2411                YES     3.01      3.01      2.0
                    S4 GN2411                YES     3.01      3.01      2.0
                    S2 GN2411                YES     2.07      2.07      0.0
                    S3 GN2411                YES     2.07      2.07      0.0
                    S4 GN2411                YES     2.07      2.07      0.0
                    CPAK bay 0 FPD           YES     1.13      1.13      0.0
                    CPAK bay 1 FPD           YES     1.13      1.13      0.0
                    CPAK bay 2 FPD           YES     1.13      1.13      0.0
                    CPAK bay 3 FPD           YES     1.13      1.13      0.0
                    CPAK bay 4 FPD           YES     1.13      1.13      0.0
                    CPAK bay 5 FPD           YES     1.13      1.13      0.0
                    CPAK bay 6 FPD           YES     1.13      1.13      0.0
                    CPAK bay 7 FPD           YES     1.13      1.13      0.0
                    CPAK bay 8 FPD           YES     1.13      1.13      0.0
                    CPAK bay 9 FPD           YES     1.13      1.13      0.0
                    CCC FPGA                 YES     1.14      1.14      0.0
                    CCC Power-On             YES     1.30      1.30      0.0
                    Ethernet Switch          YES     1.32      1.32      0.0
                    SB Certificates          NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
NC6-10X100G-L-P     BAO-MB FPGA              NO      1.00      1.00      0.0
                    BAO-DB FPGA              NO      1.00      1.00      0.0
                    Slice-0 GN2411           YES     3.01      3.01      2.0
                    Slice-1 GN2411           YES     3.01      3.01      2.0
                    Slice-0 GN2411           YES     2.07      2.07      0.0
                    Slice-1 GN2411           YES     2.07      2.07      0.0
                    Slice-2 GN2411           YES     3.01      3.01      2.0
                    Slice-3 GN2411           YES     3.01      3.01      2.0
                    Slice-4 GN2411           YES     3.01      3.01      2.0
                    Slice-2 GN2411           YES     2.07      2.07      0.0
                    Slice-3 GN2411           YES     2.07      2.07      0.0
                    Slice-4 GN2411           YES     2.07      2.07      0.0
                    S2 GN2411                YES     3.01      3.01      2.0
                    S3 GN2411                YES     3.01      3.01      2.0
                    S4 GN2411                YES     3.01      3.01      2.0
                    S2 GN2411                YES     2.07      2.07      0.0
                    S3 GN2411                YES     2.07      2.07      0.0
                    S4 GN2411                YES     2.07      2.07      0.0
                    CCC FPGA                 YES     1.14      1.14      0.0
                    CCC Power-On             YES     1.30      1.30      0.0
                    Ethernet Switch          YES     1.32      1.32      0.0
                    BIOS FPD                 YES     9.10      9.10      0.0
                    SB Certificates          NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
NC6-RP              CCC FPGA                 YES     1.00      1.00      0.0
                    CCC Power-On             YES     1.31      1.31      0.0
                    Ethernet Switch          YES     1.32      1.32      0.2
                    Ethernet Switch          YES     1.32      1.32      0.0
                    BIOS FPD                 YES     9.10      9.10      0.0
                    CPU Complex FPD          YES     3.06      3.06      0.0
                    SB Certificates          NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
PWR-2KW-DC-V2       DT-PriMCU                NO      6.02      6.02      0.1
                    DT-Sec54vMCU             NO      6.02      6.02      0.1
                    DT-Sec5vMCU              NO      6.02      6.02      0.1
                    EM-PriMCU                NO      3.06      3.06      0.2
                    EM-Sec54vMCU             NO      3.09      3.09      0.2
                    EM-Sec5vMCU              NO      3.07      3.07      0.2
--------------------------------------------------------------------------------
PWR-3KW-AC-V2       DT-PriMCU                NO      6.01      6.01      1.0
                    DT-Sec54vMCU             NO      6.01      6.01      1.0
                    DT-Sec5vMCU              NO      6.03      6.03      1.0
                    EM-Sec54vMCU             NO      3.08      3.08      0.2
                    EM-Sec5vMCU              NO      3.06      3.06      0.2
```

```
--------------------------------------------------------------------------------
PROTO-CXP-1XPITA     BAO-MB FPGA               NO      1.00      1.00      0.0
                     Slice-1 GN2411            YES     3.01      3.01      2.0
                     Slice-1 GN2411            YES     2.07      2.07      0.0
                     CCC FPGA                  YES     1.14      1.14      0.0
                     CCC Power-On              YES     1.30      1.30      0.0
                     Ethernet Switch           YES     1.32      1.32      0.0
                     BIOS FPD                  YES     9.10      9.10      0.0
                     SB Certificates           NO      1.00      1.00      0.0
--------------------------------------------------------------------------------
```

show logging

To display the contents of the logging buffer, use the **show logging** command in System Admin EXEC mode.

show logging [{**local location** *node-id* | **onboard** {**fpd** | **inventory** | **temperature** | **uptime** | **voltage**}}]

Syntax Description

location *node-id*	(Optional) Displays system logging (syslog) messages from the specified local buffer. The *node-id* argument is expressed in the *rack/slot* notation.
onboard	Displays onboard failure logging (OBFL) logging data.
fpd	Displays OBFL FPD data.
inventory	Displays OBFL inventory data.
temperature	Displays OBFL temperature data.
uptime	Displays OBFL uptime data.
voltage	Displays OBFL voltage data.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show logging** command to display the state of syslog error and event logging on the processor console. The information from the command includes the types of logging enabled and the size of the buffer.

This example shows a sample output from the **show logging** command:

```
sysadmin-vm:0_RP0#show logging local location 0/3

************************************************************
@Location : 0/3
************************************************************

Warning: Permanently added '192.0.76.1' (RSA) to the list of known hosts.
NULL:Jan  1 00:01:03.431 : cm[1733]: %ROUTING-TOPO-6-BAD_SVC_INFO : Bad service info from
DS
NULL:Jan  1 00:01:13.073 : esd[1738]: %INFRA-ESD-6-SWITCH_OPERATIONAL : All configuraion
is complete and switch is fully operational
NULL:Jan  1 00:01:15.471 : envmon[1737]: %INFRA-FM-4-FAULT_MINOR : ALARM_MINOR :I2C Access
 error :DECLARE :(null): MB Outlet has raised an alarm for I2C access error
NULL:Jan  1 00:01:15.988 : cm[1733]: %ROUTING-ISIS-4-ERR_BAD_PDU_FORMAT : L2 LAN IIH received
 from eth-vf1.3073 SNPA e050.72f4.e803 contains a format error: Unknown TLV at packet offset
 48 overflows end of packet (length 51; space available 7)
NULL:Jan  1 00:01:18.909 : envmon[1737]: %INFRA-FM-4-FAULT_MINOR : ALARM_MINOR :I2C Access
 error :DECLARE :(null): HotSpot has raised an alarm for I2C access error
```

```
NULL:Jan  1 00:01:18.910 : envmon[1737]: %INFRA-FM-3-FAULT_MAJOR : ALARM_MAJOR :Sensor fault
 alarm :DECLARE :(null): multiple sensor faults
NULL:Jan  1 00:01:28.392 : envmon[1737]: %INFRA-FM-4-FAULT_MINOR : ALARM_MINOR :I2C Access
 error :CLEAR :(null): MB Outlet has cleared an alarm for I2C access error
NULL:Jan  1 00:01:28.393 : envmon[1737]: %INFRA-FM-3-FAULT_MAJOR : ALARM_MAJOR :Sensor fault
 alarm :CLEAR :(null): multiple sensor faults cleared
NULL:Jan  1 00:01:29.404 : envmon[1737]: %INFRA-FM-4-FAULT_MINOR : ALARM_MINOR :I2C Access
 error :CLEAR :(null): HotSpot has cleared an alarm for I2C access error
NULL:Jan  1 00:02:13.537 : cm[1733]: %ROUTING-TOPO-6-LEAD : Lead type: System lead System:
 e050.72f4.df03.
NULL:Jan  1 00:02:16.673 : sdr_mgr[1744]: 0/3:Jan  1 00:02:20.502 : slice_manager[1747]:
%INFRA-SLICE-6-CLOCKING_ERR : Slice 1 : Detected loss of lock
0/3:Jan  1 00:02:36.705 : vm_manager[1751]: %INFRA-VM_MANAGER-4-INFO : Info: vm_manager
started VM default-sdr--1
```

show parser dump

To display the command-line interface (CLI) syntax options for all command modes or for a specified command mode, use the **show parser dump** command in System Admin EXEC mode.

show parser dump

Syntax Description

This command has no keywords or arguments.

Command Default

Displays CLI options for all command modes.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Output for this command shows the syntax options for all commands available in the specified mode.

This example shows a sample output from the **show parser dump** command:

```
sysadmin-vm:0_RP0#show parser dump

ccc_console ccc_console location WORD
clear controller fabric counter plane all
clear controller fabric statistics plane all
clear controller switch fdb location [0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/F0/F1/F2/F3]
[Unknown/RP0/RP1/SC0/SC1/LC0/LC1/LC2/LC3/LC4/LC5/LC6/LC7/LC8/LC9/LC10/LC11/LC12/LC13/LC14/LC15/LC16/LC17/LC18/LC19]
 [RP-SW/SC-SW/LC-SW/F-SW0/F-SW1/Unknown] all
clear controller switch mlap statistics location
[0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/F0/F1/F2/F3]
[Unknown/RP0/RP1/SC0/SC1/LC0/LC1/LC2/LC3/LC4/LC5/LC6/LC7/LC8/LC9/LC10/LC11/LC12/LC13/LC14/LC15/LC16/LC17/LC18/LC19]
 [RP-SW/SC-SW/LC-SW/F-SW0/F-SW1/Unknown] all
clear controller switch sdr statistics location
[0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/F0/F1/F2/F3]
[Unknown/RP0/RP1/SC0/SC1/LC0/LC1/LC2/LC3/LC4/LC5/LC6/LC7/LC8/LC9/LC10/LC11/LC12/LC13/LC14/LC15/LC16/LC17/LC18/LC19]
 [RP-SW/SC-SW/LC-SW/F-SW0/F-SW1/Unknown] all
clear controller switch statistics location
[0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/F0/F1/F2/F3]
[Unknown/RP0/RP1/SC0/SC1/LC0/LC1/LC2/LC3/LC4/LC5/LC6/LC7/LC8/LC9/LC10/LC11/LC12/LC13/LC14/LC15/LC16/LC17/LC18/LC19]
 [RP-SW/SC-SW/LC-SW/F-SW0/F-SW1/Unknown] all
clear history
clock read-calendar
clock set time WORD
clock update-calendar
.
.
.
```

show rack-inventory

To displays the System Admin Manager rack inventory, use the **show rack-inventory** command in the System Admin EXEC mode.

show rack-inventory [**location** *node-id*]

Syntax Description

location	*node-id*	Specifies the target location. The *node-id* argument is expressed in the *rack/slot* notation.

Command Default

Displays rack information for all the cards in the system.

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Used only for RP and LC cards.

This example shows sample output from the **show rack-inventory** command:

```
sysadmin-vm:0_RP0# show rack-inventory
Fri Aug  2  06:53:39.250 UTC
rack-inventory location 0/3
 FMP12160201
  rack_number 0
rack-inventory location 0/RP0
 FMP12160201
  rack_number 0
rack-inventory location 0/RP1
 FMP12160201
  rack_number 0
```

show user

To display different users logged-in to the System Admin plane, use the **show user** command in System Admin EXEC mode.

show user

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

Use the **show user** command to display different users logged-in to the System Admin plane of the router.

This example shows the sample output of the **show user** command:

```
sysadmin-vm:0_RP0#show user

Session User Context From              Date     Mode
*245    maya cli     127.0.0.1 Console 10:36:42 operational
```

show version

To display the software version, BIOS version, and build details, use the **show version** command in System Admin EXEC and XR EXEC modes.

show version

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

System Admin EXEC

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

The **show version** command displays a variety of system information, including hardware and software version, router uptime, and active software.

Example

This example shows partial output from the **show version** command:

```
sysadmin-vm:0_RP0# show version

Cisco IOS XR Admin Software, Version 5.0.0.40I
Copyright (c) 2013 by Cisco Systems, Inc.

Build Information:
 Built By     : palwal
 Built On     : Tue Sep 10 07:13:26 PDT 2013
 Build Host   : iox-bld4
 Workspace    : /auto/iox-bld4-scratch2/calvados-40thr
 Version      : 5.0.0.40I
 Location     : /opt/cisco/calvados/packages/

BIOS Version  : 9.10

System uptime is 14 hours, 31 minutes
```