

Routing Matrix with a TX Matrix Plus Router Solutions Page



Published: 2012-11-28

Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, California 94089
USA
408-745-2000
www.juniper.net

This product includes the Envoy SNMP Engine, developed by Epilogue Technology, an Integrated Systems Company. Copyright © 1986-1997, Epilogue Technology Corporation. All rights reserved. This program and its documentation were developed at private expense, and no part of them is in the public domain.

This product includes memory allocation software developed by Mark Moraes, copyright © 1988, 1989, 1993, University of Toronto.

This product includes FreeBSD software developed by the University of California, Berkeley, and its contributors. All of the documentation and software included in the 4.4BSD and 4.4BSD-Lite Releases is copyrighted by the Regents of the University of California. Copyright © 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994. The Regents of the University of California. All rights reserved.

GateD software copyright © 1995, the Regents of the University. All rights reserved. Gate Daemon was originated and developed through release 3.0 by Cornell University and its collaborators. Gated is based on Kirton's EGP, UC Berkeley's routing daemon (routed), and DCN's HELLO routing protocol. Development of Gated has been supported in part by the National Science Foundation. Portions of the GateD software copyright © 1988, Regents of the University of California. All rights reserved. Portions of the GateD software copyright © 1991, D. L. S. Associates.

This product includes software developed by Maker Communications, Inc., copyright © 1996, 1997, Maker Communications, Inc.

Juniper Networks, Junos, Steel-Belted Radius, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. The Juniper Networks Logo, the Junos logo, and JunosE are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Products made or sold by Juniper Networks or components thereof might be covered by one or more of the following patents that are owned by or licensed to Juniper Networks: U.S. Patent Nos. 5,473,599, 5,905,725, 5,909,440, 6,192,051, 6,333,650, 6,359,479, 6,406,312, 6,429,706, 6,459,579, 6,493,347, 6,538,518, 6,538,899, 6,552,918, 6,567,902, 6,578,186, and 6,590,785.

Routing Matrix with a TX Matrix Plus Router Solutions Page
Copyright © 2012, Juniper Networks, Inc.
All rights reserved.

The information in this document is current as of the date on the title page.

YEAR 2000 NOTICE

Juniper Networks hardware and software products are Year 2000 compliant. Junos OS has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

END USER LICENSE AGREEMENT

The Juniper Networks product that is the subject of this technical documentation consists of (or is intended for use with) Juniper Networks software. Use of such software is subject to the terms and conditions of the End User License Agreement ("EULA") posted at <http://www.juniper.net/support/eula.html>. By downloading, installing or using such software, you agree to the terms and conditions of that EULA.

Table of Contents

	About the Documentation	xiii
	Documentation and Release Notes	xiii
	Supported Platforms	xiii
	Using the Examples in This Manual	xiii
	Merging a Full Example	xiv
	Merging a Snippet	xiv
	Documentation Conventions	xv
	Documentation Feedback	xvii
	Requesting Technical Support	xvii
	Self-Help Online Tools and Resources	xvii
	Opening a Case with JTAC	xviii
Part 1	Overview	
Chapter 1	Product Overview	3
	Overview of a Routing Matrix with a TX Matrix Plus Router	3
	Components of a Routing Matrix with a TX Matrix Plus Router	3
	Architecture of a Routing Matrix with a TX Matrix Plus Router	4
	Managing the Routing Matrix as a Single Router	4
	Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router	5
	Redundant Host Subsystems in a Routing Matrix with a TX Matrix Plus Router	7
	Routing Engine Connectivity in a Routing Matrix with a TX Matrix Plus Router	8
Chapter 2	System Requirements	11
	System Requirements for a Routing Matrix with a TX Matrix Plus Router	11
Chapter 3	Glossary	13
	Routing Matrix Terms and Acronyms	13
Part 2	Configuration	
Chapter 4	Configuration Overview	17
	Roadmap for Configuring a Routing Matrix with a TX Matrix Plus Router	17
Chapter 5	Configuration Steps	19
	Connecting to a Routing Matrix with a TX Matrix Plus Router	19
	Accessing a Routing Engine by Direct Console Connection to a Serial Port	19
	Accessing a Routing Engine by Telnet Access to a Management Ethernet Port	20

Accessing a Routing Engine by Logging In from the CLI of Another Routing Engine	20
Connecting to a Backup Routing Engine on the TX Matrix Plus Router	21
Using Configuration Groups and Inheritance in a Routing Matrix with a TX Matrix Plus Router	21
Overview of Configuration Groups and Inheritance in a Routing Matrix	21
Creating Configuration Groups in a Routing Matrix	22
Applying a Configuration Group in a Routing Matrix	23
Displaying Inherited Statements	23
Disabling Inheritance of a Configuration Group in the Routing Matrix	24
Using Special Configuration Groups for the Routing Engines in the Routing Matrix	24
Using Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router	26
Configuring Protocols and Other Features on a Routing Matrix with a TX Matrix Plus Router	27
Configuring Chassis-Specific Features on a Routing Matrix with a TX Matrix Plus Router	28
Configuring PIC-Specific Features on a T1600 Router in a Routing Matrix	28
Configuring an Alarm to Trigger if an LCC in the Routing Matrix Does Not Come Online	29
Configuring an LCC in the Routing Matrix to Stay Offline	29
For More Information	29
Committing Configurations on a Routing Matrix with a TX Matrix Plus Router	30
Committing a Configuration to Both Master and Backup Routing Engines in the Routing Matrix	30
Committing a Configuration to the Master Routing Engines (Only) in the Routing Matrix	31
Synchronizing to the Configuration on the Other Routing Engine	31

Part 3

Chapter 6

Examples

Configuration Examples	35
Example Configuration for a Routing Matrix with a TX Matrix Plus Router	35
Example Routing Matrix Topology	35
Example Routing Matrix Configuration	36
Verifying the Example Configuration	42
Verifying the Configuration of a Routing Matrix with a TX Matrix Plus Router	43
Displaying Junos OS Versions	43
Displaying Junos OS Versions for All Routers	44
Displaying Junos OS Version for the SFC Only	45
Displaying Junos OS Version for a Specific LCC	45
Displaying Junos OS Versions for All LCCs	46
Displaying Configured Interfaces	46
Displaying Available Routes	47
Displaying Alarms and System Uptime	48
Displaying Craft Interface Messages	48
Displaying System Uptime	51

	Displaying Chassis Hardware and Status	51
	Displaying Information About All Hardware Components	52
	Displaying Information About SIBs	55
	Displaying Information About Routing Engines	56
	Displaying Information About FPCs	58
	Displaying Information About LCCs	59
Chapter 7	Using Configuration Examples	61
	Merging Examples	61
	Merging a Full Example	61
	Merging a Snippet	62
	For More Information	62
Part 4	Administration	
Chapter 8	Managing Hardware Components	65
	Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router	65
	Displaying the Status of the Switching Fabric Topology of a Routing Matrix with a TX Matrix Plus Router	66
	Displaying the Status of Control Board Ethernet Switch Ports in a Routing Matrix with a TX Matrix Plus Router	69
	Ethernet Switches on Control Boards in the Routing Matrix	69
	Connectivity Between SFC and LCC Routing Engines	69
	Connectivity Between SFC Master and Backup Routing Engines	70
	Connectivity Between LCC Master and Backup Routing Engines	70
	Status of Ports on Control Board Ethernet Switches	70
	Error Statistics for Ports on Control Board Ethernet Switches	71
	Traffic Statistics for Ports on Control Board Ethernet Switches	72
	Enabling and Disabling Hardware Components of a Routing Matrix with a TX Matrix Plus Router	72
	Rebooting and Halting Hardware Components of the Routing Matrix with a TX Matrix Plus Router	76
Chapter 9	Managing Files and Processes	79
	Managing Files on Routing Engines in a Routing Matrix with a TX Matrix Plus Router	79
	Displaying a List of Files	79
	Displaying the Contents of a File	80
	Copying Files	81
	Renaming Files	81
	Deleting Files	81
	Managing System Processes in a Routing Matrix with a TX Matrix Plus Router	82
Chapter 10	Upgrading the Junos OS	85
	Upgrading the Junos OS on a Routing Matrix with a TX Matrix Plus Router	85
	Logging In to the Master Routing Engine on the TX Matrix Plus Router	86
	Disabling Routing Engine Redundancy and GRES on the Routing Matrix	87
	Installing Junos OS on the Backup Routing Engines	89

	Loading Software on the Backup Routing Engines	96
	Switching Routing Engine Mastership to the Backup Routing Engines	98
	Installing Software on the New Default Master Routing Engines	100
	Loading Software on the New Default Master Routing Engines	101
	Optional: Switching Routing Engine Mastership Back to the Default Master Routing Engines	103
	Restoring the Original Configuration	105
	Backing Up the Routing Engines	106
Chapter 11	Upgrading the Junos OS — Troubleshooting Tips	109
	Troubleshooting: Software Upgrade Failure Due to Insufficient Free Disk Space on a Routing Matrix with a TX Matrix Plus Router	109
	Troubleshooting: Software Upgrade Failure Due to Insufficient Available DRAM on a Routing Matrix with a TX Matrix Plus Router	114
	Troubleshooting: Software Upgrade Failure Due to Mixed Software Versions on a Routing Matrix with a TX Matrix Plus Router	115
Part 5	Operational Commands	
Chapter 12	Miscellaneous Chassis Commands	121
	clear chassis display message	122
	request chassis cb	124
	request chassis cip	127
	request chassis fpc	128
	request chassis fpm resync	132
	request chassis lcc	134
	request chassis pic	135
	request chassis routing-engine master	138
	request chassis scg	142
	request chassis sib	143
	request chassis spmb restart	145
	set chassis display message	146
	show chassis alarms	149
	show chassis cip	159
	show chassis craft-interface	161
	show chassis environment	173
	show chassis environment cb	221
	show chassis environment cip	238
	show chassis environment fpc	240
	show chassis environment fpm	265
	show chassis environment pem	271
	show chassis environment routing-engine	279
	show chassis environment scg	283
	show chassis environment sib	288
	show chassis ethernet-switch	311
	show chassis fabric fpcs	352
	show chassis fabric plane	381
	show chassis fabric plane-location	418
	show chassis fabric topology	422
	show chassis fpc	438

	show chassis hardware	463
	show chassis lccs	564
	show chassis location	565
	show chassis psd	569
	show chassis pic	570
	show chassis routing-engine	582
	show chassis sibs	601
	show chassis spmb	608
	show chassis spmb sibs	616
Chapter 13	Miscellaneous System Software Commands	621
	request routing-engine login	622
	request system reboot	624
	request system snapshot	629
	request system software add	635
	request system software delete	642
	request system software rollback	645
	request system software validate	649
	request system storage cleanup	652
	restart	661
	show system commit	671
	show system configuration archival	673
	show system configuration rescue	674
	show system directory-usage	676
	show system rollback	680
	show system snapshot	682
	show system storage	685
	show system switchover	691
	show system uptime	695
	show version invoke-on	699
Part 6	Configuration Statements	
Chapter 14	Miscellaneous Chassis Statements	713
	alarm (chassis)	714
	lcc	716
	lcc	717
	redundancy	718
	routing-engine (Chassis)	719
Chapter 15	Miscellaneous LCC-Specific Chassis Statements	721
	fpc (TX Matrix and TX Matrix Plus Routers)	722
	offline	723
	online-expected	724
Chapter 16	Miscellaneous FPC-Specific Chassis Statements	725
	pic (TX Matrix and TX Matrix Plus Routers)	725
	power	726

Chapter 17	Miscellaneous PIC-Specific Chassis Statements	727
	aggregate-ports	727
	atm-cell-relay-accumulation	727
	atm-l2circuit-mode	728
	framing	729
	idle-cell-format	729
	max-queues-per-interface	730
	no-concatenate	731
	port (Chassis)	731
	q-pic-large-buffer	732
	red-buffer-occupancy	733
	traffic-manager	734
Chapter 18	Miscellaneous System Statements	737
	backup-router	737
	host-name	738
	location (System)	739
	scripts	741
	syslog (System)	743
	time-zone	745
Chapter 19	Miscellaneous Syslog-Specific System Statements	749
	file (System Logging)	750
	host (System)	751
	source-address (NTP, RADIUS, System Logging, or TACACS+)	753

List of Figures

Part 1	Overview	
Chapter 1	Product Overview	3
	Figure 1: Architecture of a Routing Matrix with a TX Matrix Plus Router	4
Part 3	Examples	
Chapter 6	Configuration Examples	35
	Figure 2: Example Topology of a Routing Matrix with a TX Matrix Plus Router . . .	36

List of Tables

	About the Documentation	xiii
	Table 1: Notice Icons	xv
	Table 2: Text and Syntax Conventions	xv
Part 1	Overview	
Chapter 1	Product Overview	3
	Table 3: FPC Numbering for T1600 Routers in a Routing Matrix — Basic Correspondence	5
	Table 4: FPC Numbering for T1600 Routers in a Routing Matrix — Conversion Chart	6
Part 5	Operational Commands	
Chapter 12	Miscellaneous Chassis Commands	121
	Table 5: show chassis alarms Output Fields	155
	Table 6: show chassis cip Output Fields	159
	Table 7: show chassis craft-interface Output Fields	162
	Table 8: show chassis environment Output Fields	179
	Table 9: show chassis environment cb Output Fields	223
	Table 10: show chassis environment cip Output Fields	238
	Table 11: show chassis environment fpc Output Fields	243
	Table 12: show chassis environment fpm Output Fields	266
	Table 13: show chassis environment pem Output Fields	273
	Table 14: show chassis environment routing-engine Output Fields	281
	Table 15: show chassis environment scg Output Fields	284
	Table 16: show chassis environment sib Output Fields	289
	Table 17: show chassis ethernet-switch Output Fields	314
	Table 18: show chassis fabric fpcs Output Fields	354
	Table 19: show chassis fabric plane Output Fields	383
	Table 20: show chassis fabric plane-location Output Fields	419
	Table 21: show chassis fabric topology Output Fields	423
	Table 22: show chassis fpc Output Fields	444
	Table 23: Routing Engines Displaying DIMM Information	465
	Table 24: show chassis hardware Output Fields	468
	Table 25: show chassis lccs Output Fields	564
	Table 26: show chassis location Output Fields	566
	Table 27: show chassis psd Output Fields	569
	Table 28: show chassis pic Output Fields	573
	Table 29: show chassis routing-engine Output Fields	584
	Table 30: show chassis sibs Output Fields	602

Chapter 13

Table 31: show chassis spmb Output Fields	609
Table 32: show chassis spmb sibs Output Fields	617
Miscellaneous System Software Commands	621
Table 33: request system storage cleanup Output Fields	654
Table 34: show system commit Output Fields	671
Table 35: show system directory-usage Output Fields	678
Table 36: show system snapshot Output Fields	683
Table 37: show system storage Output Fields	687
Table 38: show system switchover Output Fields	693
Table 39: show system uptime Output Fields	697

About the Documentation

- Documentation and Release Notes on page xiii
- Supported Platforms on page xiii
- Using the Examples in This Manual on page xiii
- Documentation Conventions on page xv
- Documentation Feedback on page xvii
- Requesting Technical Support on page xvii

Documentation and Release Notes

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at <http://www.juniper.net/techpubs/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <http://www.juniper.net/books>.

Supported Platforms

For the features described in this document, the following platforms are supported:

- TX Matrix Plus Routers

Using the Examples in This Manual

If you want to use the examples in this manual, you can use the **load merge** or the **load merge relative** command. These commands cause the software to merge the incoming configuration into the current candidate configuration. The example does not become active until you commit the candidate configuration.

If the example configuration contains the top level of the hierarchy (or multiple hierarchies), the example is a *full example*. In this case, use the **load merge** command.

If the example configuration does not start at the top level of the hierarchy, the example is a *snippet*. In this case, use the **load merge relative** command. These procedures are described in the following sections.

Merging a Full Example

To merge a full example, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration example into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following configuration to a file and name the file **ex-script.conf**. Copy the **ex-script.conf** file to the **/var/tmp** directory on your routing platform.

```
system {
  scripts {
    commit {
      file ex-script.xml;
    }
  }
}
interfaces {
  fxp0 {
    disable;
    unit 0 {
      family inet {
        address 10.0.0.1/24;
      }
    }
  }
}
```

2. Merge the contents of the file into your routing platform configuration by issuing the **load merge** configuration mode command:

```
[edit]
user@host# load merge /var/tmp/ex-script.conf
load complete
```

Merging a Snippet

To merge a snippet, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration snippet into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following snippet to a file and name the file **ex-script-snippet.conf**. Copy the **ex-script-snippet.conf** file to the **/var/tmp** directory on your routing platform.

```
commit {
  file ex-script-snippet.xml; }
```

2. Move to the hierarchy level that is relevant for this snippet by issuing the following configuration mode command:

```
[edit]
user@host# edit system scripts
[edit system scripts]
```

3. Merge the contents of the file into your routing platform configuration by issuing the **load merge relative** configuration mode command:

```
[edit system scripts]
user@host# load merge relative /var/tmp/ex-script-snippet.conf
load complete
```

For more information about the **load** command, see the CLI User Guide.

Documentation Conventions

Table 1 on page xv defines notice icons used in this guide.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

Table 2 on page xv defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the configure command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active

Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces or emphasizes important new terms. Identifies book names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> A policy <i>term</i> is a named structure that defines match conditions and actions. <i>Junos OS System Basics Configuration Guide</i> RFC 1997, <i>BGP Communities Attribute</i>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# set system domain-name <i>domain-name</i>
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> To configure a stub area, include the stub statement at the [edit protocols ospf area area-id] hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Enclose optional keywords or variables.	stub <default-metric metric>;
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	broadcast multicast <i>(string1 string2 string3)</i>
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[] (square brackets)	Enclose a variable for which you can substitute one or more values.	community name members [community-ids]
Indentation and braces ({ })	Identify a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
J-Web GUI Conventions		
Bold text like this	Represents J-Web graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> In the Logical Interfaces box, select All Interfaces. To cancel the configuration, click Cancel.
> (bold right angle bracket)	Separates levels in a hierarchy of J-Web selections.	In the configuration editor hierarchy, select Protocols>Ospf .

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version (if applicable)

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>

- Join and participate in the Juniper Networks Community Forum:
<http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting-support.html> .

PART 1

Overview

- [Product Overview on page 3](#)
- [System Requirements on page 11](#)
- [Glossary on page 13](#)

CHAPTER 1

Product Overview

- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router on page 5](#)
- [Redundant Host Subsystems in a Routing Matrix with a TX Matrix Plus Router on page 7](#)
- [Routing Engine Connectivity in a Routing Matrix with a TX Matrix Plus Router on page 8](#)

Overview of a Routing Matrix with a TX Matrix Plus Router

A routing matrix based on a Juniper Networks TX Matrix Plus Router is a multichassis architecture composed of one TX Matrix Plus router and from one to four interconnected T1600 routers.

- [Components of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Architecture of a Routing Matrix with a TX Matrix Plus Router on page 4](#)
- [Managing the Routing Matrix as a Single Router on page 4](#)

Components of a Routing Matrix with a TX Matrix Plus Router

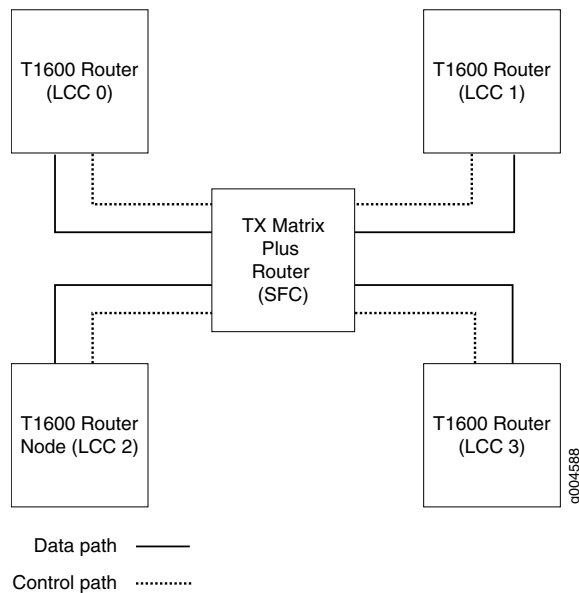
A routing matrix contains two types of chassis: a Juniper Networks TX Matrix Plus Router and Juniper Networks T1600 Core Router.

- **TX Matrix Plus router**—A routing matrix can contain only one Juniper Networks TX Matrix Plus router. A TX Matrix Plus router is often referred to as the *switch-fabric chassis* (SFC). In the Junos OS command-line interface (CLI), **sfc0** is used to refer to the TX Matrix Plus router. For information about installing and connecting to a TX Matrix Plus router, see the [TX Matrix Plus Router Hardware Guide](#).
- **T1600 routers**—A routing matrix can contain from one to four T1600 routers, numbered from 0 through 3. The T1600 router number is set by the hardware. A T1600 router in a routing matrix is often referred to as a *line-card chassis* (LCC). In the Junos OS CLI, **lcc0** through **lcc3** are used to refer to a T1600 router in a routing matrix. For information about connecting to a T1600 router in a routing matrix, see the [TX Matrix Plus Router Hardware Guide](#).

Architecture of a Routing Matrix with a TX Matrix Plus Router

In a routing matrix, the TX Matrix Plus router controls all the connected T1600 routers, as shown in [Figure 1 on page 4](#).

Figure 1: Architecture of a Routing Matrix with a TX Matrix Plus Router



A key element of the routing matrix design is the ability to migrate existing standalone T1600 routers and connect them with a TX Matrix Plus router through fiber-optic cables and Switch Interface Boards (SIBs).

The TX Matrix Plus router connection between the T1600 routers uses a scalable, three-stage switch fabric. This system architecture provides terabit bandwidth expansion capacity and eliminates the use of subscriber line cards to connect devices within points of presence (POPs). As a result, the primary application for the routing matrix is to collapse aggregation and core layers in large POPs and central offices.

Similarly, you can limit which portions of the routing matrix are modified during configuration or maintenance procedures (for example, performing software upgrades or halting Routing Engines).

Managing the Routing Matrix as a Single Router

Although a routing matrix can contain up to five separate physical components, from the perspective of the user interface, the routing matrix appears as a single router for most operations and uses the existing Junos OS CLI.

To manage the multichassis system, some enhancements have been made to the CLI to enable you to select the amount of output you want to display when you issue operational commands. For example, you can specify the entire routing matrix, the TX Matrix Plus router, a specific T1600 router and its Flexible PIC Concentrators (FPCs), or a combination thereof.

When you issue configuration and operational commands on a TX Matrix Plus router, your view of the routing matrix shows a single routing device with a single range of FPC numbers (from 0 through 31 rather than from 0 through 7 for each FPC). As a result, you will need to adjust certain configuration statements to accommodate the global numbering of FPCs installed on the routing matrix, as described in [“Using Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router” on page 26](#).

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Global FPC Numbering for Interfaces in the Routing Matrix on page 5](#)
- [Routing Engine Connectivity in the Routing Matrix on page 8](#)
- [Redundant Host Subsystems in the Routing Matrix on page 7](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router

A routing matrix with a TX Matrix Plus router can contain up to four T1600 routers (line-card chassis) that are assigned numbers, from 0 through 3, depending on the hardware setup and connectivity to the TX Matrix Plus router. In the Junos OS CLI, **lcc 0** through **lcc 3** are used to refer to a T1600 router in a routing matrix. Each T1600 router can contain up to eight Flexible PIC Concentrators (FPCs) in FPC hardware slots labeled 0 through 7. Therefore, a routing matrix with a TX Matrix Plus router can contain up to 32 FPCs.

In the Junos OS CLI, an interface name has the following format:

type-fpc/pic/port

When you specify the **fpc** number for a T1600 router in a routing matrix, the Junos OS determines which T1600 router contains the specified FPC. [Table 3 on page 5](#) shows the basic correspondence between FPC hardware slot numbers (0 through 7), which are labeled on the T1600 chassis, and routing matrix FPC numbers (0 through 31), which are used in the Junos OS CLI.

Table 3: FPC Numbering for T1600 Routers in a Routing Matrix — Basic Correspondence

T1600 Router in a Routing Matrix	Basic Correspondence of FPC Numbering	
	FPC Hardware Slot Numbers	Global FPC Numbers
LCC 0	0 – 7	0 – 7
LCC 1	0 – 7	8 – 15
LCC 2	0 – 7	16 – 23

Table 3: FPC Numbering for T1600 Routers in a Routing Matrix — Basic Correspondence (*continued*)

T1600 Router in a Routing Matrix	Basic Correspondence of FPC Numbering	
	FPC Hardware Slot Numbers	Global FPC Numbers
LCC 3	0 – 7	24 – 31

To easily convert an FPC hardware slot number in a specific LCC (T1600 router) in a routing matrix to the corresponding global FPC number, use the conversion chart shown in [Table 4 on page 6](#). You can use the converted FPC number to configure the interfaces on the TX Matrix Plus router in your routing matrix.

Table 4: FPC Numbering for T1600 Routers in a Routing Matrix — Conversion Chart

Conversion Chart for FPC Numbering									
	LCC 0								
FPC Hardware Slot Numbers	0	1	2	3	4	5	6	7	Example: In the interface name se-1/0/0 , the global FPC number 1 refers to FPC hardware slot 1 in the T1600 router lcc0 .
Global FPC Numbers	0	1	2	3	4	5	6	7	
	LCC 1								
FPC Hardware Slot Numbers	0	1	2	3	4	5	6	7	Example: In the interface name t1-11/2/0 , the global FPC number 11 refers to FPC hardware slot 3 in the T1600 router lcc1 .
Global FPC Numbers	8	9	10	11	12	13	14	15	
	LCC 2								
FPC Hardware Slot Numbers	0	1	2	3	4	5	6	7	Example: In the interface name so-20/0/1 , the global FPC number 20 refers to FPC hardware slot 4 in the T1600 router lcc2 .
Global FPC Numbers	16	17	18	19	20	21	22	23	
	LCC 3								
FPC Hardware Slot Numbers	0	1	2	3	4	5	6	7	Example: In the interface name t3-31/1/0 , the global FPC number 31 refers to the FPC in slot 7 in the T1600 router lcc3 .
Global FPC Numbers	24	25	26	27	28	29	30	31	

You can use a CLI operational command to display the numbers of the connected FPCs in a routing matrix. To display the FPC numbers in both "global numbering" mode (0 through 31, as used to specify an interface name in a routing matrix) and associated "local numbering" mode (LCC number and FPC physical slot number), you can use various forms of the **show chassis location** command. For more information, see ["Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router" on page 65](#).

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Redundant Host Subsystems in a Routing Matrix with a TX Matrix Plus Router

The TX Matrix Plus router and every T1600 router in the routing matrix is configured with redundant host subsystems.

- In a TX Matrix Plus router, the independent control planes are connected by two physical links between the two 10-Gigabit Ethernet ports on their respective Routing Engines. The primary link to the remote Routing Engine is at the **ixgbe0** internal 10-Gigabit Ethernet interface. The alternate link to the remote Routing Engine is at the **ixgbe1** internal 10-Gigabit Ethernet interface. If one of the two links between the host subsystems fails, both Routing Engines can use the other link for IP communication.
- In a T1600 router in a routing matrix, the independent control planes are connected by two physical links between the Gigabit Ethernet ports on their respective Routing Engines. The primary link to the remote Routing Engine is at the **bcm0** internal Ethernet interface. The alternate link to the remote Routing Engine is at the **em1** internal Ethernet interface. If one of the two links between the host subsystems fails, both Routing Engines can use the other link for IP communication.

Two Routing Engines provide redundancy and graceful Routing Engine switchover (GRES) capabilities.



NOTE: If GRES is configured, the CLI command prompt indicates Routing Engine mastership (**{master}** or **{backup}**) and physical slot number (**-re0** or **-re1**).

For example, the following CLI prompt indicates that you are logged in to the master Routing Engine in slot RE0 of the router with hostname **mylcc3**:

```
{master}
user@mylcc3-re0>
```

The following CLI prompt indicates that you are logged in to the backup Routing Engine in slot RE1 of the router with hostname **mylcc3**:

```
{backup}
user@mylcc3-re1>
```

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Routing Engine Connectivity in a Routing Matrix with a TX Matrix Plus Router

The TX Matrix Plus router contains two Connector Interface Panels (CIPs)—one for each Routing Engine—that are referred to as **TXP-CIP-0** and **TXP-CIP-1**. In a routing matrix with a TX Matrix Plus router, all Routing Engines are connected to their respective Control Boards, which in turn are connected to ports on the two CIPs on the TX Matrix Plus router:

- On a TX Matrix Plus router, the Routing Engine (RE-TXP-SFC) and Control Board (TXP-CB) function as a unit, or host subsystem. For each of the two host subsystems in the router, the Junos OS automatically creates two internal Ethernet interfaces, **ixgbe0** and **ixgbe1**, for the two 10-Gigabit Ethernet ports on the Routing Engine. The port at **ixgbe0** connects the TX Matrix Plus Routing Engine to the Routing Engines of every T1600 router configured in the routing matrix.
- On a T1600 router configured in a routing matrix, the Routing Engine (RE-TXP-LCC) and Control Board (LCC-CB) function as a unit, or host subsystem. For each of the two host subsystems in the router, the Junos OS automatically creates two internal Ethernet interfaces, **bcm0** and **em1**, for the two Gigabit Ethernet ports on the Routing Engine. The port at **bcm0** connects the LCC Routing Engine to the Routing Engines of every other T1600 router configured in the routing matrix.



NOTE: The Routing Engines in the TX Matrix Plus router and in the T1600 routers configured in a routing matrix do not support the management Ethernet interface **fxp0** or the internal Ethernet interfaces **fxp1** or **fxp2**.

Configurations and automated scripts that have been developed for standalone T1600 routers (T1600 routers not configured in a routing matrix) might contain references to the **fxp0**, **fxp1**, or **fxp2** interfaces.

Before reusing the configurations or scripts on T1600 routers in a routing matrix, update the files as appropriate:

- Edit any command lines that reference the T1600 router management Ethernet interface **fxp0** by replacing “**fxp0**” with “**em0**.”
- Ensure that any **show interfaces** commands that are intended to list the T1600 router internal Ethernet interfaces refer to the **bcm0** or **em1** interfaces.

For more detailed information, see the Junos® OS Network Interfaces and the Junos OS Operational Mode Commands.

**Related
Documentation**

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

CHAPTER 2

System Requirements

- [System Requirements for a Routing Matrix with a TX Matrix Plus Router on page 11](#)

System Requirements for a Routing Matrix with a TX Matrix Plus Router

To implement a routing matrix with a TX Matrix Plus router, your system must meet the following minimum requirements:

- Junos OS Release 9.6 or later.
- One Juniper Networks TX Matrix Plus Router.
- Two to four Juniper Networks T1600 Core Routers.

To connect a T1600 router to the routing matrix, the T1600 router must contain the following components:

- Two C1800 Routing Engines—Model RE-DUO-C1800-8G
- Two LCC-CB Control Boards (CBs)—Model CB-LCC
- Five TXP-T1600 Switch Interface Boards (SIBs)—Model SIB-TXP-T1600
- One rear fan tray—Model FAN-REAR-TXP-LCC

For information about upgrading a standalone T1600 router and integrating it into a routing matrix, see the [TX Matrix Plus Router Hardware Guide](#).

- Physical Interface Cards (PICs) of your choice. To view a list of supported PICs, see the [T1600 Core Router PIC Guide](#).

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

CHAPTER 3

Glossary

- [Routing Matrix Terms and Acronyms on page 13](#)

Routing Matrix Terms and Acronyms

L

line-card chassis (LCC) A T640 router or T1600 router installed in a routing matrix.

R

routing matrix A high capacity, multichassis router. The routing matrix with a TX Matrix router combines multiple T640 routers with a TX Matrix router switch fabric. The routing matrix with a TX Matrix Plus router combines multiple T1600 routers with a TX Matrix Plus router switch fabric.

S

Switch Interface Board (SIB) On T640 and T1600 routers and on TX Matrix router and TX Matrix Plus routers, a switch fabric plane component that forwards packets from a source Packet Forwarding Engine to a destination Packet Forwarding Engine.

switch-card chassis (SCC) A TX Matrix router installed in a routing matrix.

switch-fabric chassis (SFC) A TX Matrix Plus router installed in a routing matrix.

T

TX Matrix Plus router A high-speed centralized switch fabric that connects multiple T1600 routers in a routing matrix.

TX Matrix router A high-speed centralized switch fabric that connects multiple T640 routers in a routing matrix.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

PART 2

Configuration

- [Configuration Overview on page 17](#)
- [Configuration Steps on page 19](#)

CHAPTER 4

Configuration Overview

- [Roadmap for Configuring a Routing Matrix with a TX Matrix Plus Router](#) on page 17

Roadmap for Configuring a Routing Matrix with a TX Matrix Plus Router

This topic summarizes the procedure for configuring a routing matrix with a TX Matrix Plus router.

To configure a routing matrix with a TX Matrix Plus router, complete the following tasks:

1. Connect to the Routing Engines of the routing matrix, as described in [“Connecting to a Routing Matrix with a TX Matrix Plus Router”](#) on page 19.
2. Create and apply Routing Engine configuration groups, as described in [“Using Configuration Groups and Inheritance in a Routing Matrix with a TX Matrix Plus Router”](#) on page 21.

In general, configuration groups and inheritance of the statements in configuration groups support configuration of various router components. The special Routing Engine configuration groups (`re0`, `re1`, `lccn-re0`, and `lccn-re1`, where n is a value from 0 through 3) offer a simple way to establish hostnames, management interfaces, and default routes for the Routing Engines in the routing matrix.

3. Adjust certain configuration statements to accommodate the global number of FPCs installed on the routing matrix, as described in [“Using Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router”](#) on page 26.
4. (Optional) Configure protocols and other features on the routing matrix, as described in [“Configuring Protocols and Other Features on a Routing Matrix with a TX Matrix Plus Router”](#) on page 27.

Other than the expanded range of FPC numbers for interfaces and the requirement to create groups for the routers, you can configure protocols in exactly the same manner as you would for other Juniper Networks routers.

5. (Optional) For T1600 routers in a routing matrix, you can configure PIC-specific features, create an alarm LCCs that do not come online, and take LCCs offline. For more information, see [“Configuring Chassis-Specific Features on a Routing Matrix with a TX Matrix Plus Router”](#) on page 28.
6. Commit configurations on the routing matrix, as described in [“Committing Configurations on a Routing Matrix with a TX Matrix Plus Router”](#) on page 30.

**Related
Documentation**

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

CHAPTER 5

Configuration Steps

- [Connecting to a Routing Matrix with a TX Matrix Plus Router on page 19](#)
- [Using Configuration Groups and Inheritance in a Routing Matrix with a TX Matrix Plus Router on page 21](#)
- [Using Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router on page 26](#)
- [Configuring Protocols and Other Features on a Routing Matrix with a TX Matrix Plus Router on page 27](#)
- [Configuring Chassis-Specific Features on a Routing Matrix with a TX Matrix Plus Router on page 28](#)
- [Committing Configurations on a Routing Matrix with a TX Matrix Plus Router on page 30](#)

Connecting to a Routing Matrix with a TX Matrix Plus Router

On a routing matrix with a TX Matrix Plus router, you can perform management and service operations on the routing matrix through a Junos OS command-line interface (CLI) session with the TX Matrix Plus router.



BEST PRACTICE: We recommend that you access a routing matrix by connecting to the master Routing Engine on the TX Matrix Plus router. Under normal operating conditions, you do not need to access or configure the T1600 routers directly.

This topic contains the following information:

- [Accessing a Routing Engine by Direct Console Connection to a Serial Port on page 19](#)
- [Accessing a Routing Engine by Telnet Access to a Management Ethernet Port on page 20](#)
- [Accessing a Routing Engine by Logging In from the CLI of Another Routing Engine on page 20](#)
- [Connecting to a Backup Routing Engine on the TX Matrix Plus Router on page 21](#)

Accessing a Routing Engine by Direct Console Connection to a Serial Port

For an in-band connection to a Routing Engine in the routing matrix, you can attach one or more management console or auxiliary devices to the appropriate serial ports on a

Routing Engine in a routing matrix. On a TX Matrix Plus router, the **CONSOLE** or **AUXILIARY** serial ports are located on each control board (TXP-CB). On a T1600 router in a routing matrix, the **CONSOLE** or **AUXILIARY** serial ports are located on the Connector Interface Panel (CIP). For more information, see the [TX Matrix Plus Router Hardware Guide](#)

Accessing a Routing Engine by Telnet Access to a Management Ethernet Port

For an out-of-band management connection to a Routing Engine in a routing matrix, you can establish a Telnet session over the network connection to that Routing Engine. On a TX Matrix Plus router, the **ETHERNET** port is located on each TXP-CB. On a T1600 router in a routing matrix, the **ETHERNET** port is located on the CIP.

For a TX Matrix Plus router and for T1600 routers in a routing matrix, the CLI syntax for operational commands and configuration statements refers to the **ETHERNET** management port as the **em0** management Ethernet interface. To use **em0** as a management port, you must configure its logical port, **em0.0**, with a valid IP address. For more information, see the Junos® OS Network Interfaces.

Accessing a Routing Engine by Logging In from the CLI of Another Routing Engine

After you are logged in to one Routing Engine in a routing matrix, you can issue the [request routing-engine login](#) command to connect to another Routing Engine in the routing matrix. For example:

```
{master}
user@hostA-re0> request routing-engine login ?
Possible completions:
  backup          Log in to backup RE
  lcc              Log in to specific LCC (0..3)
  master          Log in to master RE
  other-routing-engine Log in to the other Routing Engine
  re0             Log in to RE0
  re1             Log in to RE1
  sfc             Log in to SFC (0..0)
```

```
{master}
user@hostA-re0> request routing-engine login sfc 0 ?
Possible completions:
  backup          Log in to backup RE
  master          Log in to master RE
  re0             Log in to RE0
  re1             Log in to RE1
```

```
{master}
user@hostA-re0> request routing-engine login lcc 3 ?
Possible completions:
  backup          Log in to backup RE
  master          Log in to master RE
  re0             Log in to RE0
  re1             Log in to RE1
```

```
{master}
user@hostA-re0> request routing-engine login lcc 3 backup re1
```

```
--- JUNOS 1.1-1111111.1 built 1111-11-11 11:11:11 UTC
% cli
```

```
{backup}
user@hostB-re1>
```

Connecting to a Backup Routing Engine on the TX Matrix Plus Router

To manage the backup Routing Engines on all routers in the routing matrix (for example, to upgrade Junos OS), we recommend that you connect to the backup Routing Engine of the TX Matrix Plus router.



NOTE: If you access a Routing Engine on a T1600 router, the following warning displays:

```
user@host> request routing-engine login lcc 0 re0
--- JUNOS 9.6I built 2009-07-13 8:13:04 UTC
% cli
warning: This chassis is a Line Card Chassis (LCC) in a multichassis
system.
warning: Use of interactive commands should be limited to debugging.
warning: Normal CLI access is provided by the Switch Fabric Chassis
(SFC).
warning: Please logout and log into the SFC to use CLI.
```

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Using Configuration Groups and Inheritance in a Routing Matrix with a TX Matrix Plus Router

To simplify configuration of individual Routing Engines in a routing matrix with a TX Matrix Plus router, you can create a configuration group for each Routing Engine in the routing matrix:

- [Overview of Configuration Groups and Inheritance in a Routing Matrix on page 21](#)
- [Creating Configuration Groups in a Routing Matrix on page 22](#)
- [Applying a Configuration Group in a Routing Matrix on page 23](#)
- [Displaying Inherited Statements on page 23](#)
- [Disabling Inheritance of a Configuration Group in the Routing Matrix on page 24](#)
- [Using Special Configuration Groups for the Routing Engines in the Routing Matrix on page 24](#)

Overview of Configuration Groups and Inheritance in a Routing Matrix

The configuration groups feature in the Junos OS enables you to create a group containing configuration statements and to direct the inheritance of that group's statements in the

rest of the configuration. The same group can be applied to different sections of the configuration, and different sections of one group's configuration statements can be inherited in different places in the configuration.

Configuration groups enable you to create smaller, more logically constructed configuration files, making it easier to configure and maintain the Junos OS. For example, you can group statements that are repeated in many places in the configuration, such as when configuring interfaces, and thereby limit updates to just the group.

Configuration groups use true inheritance, which involves a dynamic, ongoing relationship between the source of the configuration data and the target of that data. Data values changed in the configuration group are automatically inherited by the target. The target need not contain the inherited information, although the inherited values can be overridden in the target without affecting the source from which they were inherited.

This inheritance model allows you to see only the instance-specific information without seeing the inherited details. A command pipe in configuration mode allows you to display the inherited data.

Creating Configuration Groups in a Routing Matrix

For areas of your configuration to inherit configuration statements, you must first put the statements into a configuration group and then apply that group to the levels in the configuration hierarchy that require the statements.

To create configuration groups in a routing matrix with a TX Matrix Plus router, you can include the **groups** statement at the **[edit]** hierarchy level on the TX Matrix Plus router:

```
[edit]
groups {
  group-name {
    ...configuration-data...
  }
}
```

The **group-name** statement specifies the name of a configuration group. You can configure more than one configuration group by specifying multiple **group-name** statements at the **[edit groups]** hierarchy level.

You cannot use the prefix **junos-** in a group name because it is reserved for use by the Junos OS. One reason for the naming restriction is a configuration group called **junos-defaults**. This preset configuration group is applied to the configuration automatically. You cannot modify or remove the **junos-defaults** configuration group. For more information about the Junos default configuration group, see "Using Junos OS Defaults Groups" in the CLI User Guide.

Similarly, the configuration group **juniper-ais** is reserved exclusively for Juniper Advanced Insight Solutions (AIS)-related configuration. For more information about the **juniper-ais** configuration group, see the *Juniper Networks Advanced Insight Solutions Guide*.

Applying a Configuration Group in a Routing Matrix

To have a configuration inherit the statements in a configuration group, include the **apply-groups** statement on the TX Matrix Plus router:

```
apply-groups [ group-names ];
```

Include the **apply-groups [group-names]** statement anywhere in the configuration that the configuration statements contained in a configuration group are needed.

If you specify more than one group name, list them in order of inheritance priority. The configuration statements in the first group take priority over configuration statements in subsequent groups.

You can include only one **apply-groups** statement at each specific level of the configuration hierarchy. The **apply-groups** statement at a specific hierarchy level lists the configuration groups to be added to the containing statement's list of configuration groups.

Values specified at the specific hierarchy level override values inherited from the configuration group.

Groups listed in nested **apply-groups** statements take priority over groups in outer statements. In the following example, the BGP neighbor 10.0.0.1 inherits configuration data from group one first, then from groups two and three. Configuration data in group one overrides data in any other group. Data from group ten is used only if a statement is not contained in any other group.

```
apply-groups [ eight nine ten ];
protocols {
  apply-groups seven;
  bgp {
    apply-groups [ five six ];
    group some-bgp-group {
      apply-groups four;
      neighbor 10.0.0.1 {
        apply-groups [ one two three ];
      }
    }
  }
}
```

Displaying Inherited Statements

Configuration groups can add some confusion regarding the actual values used by the router, because configuration data can be inherited from configuration groups. To view the actual values used by the router, use the **display inheritance** command after the pipe in a **show** command. This command displays the inherited statements at the level at which they are inherited and the group from which they have been inherited.

The following example shows part of the output of the **show | display inheritance** command that shows configuration statements inherited from the special configuration group **re0**, which contains configuration statements that apply to the Routing Engine in slot 0 (labeled **RE0**) on the TX Matrix Plus router:

```
[edit]
user@host# show | display inheritance
...
system {
  ## 'mysfc0' was inherited from group 're0'
  host-name mysfc0;
  ## 'backup-router' was inherited from group 're0'
  backup-router 192.168.35.254;
}
interfaces {
  ## 'em0' was inherited from group 're0'
  em0 {
    ## '0' was inherited from group 're0'
    unit 0 {
      ## 'inet' was inherited from group 're0'
      family inet {
        ## '192.168.35.95/24' was inherited from group 're0'
        address 192.168.35.95/24;
      }
    }
  }
}
...

```

Disabling Inheritance of a Configuration Group in the Routing Matrix

To disable inheritance of a configuration group at any level except the top level of the hierarchy, include the **apply-groups-except** statement:

```
apply-groups-except [ group-names ];
```

This statement is useful when you use the **apply-group** statement at a specific hierarchy level but also want to override the values inherited from the configuration group for a specific parameter.

Using Special Configuration Groups for the Routing Engines in the Routing Matrix

Using special configuration group names for all Routing Engines in the routing matrix allows you to configure the individual Routing Engines in each router differently. Parameters that are not configured at the **[edit groups]** hierarchy level apply to all Routing Engines in the routing matrix.

To configure configuration groups and apply inheritance for the Routing Engines in a routing matrix with a TX Matrix Plus router, you can include the **groups** statement at the **[edit]** hierarchy level on the TX Matrix Plus router and then include special configuration group names for all the Routing Engines in the routing matrix:

```
[edit]
groups {
  re0 { # Create the group for the SFC master Routing Engine.
    system {

```

```

        host-name sfc0-re0-hostname;
        backup-router ip-address;
        ...
    }
    interfaces {
        em0 {
            unit logical-unit-number {
                ...
            }
        }
    }
}
re1 { # Create the group for the SFC backup Routing Engine.
    system {
        host-name sfc0-re1-hostname;
        backup-router ip-address;
        ...
    }
    interfaces {
        em0 {
            unit logical-unit-number {
                ...
            }
        }
    }
}
lccn-re0 { # Create the group for the master Routing Engine in a specific LCC.
    system {
        host-name lccN-re0-hostname;
        backup-router ip-address;
        ...
    }
    interfaces {
        em0 {
            unit logical-unit-number {
                ...
            }
        }
    }
}
lccn-re1 { # Create the group for the backup Routing Engine in a specific LCC.
    system {
        host-name lccN-re1-hostname;
        backup-router ip-address;
        ...
    }
    interfaces {
        em0 {
            unit logical-unit-number {
                ...
            }
        }
    }
}
...additional-routing-engine-group-configurations...
}
apply-groups [ re0 re1 lccn-re0 lccn-re1 ... ]; # Enable inheritance of the groups.

```

For routers in a routing matrix with a TX Matrix Plus router, you can specify the following special group names:

- **re0**—Configuration statements apply to the Routing Engine in slot 0 (labeled **RE0**) on the TX Matrix Plus router.
- **re1**—Configuration statements apply to the Routing Engine in slot 1 (labeled **RE1**) on the TX Matrix Plus router.
- **lccn-re0**—Configuration statements apply to the Routing Engine in slot 0 (labeled **RE0**) on the T1600 router identified as **lccn**, where **n** is a value from **0** through **3**.
- **lccn-re1**—Configuration statements applied to the Routing Engine in slot 1 (labeled **RE1**) on the T1600 router identified **lccn**, where **n** is a value from **0** through **3**.

Because the configuration statements in the special configuration groups for Routing Engines apply to specific Routing Engines in the routing matrix, you can create a single configuration for all of the routers, with each Routing Engine using only the configuration statements that apply to it.

Each Routing Engine configuration group contains at a minimum the configuration for the Routing Engine hostname and the management Ethernet interface (**em0**). In addition, if each Routing Engine uses a different management interface, the group also should contain the configuration for the backup router and static routes.

Note that apply groups can be nested. For example, any configuration statements that are common to **lcc0-re0** and **lcc0-re1** can be included in a separate configuration group and then added as an apply group to the **lcc0-re0** and **lcc0-re1** groups, which in turn are applied to the main configuration.

For more information about configuring and applying configuration groups, see the CLI User Guide.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Using Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router

When configuring interfaces on a routing matrix with a TX Matrix Plus router, you must adjust the routing matrix configuration to accommodate increased FPC numbers used in interface names.

For example, if you have a Gigabit Ethernet interface installed in FPC slot 7, PIC slot 0, port 0 of T1600 router lcc 3, you can configure this interface on the TX Matrix Plus router by including the `ge-31/0/0` statement at the **[edit interfaces]** hierarchy level:

```
[edit]
interfaces {
  ge-31/0/0 { # In a standalone T1600 router, the interface is 'ge-7/0/0'.
    unit 0 {
      family inet {
        address ip-address;
      }
    }
  }
}
```

For more information about converting FPC hardware slot numbers on a T1600 router to the global FPC numbers used for interfaces in a routing matrix and vice versa, see [“Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router”](#) on page 5 and [“Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router”](#) on page 65.



NOTE: When you include the `fpc` statement at the **[edit chassis lcc lcc-number]** hierarchy level, specify the FPC hardware slot number (0 through 7) as labeled on the T1600 router chassis. Do not specify the corresponding global FPC number (0 through 31).

For more information about physically connecting a TX Matrix Plus router and two to four T1600 routers together in a routing matrix, [TX Matrix Plus Router Hardware Guide](#) For more information about the interface naming conventions for a routing matrix, see the Junos® OS Network Interfaces.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Configuring Protocols and Other Features on a Routing Matrix with a TX Matrix Plus Router

Other than the expanded range of FPC numbers for interfaces and the requirement to create groups for the T1600 routers, the configuration of a routing matrix with a TX Matrix Plus router is exactly the same as for all other Juniper Networks routers. You can configure routing protocols, Multiprotocol Label Switching (MPLS) applications, virtual private networks (VPNs), routing and forwarding options, and other software features as usual.

For more information about configuring Junos OS-based routers, see the Junos OS configuration guides.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Configuring Chassis-Specific Features on a Routing Matrix with a TX Matrix Plus Router

You can configure chassis-specific features on specific T1600 routers in a routing matrix with a TX Matrix Plus router:

- [Configuring PIC-Specific Features on a T1600 Router in a Routing Matrix on page 28](#)
- [Configuring an Alarm to Trigger if an LCC in the Routing Matrix Does Not Come Online on page 29](#)
- [Configuring an LCC in the Routing Matrix to Stay Offline on page 29](#)
- [For More Information on page 29](#)

Configuring PIC-Specific Features on a T1600 Router in a Routing Matrix

You can configure PIC-specific features, such as SONET/SDH framing, on specific T1600 routers in a routing matrix with a TX Matrix Plus router. To configure, include the **lcc** *lcc-number* statement at the **[edit chassis]** hierarchy level and specify the PIC-specific feature to configure.

```
[edit]
chassis {
  lcc lcc-number {
    fpc slot-number { # Use the T1600 router FPC hardware slot number.
      pic pic-number {
        ...pic-specific-configuration...
      }
    }
  }
}
```



NOTE: When you include statements at the **[edit chassis lcc lcc-number]** hierarchy level, specify the actual FPC hardware slot number as labeled on the T1600 router chassis. Do not specify the corresponding global FPC number (0 through 31). Global FPC numbering, described in “[Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router](#)” on page 5 and in “[Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router](#)” on page 65, is used to specify the interface in a routing matrix.

Configuring an Alarm to Trigger if an LCC in the Routing Matrix Does Not Come Online

By default, the Junos OS allows all T1600 routers in the routing matrix to come online. Optionally, you can configure the TX Matrix Plus router to generate an alarm if the T1600 routers in the routing matrix do not come online.

To configure, include the **online-expected** statement at the **[edit chassis lcc *lcc-number*]** hierarchy level on the TX Matrix Plus router:

```
[edit]
chassis{
  lcc lcc-number {
    online-expected;
  }
}
```

If you do not include the **online-expected** statement at any **[edit chassis lcc *lcc-number*]** hierarchy level on the TX Matrix Plus router, no alarm triggers if any T1600 fails to come online.

Configuring an LCC in the Routing Matrix to Stay Offline

If you do not want a T1600 router to be part of the routing matrix, such as while you are performing maintenance on that LCC, you can configure the router to be offline.

To configure a T1600 router to be offline, include the **offline** statement at the **[edit chassis lcc *lcc-number*]** hierarchy level:

```
[edit]
chassis {
  lcc lcc-number {
    offline;
  }
}
```

When you are ready to bring the T1600 router back online, delete the **offline** configuration statement at the **[edit chassis lcc *number*]** hierarchy level.



NOTE: If you do not include the **offline** statement at any **[edit chassis lcc *lcc-number*]** hierarchy level on the TX Matrix Plus router, any T1600 router that is part of the routing matrix is allowed to come online.

For More Information

For more information about chassis-specific statements, see the Junos OS System Basics Configuration Guide.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)

- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

[Committing Configurations on a Routing Matrix with a TX Matrix Plus Router](#)

On a routing matrix with a TX Matrix Plus router, you must commit configuration changes on the TX Matrix Plus router rather than on the individual T1600 routers. All configuration changes you commit on the TX Matrix Plus router are distributed to all the T1600 routers in the routing matrix and override any configuration changes committed directly on a T1600 router.



NOTE: If you commit a configuration directly on a T1600 router in a routing matrix, the configuration is not distributed to the TX Matrix Plus router or to the other T1600 routers in the routing matrix.

There are three main ways to commit configurations on a TX Matrix Plus router:

- [Committing a Configuration to Both Master and Backup Routing Engines in the Routing Matrix on page 30](#)
- [Committing a Configuration to the Master Routing Engines \(Only\) in the Routing Matrix on page 31](#)
- [Synchronizing to the Configuration on the Other Routing Engine on page 31](#)

[Committing a Configuration to Both Master and Backup Routing Engines in the Routing Matrix](#)

To commit the same configuration to both the master and backup Routing Engines in the routing matrix, issue the **commit** operational command with the **synchronize** option.

The Routing Engine on which you execute the **commit synchronize** command (the requesting Routing Engine) copies and loads its candidate configuration to the other Routing Engine (the responding Routing Engine). Both Routing Engines then perform a syntax check on the candidate configuration file being committed. If no errors are found, the configuration is activated and becomes the current operational configuration on both Routing Engines.

The **commit synchronize** command makes the active or applied configuration the same for both Routing Engines with the exception of two special configuration groups for Routing Engines:

- Configuration statements specified in the **re0** configuration group are applied only to Routing Engines in slot 0 (designated **re0**).
- Configuration statements specified in the **re1** configuration group are applied only to Routing Engines in slot 1 (designated **re0**).



NOTE: If you do not synchronize the configurations between two Routing Engines and one of them fails, the router may not forward traffic correctly because the backup Routing Engine may have a different configuration.

The following example shows command output for the **commit** command issued on the TX Matrix Plus router with the **synchronize** option:

```
[edit groups]
user@host> set re0 system hostname sfc0-re0-hostname

user@sfc0-re0-hostname> commit synchronize;
sfc0-re0:
configuration check succeeds
lcc0-re1:
commit complete
lcc0-re0:
commit complete
lcc2-re1:
commit complete
lcc2-re0:
commit complete
sfc0-re1:
commit complete
sfc0-re0:
commit complete
```

Committing a Configuration to the Master Routing Engines (Only) in the Routing Matrix

In a routing matrix with a TX Matrix Plus router, issuing the basic form of the **commit** operational command on the TX Matrix Plus router commits the candidate configuration only to the master Routing Engines in the routing matrix.

The following example shows command output for the basic form of the **commit** command:

```
user@host# commit
sfc0-re0:
configuration check succeeds
lcc0-re0:
commit complete
lcc1-re0:
commit complete
sfc0-re0:
commit complete
```

Synchronizing to the Configuration on the Other Routing Engine

In a routing matrix with at TX Matrix Plus router, issuing the **commit synchronize** command with the **force** option directs one Routing Engine to synchronize its configuration with the other.



NOTE: We recommend that you use the **force** option only if you are unable to resolve the issues that caused the **commit synchronize** command to fail.

The Routing Engine on which you issue this command (the requesting Routing Engine) copies and loads its candidate configuration to the other Routing Engine (the responding Routing Engine). Both Routing Engines then perform a syntax check on the candidate

configuration file being committed. If no errors are found, the configuration is activated and becomes the current operational configuration on both Routing Engines.

The **commit synchronize** command does not work if the responding Routing Engine has uncommitted configuration changes. However, you can enforce commit synchronization on the Routing Engines by using the **force** option.



NOTE: When you issue the **commit synchronize** command with the **force** option from one Routing Engine, the configuration sessions on the other Routing Engine will be terminated and its configuration synchronized with that on the Routing Engine from which you issued the command.

**Related
Documentation**

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

PART 3

Examples

- [Configuration Examples on page 35](#)
- [Using Configuration Examples on page 61](#)

CHAPTER 6

Configuration Examples

- [Example Configuration for a Routing Matrix with a TX Matrix Plus Router on page 35](#)
- [Verifying the Configuration of a Routing Matrix with a TX Matrix Plus Router on page 43](#)

Example Configuration for a Routing Matrix with a TX Matrix Plus Router

The following sections describe an example configuration for a routing matrix with a TX Matrix Plus router:

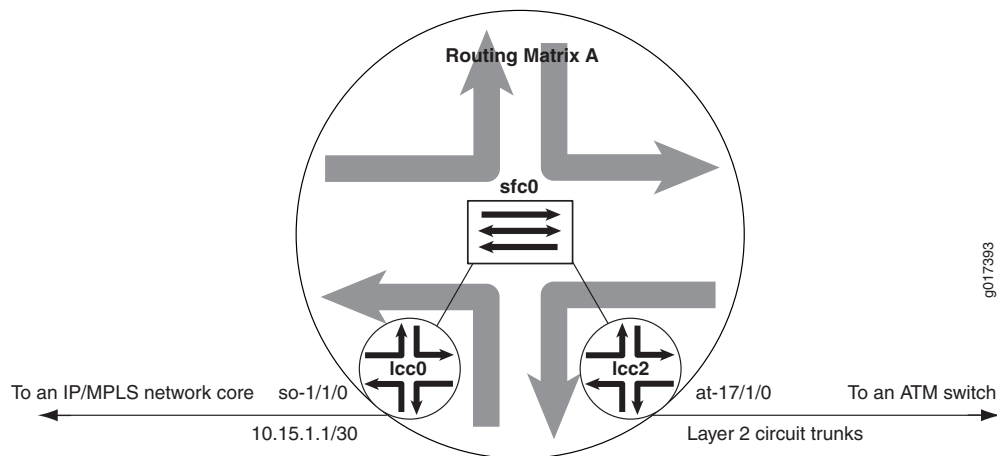
- [Example Routing Matrix Topology on page 35](#)
- [Example Routing Matrix Configuration on page 36](#)
- [Verifying the Example Configuration on page 42](#)

Example Routing Matrix Topology

This example is based on **Routing Matrix A**, a basic routing matrix consisting of a TX Matrix Plus router (**sfc0**) and two T1600 routers (**lcc0** and **lcc2**). [Figure 2 on page 36](#) shows that **Routing Matrix A** is acting as a provider edge (PE) router in a Layer 2 circuit network. SONET interface **so-1/1/0** in the T1600 router designated as **lcc0** connects to an IP/MPLS core network. Asynchronous Transfer Mode 2 (ATM2) intelligent queuing (IQ) interface **at-17/1/0** in the T1600 router designated as **lcc2** runs Layer 2 circuit trunk mode to connect to an ATM switch.

For more information about Layer 2 circuit networks, see the Junos OS VPNs Configuration Guide.

Figure 2: Example Topology of a Routing Matrix with a TX Matrix Plus Router



Note the following key considerations for this routing matrix configuration:

- For most operations, you will manage the routing matrix as a single router, executing operational commands and committing configurations on the TX Matrix Plus router designated as **sfc0**.
- Create configuration groups for each Routing Engine in the routing matrix by using the special configuration groups for a routing matrix consisting of routers with dual Routing Engines: **re0**, **re1**, **lcc0-re0**, **lcc2-re0**, **lcc0-re1**, and **lcc2-re1**. In these Routing Engine configuration groups, configure hostnames, default routes, and management Ethernet interfaces.
- To configure interfaces, use the routing matrix FPC numbering convention of slots **0** through **31**.
- To enable ATM2 IQ trunk mode and other chassis-based commands, include the **lcc lcc-number** statement at the **[edit chassis]** hierarchy level and use the hardware FPC slot numbers **0** through **7** of node **lcc2**.
- Configure most other processes as usual, such as routing, class of service (CoS), and firewalls.

Example Routing Matrix Configuration

To configure the example **Routing Matrix A** described in the previous section, commit the following configuration at the TX Matrix Plus router:

```
[edit]
groups { # Create special configuration groups in a routing matrix.
  re0 { # Create a group for the master Routing Engine on TX Matrix Plus router sfc0.
    system {
      host-name mysfc0;
      backup-router 192.168.17.254;
    }
  }
  interfaces { # Configure an IP address for the management interface logical port.
    em0 {
      unit 0 {
        family inet {
```

```

        address 192.168.77.158/21;
    }
}
}
}
}
re1 { # Create a group for the backup Routing Engine on TX Matrix Plus router sfc0.
system {
    host-name mysfc0_alt_re;
    backup-router 192.168.17.254;
}
interfaces { # Configure an IP address for the management interface logical port.
    em0 {
        unit 0 {
            family inet {
                address 192.168.77.168/21;
            }
        }
    }
}
}
lcc0-re0 { # Create a group for the master Routing Engine on T1600 router lcc0.
system {
    host-name mylcc0;
    backup-router 192.168.17.254 destination [10.0.0.0/8 192.168.0.0/16];
}
interfaces { # Configure an IP address for the management interface logical port.
    em0 {
        unit 0 {
            family inet {
                address 192.168.77.157/21;
            }
        }
    }
}
}
lcc0-re1 { # Create a group for the backup Routing Engine on T1600 router lcc0.
system {
    host-name mylcc0_alt_re;
    backup-router 192.168.17.254 destination [10.0.0.0/8 192.168.0.0/16];
}
interfaces { # Configure an IP address for the management interface logical port.
    em0 {
        unit 0 {
            family inet {
                address 192.168.77.169/21;
            }
        }
    }
}
}
lcc2-re0 { # Create a group for the master Routing Engine on T1600 router lcc2.
system {
    host-name mylcc2;
    backup-router 192.168.17.254 destination [10.0.0.0/8 192.168.0.0/16];
}
}

```

```
interfaces { # Configure an IP address for the management interface logical port.
  em0 {
    unit 0 {
      family inet {
        address 192.168.77.159/21;
      }
    }
  }
}
lcc2-re1 { # Create a group for the backup Routing Engine on T1600 router lcc2.
  system {
    host-name mylcc2_alt_re;
    backup-router 192.168.17.254 destination [10.0.0.0/8 192.168.0.0/16];
  }
  interfaces { # Configure an IP address for the management interface logical port.
    em0 {
      unit 0 {
        family inet {
          address 192.168.77.192/21;
        }
      }
    }
  }
}
}
apply-groups [ re0 re1 lcc0-re1 lcc2-re1 lcc0-re0 lcc2-re0 ]; # Enable inheritance.
system { # Configure system management properties.
  syslog {
    file messages {
      any any;
    }
  }
}
chassis { # You must apply chassis commands to a specific T1600 router.
  lcc 2 { # Specify the T1600 router and the FPC hardware slot of the node.
    fpc 1 { # This FPC is equivalent to slot 17 in the routing matrix.
      pic 1 {
        atm-l2circuit-mode {
          trunk nni;
        }
      }
    }
  }
}
}
interfaces {
  so-1/1/0 { # This is a SONET interface at FPC 1, PIC 1, port 0
    mtu 9192; # on the T1600 router LCC0.
    unit 0 {
      family inet {
        address 10.15.1.1/30 {
          destination 10.15.1.2;
        }
      }
      family iso;
      family mpls {
```

```

        filter {
            input filter_1;
        }
    }
}
}
at-17/1/0 { # This is an ATM2 IQ interface at FPC 1, PIC 1, port 0
    encapsulation atm-ccc-cell-relay; # on the T1600 router LCC2.
    atm-options {
        pic-type atm2;
        scheduler-maps { # CoS on an ATM2 IQ PIC works the same in a routing matrix.
            cos1 { # as it does in a standalone T1600 router.
                forwarding-class ubr {
                    priority low;
                    transmit-weight percent 25;
                }
                forwarding-class nrtvbr {
                    priority low;
                    transmit-weight percent 25;
                }
                forwarding-class rtvbr {
                    priority low;
                    transmit-weight percent 25;
                }
                forwarding-class cbr {
                    priority high;
                    transmit-weight percent 25;
                }
            }
        }
        cos2 {
            forwarding-class ubr {
                priority low;
                transmit-weight percent 10;
            }
            forwarding-class nrtvbr {
                priority low;
                transmit-weight percent 20;
            }
            forwarding-class rtvbr {
                priority low;
                transmit-weight percent 30;
            }
            forwarding-class cbr {
                priority high;
                transmit-weight percent 40;
            }
        }
        cos3 {
            forwarding-class ubr {
                priority low;
                transmit-weight percent 40;
            }
            forwarding-class nrtvbr {
                priority low;
                transmit-weight percent 30;
            }
        }
    }
}

```

```
        forwarding-class rtvbr {
            priority low;
            transmit-weight percent 20;
        }
        forwarding-class cbr {
            priority high;
            transmit-weight percent 10;
        }
    }
}
unit 0 {
    trunk-id 0;
    trunk-bandwidth 10m;
    cell-bundle-size 2;
}
unit 1 {
    trunk-id 1;
    trunk-bandwidth 10m;
    cell-bundle-size 1;
    atm-scheduler-map cos1;
}
unit 2 {
    trunk-id 2;
    trunk-bandwidth 10m;
    cell-bundle-size 2;
    atm-scheduler-map cos2;
}
unit 3 {
    trunk-id 3;
    trunk-bandwidth 10m;
    cell-bundle-size 3;
    atm-scheduler-map cos3;
}
}
lo0 {
    unit 0 {
        family inet {
            address 127.0.0.1/32;
            address 10.255.77.158/32 {
                primary;
            }
        }
        family iso {
            address 47.0005.80ff.f800.0000.0108.0001.0102.5507.0158.00;
        }
        family inet6 {
            address 2001:db8::10:255:77:158/32 {
                primary;
            }
        }
    }
}
}
protocols { # You can configure protocols in the routing matrix as usual.
    mpls {
```

```

        interface so-1/1/0.0;
    }
    isis {
        interface so-1/1/0.0;
        interface lo0.0;
    }
    ldp {
        interface so-1/1/0.0;
        interface lo0.0;
    }
    l2circuit {
        neighbor 10.255.71.97 {
            interface at-17/1/0.0 {
                virtual-circuit-id 100;
            }
            interface at-17/1/0.1 {
                virtual-circuit-id 101;
            }
            interface at-17/1/0.2 {
                virtual-circuit-id 102;
            }
            interface at-17/1/0.3 {
                virtual-circuit-id 103;
            }
        }
    }
}

class-of-service { # You can configure CoS in the routing matrix as usual.
    forwarding-classes {
        queue 0ubr;
        queue 1nrtvbr;
        queue 2rtvbr;
        queue 3cbr;
    }
    traceoptions {
        flag all;
    }
}

firewall { # You can configure firewalls in the routing matrix as usual.
    family mpls {
        filter filter_1 {
            term plp0 {
                from {
                    exp [ 0 2 4 6 ];
                }
                then {
                    count LOW;
                    loss-priority low;
                }
            }
            term plp1 {
                from {
                    exp [ 1 3 5 7 ];
                }
                then {
                    count HIGH;

```

```
        loss-priority high;
    }
}
}
```

Verifying the Example Configuration

After you commit the example configuration, described in the previous section, to example **Routing Matrix A**, verify proper operation of the routing matrix. For the example routing matrix topology and configuration described in this topic, you would issue various forms of the following commands on the TX Matrix Plus router:

- `show chassis alarms <lcc lcc-number | sfc sfc-number>`
- `show chassis craft-interface <lcc lcc-number | sfc sfc-number>`
- `show chassis ethernet-switch <lcc lcc-number | sfc sfc-number>`
- `show chassis hardware <lcc lcc-number | sfc sfc-number>`
- `show chassis fpc <lcc lcc-number>`
- `show chassis lccs`
- `show chassis location <fpc | interface | lcc lcc-number | sfc sfc-number>`
- `show chassis routing-engine <lcc lcc-number | sfc sfc-number>`
- `show chassis sibs <lcc lcc-number | sfc sfc-number>`
- `show interfaces terse`
- `show route summary`
- `show system uptime <all-lcc | lcc lcc-number | sfc sfc-number>`
- `show version <all-lcc | lcc lcc-number | sfc sfc-number>`

For detailed descriptions of how to use these commands to verify the routing matrix configuration, see [“Verifying the Configuration of a Routing Matrix with a TX Matrix Plus Router” on page 43](#).

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Verifying the Configuration of the Routing Matrix on page 43](#)
- [Merging Examples on page 61](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Verifying the Configuration of a Routing Matrix with a TX Matrix Plus Router

In general, when you issue standard operational commands on a TX Matrix Plus router, you receive output from the master Routing Engines of all components in the routing matrix. To display information for the TX Matrix Plus router only, include the **sfc sfc-number** option. To limit the output of information for a specific T1600 router within the routing matrix, include the **lcc lcc-number** option. To display information for all T1600 routers within the routing matrix (selected commands only), include the **all-lcc** option. Any exceptions to this general rule are mentioned next to the appropriate commands.

The following sections contain examples of specific **show** operational commands you can use to verify the configuration of the example **Routing Matrix A**, described in “[Example Configuration for a Routing Matrix with a TX Matrix Plus Router](#)” on page 35:

- [Displaying Junos OS Versions on page 43](#)
- [Displaying Configured Interfaces on page 46](#)
- [Displaying Available Routes on page 47](#)
- [Displaying Alarms and System Uptime on page 48](#)
- [Displaying Craft Interface Messages on page 48](#)
- [Displaying System Uptime on page 51](#)
- [Displaying Chassis Hardware and Status on page 51](#)

Displaying Junos OS Versions

The **show version** command provides an excellent example of how you can select output for various components of the routing matrix with a TX Matrix Plus router. If the TX Matrix Plus router (**sfc sfc-number**) or a T1600 router (**lcc lcc-number**) is not specified in the command, the command displays output for all components.

```
user@host> show version ?
Possible completions:
<[Enter]>      Execute this command
brief         Display brief output
detail        Display detailed output
invoke-on     Remote command execution
lcc           Show software version on specific LCC (0..3)
sfc           Show software version on SFC (0..0)
|            Pipe through a command
```

You can display information about individual software components in the TX Matrix Plus router, in a specific T1600 router, or the entire routing matrix:

- [Displaying Junos OS Versions for All Routers on page 44](#)
- [Displaying Junos OS Version for the SFC Only on page 45](#)
- [Displaying Junos OS Version for a Specific LCC on page 45](#)
- [Displaying Junos OS Versions for All LCCs on page 46](#)

Displaying Junos OS Versions for All Routers

To display the software version for all routing matrix components, issue the **show version** command on the TX Matrix Plus router:

```
user@mysfc0> show version
sfc0-re0:
```

```
-----
Hostname: mysfc0
Model: txp
JUNOS Base OS boot [9.6-20090713.1]
JUNOS Base OS Software Suite [9.6-20090713.1]
JUNOS Kernel Software Suite [9.6-20090713.1]
JUNOS Crypto Software Suite [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.1]
JUNOS Online Documentation [9.6-20090713.1]
JUNOS Voice Services Container package [9.6-20090713.1]
JUNOS Border Gateway Function package [9.6-20090713.1]
JUNOS Services AACL Container package [9.6-20090713.1]
JUNOS Services LL-PDF Container package [9.6-20090713.1]
JUNOS Services Stateful Firewall [9.6-20090713.1]
JUNOS AppId Services [9.6-20090713.1]
JUNOS IDP Services [9.6-20090713.1]
JUNOS Routing Software Suite [9.6-20090713.1]
```

```
lcc0-re0:
```

```
-----
Hostname: mylcc0
Model: t1600
JUNOS Base OS boot [9.6-20090713.1]
JUNOS Base OS Software Suite [9.6-20090713.1]
JUNOS Kernel Software Suite [9.6-20090713.1]
JUNOS Crypto Software Suite [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.1]
JUNOS Online Documentation [9.6-20090713.1]
JUNOS Voice Services Container package [9.6-20090713.1]
JUNOS Border Gateway Function package [9.6-20090713.1]
JUNOS Services AACL Container package [9.6-20090713.1]
JUNOS Services LL-PDF Container package [9.6-20090713.1]
JUNOS Services Stateful Firewall [9.6-20090713.1]
JUNOS AppId Services [9.6-20090713.1]
JUNOS IDP Services [9.6-20090713.1]
JUNOS Routing Software Suite [9.6-20090713.1]
```

```
lcc2-re0:
```

```
-----
Hostname: mylcc2
Model: t1600
JUNOS Base OS boot [9.6-20090713.1]
JUNOS Base OS Software Suite [9.6-20090713.1]
JUNOS Kernel Software Suite [9.6-20090713.1]
JUNOS Crypto Software Suite [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.1]
JUNOS Online Documentation [9.6-20090713.1]
JUNOS Voice Services Container package [9.6-20090713.1]
JUNOS Border Gateway Function package [9.6-20090713.1]
JUNOS Services AACL Container package [9.6-20090713.1]
```

```
JUNOS Services LL-PDF Container package [9.6-20090713.1]
JUNOS Services Stateful Firewall [9.6-20090713.1]
JUNOS AppId Services [9.6-20090713.1]
JUNOS IDP Services [9.6-20090713.1]
JUNOS Routing Software Suite [9.6-20090713.1]
```

Displaying Junos OS Version for the SFC Only

To display the software version for the TX Matrix Plus router only, include the **sfc number** option:

```
user@mysfc> show version sfc 0
sfc0-re0
```

```
-----
Hostname: mysfc0
Model: txp
JUNOS Base OS boot [9.6-20090713.1]
JUNOS Base OS Software Suite [9.6-20090713.1]
JUNOS Kernel Software Suite [9.6-20090713.1]
JUNOS Crypto Software Suite [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.1]
JUNOS Online Documentation [9.6-20090713.1]
JUNOS Voice Services Container package [9.6-20090713.1]
JUNOS Border Gateway Function package [9.6-20090713.1]
JUNOS Services ACL Container package [9.6-20090713.1]
JUNOS Services LL-PDF Container package [9.6-20090713.1]
JUNOS Services Stateful Firewall [9.6-20090713.1]
JUNOS AppId Services [9.6-20090713.1]
JUNOS IDP Services [9.6-20090713.1]
JUNOS Routing Software Suite [9.6-20090713.1]
```

Displaying Junos OS Version for a Specific LCC

To display the software version for a specific T1600 router, include the **lcc** option:

```
user@host> show version lcc 0
lcc0-re0:
```

```
-----
Hostname: mylcc0
Model: t1600
JUNOS Base OS boot [9.6-20090713.1]
JUNOS Base OS Software Suite [9.6-20090713.1]
JUNOS Kernel Software Suite [9.6-20090713.1]
JUNOS Crypto Software Suite [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.1]
JUNOS Online Documentation [9.6-20090713.1]
JUNOS Voice Services Container package [9.6-20090713.1]
JUNOS Border Gateway Function package [9.6-20090713.1]
JUNOS Services ACL Container package [9.6-20090713.1]
JUNOS Services LL-PDF Container package [9.6-20090713.1]
JUNOS Services Stateful Firewall [9.6-20090713.1]
JUNOS AppId Services [9.6-20090713.1]
JUNOS IDP Services [9.6-20090713.1]
```

JUNOS Routing Software Suite [9.6-20090713.1]

Displaying Junos OS Versions for All LCCs

To display the software versions for all T1600 routers, include the **all-lcc** option:

```
user@host> show version all-lcc
lcc0-re0:
```

```
-----
Hostname: mylcc0
Model: t1600
JUNOS Base OS boot [9.6-20090713.1]
JUNOS Base OS Software Suite [9.6-20090713.1]
JUNOS Kernel Software Suite [9.6-20090713.1]
JUNOS Crypto Software Suite [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.1]
JUNOS Online Documentation [9.6-20090713.1]
JUNOS Voice Services Container package [9.6-20090713.1]
JUNOS Border Gateway Function package [9.6-20090713.1]
JUNOS Services AACL Container package [9.6-20090713.1]
JUNOS Services LL-PDF Container package [9.6-20090713.1]
JUNOS Services Stateful Firewall [9.6-20090713.1]
JUNOS AppId Services [9.6-20090713.1]
JUNOS IDP Services [9.6-20090713.1]
JUNOS Routing Software Suite [9.6-20090713.1]
```

lcc2-re0

```
-----
Hostname: mylcc0
Model: t1600
JUNOS Base OS boot [9.6-20090713.1]
JUNOS Base OS Software Suite [9.6-20090713.1]
JUNOS Kernel Software Suite [9.6-20090713.1]
JUNOS Crypto Software Suite [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.1]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.1]
JUNOS Online Documentation [9.6-20090713.1]
JUNOS Voice Services Container package [9.6-20090713.1]
JUNOS Border Gateway Function package [9.6-20090713.1]
JUNOS Services AACL Container package [9.6-20090713.1]
JUNOS Services LL-PDF Container package [9.6-20090713.1]
JUNOS Services Stateful Firewall [9.6-20090713.1]
JUNOS AppId Services [9.6-20090713.1]
JUNOS IDP Services [9.6-20090713.1]
JUNOS Routing Software Suite [9.6-20090713.1]
```

Displaying Configured Interfaces

Although individual FPCs are installed in each of the T1600 routers, the routing matrix is designed to collect interface information centrally at the TX Matrix Plus router. To display available interfaces in the routing matrix, issue a **show interfaces** command on the TX Matrix Plus router:

```
user@host> show interfaces terse
Interface      Admin Link Proto Local                               Remote
so-1/0/0       up    up
so-1/1/0       up    up
```

```

so-1/1/0.0          up    up    inet  10.15.1.1      --> 10.15.1.2
                    up    up    iso
                    up    up    mpls

so-1/3/0            up    down
at-2/1/0            up    up
ge-2/2/0            up    up
so-3/3/0            up    up
so-3/3/1            up    up
so-3/3/2            up    down
so-3/3/3            up    down
so-16/0/0           up    down
so-16/0/1           up    down
so-16/0/2           up    down
so-16/0/3           up    up
ge-16/1/0           up    down
so-17/0/0           up    down
at-17/1/0           up    up
at-17/1/0.0         up    up    ccc
at-17/1/0.1         up    up    ccc
at-17/1/0.2         up    up    ccc
at-17/1/0.3         up    up    ccc
at-17/1/1           up    up
ge-17/2/0           up    up
ge-17/2/1           up    up
so-17/3/0           up    down
so-19/0/0           up    down
so-19/1/0           up    down
so-19/2/0           up    down
so-19/3/0           up    down
bcm0                up    up
bcm0.0              up    up    tnp    4
dsc                 up    up
em0                 up    up
em0.0               up    up    tnp    4
fxp0                up    up
fxp0.0              up    up    inet  192.168.77.158/21
gre                 up    up
ipip                up    up
lo0                 up    up
lo0.0               up    up    inet  10.255.70.158      --> 0/0
                                   127.0.0.1      --> 0/0
                                   iso
47.0005.80ff.f800.0000.0108.0001.0102.5507.0158.00
                                   inet6 2001:db8::10:255:70:158
                                   fe80::280:42ff:fe13:269d
lo0.16385           up    up    inet
                                   inet6 fe80::280:42ff:fe13:269d
lsi                 up    up
mtun                up    up
pimd                up    up
pime                up    up
tap                 up    up

```

Displaying Available Routes

When you need to verify route information for a routing matrix, you must issue operational commands on the TX Matrix Plus router. To display available routes for the routing matrix, issue a **show route** command:

```
user@host> show route summary
```

```

Router ID: 10.255.77.158
inet.0: 13 destinations, 14 routes (12 active, 0 holddown, 1 hidden)
      Direct:    4 routes,      3 active
      Local:     2 routes,      2 active
      Static:    6 routes,      6 active
      IS-IS:     2 routes,      1 active
inet.3: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
      LDP:       1 routes,      1 active
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
      Direct:    1 routes,      1 active
mpls.0: 7 destinations, 7 routes (7 active, 0 holddown, 0 hidden)
      MPLS:      3 routes,      3 active
      LDP:       2 routes,      2 active
      L2CKT:     2 routes,      2 active
inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
      Direct:    2 routes,      2 active
__juniper_private1__inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0
hidden)
      Direct:    1 routes,      1 active
l2circuit.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
      LDP:       1 routes,      1 active
      L2CKT:     4 routes,      4 active

```

Displaying Alarms and System Uptime

To display alarms for all routing matrix components, issue the **show chassis alarms** command at the TX Matrix Plus router:

```

user@host> show chassis alarms
sfc0-re0:

```

```

-----
2 alarms currently active
Alarm time      Class  Description
2009-07-10 02:27:46 PDT  Minor  LCC 0 Minor Errors
2009-07-09 17:12:29 PDT  Major  LCC 2 Major Errors

```

```

lcc0-re0:

```

```

-----
1 alarms currently active
Alarm time      Class  Description
2009-07-10 02:27:46 PDT  Minor  PEM 1 Absent

```

```

lcc2-re0:

```

```

-----
1 alarms currently active
Alarm time      Class  Description
2009-07-09 17:12:29 PDT  Major  PEM 1 Not OK

```

Displaying Craft Interface Messages

To display the messages that are currently displayed on the craft interface for all routing matrix components, issue the **show chassis craft-interface** command at the master Routing Engine of the TX Matrix Plus router:

```

user@host> show chassis craft-interface
sfc0-re0:

```

```

-----
FPM Display Contents:
+-----+

```

```

|mysfc0          |
|2 Alarms active |
|R: LCC 0 Minor Error|
|R: LCC 2 Major Error|
+-----+

```

Front Panel System LEDs:

```
Routing Engine    0    1
```

```
-----
OK                *    *
Fail              .    .
Master            *    .

```

Front Panel Alarm Indicators:

```
-----
Red LED          *
Yellow LED       *
Major relay      *
Minor relay      *

```

Front Panel F13 SIB LEDs:

```
SIB    0    1    2    3    4    5    6    7    8    9   10   11   12   13   14   15
-----
Fail    .    .    .    .    .    .    *    *    .    .    .    .    .    .    .
OK       *    *    .    *    *    .    .    .    *    *    .    *    *    .    .
Active  *    *    .    *    *    .    .    .    *    *    .    *    *    .    .

```

PS LEDs:

```
PS    0    1
```

```
-----
Red    .    .
Green  .    *

```

Fan Tray LEDs:

```
FT    0    1    2    3    4    5
```

```
-----
Red    .    .    .    .    .    .
Green  *    *    *    *    *    *

```

CB LEDs:

```
CB    0    1
```

```
-----
Amber   .    .
Green   *    *
Blue    *    .

```

lcc0-re0:

FPM Display contents:

```

+-----+
|mylcc0          |
|1 Alarms active |
|R: PEM 1 Absent  |
+-----+

```

Front Panel System LEDs:

```
Routing Engine    0    1
```

```
-----
OK                *    *
Fail              .    .
Master            *    .

```

Front Panel Alarm Indicators:

```

-----
Red LED      *
Yellow LED   *
Major relay   *
Minor relay   *

```

Front Panel FPC LEDs:

```

-----
FPC   0  1  2  3  4  5  6  7
-----
Red    .  .  .  .  .  .  .  .
Green  .  .  .  .  .  .  .  *
```

CB LEDs:

```

-----
CB    0  1
-----
Amber  .  .
Green  *  *
Blue   *  .

```

SCG LEDs:

```

-----
SCG   0  1
-----
Amber  .  .
Green  *  *
Blue   *  .

```

SIB LEDs:

```

-----
SIB   0  1  2  3  4
-----
Red    .  .  *  .  .
Green  .  *  .  *  *
```

lcc2-re0:

FPM Display contents:

```

+-----+
|mylcc2  |
|1 Alarms active|
|R: PEM 1 Not OK|
+-----+

```

Front Panel System LEDs:

```

-----
Routing Engine  0  1
-----
OK               *  *
Fail             .  .
Master           *  .

```

Front Panel Alarm Indicators:

```

-----
Red LED      *
Yellow LED   *
Major relay   *
Minor relay   *

```

Front Panel FPC LEDs:

```

-----
FPC   0  1  2  3  4  5  6  7
-----
Red    .  .  .  .  .  .  .  .

```

```
Green * * * . . . . .
```

```
CB LEDs:
```

```
CB 0 1
```

```
Amber . .
```

```
Green * *
```

```
Blue * .
```

```
SCG LEDs:
```

```
SCG 0 1
```

```
Amber . .
```

```
Green * .
```

```
Blue * .
```

```
SIB LEDs:
```

```
SIB 0 1 2 3 4
```

```
Red . . . . .
```

```
Green * * * * *
```

Displaying System Uptime

To display the amount of time the routing matrix components have been in operation, issue the **show system uptime** command on the TX Matrix Plus router:

```
user@host> show system uptime
```

```
sfc0-re0:
```

```
-----  
Current time: 2009-07-10 07:55:56 PDT
```

```
System booted: 2009-07-09 17:08:41 PDT (14:47:15 ago)
```

```
Protocols started: 2009-07-09 17:09:22 PDT (14:46:34 ago)
```

```
Last configured: 2009-07-09 17:08:28 PDT (14:47:28 ago) by root
```

```
7:55AM up 14:47, 1 user, load averages: 0.00, 0.00, 0.00
```

```
lcc0-re0:
```

```
-----  
Current time: 2009-07-10 07:55:56 PDT
```

```
System booted: 2009-07-09 17:07:40 PDT (14:48:16 ago)
```

```
Last configured: 2009-07-09 17:08:43 PDT (14:47:13 ago) by root
```

```
7:55AM up 14:48, 0 users, load averages: 0.07, 0.02, 0.01
```

```
lcc2-re0:
```

```
-----  
Current time: 2009-07-10 07:55:56 PDT
```

```
System booted: 2009-07-09 17:07:33 PDT (14:48:23 ago)
```

```
Last configured: 2009-07-09 17:08:47 PDT (14:47:09 ago) by root
```

```
7:55AM up 14:48, 0 users, load averages: 0.00, 0.00, 0.00
```

Displaying Chassis Hardware and Status

To display the hardware inventory for a routing matrix with a TX Matrix Plus router, you can select output for the TX Matrix Plus router only, a specific T1600 router, or all components. If a specific component (**sfc** or **lcc**) is not specified as an option in the command, the default output displays information for the entire routing matrix.

```
user@host> show chassis hardware ?
```

Possible completions:

<[Enter]>	Execute this command
clei-models	Display CLEI barcode and model number for orderable FRUs
detail	Include RAM and disk information in output
extensive	Display ID EEPROM information
lcc	Display chassis-specific information (0..3)
models	Display serial number and model number for orderable FRUs
sfc	Display chassis-specific information (0..0)
	Pipe through a command

You can display information about individual hardware components in the TX Matrix Plus router, in a specific T1600 router, or the entire routing matrix:

- [Displaying Information About All Hardware Components on page 52](#)
- [Displaying Information About SIBs on page 55](#)
- [Displaying Information About Routing Engines on page 56](#)
- [Displaying Information About FPCs on page 58](#)
- [Displaying Information About LCCs on page 59](#)

Displaying Information About All Hardware Components

To display all hardware components in a routing matrix, issue the **show chassis hardware** command on the TX Matrix Plus router:

```
user@host> show chassis hardware
sfc0-re0:
```

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1131103AHB	TXP
Midplane	REV 05	710-022574	TS4035	SFC Midplane
FPM Display	REV 01	710-024027	DR4982	TXP FPM Display
CIP 0	REV 02	710-023792	DS4568	TXP CIP
CIP 1	REV 02	710-023792	DS4562	TXP CIP
PEM 1	VER 01	740-027463	123456	Power Entry Module
Routing Engine 0	REV 01	740-026942	737A-1024	RE-DUO-2600
Routing Engine 1	REV 01	740-026942	737A-1008	RE-DUO-2600
CB 0	REV 01	710-022606	DP8889	SFC Control Board
CB 1	REV 05	710-022606	DW1103	SFC Control Board
SPMB 0		BUILTIN		SFC Switch CPU
SPMB 1		BUILTIN		SFC Switch CPU
SIB F13 0	REV 03	750-024564	DT9486	F13 SIB
B Board	REV 02	710-023431	DT6550	F13 SIB Mezz
SIB F13 1	REV 03	750-024564	DT9456	F13 SIB
B Board	REV 02	710-023431	DT6562	F13 SIB
SIB F13 3	REV 04	710-022600	DX0900	F13 SIB
B Board	REV 03	710-023431	DX0957	F13 SIB Mezz
SIB F13 4	REV 04	750-024564	DW5753	F13 SIB
B Board	REV 03	710-023431	DW9034	F13 SIB Mezz
SIB F13 6	REV 03	750-024564	DT9483	F13 SIB
B Board	REV 02	710-023431	DT6558	F13 SIB Mezz
SIB F13 7	REV 04	750-024564	DW5790	F13 SIB
B Board	REV 03	710-023431	DW9072	F13 SIB Mezz
SIB F13 8	REV 04	710-022600	DX0833	F13 SIB
B Board	REV 03	710-023431	DX0938	F13 SIB Mezz
SIB F13 9	REV 03	750-024564	DT9465	F13 SIB
B Board	REV 02	710-023431	DT6574	F13 SIB Mezz

SIB F13 11	REV 04	750-024564	DW5756	F13 SIB
B Board	REV 03	710-023431	DW9072	F13 SIB Mezz
SIB F13 12	REV 04	750-024564	DW5749	F13 SIB
B Board	REV 03	710-023431	DW9050	F13 SIB Mezz
SIB F2S 0/0	REV 03	710-022603	DV0063	F2S SIB
B Board	REV 03	710-023787	DT9917	F2S SIB Mezz
SIB F2S 0/2	REV 03	710-022603	DV0090	F2S SIB
B Board	REV 03	710-023787	DT9994	F2S SIB Mezz
SIB F2S 0/4	REV 03	710-022603	DV0076	F2S SIB
B Board	REV 03	710-023787	DT9930	F2S SIB Mezz
SIB F2S 0/6	REV 03	710-022603	DV0035	F2S SIB
B Board	REV 03	710-023787	DT9951	F2S SIB Mezz
SIB F2S 1/0	REV 03	710-022603	DV0067	F2S SIB
B Board	REV 03	710-023787	DT9922	F2S SIB Mezz
SIB F2S 1/2	REV 03	710-022603	DV0036	F2S SIB
B Board	REV 03	710-023787	DT9950	F2S SIB Mezz
SIB F2S 1/4	REV 03	710-022603	DV0085	F2S SIB
B Board	REV 03	710-023787	DT9935	F2S SIB Mezz
SIB F2S 1/6	REV 03	710-022603	DV0028	F2S SIB
B Board	REV 03	710-023787	DT9960	F2S SIB Mezz
SIB F2S 2/0	REV 03	710-022603	DV0047	F2S SIB
B Board	REV 03	710-023787	DT9965	F2S SIB Mezz
SIB F2S 2/2	REV 03	710-022603	DV0023	F2S SIB
B Board	REV 03	710-023787	DT9927	F2S SIB Mezz
SIB F2S 2/4	REV 03	710-022603	DV0046	F2S SIB
B Board	REV 03	710-023787	DT9946	F2S SIB Mezz
SIB F2S 2/6	REV 03	710-022603	DV0025	F2S SIB
B Board	REV 03	710-023787	DT9914	F2S SIB Mezz
SIB F2S 3/0	REV 03	710-022603	DV0110	F2S SIB
B Board	REV 03	710-023787	DT9944	F2S SIB Mezz
SIB F2S 3/2	REV 03	710-022603	DV0056	F2S SIB
B Board	REV 03	710-023787	DT9979	F2S SIB Mezz
SIB F2S 3/4	REV 03	710-022603	DV0024	F2S SIB
B Board	REV 03	710-023787	DT9920	F2S SIB Mezz
SIB F2S 3/6	REV 03	710-022603	DV0108	F2S SIB
B Board	REV 03	710-023787	DT9989	F2S SIB Mezz
SIB F2S 4/0	REV 02	710-022603	DT2821	F2S SIB
B Board	REV 02	710-023787	DT1719	F2S SIB Mezz
SIB F2S 4/2	REV 03	710-022603	DV0031	F2S SIB
B Board	REV 03	710-023787	DT9953	F2S SIB Mezz
SIB F2S 4/4	REV 03	710-022603	DV0094	F2S SIB
B Board	REV 03	710-023787	DT9918	F2S SIB Mezz
SIB F2S 4/6	REV 03	710-022603	DV0022	F2S SIB
B Board	REV 03	710-023787	DT9943	F2S SIB Mezz
Fan Tray 0	REV 02	710-024029	DP5653	Front Fan Tray
Fan Tray 1	REV 02	760-024497	DP5661	Front Fan Tray
Fan Tray 2	REV 02	760-024502	DP5660	Rear Fan Tray
Fan Tray 3	REV 02	760-024502	DR8267	Rear Fan Tray
Fan Tray 4	REV 02	760-024502	DR8265	Rear Fan Tray
Fan Tray 5	REV 02	760-024502	DR8272	Rear Fan Tray

lcc0-re0:

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1090A04AHA	T1600
Midplane	REV 01	710-017247	RB8601	T-series Backplane
FPM GBUS	REV 09	710-002901	JW7364	T640 FPM Board
FPM Display	REV 05	710-002897	JY6782	FPM Display
CIP	REV 06	710-002895	JW7565	T-series CIP
PEM 0	Rev 14	740-002595	SL26454	Power Entry Module

PEM 1	Rev 15	740-002595	SM30230	Power Entry Module
SCG 0	REV 03	710-003423	HA4517	T640 Sonet Clock Gen.
SCG 1	REV 04	710-003423	HF6049	T640 Sonet Clock Gen.
Routing Engine 0	REV 00	740-026941	737F-1051	RE-DUO-1800
Routing Engine 1	REV 01	740-026941	737F-1095	RE-DUO-1800
CB 0	REV 05	710-022597	DV4262	LCC Control Board
CB 1	REV 06	710-022597	DX4009	LCC Control Board
FPC 7	REV 01	710-010845	JB7158	FPC Type 4
CPU	REV 02	710-011481	JB6048	FPC CPU-Enhanced
MMB 0	REV 06	710-010842	JP1703	ST-MMB
SPMB 0	REV 04	710-023321	DV3863	LCC Switch CPU
SPMB 1	REV 04	710-023321	DW3634	LCC Switch CPU
SIB 1	REV 07	710-022594	DW4208	LCC SIB
B Board	REV 07	710-023185	DW3944	LCC SIB Mezz
SIB 2	REV 07	710-022594	DW4205	LCC SIB
B Board	REV 07	710-023185	DW3945	LCC SIB Mezz
SIB 3	REV 07	710-022594	DW4218	LCC SIB
B Board	REV 07	710-023185	DW3931	LCC SIB Mezz
SIB 4	REV 07	710-022594	DW4183	LCC SIB
B Board	REV 07	710-023185	DW3936	LCC SIB Mezz
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray

lcc2-re0:-----
Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1102900AHA	T1600
Midplane	REV 03	710-017247	RC3766	T-series Backplane
FPM GBUS	REV 10	710-002901	DR1415	T640 FPM Board
FPM Display	REV 01	710-021387	DN7019	T1600 FPM Display
CIP	REV 06	710-002895	DP6012	T-series CIP
PEM 0	Rev 07	740-017906	UC26613	Power Entry Module 3x80
PEM 1	Rev 07	740-017906	UC26544	Power Entry Module 3x80
SCG 0	REV 15	710-003423	DR0914	T640 Sonet Clock Gen.
Routing Engine 0	REV 01	740-026941	737F-1032	RE-DUO-1800
Routing Engine 1	REV 01	740-026941	737F-1024	RE-DUO-1800
CB 0	REV 05	710-022597	DV4260	LCC Control Board
CB 1	REV 01	710-022597	DM1159	LCC Control Board
FPC 0	REV 12	710-013037	DR1172	FPC Type 4-ES
CPU	REV 08	710-016744	DR0997	ST-PMB2
PIC 0	REV 11	750-017405	DP8833	4x 10GE (LAN/WAN) XFP
Xcvr 0		NON-JNPR	344512071800039	XFP-10G-SR
MMB 0	REV 04	710-016036	DR0651	ST-MMB2
MMB 1	REV 04	710-016036	DR0803	ST-MMB2
FPC 1	REV 07	710-013560	DP9980	E2-FPC Type 3
CPU	REV 05	710-013563	DR0088	FPC CPU-Enhanced
PIC 0	REV 22	750-007141	DR1955	10x 1GE(LAN), 1000 BASE
PIC 1	REV 22	750-007141	DR1944	10x 1GE(LAN), 1000 BASE
PIC 2	REV 22	750-007141	DR1963	10x 1GE(LAN), 1000 BASE
PIC 3	REV 07	750-015217	DN4835	8x 1GE(TYPE3), IQ2
Xcvr 0	REV 01	740-011613	P9F1AQL	SFP-SX
MMB 0	REV 07	710-010171	DP1350	MMB-5M3-288mbit
MMB 1	REV 07	710-010171	DP1386	MMB-5M3-288mbit
FPC 2	REV 14	710-010845	DN1255	FPC Type 4
CPU	REV 06	710-011481	DM9414	FPC CPU-Enhanced
MMB 0	REV 01	710-016606	DP1869	ST-MMB

SPMB 0	REV 04	710-023321	DV3859	LCC Switch CPU
SPMB 1	REV 01	710-023321	DM1161	LCC Switch CPU
SIB 0	REV 07	710-022594	DW4197	LCC SIB
B Board	REV 07	710-023185	DW3916	LCC SIB Mezz
SIB 1	REV 06	710-022594	DT8266	LCC SIB
B Board	REV 06	710-023185	DT5793	LCC SIB Mezz
SIB 2	REV 07	710-022594	DW4184	LCC SIB
B Board	REV 07	710-023185	DW3915	LCC SIB Mezz
SIB 3	REV 06	710-022594	DT8271	LCC SIB
B Board	REV 04	710-023185	DS2323	LCC SIB Mezz
SIB 4	REV 06	710-022594	DT8238	LCC SIB
B Board	REV 06	710-023185	DT5783	LCC SIB Mezz
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray -- Rev 2

Displaying Information About SIBs

To display all the SIBs in the entire routing matrix, issue the **show chassis sibs** command on the TX Matrix Plus router.

```
user@host> show chassis sibs
sfc0-re0:
```

Slot	State	Type	Uptime
0	Online	SIB F13	1 hour, 27 minutes, 13 seconds
1	Online	SIB F13	1 hour, 26 minutes, 56 seconds
2	Invalid		
3	Online	SIB F13	1 hour, 28 minutes, 23 seconds
4	Online	SIB F13	1 hour, 28 minutes, 20 seconds
5	Invalid		
6	Fault	SIB F13	
7	Online	SIB F13	1 hour, 27 minutes, 56 seconds
8	Online	SIB F13	1 hour, 27 minutes, 48 seconds
9	Online	SIB F13	1 hour, 27 minutes, 31 seconds
10	Invalid		
11	Online	SIB F13	1 hour, 27 minutes, 24 seconds
12	Online	SIB F13	1 hour, 27 minutes, 21 seconds
13	Invalid		
14	Invalid		
15	Invalid		
0/0	Online	SIB F2S	1 hour, 27 minutes, 20 seconds
0/2	Online	SIB F2S	1 hour, 27 minutes, 19 seconds
0/4	Online	SIB F2S	1 hour, 27 minutes, 17 seconds
0/6	Online	SIB F2S	1 hour, 27 minutes, 16 seconds
1/0	Online	SIB F2S	1 hour, 28 minutes, 30 seconds
1/2	Online	SIB F2S	1 hour, 28 minutes, 28 seconds
1/4	Online	SIB F2S	1 hour, 28 minutes, 27 seconds
1/6	Online	SIB F2S	1 hour, 28 minutes, 26 seconds
2/0	Online	SIB F2S	1 hour, 28 minutes, 19 seconds
2/2	Online	SIB F2S	1 hour, 28 minutes, 18 seconds
2/4	Online	SIB F2S	1 hour, 28 minutes, 17 seconds
2/6	Online	SIB F2S	1 hour, 28 minutes, 16 seconds
3/0	Online	SIB F2S	1 hour, 27 minutes, 55 seconds
3/2	Online	SIB F2S	1 hour, 27 minutes, 53 seconds
3/4	Online	SIB F2S	1 hour, 27 minutes, 52 seconds
3/6	Online	SIB F2S	1 hour, 27 minutes, 51 seconds
4/0	Online	SIB F2S	1 hour, 27 minutes, 31 seconds
4/2	Online	SIB F2S	1 hour, 27 minutes, 29 seconds
4/4	Online	SIB F2S	1 hour, 27 minutes, 28 seconds

4/6 Online SIB F2S 1 hour, 27 minutes, 27 seconds

lcc0-re0:

Slot	State	Uptime
0	Empty	
1	Online	1 hour, 1 minute, 55 seconds
2	Fault	
3	Online	1 hour, 1 minute, 51 seconds
4	Online	1 hour, 1 minute, 49 seconds

lcc2-re0:

Slot	State	Uptime
0	Online	1 hour, 1 minute, 2 seconds
1	Online	1 hour, 1 minute, 17 seconds
2	Check	1 hour, 1 minute, 15 seconds
3	Online	1 hour, 1 minute, 6 seconds
4	Online	1 hour, 1 minute, 4 seconds

Displaying Information About Routing Engines

To display information about all master Routing Engines in the routing matrix, issue the **show chassis routing-engine** command on the TX Matrix Plus router:

```
user@host> show chassis routing-engine
```

sfc0-re0:

Routing Engine status:

Slot 0:

Current state	Master
Election priority	Master (default)
Temperature	28 degrees C / 82 degrees F
CPU temperature	42 degrees C / 107 degrees F
DRAM	3327 MB
Memory utilization	13 percent
CPU utilization:	
User	0 percent
Background	0 percent
Kernel	2 percent
Interrupt	0 percent
Idle	98 percent
Model	RE-TXP-SFC
Serial ID	737A-1024
Start time	2009-07-09 17:08:13 PDT
Uptime	14 hours, 55 minutes, 39 seconds
Last reboot reason	Router rebooted after a normal shutdown.
Load averages:	1 minute 5 minute 15 minute
	0.00 0.00 0.00

Routing Engine status:

Slot 1:

Current state	Backup
Election priority	Backup (default)
Temperature	29 degrees C / 84 degrees F
CPU temperature	45 degrees C / 113 degrees F
DRAM	3327 MB
Memory utilization	11 percent
CPU utilization:	
User	0 percent

Background	0 percent
Kernel	0 percent
Interrupt	0 percent
Idle	100 percent
Model	RE-TXP-SFC
Serial ID	737A-1008
Start time	2009-07-08 12:38:29 PDT
Uptime	1 day, 19 hours, 25 minutes, 35 seconds
Last reboot reason	Router rebooted after a normal shutdown.

lcc0-re0:**Routing Engine status:****Slot 0:**

Current state	Master
Election priority	Master (default)
Temperature	33 degrees C / 91 degrees F
CPU temperature	47 degrees C / 116 degrees F
DRAM	3327 MB
Memory utilization	12 percent
CPU utilization:	
User	0 percent
Background	0 percent
Kernel	2 percent
Interrupt	0 percent
Idle	98 percent
Model	RE-TXP-LCC
Serial ID	737F-1051
Start time	2009-07-09 17:06:52 PDT
Uptime	14 hours, 56 minutes, 37 seconds
Last reboot reason	Router rebooted after a normal shutdown.
Load averages:	1 minute 5 minute 15 minute
	0.00 0.02 0.00

Routing Engine status:**Slot 1:**

Current state	Backup
Election priority	Backup (default)
Temperature	33 degrees C / 91 degrees F
CPU temperature	47 degrees C / 116 degrees F
DRAM	3327 MB
Memory utilization	9 percent
CPU utilization:	
User	0 percent
Background	0 percent
Kernel	0 percent
Interrupt	0 percent
Idle	100 percent
Model	RE-TXP-LCC
Serial ID	737F-1095
Start time	2009-07-08 12:40:14 PDT
Uptime	1 day, 19 hours, 24 minutes, 1 second
Last reboot reason	Router rebooted after a normal shutdown.

lcc2-re0:**Routing Engine status:****Slot 0:**

Current state	Master
Election priority	Master (default)
Temperature	30 degrees C / 86 degrees F
CPU temperature	45 degrees C / 113 degrees F

```

DRAM                                3327 MB
Memory utilization                   12 percent
CPU utilization:
  User                               0 percent
  Background                         0 percent
  Kernel                             2 percent
  Interrupt                           0 percent
  Idle                               98 percent
Model                               RE-TXP-LCC
Serial ID                           737F-1032
Start time                           2009-07-09 17:06:53 PDT
Uptime                               14 hours, 56 minutes, 48 seconds
Last reboot reason                   Router rebooted after a normal shutdown.
Load averages:                       1 minute   5 minute  15 minute
                                      0.01       0.01    0.00

```

Routing Engine status:

Slot1:

```

Current state                       Backup
Election priority                     Backup (default)
Temperature                         30 degrees C / 86 degrees F
CPU temperature                      44 degrees C / 111 degrees F
DRAM                                3327 MB
Memory utilization                   9 percent
CPU utilization:
  User                               0 percent
  Background                         0 percent
  Kernel                             0 percent
  Interrupt                           0 percent
  Idle                               100 percent
Model                               RE-TXP-LCC
Serial ID                           737F-1024
Start time                           2009-07-08 12:37:52 PDT
Uptime                               1 day, 19 hours, 26 minutes, 22 seconds
Last reboot reason                   Router rebooted after a normal shutdown.

```

Displaying Information About FPCs

To display information about FPCs in a routing matrix, issue the **show chassis fpc** command. Because there are no FPCs in a TX Matrix Plus router, there is no **sfc** option available for this command.

```
user@host> show chassis fpc
```

lcc0-re0:

```

-----
Slot State      Temp  CPU Utilization (%)  Memory  Utilization (%)
              (C)   Total  Interrupt      DRAM (MB) Heap    Buffer
0 Empty
1 Empty
2 Empty
3 Empty
4 Empty
5 Empty
6 Empty
7 Online        49     4         0       1024      7      49

```

lcc2-re0:

```

-----
Slot State      Temp  CPU Utilization (%)  Memory  Utilization (%)
              (C)   Total  Interrupt      DRAM (MB) Heap    Buffer

```

0	Online	47	8	0	2048	6	24
1	Online	28	4	0	1024	4	49
2	Online	39	5	0	1024	7	49
3	Empty						
4	Empty						
5	Empty						
6	Empty						
7	Empty						

Displaying Information About LCCs

You can also check to see if the TX Matrix Plus router and T1600 routers are communicating correctly within the routing matrix. To verify that the T1600 routers have proper connectivity to the routing matrix, issue the **show chassis lccs** command. In this example, there are two T1600 routers in the routing matrix.

```
user@host> show chassis lccs
```

Slot	State	Uptime
0	Online	15 hours, 5 minutes, 58 seconds
1	Empty	
2	Online	15 hours, 5 minutes, 58 seconds
3	Empty	

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

CHAPTER 7

Using Configuration Examples

- [Merging Examples on page 61](#)

Merging Examples

If you want to use the examples in this manual, you can use the **load merge** or the **load merge relative** command. These commands cause the software to merge the incoming configuration into the current candidate configuration. If the example configuration contains the top level of the hierarchy (or multiple hierarchies), the example is a *full example*. In this case, use the **load merge** command.

If the example configuration does not start at the top level of the hierarchy, the example is a *snippet*. In this case, use the **load merge relative** command.

These procedures are described in the following sections:

- [Merging a Full Example on page 61](#)
- [Merging a Snippet on page 62](#)
- [For More Information on page 62](#)

Merging a Full Example

To merge a full example, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration example into a text file, save the file with a name, and copy the file to a directory on your router.

For example, copy the following configuration to a file and name the file **ex-script.conf**. Copy the **ex-script.conf** file to the **/var/tmp** directory on your router.

```
system {
  scripts {
    commit {
      file ex-script.xsl;
    }
  }
}
interfaces {
  em0 {
    disable;
    unit 0 {
```

```
        family inet {  
            address 10.0.0.1/24;  
        }  
    }  
}
```

2. Merge the contents of the file into your router configuration by issuing the **load merge** configuration mode command:

```
[edit]  
user@host# load merge /var/tmp/ex-script.conf  
load complete
```

Merging a Snippet

To merge a snippet, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration snippet into a text file, save the file with a name, and copy the file to a directory on your router.

For example, copy the following snippet to a file and name the file **ex-script-snippet.conf**. Copy the **ex-script-snippet.conf** file to the **/var/tmp** directory on your router.

```
commit {  
    file ex-script-snippet.xml; }
```

2. Move to the hierarchy level that is relevant for this snippet by issuing the following configuration mode command:

```
[edit]  
user@host# edit system scripts  
[edit system scripts]
```

3. Merge the contents of the file into your router configuration by issuing the **load merge relative** configuration mode command:

```
[edit system scripts]  
user@host# load merge relative /var/tmp/ex-script-snippet.conf  
load complete
```

For More Information

For more information about using the **load** command, see Loading a Configuration from a File and Examples: Loading a Configuration from a File in the CLI User Guide.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

PART 4

Administration

- [Managing Hardware Components on page 65](#)
- [Managing Files and Processes on page 79](#)
- [Upgrading the Junos OS on page 85](#)
- [Upgrading the Junos OS — Troubleshooting Tips on page 109](#)

CHAPTER 8

Managing Hardware Components

- [Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router on page 65](#)
- [Displaying the Status of the Switching Fabric Topology of a Routing Matrix with a TX Matrix Plus Router on page 66](#)
- [Displaying the Status of Control Board Ethernet Switch Ports in a Routing Matrix with a TX Matrix Plus Router on page 69](#)
- [Enabling and Disabling Hardware Components of a Routing Matrix with a TX Matrix Plus Router on page 72](#)
- [Rebooting and Halting Hardware Components of the Routing Matrix with a TX Matrix Plus Router on page 76](#)

Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router

In a routing matrix with a TX Matrix Plus router, you can use the [show chassis location](#) operational command to display the physical locations of hardware components in the routing matrix:

- To display the router physical location descriptions defined in the [location](#) configuration statement at the **[edit system]** hierarchy level, issue the **show chassis location** operational command. To limit the command output to the **location** configuration settings for the TX Matrix Plus router (SFC) only, include the **sfc 0** option. To limit the command output to the **location** configuration settings for a particular T1600 router (LCC), include the **lcc lcc-number** option. For example:

```
user@host> show chassis location sfc 0
sfc0-re0:
```

```
-----
country-code: US
postal-code: 94404
Building: Building 2, Floor: 2
```

- To display the numbers of the connected Flexible PIC Concentrators (FPCs) in both routing matrix “global numbering” mode (0 through 31, as used to specify an interface name in a routing matrix) and associated “local numbering” mode (LCC number and FPC slot number), include the **fpc** option. Example:

```
user@host> show chassis location fpc
```

Global FPC	LCC	Local FPC
1	0	1
2	0	2
3	0	3
16	2	6
17	2	1
19	2	3

- To display the T1600 router (or line-card chassis) number and FPC number associated with a particular interface name, include the **interface by-name *interface-name*** option. For example:

```
user@host> show chassis location interface by-name ge-16/3/7.1
Interface Name: ge-16/3/7.0, LCC: 2, FPC: 6
```

- To display the interface name associated with a particular FPC, include the **interface by-slot lcc *lcc-number* fpc *fpc-slot-number*** option. For example:

```
user@host> show chassis location interface by-slot lcc 2 fpc 6
Global FPC: 16
```

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Displaying the Status of the Switching Fabric Topology of a Routing Matrix with a TX Matrix Plus Router

In a routing matrix with a TX Matrix Plus router, each of the five control planes contains various types of Switch Interface Boards (SIBs) that forward packets from a source Packet Forwarding Engine to a destination Packet Forwarding Engine.

You can use the **show chassis fabric topology** operational command to check the status of the SIB connections between the TX Matrix Plus router and the connected T1600 routers:

- To display the fabric topology states for the entire routing matrix, issue the **show chassis fabric topology** command. To limit the command output to a particular TXP-F13 SIB, also include the SIB slot number as a command option.
- To display the fabric topology states for the TX Matrix Plus router, include the **sfc *number*** option. To further limit the command output to a particular TXP-F13 SIB, also include the SIB slot number as a command option.
- To display the fabric topology states for a particular T1600 router, include the **lcc *lcc-number*** option. To further limit the command output to a particular TXP-F13 SIB, also include the SIB slot number as a command option.

To display the fabric topology state for the TX Matrix Plus router only, issue the **show fabric topology** command with the **sfc** option. The command output displays the fabric link status for transmit-side links and receive-side links for each of the 16 TXP-F13 SIB slots in the TX Matrix Plus router. For every TXP-F13 SIB, the following information is listed:

- Transmit-side link status—The state of each link from the TXP-F13 SIB to the TXP-T1600 SIB on a directly connected T1600 router. A TXP-F13 SIB connects to 2 different T1600 routers, and each connection consists of 128 links.
- Receive-side link status—The state of each link to the TXP-F13 SIB from the TXP-T1600 SIB on a directly connected T1600 router.

Example:

```
user@host> show chassis fabric topology sfc 0 0
sfc0-re0:
```

```
-----
SIB:0
=====
```

Out-Links:

```
=====
SFC0_F13_SIB_36      -> LCC00_ST_SIB_L00      Status
=====
SF_3_00_FB_D(04,11) -> FPC0_T_SG(0,0,0)_FB_D(04,11)  OK
SF_3_00_FB_D(04,10) -> FPC0_T_SG(0,0,1)_FB_D(04,10)  OK
SF_3_00_FB_D(04,09) -> FPC0_T_SG(0,0,2)_FB_D(04,09)  OK
SF_3_00_FB_D(04,08) -> FPC0_T_SG(0,0,3)_FB_D(04,08)  OK
SF_3_00_FB_D(04,07) -> FPC0_T_SG(0,0,4)_FB_D(04,07)  OK
SF_3_00_FB_D(04,06) -> FPC0_T_SG(0,0,5)_FB_D(04,06)  OK
SF_3_00_FB_D(04,05) -> FPC0_T_SG(0,0,6)_FB_D(04,05)  OK
SF_3_00_FB_D(04,04) -> FPC0_T_SG(0,0,7)_FB_D(04,04)  OK
SF_3_01_FB_B(16,11) -> FPC4_T_SG(2,0,0)_FB_B(16,11)  OK
```

...output_truncated...

```
SF_3_15_FB_C(09,08) -> FPC3_B_SG(1,3,7)_FB_C(09,08)  OK
PG(0,0)_FB_D(05,11) -> PC(0,0)_FB_D(05,11)           OK
PG(1,0)_FB_C(11,11) -> PC(1,0)_FB_C(11,11)           OK
PG(2,0)_FB_B(17,11) -> PC(2,0)_FB_B(17,11)           OK
PG(3,0)_FB_A(23,11) -> PC(3,0)_FB_A(23,11)           OK
```

In-Links:

```
=====
LCC00_ST_SIB_L00      -> SFC0_F13_SIB_36      Status
=====
FPC0_T_SG(0,0,0)_FB_D(01,11) -> SF_1_00_FB_D(01,11)  LOS
FPC0_T_SG(0,0,1)_FB_D(01,10) -> SF_1_00_FB_D(01,10)  LOS
FPC0_T_SG(0,0,2)_FB_D(01,09) -> SF_1_00_FB_D(01,09)  LOS
FPC0_T_SG(0,0,3)_FB_D(01,08) -> SF_1_00_FB_D(01,08)  LOS
FPC0_T_SG(0,0,4)_FB_D(01,07) -> SF_1_00_FB_D(01,07)  LOS
FPC0_T_SG(0,0,5)_FB_D(01,06) -> SF_1_00_FB_D(01,06)  LOS
FPC0_T_SG(0,0,6)_FB_D(01,05) -> SF_1_00_FB_D(01,05)  LOS
FPC0_T_SG(0,0,7)_FB_D(01,04) -> SF_1_00_FB_D(01,04)  LOS
FPC4_T_SG(2,0,0)_FB_B(13,11) -> SF_1_01_FB_B(13,11)  LOS
```

...output_truncated...

```

FPC3_B_SG(1,3,7)_FB_C(06,08) -> SF_1_15_FB_C(06,08)   LOS
PG(0,0)_FB_D(02,11)           -> PC(0,0)_FB_D(02,11)   LOS
PG(1,0)_FB_C(08,11)           -> PC(1,0)_FB_C(08,11)   LOS
PG(2,0)_FB_B(14,11)           -> PC(2,0)_FB_B(14,11)   LOS
PG(3,0)_FB_A(20,11)           -> PC(3,0)_FB_A(20,11)   LOS

```

Out-Links:

```

=====
SFC0_F13_SIB_36      -> LCC01_ST_SIB_L00                Status
=====
SF_3_00_FB_D(28,11) -> FPC0_T_SG(0,0,0)_FB_D(28,11)   OK
SF_3_00_FB_D(28,10) -> FPC0_T_SG(0,0,1)_FB_D(28,10)   OK
SF_3_00_FB_D(28,09) -> FPC0_T_SG(0,0,2)_FB_D(28,09)   OK
SF_3_00_FB_D(28,08) -> FPC0_T_SG(0,0,3)_FB_D(28,08)   OK
SF_3_00_FB_D(28,07) -> FPC0_T_SG(0,0,4)_FB_D(28,07)   OK
SF_3_00_FB_D(28,06) -> FPC0_T_SG(0,0,5)_FB_D(28,06)   OK
SF_3_00_FB_D(28,05) -> FPC0_T_SG(0,0,6)_FB_D(28,05)   OK
SF_3_00_FB_D(28,04) -> FPC0_T_SG(0,0,7)_FB_D(28,04)   OK
SF_3_01_FB_B(40,11) -> FPC4_T_SG(2,0,0)_FB_B(40,11)   OK

```

...output_truncated...

```

SF_3_15_FB_C(33,08) -> FPC3_B_SG(1,3,7)_FB_C(33,08)   OK
PG(4,0)_FB_D(29,11) -> PC(4,0)_FB_D(29,11)       OK
PG(5,0)_FB_C(35,11) -> PC(5,0)_FB_C(35,11)       OK
PG(6,0)_FB_B(41,11) -> PC(6,0)_FB_B(41,11)       OK
PG(7,0)_FB_A(47,11) -> PC(7,0)_FB_A(47,11)       OK

```

In-Links:

```

=====
LCC01_ST_SIB_L00      -> SFC0_F13_SIB_36                Status
=====
FPC0_T_SG(0,0,0)_FB_D(25,11) -> SF_1_00_FB_D(25,11)   LOS
FPC0_T_SG(0,0,1)_FB_D(25,10) -> SF_1_00_FB_D(25,10)   LOS
FPC0_T_SG(0,0,2)_FB_D(25,09) -> SF_1_00_FB_D(25,09)   LOS
FPC0_T_SG(0,0,3)_FB_D(25,08) -> SF_1_00_FB_D(25,08)   LOS
FPC0_T_SG(0,0,4)_FB_D(25,07) -> SF_1_00_FB_D(25,07)   LOS
FPC0_T_SG(0,0,5)_FB_D(25,06) -> SF_1_00_FB_D(25,06)   LOS
FPC0_T_SG(0,0,6)_FB_D(25,05) -> SF_1_00_FB_D(25,05)   LOS
FPC0_T_SG(0,0,7)_FB_D(25,04) -> SF_1_00_FB_D(25,04)   LOS
FPC4_T_SG(2,0,0)_FB_B(37,11) -> SF_1_01_FB_B(37,11)   LOS

```

...output_truncated...

```

FPC3_B_SG(1,3,7)_FB_C(30,08) -> SF_1_15_FB_C(30,08)   LOS
PG(4,0)_FB_D(26,11)           -> PC(4,0)_FB_D(26,11)   LOS
PG(5,0)_FB_C(32,11)           -> PC(5,0)_FB_C(32,11)   LOS
PG(6,0)_FB_B(38,11)           -> PC(6,0)_FB_B(38,11)   LOS
PG(7,0)_FB_A(44,11)           -> PC(7,0)_FB_A(44,11)   LOS

```

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Displaying the Status of Control Board Ethernet Switch Ports in a Routing Matrix with a TX Matrix Plus Router

The following sections describe the Ethernet switches on the Control Boards in a routing matrix with a TX Matrix Plus router and how you can use the [show chassis ethernet-switch](#) operational command to display information about the ports on Control Board Ethernet switches:

- [Ethernet Switches on Control Boards in the Routing Matrix on page 69](#)
- [Status of Ports on Control Board Ethernet Switches on page 70](#)
- [Error Statistics for Ports on Control Board Ethernet Switches on page 71](#)
- [Traffic Statistics for Ports on Control Board Ethernet Switches on page 72](#)

Ethernet Switches on Control Boards in the Routing Matrix

In a routing matrix with a TX Matrix Plus router, the SFC and all connected LCCs contain redundant host subsystems. For each host subsystem in a T1600 router in a routing matrix, the Control Board (LCC-CB) contains a Gigabit Ethernet switch. For each host subsystem in a TX Matrix Plus router, the Control Board (TXP-CB) contains a 10-Gigabit Ethernet switch and a Gigabit Ethernet switch, which are connected.

These switches support the following connectivity between Routing Engines in the routing matrix:

- [Connectivity Between SFC and LCC Routing Engines on page 69](#)
- [Connectivity Between SFC Master and Backup Routing Engines on page 70](#)
- [Connectivity Between LCC Master and Backup Routing Engines on page 70](#)

Connectivity Between SFC and LCC Routing Engines

In a routing matrix with a TX Matrix Plus router, the SFC master Routing Engine and every LCC master Routing Engine are connected, enabling the multi-chassis system to operate as a single routing system. The SFC backup Routing Engine and every LCC backup Routing Engine are likewise connected.

This connectivity entails the 10-Gigabit and Gigabit Ethernet switches on the TXP-CB and the Gigabit Ethernet switch on the LCC-CB:

1. The 10-Gigabit Ethernet port on the SFC Routing Engine (automatically configured at the **ixgbe0** internal Ethernet interface) connects to the 10-Gigabit Ethernet switch on the *local Control Board*.
2. On the SFC local Control Board, the 10-Gigabit Ethernet switch connects to the Gigabit Ethernet switch.
3. The Gigabit Ethernet switch on the SFC Control Board connects to the Gigabit Ethernet switch of every LCC Control Board.
4. On every LCC Routing Engine, the Gigabit Ethernet port (automatically configured at the **bcm0** internal Ethernet interface) connects to the Gigabit Ethernet switch on the *local Control Board*.

Connectivity Between SFC Master and Backup Routing Engines

In a routing matrix with a TX Matrix Plus router, the independent control planes of an SFC are connected by two physical links between the two 10-Gigabit Ethernet ports on their respective Routing Engines.

This connectivity entails the 10-Gigabit Ethernet switches on the local and remote TXP-CBs:

- The primary link to the remote Routing Engine is at the **ixgbe0** interface on the SFC Routing Engine. The **ixgbe0** interface—in addition to connecting the SFC Routing Engine to the Routing Engines of the connected LCCs—also connects the SFC Routing Engine to the 10-Gigabit Ethernet port accessed by the **ixgbe1** interface on the *remote Routing Engine*.
- The alternate link to the remote Routing Engine is the 10-Gigabit Ethernet port at the **ixgbe1** interface on the Routing Engine. This second port connects the Routing Engine to the 10-Gigabit Ethernet switch on the *remote Control Board*, which in turn connects to the 10-Gigabit Ethernet port at the **ixgbe0** interface on the *remote Routing Engine*.

If one of the two links between the host subsystems fails, both Routing Engines can use the other link for IP communication.

Connectivity Between LCC Master and Backup Routing Engines

In a routing matrix with a TX Matrix Plus router, the independent control planes of an LCC are connected by two physical links between the two Gigabit Ethernet ports on their respective Routing Engines.

This connectivity entails the Gigabit Ethernet switches on the local and remote LCC-CBs:

- The primary link to the remote Routing Engine is at the **bcm0** interface on the LCC Routing Engine. The **bcm0** interface—in addition to connecting the LCC Routing Engine to the SFC Routine Engine—also connects the LCC Routing Engine to the Gigabit Ethernet port accessed by the **em1** interface on the *remote Routing Engine*.
- The alternate link to the remote Routing Engine is at the Gigabit Ethernet port at the **em1** interface on the local Routing Engine. This second port connects the local Routing Engine to the Gigabit Ethernet switch on the *remote Control Board*, which in turn connects to the Gigabit Ethernet port at the **bcm0** interface on the *remote Routing Engine*.

If one of the two links between the host subsystems fails, both Routing Engines can use the other link for IP communication.

Status of Ports on Control Board Ethernet Switches

To display port status information for the ports on the Control Board Ethernet switches in the routing matrix, use the following form of the **show chassis ethernet-switch** operational command:

```
show chassis ethernet-switch <sfc sfc-number | lcc lcc-number>
```

You can control the scope of the command output as follows:

- To display the status of the switch ports on the Control Boards in every router in the routing matrix, issue the **show chassis ethernet-switch** command without any command options.
- To limit the output to the status of the ports on the 10-Gigabit Ethernet switch and the Gigabit Ethernet switch on the two Control Boards in the SFC, issue the **show chassis ethernet-switch** command with the **sfc sfc-number** option, where **sfc-number** is 0.
- To limit the output to the status of the ports on the Gigabit Ethernet switch in the two Control Boards in a specific LCC, issue the **show chassis ethernet-switch** operational command with the **lcc lcc-number** option, where **lcc-number** is a value from 0 through 3.

Error Statistics for Ports on Control Board Ethernet Switches

To display the numbers and types of errors accumulated on the connected ports of Control Board Ethernet switches in the routing matrix, use the following form of the **show chassis ethernet-switch** operational command:

```
show chassis ethernet-switch errors <sfc sfc-number | lcc lcc-number>
<switch switch-type-number> <switch-port-number>
```

You can control the scope of the command output as follows:

- To display error information for ports on Control Board Ethernet switches in every router in the routing matrix, issue the **show chassis ethernet-switch errors** command (applying only the **errors** command option).
- To limit the command output, you add any combination of the following command options:
 - Chassis—To filter the output on a specific chassis, you can include either the **sfc sfc-number** option (where **sfc-number** is 0) or the **lcc lcc-number** option (where **lcc-number** is a value from 0 through 3).
 - SFC Control Board Ethernet Switch Type—If the command output includes information for Control Board Ethernet switches in an SFC (that is, if you applied either the **errors** option alone or the **errors sfc sfc-number** option), you can filter the SFC portion of the output on a specific switch type. To limit SFC Control Board Ethernet switch port error information, include the **switch switch-type-number** option. The **switch-type-number** value can be 0 (the 10-Gigabit Ethernet switch type) or 1 (the Gigabit Ethernet switch type). The **switch-type-number 2** is reserved for future use.
 - Control Board Ethernet Switch Port Number—To filter the output on a specific switch port number, include the **switch-port-number** option, where **switch-port-number** is a value from 0 through 27.

Traffic Statistics for Ports on Control Board Ethernet Switches

To display the traffic statistics accumulated on the connected ports of Control Board Ethernet switches in the routing matrix, use the following form of the **show chassis ethernet-switch** operational command:

```
show chassis ethernet-switch statistics <sfc sfc-number | lcc lcc-number>
<switch switch-type-number> <switch-port-number>
```

You can control the scope of the command output as follows:

- To display traffic statistics for Ethernet ports on Control Board switches in every router in the routing matrix, issue the **show chassis ethernet-switch statistics** command (applying only the **statistics** command option).
- To limit the command output, you can add any combination of the following command options:
 - Chassis—To filter the output on a specific chassis, you can include either the **sfc sfc-number** option (where **sfc-number** is 0) or the **lcc lcc-number** option (where **lcc-number** is a value from 0 through 3).
 - SFC Control Board Ethernet Switch Type—If the command output includes information for Control Board Ethernet switches in an SFC (that is, if you applied either the **statistics** option alone or the **statistics sfc sfc-number** option), you can filter the SFC portion of the output on a specific switch type. To limit SFC Control Board Ethernet switch port error information, include the **switch switch-type-number** option. The **switch-type-number** value can be 0 (the 10-Gigabit Ethernet switch type) or 1 (the Gigabit Ethernet switch type). The **switch-type-number 2** is reserved for future use.
 - Control Board Ethernet Switch Port Number—To filter the output on a specific switch port number, include the **switch-port-number** option, where **switch-port-number** is a value from 0 through 27.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Enabling and Disabling Hardware Components of a Routing Matrix with a TX Matrix Plus Router

You can temporarily disable certain hardware components (such as FPCs, PICs, and SIBs) that belong to the TX Matrix Plus router and T1600 routers in the routing matrix. To do so, issue the appropriate **request chassis** command and include the **sfc** or **lcc** option as needed.



NOTE: If you issue a chassis-related command that references FPCs, we recommend that you use the FPC hardware slot number (0 through 7) of the specific T1600 router and specify its corresponding LCC number.

```
user@host> request chassis ?
```

Possible completions:

cb	Change Control Board status
cip	Change Connector Interface Panel status
fpc	Change Flexible PIC Concentrator status
fpm	Change craft interface status
lcc	Change LCC status
pic	Change Physical Interface Card status
routing-engine	Change Routing Engine status
scg	Change SONET Clock Generator status
sib	Change Switch Interface Board status
symb	Change Switch Processor Mezzanine Board status

```
user@host> request chassis cb ?
```

Possible completions:

lcc	Change Control Board status (0..3)
offline	Take CB offline
online	Bring CB online
sfc	Change Control Board status (0..0)
slot	CB slot number (0..1)

```
user@host> request chassis cip ?
```

Possible completions:

offline	Take CIP offline
online	Bring CIP online
slot	CIP slot number (0..1)

```
user@host> request chassis fpc ?
```

Possible completions:

lcc	Change Flexible PIC Concentrator status of specific LCC
offline	Take FPC offline
online	Bring FPC online
restart	Restart FPC
slot	FPC slot number (0..31)

```
user@host> request chassis fpm ?
```

Possible completions:

lcc	Change craft interface status (0..3)
resync	Resynchronize craft interface
sfc	Change craft interface status (0..0)

```
user@host> request chassis lcc ?
```

Possible completions:

offline	Take LCC offline
online	Bring LCC online
slot	LCC Slot (0..3)

```
user@host> request chassis pic ?
```

Possible completions:

fpc-slot	Slot number of FPC that houses PIC (0..31)
lcc	Change Physical Interface Card status of specific LCC
offline	Take PIC offline
online	Bring PIC online
pic-slot	PIC slot number (0..3)

```
user@host> request chassis routing-engine ?
```

```
Possible completions:
  master          Set Routing Engine mastership

user@host> request chassis scg ?
Possible completions:
  lcc              Change SONET Clock Generator status (0..3)
  offline          Take SCG offline
  online           Bring SCG online
  slot             SCG slot number (0..1)

user@host> request chassis sib ?
Possible completions:
  all-lcc          Change Switch Interface Board status
  f13              Change SIB F13 status
  f2s              Change SIB F2S status
  lcc              Change Switch Interface Board status (0..3)
  offline          Take SIB offline
  online           Bring SIB online
  slot             SIB slot number (0..15)

user@host> request chassis spmb ?
Possible completions:
  lcc              Control operation of an SPMB (0..3)
  restart          Restart SPMB
  sfc              Control operation of an SPMB (0..0)
  slot             SPMB slot number (0..1)
```

The routing matrix extends the concept of taking specific hardware components offline or online to include an entire T1600 router in a routing matrix. To enable or disable a T1600 router in a routing matrix, issue the **request chassis lcc slot lcc-number (offline | online)** command:

```
user@host> request chassis lcc ?
Possible completions:
  offline          Take LCC offline
  online           Bring LCC online
  slot             LCC Slot (0..3)
```

Although you can enter the routing matrix-based slot number when you issue the **request chassis fpc** command, output from **show chassis** commands always references the FPC hardware slot number (0 through 7) of the specific T1600 router and its corresponding LCC number. As a result, we recommend that you include the FPC hardware slot number when you issue **request chassis** or **show chassis** commands, as shown in the following example.

First, issue the **request chassis fpc** command with the routing matrix-based FPC slot number of 19:

```
user@host> request chassis fpc offline slot 19
lcc2-re0:
```

```
-----
Offline initiated, use "show chassis fpc" to verify
```

However, when you issue the **show chassis fpc** command to check the result, the output displays the change using node-centric terminology: FPC slot number 3 on T1600 router LCC2 (the equivalent of routing matrix slot 19).

```
user@host> show chassis fpc
lcc0-re0:
```

```
-----
```

Slot	State	Temp (C)	CPU Utilization (%)		Memory DRAM (MB)	Utilization (%)	
			Total	Interrupt		Heap	Buffer
0	Empty						
1	Online	31	2	0	256	7	44
2	Online	28	1	0	256	7	44
3	Online	31	2	0	256	14	44
4	Empty						
5	Empty						
6	Empty						
7	Empty						

lcc2-re0:

Slot	State	Temp (C)	CPU Utilization (%)		Memory DRAM (MB)	Utilization (%)	
			Total	Interrupt		Heap	Buffer
0	Online	31	2	0	256	14	44
1	Online	30	2	0	256	7	44
2	Empty						
3	Offline	--- Offlined by cli command ---					
4	Empty						
5	Empty						
6	Empty						
7	Empty						

To bring the same FPC back online, use the slot number and LCC number from the previous command output:

```
user@host> request chassis fpc online lcc 2 slot 3
```

lcc2-re0:

Online initiated, use "show chassis fpc" to verify

Once you bring the FPC back online, reissue the **show chassis fpc** command to see that the FPC slot and LCC number you used in the last command now matches the command output:

```
user@host> show chassis fpc
```

lcc0-re0:

Slot	State	Temp (C)	CPU Utilization (%)		Memory DRAM (MB)	Utilization (%)	
			Total	Interrupt		Heap	Buffer
0	Empty						
1	Online	31	1	0	256	7	44
2	Online	28	1	0	256	7	44
3	Online	31	3	0	256	14	44
4	Empty						
5	Empty						
6	Empty						
7	Empty						

lcc2-re0:

Slot	State	Temp (C)	CPU Utilization (%)		Memory DRAM (MB)	Utilization (%)	
			Total	Interrupt		Heap	Buffer
0	Online	31	3	0	256	14	44
1	Online	30	1	0	256	7	44
2	Empty						
3	Present	0	0	0	0	0	0
4	Empty						
5	Empty						

- 6 Empty
- 7 Empty

For more information about converting FPC hardware slot numbers on a T1600 router to the global FPC numbers used in a routing matrix and vice versa, see [“Global FPC Numbering for Interfaces in a Routing Matrix with a TX Matrix Plus Router” on page 5](#) and [“Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router” on page 65](#).

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Rebooting and Halting Hardware Components of the Routing Matrix with a TX Matrix Plus Router

In a routing matrix with a TX Matrix Plus router, you can control which hardware component is rebooted or halted. If you reboot or halt the TX Matrix Plus router, by default you also reboot or halt the master Routing Engines on all T1600 routers. To reboot a specific component, issue the **request system reboot** command with the **all-lcc**, **lcc**, or **sfc** option.

```
user@host> request system reboot ?
Possible completions:
<[Enter]>      Execute this command
all-chassis    Reboot all chassis
all-lcc        Reboot all LCC chassis
at             Time at which to perform the operation
in            Number of minutes to delay before operation
lcc            Reboot specific LCC (0..3)
media          Boot media for next boot
message        Message to display to all users
other-routing-engine Reboot the other Routing Engine
sfc            Reboot SFC (0..0)
|             Pipe through a command

user@host> request system reboot
Reboot the system ? [yes,no] (no) yes
Rebooting lcc0-re0
Rebooting lcc1-re0
```

Similarly, to halt a specific component in a routing matrix, issue the **request system halt** command with the **all-lcc**, **lcc**, or **sfc** option.



CAUTION: Before entering this command, you must have access to the TX Matrix Plus console port and the console ports of all of the LCCs in order to bring up the Routing Engines.

```
user@host> request system halt ?
```

Possible completions:

<[Enter]>	Execute this command
all-chassis	Halt all chassis
all-lcc	Halt all LCC chassis
at	Time at which to perform the operation
both-routing-engines	Halt both Routing Engines
in	Number of minutes to delay before operation
lcc	Halt specific LCC (0..3)
media	Boot media for next boot
message	Message to display to all users
other-routing-engine	Halt other Routing Engine
sfc	Halt SFC (0..0)
	Pipe through a command

Issuing the **request system halt both-routing-engines** command on a TX Matrix Plus router halts both Routing Engines in the TX Matrix Plus router and both Routing Engines in all T1600 routers in the routing matrix. To reboot a Routing Engine that has been halted, you must connect through the console. For more information about system commands, see the Junos OS Operational Mode Commands.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

CHAPTER 9

Managing Files and Processes

- [Managing Files on Routing Engines in a Routing Matrix with a TX Matrix Plus Router on page 79](#)
- [Managing System Processes in a Routing Matrix with a TX Matrix Plus Router on page 82](#)

Managing Files on Routing Engines in a Routing Matrix with a TX Matrix Plus Router

This topic summarizes key file management issues useful in operating a routing matrix with a TX Matrix Plus router:

- [Displaying a List of Files on page 79](#)
- [Displaying the Contents of a File on page 80](#)
- [Copying Files on page 81](#)
- [Renaming Files on page 81](#)
- [Deleting Files on page 81](#)

Displaying a List of Files

To display a list of files on a Routing Engine in a routing matrix with a TX Matrix Plus router, issue the **file list** operational management command.

- To display a list of files on a different chassis, include the chassis specifier (**lcc0**, **lcc1**, **lcc2**, or **lcc3**) in the directory or file pathname.
- To display a list of files on a different Routing Engine, include the Routing Engine specifier (**re0** or **re1**) in the directory or file pathname.

The following sample command displays the list of files in the **/var/tmp** directory on Routing Engine **re0** in the line-card chassis **lcc0**:

```
user@host> file list lcc0-re0:/var/tmp
lcc0-re0:
```

```
-----
/var/tmp/:
.gdbinit
.pccardd
Test/
chassisd*
chassisd.nathan*
check_time*
cores/
```

```
diagTestPrep*
diagtest*
diagtest.regress*
do_switchovers*
dump_test*
err.manoj.log
esw_clearstats*
esw_counter*
esw_debug*
esw_debug_ge*
esw_filt_test*
esw_filter_tnp_addr*
esw_getstats*
esw_phy*
esw_stats*
```

Displaying the Contents of a File

To display the contents of a file, issue the **file show** operational command. To specify a file that is not local to the Routing Engine from which the command is issued, include chassis and Routing Engine information in the filename.

The following sample command displays the contents of the **.gdbinit** file in the **/var/tmp** directory on the master Routing Engine of the T1600 router **lcc0**:

```
user@host> file show lcc0-re0:/var/tmp/.gdbinit
lcc0-re0:
-----
#####
# Settings
#####

set print pretty

#####
# Basic stuff
#####

define msgbuf
    printf "%s", msgbuf->msg_ptr
end
# hex dump of a block of memory
# usage: dump address length
define dump
    p $arg0, $arg1
    set $ch = $arg0
    set $j = 0
    set $n = $arg1
    while ($j < $n)
        #printf "%x %x ",&$ch[$j],$ch[$j]
        printf "%x ",$ch[$j]
        set $j = $j + 1
        if (!($j % 16))
            printf "\n"
        end
    end
end
```

```
end
```

Copying Files

To copy files from one place to another on the same router or between different routers in the routing matrix, use the **file copy** operational management command. To specify a file that is not local to the Routing Engine from which the command is issued, include chassis and Routing Engine information in the filename.

The following sample command is used to copy the file **sample.txt** from the **/tmp** directory on **sfc0-re1** (the backup Routing Engine in the TX Matrix Plus router) to the **/var/tmp** directory on **lcc0-re1** (the backup Routing Engine in one of the connected T1600 routers):

```
user@host> file copy sfc0-re1:/tmp/sample.txt lcc0-re1:/var/tmp
```

Renaming Files

To rename a file, use the **file rename** operational management command. To specify a file that is not local to the Routing Engine from which the command is issued, include chassis and Routing Engine information in the filename.

The following sequence of sample commands lists the files in the **/var/tmp** directory on **sfc0-re0** (the master Routing Engine of the TX Matrix Plus router), renames one of the files (changing **dcd.core** to **dcd.core.990415**), and then lists the files in the **/var/tmp** directory again to show the newly named file:

```
user@host> file list sfc0-re0:/var/tmp
dcd.core
rpd.core
snmpd.core
```

```
user@host> file rename sfc0-re0:/var/tmp/dcd.core /var/tmp/dcd.core.990413
```

```
user@host> file list sfc0-re0:/var/tmp
dcd.core.990413
rpd.core
snmpd.core
```

Deleting Files

To delete a file, use the **file delete** operational management command. To specify a file that is not local to the Routing Engine from which the command is issued, include chassis and Routing Engine information in the filename.

The following sequence of sample command lists the files in the **/var/tmp** directory on **sfc0-re0** (the master Routing Engine on the TX Matrix Plus router), deletes the file **snmpd.core** from that directory, and then lists the files in the directory again:

```
user@host> file list lcc0-re0:/var/tmp
dcd.core
rpd.core
snmpd.core
```

```
user@host> file delete lcc0-re0:/var/tmp/snmpd.core
```

```
user@host> file list /var/tmp
dcd.core
rpd.core
```

**Related
Documentation**

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Managing System Processes in a Routing Matrix with a TX Matrix Plus Router

Some system processes in a routing matrix with a TX Matrix Plus run on the TX Matrix Plus router and some run on the T1600 routers. For example, the routing protocol process (rpd) runs exclusively on the TX Matrix Plus router. To restart the routing protocol process for the entire routing matrix, issue the **restart routing** command on the TX Matrix Plus router:

```
user@host> restart routing ?
Possible completions:
<[Enter]>      Execute this command
gracefully     Gracefully restart the process
immediately    Immediately restart (SIGKILL) the process
logical-system Name of logical system
soft           Soft reset (SIGHUP) the process
|             Pipe through a command
```

Other processes run on both the TX Matrix Plus router and the T1600 routers. To restart the chassis process that manages PICs, FPCs, and other hardware components, issue the **restart chassis-control** command on the TX Matrix Plus router and select the **all**, **all-lcc**, or **lcc lcc-number** option:

```
user@host> restart chassis-control ?
Possible completions:
<[Enter]>      Execute this command
all-chassis    Restart software process on all chassis
all-lcc        Restart software process on all LCC chassis
gracefully     Gracefully restart the process
immediately    Immediately restart (SIGKILL) the process
lcc            Restart software process on specific LCC (0..3)
sfc            Restart software process on SFC (0..0)
soft           Soft reset (SIGHUP) the process
|             Pipe through a command
```

To restart the SNMP process, issue the **restart snmp** command on the TX Matrix Plus router and select the **all**, **all-lcc**, or **lcc lcc-number** option:

```
user@host> restart snmp ?
Possible completions:
<[Enter]>      Execute this command
all-chassis    Restart software process on all chassis
all-lcc        Restart software process on all LCC chassis
gracefully     Gracefully restart the process
immediately    Immediately restart (SIGKILL) the process
```

lcc	Restart software process on specific LCC (0..3)
sfc	Restart software process on SFC (0..0)
soft	Soft reset (SIGHUP) the process
	Pipe through a command

**Related
Documentation**

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)

Upgrading the Junos OS

- Upgrading the Junos OS on a Routing Matrix with a TX Matrix Plus Router on page 85

Upgrading the Junos OS on a Routing Matrix with a TX Matrix Plus Router

When you upgrade the Junos OS on a routing matrix with a TX Matrix Plus router, the new image is loaded onto the TX Matrix Plus router (**sfc0**) and distributed to all of the connected T1600 routers (**lcc0**, **lcc1**, **lcc2**, and **lcc3**).



NOTE: Throughout this task description, the terms *TX Matrix Plus router* and *T1600 router* refer to the routing matrix switch-fabric chassis (SFC) and line-card chassis (LCC), respectively.

Before you begin upgrading the Junos OS on a routing matrix, be sure you have:

- Sufficient free disk space on each Routing Engine in the routing matrix. To determine the amount of disk space currently available on all Routing Engines of the routing matrix, issue the **show system storage** operational command.
- Sufficient DRAM on each Routing Engine in the routing matrix. To determine the amount of DRAM currently available on all the Routing Engines in the routing matrix, issue the **show chassis routing-engine** operational command.
- Compatible models of Routing Engines (master and backup) in the routing matrix. For this release of Junos OS, the TX Matrix Plus router must contain two model RE-DUO-C2600-16G Routing Engines, and each T1600 router in the routing matrix must contain two model RE-DUO-C1800-8G Routing Engines. To determine the Routing Engine models installed in the Routing Engines in a routing matrix, issue the **show chassis hardware** operational command with the **models** option. Hardware component model numbers are listed in the **FRU model number** column.
- The same version of Junos OS running on all Routing Engines in the routing matrix.



NOTE: The routing matrix does not operate properly unless all master Routing Engines are running the same version of Junos OS.

Different versions of the Junos OS can use different message formats that might be incompatible, particularly when graceful Routing Engine switchover (GRES) is enabled. For more information about GRES, see “Understanding Graceful Routing Engine Switchover in the Junos OS” and “Configuring Graceful Routing Engine Switchover” in the Junos OS High Availability Configuration Guide.

Because the procedure for upgrading the Junos OS includes switching of the Routing Engine mastership, we recommend that the same version of Junos OS is running on all Routing Engines in the routing matrix. To determine the versions of Junos OS running on the Routing Engines in a routing matrix, issue the **show version invoke-on** operational command.



BEST PRACTICE: By default, the Routing Engine in slot 0 (re0) is the master and the one in slot 1 (re1) is the backup. You can modify the default Routing Engine mastership by including the `routing-engine slot-number (master | backup | disabled)` statement at the `[edit chassis redundancy]` hierarchy level. However, it is considered best practice to make sure that all master Routing Engines are re0 and all backup Routing Engines are re1 (or vice versa). Throughout this task description, the master Routing Engine is re0 and the backup Routing Engine is re1 in all routers in the routing matrix.

This topic includes the following tasks:

1. [Logging In to the Master Routing Engine on the TX Matrix Plus Router on page 86](#)
2. [Disabling Routing Engine Redundancy and GRES on the Routing Matrix on page 87](#)
3. [Installing Junos OS on the Backup Routing Engines on page 89](#)
4. [Loading Software on the Backup Routing Engines on page 96](#)
5. [Switching Routing Engine Mastership to the Backup Routing Engines on page 98](#)
6. [Installing Software on the New Default Master Routing Engines on page 100](#)
7. [Loading Software on the New Default Master Routing Engines on page 101](#)
8. [Optional: Switching Routing Engine Mastership Back to the Default Master Routing Engines on page 103](#)
9. [Restoring the Original Configuration on page 105](#)
10. [Backing Up the Routing Engines on page 106](#)

Logging In to the Master Routing Engine on the TX Matrix Plus Router

Log in to the master Routing Engine on the TX Matrix Plus router.



NOTE: During the upgrade process, in-band management connections to the routing matrix are lost each time you reboot the system (first, to load the new software onto the backup Routing Engines and later, to load the new software onto the master Routing Engines). Therefore, we recommend that you perform the software upgrade procedure out-of-band, over a direct console connection to the TX Matrix Plus router using Secure Shell (SSH) or Telnet. Connect the system console device to the asynchronous serial port (labeled **CONSOLE**) on the Control Board (CB) associated with the master Routing Engine.

To log in to the master Routing Engine on the TX Matrix Plus router and start the Junos OS CLI:

1. At a management console attached to the master Routing Engine (**re0**) on the TX Matrix Plus router, log in to the Junos OS CLI using a root administration account:

```
login: root
Password: .....
```

```
--- Junos 9.6R1.0 built 2009-07-13 08:52:23 UTC
```



NOTE: From the factory, the root administration user account is not associated with a password.

```
Amnesiac (ttyd0)
```

```
login: root
```

However, you must add a password to the root administration account before you can successfully commit a configuration.

2. At the shell prompt (**%**), start the Junos OS CLI:

```
% cli
{master}
root@mysfc0-re0>
```

Disabling Routing Engine Redundancy and GRES on the Routing Matrix

By default, graceful Routing Engine switchover (GRES) is disabled. To enable GRES on a router, you can include the **graceful-switchover** statement at the **[edit chassis redundancy]** hierarchy level:

```
[edit]
chassis {
  redundancy { # This enables Routing Engine redundancy on the router
    graceful-switchover; # This enables GRES on the router
  }
}
```

The procedure for upgrading the Junos OS on a routing matrix with a TX Matrix Plus router includes tasks that entail disruption of traffic processing by the affected Routing Engines:

- Upgrading the software on all the backup Routing Engines.
- Switching the Routing Engine mastership to the backup Routing Engines.
- Upgrading the software on all the master Routing Engines.
- Switching the Routing Engine mastership back to the master Routing Engines.

If GRES is enabled on any routers in the routing matrix, disable this feature.

To disable GRES on all routers in the routing matrix:

1. Enter configuration mode:

```
{master}  
root@mysfc0-re0> configure  
Entering configuration mode
```



NOTE: In the example shown in this step, the form of CLI prompt (beginning with either {master} or {backup} and displaying either -re0 or -re1 in the hostname portion of the prompt) indicates that GRES is enabled on that router.

2. Display the Routing Engine redundancy stanza:

```
{master}  
[edit]  
root@mysfc0-re0# show chassis  
...  
    redundancy {  
        graceful-switchover;  
    }  
...
```

3. Disable Routing Engine redundancy in the candidate configuration. If GRES is enabled, it is removed with the **redundancy** stanza:

```
{master}  
[edit]  
root@mysfc0-re0# delete chassis redundancy
```

4. Verify that the **graceful-routing** statement has been removed (if it was previously enabled) with the **redundancy** stanza from the **[edit chassis]** hierarchy level of the candidate configuration:

```
[edit]  
root@mysfc0# show chassis
```



NOTE: You can also issue the `show system switchover all-chassis` operational command to display Routing Engine graceful switchover information

5. Commit the configuration on all Routing Engines in the routing matrix and, if the configuration contains no errors and the commit succeeds, exit CLI configuration mode:

```
[edit]
root@mysfc0# commit synchronize and-quit
sfc0-re0:
configuration check succeeds
lcc0-re1:
commit complete
lcc0-re0:
commit complete
lcc2-re1:
commit complete
lcc2-re0:
commit complete
sfc0-re1:
commit complete
sfc0-re0:
commit complete

root@mysfc0>
```

Installing Junos OS on the Backup Routing Engines

Install the new version of Junos OS on the backup Routing Engines (**re1**) of all the routers in the routing matrix while leaving the currently running version of Junos OS running on the master Routing Engines (**re0**). This allows the master Routing Engines to continue operations, minimizing the disruption to the routing matrix and your network.

To install the new version of Junos OS on all backup Routing Engines in the routing matrix:

1. At a management console attached to the backup Routing Engine (**re1**) on the TX Matrix Plus router, log in to the Junos OS CLI using a root administration account:

```
login: root
Password: .....

--- Junos 9.6R1.0 built 2009-07-13 08:52:23 UTC
```

2. At the shell prompt (**%**), start the Junos OS CLI:

```
% cli
root@mysfc0_alt_re>
```

3. To install the new Junos OS on the backup Routing Engines (**re1**) in the routing matrix, issue the `request system software add` operational command at the TX Matrix Plus router, and specify the new Junos OS image file.

The following example shows sample output for the **request system software add** command:

```
root@mysfc0_alt_re> request system software add
/var/tmp/jinstall-9.6R1.2-domestic-signed.tgz
```

Pushing bundle to lcc0-re1

Pushing bundle to lcc2-re1

Validating on lcc0-re1

Checking compatibility with configuration

Initializing...

Using jbase-9.6R1.0

Verified manifest signed by PackageProduction_9_6_0

Using /var/tmp/jinstall-9.6R1.2-domestic-signed.tgz

Verified jinstall-9.6R1.2-domestic.tgz signed by PackageProduction_9_6_0

Using jinstall-9.6R1.2-domestic.tgz

Using jbundle-9.6R1.2-domestic.tgz

Checking jbundle requirements on /

Using jbase-9.6R1.2.tgz

Verified manifest signed by PackageProduction_9_6_0

Using /var/validate/chroot/tmp/jbundle/jboot-9.6R1.2.tgz

Using jkernel-9.6R1.2.tgz

Verified manifest signed by PackageProduction_9_6_0

Using jcrypto-9.6R1.2.tgz

Verified manifest signed by PackageProduction_9_6_0

Using jpfe-9.6R1.2.tgz

Using jdocs-9.6R1.2.tgz

Verified manifest signed by PackageProduction_9_6_0

Using jroute-9.6R1.2.tgz

Verified manifest signed by PackageProduction_9_6_0

Using jservices-9.6R1.2.tgz

Auto-deleting old jservices-voice ...

Removing /opt/sdk/jservices-voice ...

Removing jservices-voice-bsg-9.6R1.0.tgz from /var/sw/pkg ...

Notifying mspd ...

Installing new jservices-voice ...

Verified jservices-voice-bsg-9.6R1.2.tgz signed by PackageProduction_9_6_0

Creating /var/sw/pkg ...

Creating /opt/sdk/jservices-voice ...

Storing jservices-voice-bsg-9.6R1.2.tgz in /var/sw/pkg ...

Link: /opt/sdk/jservices-voice/jservices-voice-bsg ->

/var/sw/pkg/jservices-voice-bsg-9.6R1.2.tgz...

Auto-deleting old jservices-bgf ...

Removing /opt/sdk/jservices-bgf ...

Removing jservices-bgf-pic-9.6R1.0.tgz from /var/sw/pkg ...

Notifying mspd ...

Installing new jservices-bgf ...

Verified jservices-bgf-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0

Creating /opt/sdk/jservices-bgf ...

Storing jservices-bgf-pic-9.6R1.2.tgz in /var/sw/pkg ...

Link: /opt/sdk/jservices-bgf/jservices-bgf-pic ->

/var/sw/pkg/jservices-bgf-pic-9.6R1.2.tgz...

Auto-deleting old jservices-aacl ...

Removing /opt/sdk/jservices-aacl ...

Removing jservices-aacl-pic-9.6R1.0.tgz from /var/sw/pkg ...

Notifying mspd ...

Installing new jservices-aacl ...

Verified jservices-aacl-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0

Creating /opt/sdk/jservices-aacl ...

Storing jservices-aacl-pic-9.6R1.2.tgz in /var/sw/pkg ...

```

Link: /opt/sdk/jservices-aac1/jservices-aac1-pic ->
/var/sw/pkg/jservices-aac1-pic-9.6R1.2.tgz...
Auto-deleting old jservices-llpdf ...
Removing /opt/sdk/jservices-llpdf ...
Removing jservices-llpdf-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-llpdf ...
Verified jservices-llpdf-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-llpdf ...
Storing jservices-llpdf-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-llpdf/jservices-llpdf-pic ->
/var/sw/pkg/jservices-llpdf-pic-9.6R1.2.tgz...
Auto-deleting old jservices-sfw ...
Removing /opt/sdk/jservices-sfw ...
Removing jservices-sfw-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-sfw ...
Verified jservices-sfw-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-sfw ...
Storing jservices-sfw-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-sfw/jservices-sfw-pic ->
/var/sw/pkg/jservices-sfw-pic-9.6R1.2.tgz...
Auto-deleting old jservices-appid ...
Removing /opt/sdk/jservices-appid ...
Removing jservices-appid-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-appid ...
Verified jservices-appid-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-appid ...
Storing jservices-appid-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-appid/jservices-appid-pic ->
/var/sw/pkg/jservices-appid-pic-9.6R1.2.tgz...
Auto-deleting old jservices-idp ...
Removing /opt/sdk/jservices-idp ...
Removing jservices-idp-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-idp ...
Verified jservices-idp-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-idp ...
Storing jservices-idp-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-idp/jservices-idp-pic ->
/var/sw/pkg/jservices-idp-pic-9.6R1.2.tgz...
Hardware Database regeneration succeeded
Validating against /config/juniper.conf.gz
mgd: commit complete
Validation succeeded

```

```

Validating on lcc2-re1
Checking compatibility with configuration
Initializing...
Using jbase-9.6R1.0
Verified manifest signed by PackageProduction_9_6_0
Using /var/tmp/jinstall-9.6R1.2-domestic-signed.tgz
Verified jinstall-9.6R1.2-domestic.tgz signed by PackageProduction_9_6_0
Using jinstall-9.6R1.2-domestic.tgz
Using jbundle-9.6R1.2-domestic.tgz
Checking jbundle requirements on /
Using jbase-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using /var/validate/chroot/tmp/jbundle/jboot-9.6R1.2.tgz
Using jkernel-9.6R1.2.tgz

```

```
Verified manifest signed by PackageProduction_9_6_0
Using jcrypto-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using jpfe-9.6R1.2.tgz
Using jdocs-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using jroute-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using jservices-9.6R1.2.tgz
Auto-deleting old jservices-voice ...
Removing /opt/sdk/jservices-voice ...
Removing jservices-voice-bsg-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-voice ...
Verified jservices-voice-bsg-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /var/sw/pkg ...
Creating /opt/sdk/jservices-voice ...
Storing jservices-voice-bsg-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-voice/jservices-voice-bsg ->
/var/sw/pkg/jservices-voice-bsg-9.6R1.2.tgz...
Auto-deleting old jservices-bgf ...
Removing /opt/sdk/jservices-bgf ...
Removing jservices-bgf-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-bgf ...
Verified jservices-bgf-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-bgf ...
Storing jservices-bgf-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-bgf/jservices-bgf-pic ->
/var/sw/pkg/jservices-bgf-pic-9.6R1.2.tgz...
Auto-deleting old jservices-aac1 ...
Removing /opt/sdk/jservices-aac1 ...
Removing jservices-aac1-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-aac1 ...
Verified jservices-aac1-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-aac1 ...
Storing jservices-aac1-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-aac1/jservices-aac1-pic ->
/var/sw/pkg/jservices-aac1-pic-9.6R1.2.tgz...
Auto-deleting old jservices-llpdf ...
Removing /opt/sdk/jservices-llpdf ...
Removing jservices-llpdf-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-llpdf ...
Verified jservices-llpdf-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-llpdf ...
Storing jservices-llpdf-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-llpdf/jservices-llpdf-pic ->
/var/sw/pkg/jservices-llpdf-pic-9.6R1.2.tgz...
Auto-deleting old jservices-sfw ...
Removing /opt/sdk/jservices-sfw ...
Removing jservices-sfw-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-sfw ...
Verified jservices-sfw-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-sfw ...
Storing jservices-sfw-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-sfw/jservices-sfw-pic ->
/var/sw/pkg/jservices-sfw-pic-9.6R1.2.tgz...
Auto-deleting old jservices-appid ...
```

```

Removing /opt/sdk/jservices-appid ...
Removing jservices-appid-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-appid ...
Verified jservices-appid-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-appid ...
Storing jservices-appid-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-appid/jservices-appid-pic ->
/var/sw/pkg/jservices-appid-pic-9.6R1.2.tgz...
Auto-deleting old jservices-idp ...
Removing /opt/sdk/jservices-idp ...
Removing jservices-idp-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-idp ...
Verified jservices-idp-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-idp ...
Storing jservices-idp-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-idp/jservices-idp-pic ->
/var/sw/pkg/jservices-idp-pic-9.6R1.2.tgz...
Hardware Database regeneration succeeded
Validating against /config/juniper.conf.gz
mgd: commit complete
Validation succeeded

```

```

Validating on sfc0-re1
Checking compatibility with configuration
Initializing...
Using jbase-9.6R1.0
Verified manifest signed by PackageProduction_9_6_0
Using /var/tmp/jinstall-9.6R1.2-domestic-signed.tgz
Verified jinstall-9.6R1.2-domestic.tgz signed by PackageProduction_9_6_0
Using jinstall-9.6R1.2-domestic.tgz
Using jbundle-9.6R1.2-domestic.tgz
Checking jbundle requirements on /
Using jbase-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using /var/validate/chroot/tmp/jbundle/jboot-9.6R1.2.tgz
Using jkernel-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using jcrypto-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using jpf-9.6R1.2.tgz
Using jdocs-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using jroute-9.6R1.2.tgz
Verified manifest signed by PackageProduction_9_6_0
Using jservices-9.6R1.2.tgz
Auto-deleting old jservices-voice ...
Removing /opt/sdk/jservices-voice ...
Removing jservices-voice-bsg-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-voice ...
Verified jservices-voice-bsg-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /var/sw/pkg ...
Creating /opt/sdk/jservices-voice ...
Storing jservices-voice-bsg-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-voice/jservices-voice-bsg ->
/var/sw/pkg/jservices-voice-bsg-9.6R1.2.tgz...
Auto-deleting old jservices-bgf ...
Removing /opt/sdk/jservices-bgf ...
Removing jservices-bgf-pic-9.6R1.0.tgz from /var/sw/pkg ...

```

```
Notifying mspd ...
Installing new jservices-bgf ...
Verified jservices-bgf-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-bgf ...
Storing jservices-bgf-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-bgf/jservices-bgf-pic ->
/var/sw/pkg/jservices-bgf-pic-9.6R1.2.tgz...
Auto-deleting old jservices-aac1 ...
Removing /opt/sdk/jservices-aac1 ...
Removing jservices-aac1-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-aac1 ...
Verified jservices-aac1-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-aac1 ...
Storing jservices-aac1-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-aac1/jservices-aac1-pic ->
/var/sw/pkg/jservices-aac1-pic-9.6R1.2.tgz...
Auto-deleting old jservices-llpdf ...
Removing /opt/sdk/jservices-llpdf ...
Removing jservices-llpdf-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-llpdf ...
Verified jservices-llpdf-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-llpdf ...
Storing jservices-llpdf-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-llpdf/jservices-llpdf-pic ->
/var/sw/pkg/jservices-llpdf-pic-9.6R1.2.tgz...
Auto-deleting old jservices-sfw ...
Removing /opt/sdk/jservices-sfw ...
Removing jservices-sfw-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-sfw ...
Verified jservices-sfw-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-sfw ...
Storing jservices-sfw-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-sfw/jservices-sfw-pic ->
/var/sw/pkg/jservices-sfw-pic-9.6R1.2.tgz...
Auto-deleting old jservices-appid ...
Removing /opt/sdk/jservices-appid ...
Removing jservices-appid-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-appid ...
Verified jservices-appid-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-appid ...
Storing jservices-appid-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-appid/jservices-appid-pic ->
/var/sw/pkg/jservices-appid-pic-9.6R1.2.tgz...
Auto-deleting old jservices-idp ...
Removing /opt/sdk/jservices-idp ...
Removing jservices-idp-pic-9.6R1.0.tgz from /var/sw/pkg ...
Notifying mspd ...
Installing new jservices-idp ...
Verified jservices-idp-pic-9.6R1.2.tgz signed by PackageProduction_9_6_0
Creating /opt/sdk/jservices-idp ...
Storing jservices-idp-pic-9.6R1.2.tgz in /var/sw/pkg ...
Link: /opt/sdk/jservices-idp/jservices-idp-pic ->
/var/sw/pkg/jservices-idp-pic-9.6R1.2.tgz...
Hardware Database regeneration succeeded
Validating against /config/juniper.conf.gz
mgd: commit complete
Validation succeeded
```

Done with validate on all chassis

lcc0-rel:

Installing package '/var/tmp/jinstall-9.6R1.2-domestic-signed.tgz' ...
 Verified jinstall-9.6R1.2-domestic.tgz signed by PackageProduction_9_6_0
 Adding jinstall...
 Verified manifest signed by PackageProduction_9_6_0

WARNING: This package will load JUNOS 9.6R1.2 software.
 WARNING: It will save JUNOS configuration files, and SSH keys
 WARNING: (if configured), but erase all other files and information
 WARNING: stored on this machine. It will attempt to preserve dumps
 WARNING: and log files, but this can not be guaranteed. This is the
 WARNING: pre-installation stage and all the software is loaded when
 WARNING: you reboot the system.

Saving the config files ...
 NOTICE: uncommitted changes have been saved in
 /var/db/config/juniper.conf.pre-install
 Installing the bootstrap installer ...

WARNING: A REBOOT IS REQUIRED TO LOAD THIS SOFTWARE CORRECTLY. Use the
 WARNING: 'request system reboot' command when software installation is
 WARNING: complete. To abort the installation, do not reboot your system,
 WARNING: instead use the 'request system software delete jinstall'
 WARNING: command as soon as this operation completes.

Saving package file in /var/sw/pkg/jinstall-9.6R1.2-domestic-signed.tgz ...
 Saving state for rollback ...

lcc2-rel:

Installing package '/var/tmp/jinstall-9.6R1.2-domestic-signed.tgz' ...
 Verified jinstall-9.6R1.2-domestic.tgz signed by PackageProduction_9_6_0
 Adding jinstall...
 Verified manifest signed by PackageProduction_9_6_0

WARNING: This package will load JUNOS 9.6R1.2 software.
 WARNING: It will save JUNOS configuration files, and SSH keys
 WARNING: (if configured), but erase all other files and information
 WARNING: stored on this machine. It will attempt to preserve dumps
 WARNING: and log files, but this can not be guaranteed. This is the
 WARNING: pre-installation stage and all the software is loaded when
 WARNING: you reboot the system.

Saving the config files ...
 NOTICE: uncommitted changes have been saved in
 /var/db/config/juniper.conf.pre-install
 Installing the bootstrap installer ...

WARNING: A REBOOT IS REQUIRED TO LOAD THIS SOFTWARE CORRECTLY. Use the
 WARNING: 'request system reboot' command when software installation is
 WARNING: complete. To abort the installation, do not reboot your system,
 WARNING: instead use the 'request system software delete jinstall'
 WARNING: command as soon as this operation completes.

Saving package file in /var/sw/pkg/jinstall-9.6R1.2-domestic-signed.tgz ...
 Saving state for rollback ...

sfc0-rel:

Installing package '/var/tmp/jinstall-9.6R1.2-domestic-signed.tgz' ...
 Verified jinstall-9.6R1.2-domestic.tgz signed by PackageProduction_9_6_0

```
Adding jinstall...
Verified manifest signed by PackageProduction_9_6_0

WARNING: This package will load JUNOS 9.6R1.2 software.
WARNING: It will save JUNOS configuration files, and SSH keys
WARNING: (if configured), but erase all other files and information
WARNING: stored on this machine. It will attempt to preserve dumps
WARNING: and log files, but this can not be guaranteed. This is the
WARNING: pre-installation stage and all the software is loaded when
WARNING: you reboot the system.

Saving the config files ...
NOTICE: uncommitted changes have been saved in
/var/db/config/juniper.conf.pre-install
Installing the bootstrap installer ...

WARNING: A REBOOT IS REQUIRED TO LOAD THIS SOFTWARE CORRECTLY. Use the
WARNING: 'request system reboot' command when software installation is
WARNING: complete. To abort the installation, do not reboot your system,
WARNING: instead use the 'request system software delete jinstall'
WARNING: command as soon as this operation completes.

Saving package file in /var/sw/pkg/jinstall-9.6R1.2-domestic-signed.tgz ...
Saving state for rollback ...

root@host>

For more information on the request system software add command, see the Junos
OS Operational Mode Commands.
```

Loading Software on the Backup Routing Engines

To start running the newly installed Junos OS on all the backup Routing Engines in the routing matrix, you must reboot those Routing Engines. The Routing Engines reboot from the boot device on which the software was just installed. Each reboot operation can take between 5 and 10 minutes to complete.



NOTE: This is your last chance to abort the upgrade of the Junos OS on the backup Routing Engines. If you want to abort the software upgrade, do not reboot the backup Routing Engines.

If you choose to abort the software upgrade, you can remove the new Junos OS package or bundle from the router by issuing the [request system software delete](#) operational command and specifying the `jinstall` command.

To start running the new Junos OS on the backup Routing Engines:

1. To reboot all the backup Routing Engines (**re1**), issue the [request system reboot](#) operational command at the backup Routing Engine on the TX Matrix Plus router. At the warning message and prompt, type **yes** to allow the command to proceed:

```
root@mysfc0_al_t_ret> request system reboot

Reboot the system ? [yes,no] (no) yes
```

```
rebooting lcc0-re1
Rebooting lcc2-re1
Shutdown NOW!
Reboot consistency check bypassed - jinstall 9.6R1.2 will complete installation
upon reboot
[pid 23517]
```

```
root@mysfc0_alt_re>
*** FINAL System shutdown message from root@host-sfc0-re1> ***
```

System going down IMMEDIATELY

rlogin: connection closed

root@host>

All of the backup Routing Engines (**re1**) in the routing matrix reboot from the boot devices on which the software was just installed, which loads the new Junos OS. Each reboot operation can take between 5 and 10 minutes to complete.

When the backup Routing Engine on the TX Matrix Plus router (**sfc0-re1**) finishes rebooting, the management console attached to the backup Routing Engine on the TX Matrix Plus router displays the login prompt.

2. Log in to the TX Matrix Plus backup Routing Engine (**sfc0-re1**) and issue the **show version** command to verify the version of the software installed:

```
root@mysfc0_alt_re> show version
```

sfc0-re1:

```
-----
Hostname: mysfc0_alt_re
Model: txp
JUNOS Base OS boot [9.6R1.2]
JUNOS Base OS Software Suite [9.6R1.2]
JUNOS Kernel Software Suite [9.6R1.2]
JUNOS Crypto Software Suite [9.6R1.2]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6R1.2]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6R1.2]
JUNOS Online Documentation [9.6R1.2]
JUNOS Voice Services Container package [9.6R1.2]
JUNOS Border Gateway Function package [9.6R1.2]
JUNOS Services AACL Container package [9.6R1.2]
JUNOS Services LL-PDF Container package [9.6R1.2]
JUNOS Services Stateful Firewall [9.6R1.2]
JUNOS AppId Services [9.6R1.2]
JUNOS IDP Services [9.6R1.2]
JUNOS Routing Software Suite [9.6R1.2]
```

lcc0-re1:

```
-----
Hostname: mylcc0_alt_re
Model: t1600
JUNOS Base OS boot [9.6R1.2]
JUNOS Base OS Software Suite [9.6R1.2]
JUNOS Kernel Software Suite [9.6R1.2]
JUNOS Crypto Software Suite [9.6R1.2]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6R1.2]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6R1.2]
JUNOS Online Documentation [9.6R1.2]
JUNOS Voice Services Container package [9.6R1.2]
JUNOS Border Gateway Function package [9.6R1.2]
```

```
JUNOS Services AACL Container package [9.6R1.2]
JUNOS Services LL-PDF Container package [9.6R1.2]
JUNOS Services Stateful Firewall [9.6R1.2]
JUNOS AppId Services [9.6R1.2]
JUNOS IDP Services [9.6R1.2]
JUNOS Routing Software Suite [9.6R1.2]
```

lcc2-re1:

```
-----
Hostname: mylcc2_alt_re
Model: t1600
JUNOS Base OS boot [9.6R1.2]
JUNOS Base OS Software Suite [9.6R1.2]
JUNOS Kernel Software Suite [9.6R1.2]
JUNOS Crypto Software Suite [9.6R1.2]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6R1.2]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6R1.2]
JUNOS Online Documentation [9.6R1.2]
JUNOS Voice Services Container package [9.6R1.2]
JUNOS Border Gateway Function package [9.6R1.2]
JUNOS Services AACL Container package [9.6R1.2]
JUNOS Services LL-PDF Container package [9.6R1.2]
JUNOS Services Stateful Firewall [9.6R1.2]
JUNOS AppId Services [9.6R1.2]
JUNOS IDP Services [9.6R1.2]
JUNOS Routing Software Suite [9.6R1.2]
```

Switching Routing Engine Mastership to the Backup Routing Engines

The new Junos OS is now running on all the backup Routing Engines (**re1**) in the routing matrix. Next, you must install and load the same new software on the master Routing Engines (**re0**) of the routing matrix.

While the Junos OS is being upgraded (installed and then loaded), the Routing Engine on which you are performing the software upgrade does not route traffic. Therefore, to minimize disruption to network operation, you need to temporarily switch Routing Engine mastership over to the backup Routing Engines (**re1**), which are now running the new version of Junos OS.

To switch Routing Engine mastership over to the backup Routing Engines:

1. At a management console attached to the master Routing Engine (**re0**) on the TX Matrix Plus router, log in to the Junos OS CLI using a root administration account:

```
login: root
Password: .....
```

```
--- Junos 9.6R1.0 built 2009-07-13 08:52:23 UTC
```

2. At the shell prompt (%), start the Junos OS CLI:

```
% cli
root@mysfc0>
```

3. To transfer Routing Engine mastership to the backup Routing Engine (**re1**) for all routers in the routing matrix, issue the [request chassis routing-engine master](#) command with the **switch** and **all-chassis** options.



CAUTION: Switching Routing Engine mastership causes traffic to be disrupted.

At the warning message and prompt, type **yes** to allow the command to proceed:

```
root@mysfc0> request chassis routing-engine master switch all-chassis
```

```
warning: Traffic will be interrupted while the PFE is re-initialized
Toggle mastership between routing engines ? [yes,no] (no) yes
```

lcc0-re0:

```
-----
warning: Traffic will be interrupted while the PFE is re-initialized
Resolving mastership...
Complete. The other routing engine becomes the master.
```

lcc2-re0:

```
-----
warning: Traffic will be interrupted while the PFE is re-initialized
Resolving mastership...
Complete. The other routing engine becomes the master.
```

sfc0-re0:

```
-----
warning: Traffic will be interrupted while the PFE is re-initialized
Resolving mastership...
Complete. The other routing engine becomes the master.
```

4. To verify that the *default* backup Routing Engines (installed in slot1) are now operating the *elected* master Routing Engines, issue the **show chassis routing-engine** command at the TX Matrix Plus router:

```
root@mysfc0> show chassis routing-engine
```

sfc0-re0:

Routing Engine status:

Slot 0:

Current state	Backup
Election priority	Master (default)
...output_truncated...	

Routing Engine status:

Slot 1:

Current state	Master
Election priority	Backup (default)
...output_truncated...	

lcc0-re0:

Routing Engine status:

Slot 0:

Current state	Backup
Election priority	Master (default)
...output_truncated...	

0.02 0.07 0.11

Routing Engine status:

Slot 1:

```
Current state           Master
Election priority       Backup (default)
...output_truncated...
```

lcc2-re0:

Routing Engine status:

Slot 0:

```
Current state           Backup
Election priority       Master (default)
...output_truncated...
```

Routing Engine status:

Slot 1:

```
Current state           Master
Election priority       Backup (default)
...output_truncated...
```

The default backup Routing Engines (**re1**), which are now running the new version of Junos OS, are temporarily operating as the elected master Routing Engines. This enables you to avoid disruption to network operation while you install and load the new version of Junos OS on the default master Routing Engines (**re0**) .

Installing Software on the New Default Master Routing Engines

To install the new version of Junos OS on the new default master Routing Engines (**re0**) in the routing matrix, issue the **request system software add** operational command at the default master Routing Engine (**re0** in this procedure) of the TX Matrix Plus router, and specify the new Junos OS image file.



NOTE: The default backup Routing Engines (**re1**), which are now running the new version of Junos OS, are operating as the elected master Routing Engines. This enables you to avoid disruption to network operation while you install and load the new version of Junos OS on the default master Routing Engines (**re0**).

The following example of the **request system software add** command is truncated, but the command output is similar to the output displayed when you installed the new software on the default backup Routing Engines:

```
root@mysfc0> request system software add /var/tmp/jinstall-9.6R1.1-domestic-signed.tgz
```

```
Pushing bundle to lcc0-re0
Pushing bundle to lcc2-re0
...output_truncated...
```

Loading Software on the New Default Master Routing Engines

To start running the newly installed Junos OS on all the default master Routing Engines in the routing matrix, you must reboot those Routing Engines. The Routing Engines reboot from the boot device on which the software was just installed. Each reboot operation can take between 5 and 10 minutes to complete.



NOTE: This is your last chance to abort the upgrade of the Junos OS on the default master Routing Engines. If you want to abort the software upgrade, do not reboot the default master Routing Engines. However, aborting the software upgrade procedure at this point is not recommended, because the default backup routing Engines are already running the new Junos OS.

If you choose to abort the software upgrade, you can remove the new Junos OS package or bundle from the router by issuing the `request system software delete` operational command and specifying the `jinstall` command.

To start running the new Junos OS on the default master Routing Engines:

1. To reboot all the default master Routing Engines (**re0**), issue the `request system reboot` operational command at the TX Matrix Plus router.

At the warning message and prompt, type **yes** to allow the command to proceed:

```
root@mysfc0> request system reboot
Reboot the system ? [yes,no] (no) yes

Rebooting 1cc0-re1
Rebooting 1cc2-re1
Shutdown NOW!
Reboot consistency check bypassed - jinstall 9.6R1.2 will complete installation
upon reboot
[pid 23517]

*** FINAL System shutdown message from root@mysfc0> ***
System going down IMMEDIATELY

root@mysfc0> Jul 23 14:00:52 Waiting (max 60 seconds) for system process `vnlr'
to stop...done
Waiting (max 60 seconds) for system process `bufdaemon' to stop...done
Waiting (max 60 seconds) for system process `syncer' to stop...
Syncing disks, vnodes remaining...1 1 1 0 1 1 1 1 0 0 0 0 0 0 0 0 done

syncing disks... All buffers synced.
Uptime: 26m26s
recorded reboot as normal shutdown
Rebooting...
```

All of the default master Routing Engines (**re0**) in the routing matrix reboot from the boot devices on which the software was just installed, which loads the new Junos OS. Each reboot operation can take between 5 and 10 minutes to complete.

...router_boot_sequence...

When the default master Routing Engine on the TX Matrix Plus router (**sfc0-re0**) finishes rebooting, the management console attached to the default master Routing Engine on the TX Matrix Plus router displays the login prompt.

var/pdb/profile_db initialized

Profile database initialized
Local package initialization:.
kern.securelevel: -1 -> 1
starting local daemons:.
Thu Jul 23 14:11:00 PDT 2009

login:

The new version of Junos OS is loaded and running on the new default master Routing Engines

2. At a management console attached to the new default master Routing Engine (**re1**) on the TX Matrix Plus router, log in to the Junos OS CLI using a root administration account:

Thu Jul 23 14:11:00 PDT 2009

login: **root**
Password:

--- JUNOS 9.6R1.2 built 2009-07-13 08:52:23 UTC

3. Issue the **show version** command to verify the version of the software installed:

root@mysfc0> **show version**
sfc0-re0:

Hostname: mysfc0
Model: txp
JUNOS Base OS boot [9.6R1.2]
JUNOS Base OS Software Suite [9.6R1.2]
JUNOS Kernel Software Suite [9.6R1.2]
JUNOS Crypto Software Suite [9.6R1.2]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6R1.2]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6R1.2]
JUNOS Online Documentation [9.6R1.2]
JUNOS Voice Services Container package [9.6R1.2]
JUNOS Border Gateway Function package [9.6R1.2]
JUNOS Services ACL Container package [9.6R1.2]
JUNOS Services LL-PDF Container package [9.6R1.2]
JUNOS Services Stateful Firewall [9.6R1.2]
JUNOS AppId Services [9.6R1.2]
JUNOS IDP Services [9.6R1.2]
JUNOS Routing Software Suite [9.6R1.2]

lcc0-re0:

Hostname: mylcc0
Model: t1600
JUNOS Base OS boot [9.6R1.2]
JUNOS Base OS Software Suite [9.6R1.2]
JUNOS Kernel Software Suite [9.6R1.2]

```

JUNOS Crypto Software Suite [9.6R1.2]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6R1.2]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6R1.2]
JUNOS Online Documentation [9.6R1.2]
JUNOS Voice Services Container package [9.6R1.2]
JUNOS Border Gateway Function package [9.6R1.2]
JUNOS Services AACL Container package [9.6R1.2]
JUNOS Services LL-PDF Container package [9.6R1.2]
JUNOS Services Stateful Firewall [9.6R1.2]
JUNOS AppId Services [9.6R1.2]
JUNOS IDP Services [9.6R1.2]
JUNOS Routing Software Suite [9.6R1.2]

```

lcc2-re0:

```

-----
Hostname: mylcc2
Model: t1600
JUNOS Base OS boot [9.6R1.2]
JUNOS Base OS Software Suite [9.6R1.2]
JUNOS Kernel Software Suite [9.6R1.2]
JUNOS Crypto Software Suite [9.6R1.2]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6R1.2]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6R1.2]
JUNOS Online Documentation [9.6R1.2]
JUNOS Voice Services Container package [9.6R1.2]
JUNOS Border Gateway Function package [9.6R1.2]
JUNOS Services AACL Container package [9.6R1.2]
JUNOS Services LL-PDF Container package [9.6R1.2]
JUNOS Services Stateful Firewall [9.6R1.2]
JUNOS AppId Services [9.6R1.2]
JUNOS IDP Services [9.6R1.2]
JUNOS Routing Software Suite [9.6R1.2]

```

Optional: Switching Routing Engine Mastership Back to the Default Master Routing Engines

The *default backup* Routing Engines (**re1**) are still operating as the *elected master* Routing Engines while the default master Routing Engines (**re0**) are operating as the elected backup Routing Engines.

To avoid confusion about which Routing Engine in any router is the master and which is the backup, you should switch the Routing Engine mastership assignment back to the original designations (with the **re0** Routing Engines operating as the master Routing Engines and the **re1** Routing Engines operating as the backup Routing Engines).



NOTE: Switching Routing Engine mastership causes traffic to be disrupted.

However, if you need to avoid another disruption to traffic while the Routing Engine mastership is switched on all the routers, you can skip this task.

To switch Routing Engine mastership back to the default master Routing Engine (**re0**) on all routers in the routing matrix:

1. Transfer Routing Engine mastership to the backup Routing Engine (**re1**) for all routers in the routing matrix. To do this, issue the [request chassis routing-engine master](#) command and specify the **switch** and **all-chassis** options.

At the warning message and prompt, type **yes** to allow the command to proceed:

```
root@mysfc0> request chassis routing-engine master switch all-chassis
warning: Traffic will be interrupted while the PFE is re-initialized
Toggle mastership between routing engines ? [yes,no] (no) yes
```

lcc0-re0:

```
-----
warning: Traffic will be interrupted while the PFE is re-initialized
Resolving mastership...
Complete. The local routing engine becomes the master.
```

lcc2-re0:

```
-----
warning: Traffic will be interrupted while the PFE is re-initialized
Resolving mastership...
Complete. The local routing engine becomes the master.
```

sfc0-re0:

```
-----
warning: Traffic will be interrupted while the PFE is re-initialized
Resolving mastership...
Complete. The local routing engine becomes the master.
```

2. Verify that Routing Engine mastership has indeed switched back to the default master Routing Engines (**re0**) in the routing matrix. To display Routing Engine mastership information, issue the **show chassis routing-engine** command at the TX Matrix Plus router:

```
root@mysfc0> show chassis routing-engine
sfc0-re0:
```

Routing Engine status:

Slot 0:

Current state	Master
Election priority	Master (default)
...output_truncated...	

Routing Engine status:

Slot 1:

Current state	Backup
Election priority	Backup (default)
...output_truncated...	

lcc0-re0:

Routing Engine status:

Slot 0:

Current state	Master
Election priority	Master (default)
...output_truncated...	

Routing Engine status:

Slot 1:

Current state	Backup
Election priority	Backup (default)
...output_truncated...	

lcc2-re0:

Routing Engine status:

```

Slot 0:
  Current state           Master
  Election priority       Master (default)
  ...output_truncated...

Routing Engine status:
Slot 1:
  Current state           Backup
  Election priority       Backup (default)
  ...output_truncated...

```

Restoring the Original Configuration

After you have installed the new Junos OS and are satisfied that it is running properly on all Routing Engines, restore the routing matrix to the original configuration (that existed before you deleted it at the beginning of this procedure) and then back up the configuration change.

To restore the previous configuration and then create a configuration backup, perform the following steps at the master Routing Engine of the TX Matrix Plus router:

1. Restore the routing matrix configuration that existed before you deleted it at the start of this procedure:

```

{master}
root@mysfc0-re0> configure
Entering configuration mode

```

```

{master}
root@mysfc0# rollback 1
load complete

```

2. Commit the configuration changes on all Routing Engines, which activates the original configuration, and then return to operational mode:

```

{master}
root@mysfc0-re0# commit synchronize and-quit
sfc0-re0:
configuration check succeeds
lcc0-re1:
commit complete
lcc0-re0:
commit complete
lcc2-re1:
commit complete
lcc2-re0:
commit complete
sfc0-re1:
commit complete
sfc0-re0:
commit complete

{master}
root@mysfc0-re0>

```

Backing Up the Routing Engines

Back up the currently running and active file system partitions on each Routing Engine to standby partitions that are not running. Specifically, the root file system (/) is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on each Routing Engine's flash drive, and the /altroot and /altconfig file systems are on Routing Engine's hard drive.



CAUTION: After you run the **request system snapshot** command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

To back up the Routing Engines of the routing matrix:

1. To back up the master Routing Engines (**re0**) in the routing matrix, issue the **request system snapshot** command.

The following example shows sample output for backing up the master Routing Engines:

```
{master}
root@mysfc0-re0> request system snapshot
sfc0-re0:
-----
Verifying compatibility of destination media partitions...
Running newfs (220MB) on hard-disk media / partition (ad1s1a)...
Running newfs (24MB) on hard-disk media /config partition (ad1s1e)...
Copying '/dev/ad0s1a' to '/dev/ad1s1a' .. (this may take a few minutes)
Copying '/dev/ad0s1e' to '/dev/ad1s1e' .. (this may take a few minutes)
The following filesystems were archived: / /config
```

```
lcc0-re0:
-----
Verifying compatibility of destination media partitions...
Running newfs (220MB) on hard-disk media / partition (ad1s1a)...
Running newfs (24MB) on hard-disk media /config partition (ad1s1e)...
Copying '/dev/ad0s1a' to '/dev/ad1s1a' .. (this may take a few minutes)
Copying '/dev/ad0s1e' to '/dev/ad1s1e' .. (this may take a few minutes)
The following filesystems were archived: / /config
```

```
lcc2-re0:
-----
Verifying compatibility of destination media partitions...
Running newfs (220MB) on hard-disk media / partition (ad1s1a)...
Running newfs (24MB) on hard-disk media /config partition (ad1s1e)...
Copying '/dev/ad0s1a' to '/dev/ad1s1a' .. (this may take a few minutes)
Copying '/dev/ad0s1e' to '/dev/ad1s1e' .. (this may take a few minutes)
The following filesystems were archived: / /config
```

2. To transfer Routing Engine mastership back to the default backup Routing Engines, issue the **request chassis routing-engine** command with the **switch** and **all-chassis** options.



CAUTION: Switching Routing Engine mastership causes traffic to be disrupted.

At the warning message and prompt, type **yes** to allow the operation to proceed

```
{master}
root@mysfc0-re0> request chassis routing-engine master switch all-chassis
Toggle mastership between routing engines ? [yes,no] (no) yes
```

lcc0-re0:

```
-----
Resolving mastership...
Complete. The other routing engine becomes the master.
```

lcc2-re0:

```
-----
Resolving mastership...
Complete. The other routing engine becomes the master.
```

sfc0-re0:

```
-----
Resolving mastership...
Complete. The other routing engine becomes the master.
```

3. To back up the backup Routing Engines (**re1**), issue the **request system snapshot** operational command at the backup Routing Engine on the TX Matrix Plus router.

The following examples shows sample command output for backing up the backup Routing Engines:

```
{master}
root@mysfc0-re1> request system snapshot
sfc0-re1:
```

```
-----
Verifying compatibility of destination media partitions...
Running newfs (220MB) on hard-disk media / partition (ad1s1a)...
Running newfs (24MB) on hard-disk media /config partition (ad1s1e)...
Copying '/dev/ad0s1a' to '/dev/ad1s1a' .. (this may take a few minutes)
Copying '/dev/ad0s1e' to '/dev/ad1s1e' .. (this may take a few minutes)
The following filesystems were archived: / /config
```

lcc0-re1:

```
-----
Verifying compatibility of destination media partitions...
Running newfs (223MB) on hard-disk media / partition (ad2s1a)...
Running newfs (24MB) on hard-disk media /config partition (ad2s1e)...
Copying '/dev/ad0s1a' to '/dev/ad2s1a' .. (this may take a few minutes)
Copying '/dev/ad0s1e' to '/dev/ad2s1e' .. (this may take a few minutes)
The following filesystems were archived: / /config
```

lcc2-re1:

```
-----
Verifying compatibility of destination media partitions...
Running newfs (220MB) on hard-disk media / partition (ad1s1a)...
Running newfs (24MB) on hard-disk media /config partition (ad1s1e)...
Copying '/dev/ad0s1a' to '/dev/ad1s1a' .. (this may take a few minutes)
Copying '/dev/ad0s1e' to '/dev/ad1s1e' .. (this may take a few minutes)
The following filesystems were archived: / /config
```

**Related
Documentation**

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Troubleshooting: Upgrade Failure Due to Insufficient Disk Space on page 109](#)
- [Troubleshooting: Upgrade Failure Due to Insufficient DRAM on page 114](#)
- [Troubleshooting: Upgrade Failure Due to Mixed Software on page 115](#)

Upgrading the Junos OS — Troubleshooting Tips

- [Troubleshooting: Software Upgrade Failure Due to Insufficient Free Disk Space on a Routing Matrix with a TX Matrix Plus Router on page 109](#)
- [Troubleshooting: Software Upgrade Failure Due to Insufficient Available DRAM on a Routing Matrix with a TX Matrix Plus Router on page 114](#)
- [Troubleshooting: Software Upgrade Failure Due to Mixed Software Versions on a Routing Matrix with a TX Matrix Plus Router on page 115](#)

Troubleshooting: Software Upgrade Failure Due to Insufficient Free Disk Space on a Routing Matrix with a TX Matrix Plus Router

Problem In a routing matrix with a TX Matrix Plus router, a successful upgrade of the Junos OS requires sufficient free disk space on all Routing Engines of the TX Matrix Plus router and connected T1600 routers.

If the amount of free disk space on a Routing Engine is insufficient to install the Junos OS, you might receive a warning that the `/var` filesystem is low on free disk space, similar to the following message:

```
WARNING: The /var filesystem is low on free disk space.  
WARNING: This package requires 1075136k free, but there  
WARNING: is only 666502k available.
```

Cause The amount of free disk space necessary to upgrade a Routing Engine with a new version of the Junos OS can vary from one release to another. Check the *Junos OS Release Notes* for the software version you are installing.

To determine the amount of free disk space on each Routing Engine in the routing matrix, issue the `show system storage` command on the master Routing Engine and also on the backup Routing Engine on the TX Matrix Plus router. The command output is organized by chassis: `sfc0`, `lcc0`, `lcc1`, `lcc2`, and `lcc3`.



NOTE: When you issue the `show system storage` command on a TX Matrix Plus master Routing Engine, the command is broadcast to the master Routing Engines (only) on all T1600 routers in the routing matrix. Similarly, when you issue the `show system storage` command on a TX Matrix Plus backup Routing Engine, the command is broadcast to the backup Routing Engines (only) on all T1600 routers in the routing matrix.

The following example shows sample output for the `show system storage` command when it is issued on the master Routing Engine in slot 0 on the TX Matrix Plus router:

```
root@mysfc0> show system storage
sfc0-re0:
```

Filesystem	Size	Used	Avail	Capacity	Mounted on
/dev/ad0s1a	3.4G	179M	3.2G	5%	/
devfs	1.0K	1.0K	0B	100%	/dev
devfs	1.0K	1.0K	0B	100%	/dev/
/dev/md0	33M	33M	0B	100%	/packages/mnt/jbase
/dev/md1	217M	217M	0B	100%	
/packages/mnt/jkernel-9.6-20090624.0					
/dev/md2	66M	66M	0B	100%	
/packages/mnt/jpfe-T-9.6-20090624.0					
/dev/md3	4.1M	4.1M	0B	100%	
/packages/mnt/jdocs-9.6-20090624.0					
/dev/md4	57M	57M	0B	100%	
/packages/mnt/jroute-9.6-20090624.0					
/dev/md5	15M	15M	0B	100%	
/packages/mnt/jcrypto-9.6-20090624.0					
/dev/md6	34M	34M	0B	100%	
/packages/mnt/jpfe-common-9.6-20090624.0					
/dev/md7	2.0G	8.0K	1.8G	0%	/tmp
/dev/md8	2.0G	878K	1.8G	0%	/mfs
/dev/ad0s1e	383M	90K	379M	0%	/config
procfs	4.0K	4.0K	0B	100%	/proc
/dev/ad1s1f	24G	8.7G	13G	40%	/var

```
lcc0-re0:
```

Filesystem	Size	Used	Avail	Capacity	Mounted on
/dev/ad0s1a	3.4G	179M	2.9G	6%	/
devfs	1.0K	1.0K	0B	100%	/dev
devfs	1.0K	1.0K	0B	100%	/dev/
/dev/md0	33M	33M	0B	100%	/packages/mnt/jbase
/dev/md1	217M	217M	0B	100%	
/packages/mnt/jkernel-9.6-20090629.0					
/dev/md2	66M	66M	0B	100%	
/packages/mnt/jpfe-T-9.6-20090629.0					
/dev/md3	4.1M	4.1M	0B	100%	
/packages/mnt/jdocs-9.6-20090629.0					
/dev/md4	57M	57M	0B	100%	
/packages/mnt/jroute-9.6-20090629.0					
/dev/md5	15M	15M	0B	100%	
/packages/mnt/jcrypto-9.6-20090629.0					
/dev/md6	34M	34M	0B	100%	
/packages/mnt/jpfe-common-9.6-20090629.0					
/dev/md7	2.0G	8.0K	1.8G	0%	/tmp

/dev/md8	2.0G	344K	1.8G	0%	/mfs
/dev/ad0s1e	383M	14K	352M	0%	/config
procfs	4.0K	4.0K	0B	100%	/proc
/dev/ad1s1f	24G	3.7G	18G	17%	/var

lcc2-re0:

Filesystem	Size	Used	Avail	Capacity	Mounted on
/dev/ad0s1a	3.4G	178M	2.9G	6%	/
devfs	1.0K	1.0K	0B	100%	/dev
devfs	1.0K	1.0K	0B	100%	/dev/
/dev/md0	32M	32M	0B	100%	/packages/mnt/jbase
/dev/md1	217M	217M	0B	100%	
/packages/mnt/jkernel-9.6I20090626					
/dev/md2	66M	66M	0B	100%	
/packages/mnt/jpfe-T-9.6I20090626					
/dev/md3	4.1M	4.1M	0B	100%	
/packages/mnt/jdocs-9.6I20090626					
/dev/md4	57M	57M	0B	100%	
/packages/mnt/jroute-9.6I20090626					
/dev/md5	15M	15M	0B	100%	
/packages/mnt/jcrypto-9.6I20090626					
/dev/md6	34M	34M	0B	100%	
/packages/mnt/jpfe-common-9.6I20090626					
/dev/md7	2.0G	10.0K	1.8G	0%	/tmp
/dev/md8	2.0G	346K	1.8G	0%	/mfs
/dev/ad0s1e	383M	14K	352M	0%	/config
procfs	4.0K	4.0K	0B	100%	/proc
/dev/ad1s1f	24G	12G	9.4G	57%	/var

Solution To resolve the issue of insufficient free disk space on a Routing Engine to perform a Junos OS upgrade on that router, perform the following steps:

1. To free up space in the file system, you can log in to a particular Routing Engine and then issue the **request system storage cleanup** command. This command deletes rotating log files in **/var/log** that are not current, temporary files in **/var/tmp** that have not been modified within the last two days, and all crash files in **/var/crash**. The command output first lists the files proposed for deletion and then prompts you to proceed to delete these storage cleanup candidates.



NOTE: Although the command prompts you before deleting files, you can issue the command with the **dry-run** option, which causes the command to only list the cleanup candidates without offering to remove them.

The following example shows sample output for the **request system storage cleanup** command with the **dry-run** option included:

```
root@mysfc0> request system storage cleanup dry-run
Currently rotating log files, please wait.
This operation can take up to a minute.
```

List of files to delete:

Size	Date	Name
2B	Jun 16 12:46	/var/crash/bounds
80.4M	Jun 15 14:56	/var/crash/cores/kernel.0.090615.1455
80.4M	Jun 15 15:46	/var/crash/cores/kernel.1.090615.1546
80.4M	Jun 15 15:58	/var/crash/cores/kernel.2.090615.1558
80.4M	Jun 16 12:47	/var/crash/cores/kernel.3.090616.1246
30.6M	Jun 15 15:05	/var/crash/cores/vmcore.0.090615.1455.tgz
33.5M	Jun 15 16:33	/var/crash/cores/vmcore.1.090615.1546.tgz
35.9M	Jun 15 17:52	/var/crash/cores/vmcore.2.090615.1558.tgz
48.0M	Jun 16 13:47	/var/crash/cores/vmcore.3.090616.1246.tgz
504B	Jun 15 14:55	/var/crash/info.0
504B	Jun 15 15:46	/var/crash/info.1
505B	Jun 15 15:58	/var/crash/info.2
505B	Jun 16 12:46	/var/crash/info.3
258.1K	Jun 23 16:26	/var/log/chassisd.1.gz
259.2K	Jun 17 08:41	/var/log/chassisd.2.gz
39.6K	Jun 15 13:03	/var/log/dcd.0.gz
716B	Jun 15 13:43	/var/log/install.0.gz
1669B	Jun 13 18:05	/var/log/install.1.gz
...output_truncated...		
4B	Jun 27 10:37	/var/tmp/idp_license_info
263.6M	Jun 11 16:25	/var/tmp/jbundle-9.6-20090611.1-domestic.tgz
263.8M	Jun 24 13:44	/var/tmp/jbundle-9.6-20090624.0-domestic.tgz
268.7M	Jun 11 15:14	/var/tmp/jinstall-9.6-20090611.1-domestic-signed.tgz
268.8M	Jun 23 23:04	/var/tmp/jinstall-9.6-20090624.0-domestic-signed.tgz
22.9K	Jun 22 10:33	/var/tmp/memprobe
1024.0K	Jun 16 16:16	/var/tmp/p737a_BIOS_0_A_D.ROM
1024.0K	Jun 16 16:17	/var/tmp/p737f_BIOS_0_0_S.ROM
Delete these files ? [yes,no] (no)		

2. You can use the following file management operational commands to display information about the directories and files on a Routing Engine, but you must include the chassis and Routing Engine specifiers in the pathname:
 - To display detailed information about a file or directory contents, issue the **file list** command with the **detail** option.
 - To display the contents of a file, issue the **file show** command.
 - To compare the contents of two files, issue the **file compare** command.
3. In addition to or instead of using the **request system storage cleanup** command to delete unnecessary files, you can use the following file management commands to delete or move files on a Routing Engine, but you must include the chassis and Routing Engine specifiers in the pathname:
 - To delete files, issue the **file delete** command.
 - To copy files, issue the **file copy** command.
 - To rename files, issue the **file rename** command.

If you elect to use the **request system storage cleanup** command to automatically delete files, issue the command without the **dry-run** option, and then type **yes** when the CLI prompts to proceed with deleting the candidate files. The following truncated example shows sample output for the **request system storage cleanup** command:

```
root@mysfc0> request system storage cleanup dry-run
Currently rotating log files, please wait.
This operation can take up to a minute.
```

List of files to delete:

	Size	Date	Name
	2B	Jun 16 12:46	/var/crash/bounds
	80.4M	Jun 15 14:56	/var/crash/cores/kernel.0.090615.1455
	80.4M	Jun 15 15:46	/var/crash/cores/kernel.1.090615.1546

...output_truncated...

```
1024.0K Jun 16 16:16 /var/tmp/p737a_BIOS_0_A.D.ROM
1024.0K Jun 16 16:17 /var/tmp/p737f_BIOS_0_S.ROM
Delete these files ? [yes,no] (no) yes
```

4. After sufficient free disk space is available on the Routing Engines on which you are upgrading the Junos OS, attempt the upgrade procedure again.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)
- [Troubleshooting: Upgrade Failure Due to Insufficient DRAM on page 114](#)

- [Troubleshooting: Upgrade Failure Due to Mixed Software on page 115](#)

Troubleshooting: Software Upgrade Failure Due to Insufficient Available DRAM on a Routing Matrix with a TX Matrix Plus Router

Problem In a routing matrix with a TX Matrix Plus router, a successful upgrade of the Junos OS requires sufficient available DRAM on all Routing Engines of the TX Matrix Plus router and connected T1600 routers.

Cause Failure of a Junos OS upgrade due to insufficient available DRAM on a Routing Engine occurs infrequently. When it does occur, there are various causes and therefore various solutions to the issue.

If you suspect that insufficient available DRAM is preventing a successful upgrade of the Junos OS, contact your technical support representative.

Solution If you suspect that insufficient available DRAM is preventing a successful upgrade of the Junos OS, contact your technical support representative.



NOTE: It can be useful to issue the `request support information` command before contacting technical support. The command runs several Junos operational commands to obtain detailed information about the system hardware and software. Because the amount of command output is quite large, we recommend that you save the output to a file.

In some cases of insufficient available DRAM, a different or upgraded Routing Engine with a larger amount of DRAM is required. However, most DRAM issues that prevent a successful upgrade can be resolved by removing any superfluous files from the `/root` and `/tmp` directories.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)
- [Troubleshooting: Upgrade Failure Due to Insufficient Disk Space on page 109](#)
- [Troubleshooting: Upgrade Failure Due to Mixed Software on page 115](#)

Troubleshooting: Software Upgrade Failure Due to Mixed Software Versions on a Routing Matrix with a TX Matrix Plus Router

Problem In a routing matrix with a TX Matrix Plus router, a successful upgrade of the Junos OS requires that all Routing Engines of the TX Matrix Plus router and connected T1600 routers are running the same version of software.

If the software versions on the Routing Engines are not aligned, the software upgrade process will return an error.

Cause Different versions of the Junos OS can have incompatible message formats, particularly if graceful routing engine switchover (GRES) is enabled. Because the steps in the upgrade process include changing Routing Engine mastership, running the same version of software is recommended.

To display the hostname and version information about the software running on all routers in a routing matrix, issue the **show version** command with the **invoke-on all-routing-engines** option.

In the following example, a routing matrix consists of a TX Matrix Plus router (**sfc0**) and two connected T1600 routers (**lcc0** and **lcc2**), with all three routers containing redundant host subsystems. The sample output from the **show version** command shows that a different version of the Junos OS is installed on the TX Matrix Plus router's backup Routing Engine (**sfc0-re1**), while all the other Routing Engines have Junos OS Release **9.6R1.0** installed.

In the following sample output, the backup Routing Engine on the TX Matrix Plus router is running a version of Junos OS that is different from the software on the other Routing Engines:

```
root@mysfc0> show version invoke-on all-routing-engines
sfc0-re0:
```

```
-----
Hostname: mysfc0
Model: txp
JUNOS Base OS boot [9.6-20090713.0]
JUNOS Base OS Software Suite [9.6-20090713.0]
JUNOS Kernel Software Suite [9.6-20090713.0]
JUNOS Crypto Software Suite [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.0]
JUNOS Online Documentation [9.6-20090713.0]
JUNOS Voice Services Container package [9.6-20090713.0]
JUNOS Border Gateway Function package [9.6-20090713.0]
JUNOS Services AACL Container package [9.6-20090713.0]
JUNOS Services LL-PDF Container package [9.6-20090713.0]
JUNOS Services Stateful Firewall [9.6-20090713.0]
JUNOS AppId Services [9.6-20090713.0]
JUNOS IDP Services [9.6-20090713.0]
JUNOS Routing Software Suite [9.6-20090713.0]
```

```
lcc0-re0:
```

```
-----
Hostname: mylcc0
Model: t1600
```

```
JUNOS Base OS boot [9.6-20090713.0]
JUNOS Base OS Software Suite [9.6-20090713.0]
JUNOS Kernel Software Suite [9.6-20090713.0]
JUNOS Crypto Software Suite [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.0]
JUNOS Online Documentation [9.6-20090713.0]
JUNOS Voice Services Container package [9.6-20090713.0]
JUNOS Border Gateway Function package [9.6-20090713.0]
JUNOS Services AACL Container package [9.6-20090713.0]
JUNOS Services LL-PDF Container package [9.6-20090713.0]
JUNOS Services Stateful Firewall [9.6-20090713.0]
JUNOS AppId Services [9.6-20090713.0]
JUNOS IDP Services [9.6-20090713.0]
JUNOS Routing Software Suite [9.6-20090713.0]
```

lcc2-re0:

```
-----
Hostname: mylcc2
Model: t1600
JUNOS Base OS boot [9.6-20090713.0]
JUNOS Base OS Software Suite [9.6-20090713.0]
JUNOS Kernel Software Suite [9.6-20090713.0]
JUNOS Crypto Software Suite [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.0]
JUNOS Online Documentation [9.6-20090713.0]
JUNOS Voice Services Container package [9.6-20090713.0]
JUNOS Border Gateway Function package [9.6-20090713.0]
JUNOS Services AACL Container package [9.6-20090713.0]
JUNOS Services LL-PDF Container package [9.6-20090713.0]
JUNOS Services Stateful Firewall [9.6-20090713.0]
JUNOS AppId Services [9.6-20090713.0]
JUNOS IDP Services [9.6-20090713.0]
JUNOS Routing Software Suite [9.6-20090713.0]
```

sfc0-re1:

```
-----
Hostname: mysfc0_alt_re
Model: txp
JUNOS Base OS boot [1.1-1111111.1]
JUNOS Base OS Software Suite [1.1-1111111.1]
JUNOS Kernel Software Suite [1.1-1111111.1]
JUNOS Crypto Software Suite [1.1-1111111.1]
JUNOS Packet Forwarding Engine Support (M/T Common) [1.1-1111111.1]
JUNOS Packet Forwarding Engine Support (T-Series) [1.1-1111111.1]
JUNOS Online Documentation [1.1-1111111.1]
JUNOS Voice Services Container package [1.1-1111111.1]
JUNOS Border Gateway Function package [1.1-1111111.1]
JUNOS Services AACL Container package [1.1-1111111.1]
JUNOS Services LL-PDF Container package [1.1-1111111.1]
JUNOS Services Stateful Firewall [1.1-1111111.1]
JUNOS AppId Services [1.1-1111111.1]
JUNOS IDP Services [1.1-1111111.1]
JUNOS Routing Software Suite [1.1-1111111.1]
```

lcc0-re1:

```
-----
Hostname: mylcc0_alt_re
Model: t1600
JUNOS Base OS boot [9.6-20090713.0]
```

```
JUNOS Base OS Software Suite [9.6-20090713.0]
JUNOS Kernel Software Suite [9.6-20090713.0]
JUNOS Crypto Software Suite [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.0]
JUNOS Online Documentation [9.6-20090713.0]
JUNOS Voice Services Container package [9.6-20090713.0]
JUNOS Border Gateway Function package [9.6-20090713.0]
JUNOS Services ACL Container package [9.6-20090713.0]
JUNOS Services LL-PDF Container package [9.6-20090713.0]
JUNOS Services Stateful Firewall [9.6-20090713.0]
JUNOS AppId Services [9.6-20090713.0]
JUNOS IDP Services [9.6-20090713.0]
JUNOS Routing Software Suite [9.6-20090713.0]
```

lcc2-rel:

```
-----
Hostname: mylcc2_alt_re
Model: t1600
JUNOS Base OS boot [9.6-20090713.0]
JUNOS Base OS Software Suite [9.6-20090713.0]
JUNOS Kernel Software Suite [9.6-20090713.0]
JUNOS Crypto Software Suite [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090713.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090713.0]
JUNOS Online Documentation [9.6-20090713.0]
JUNOS Voice Services Container package [9.6-20090713.0]
JUNOS Border Gateway Function package [9.6-20090713.0]
JUNOS Services ACL Container package [9.6-20090713.0]
JUNOS Services LL-PDF Container package [9.6-20090713.0]
JUNOS Services Stateful Firewall [9.6-20090713.0]
JUNOS AppId Services [9.6-20090713.0]
JUNOS IDP Services [9.6-20090713.0]
JUNOS Routing Software Suite [9.6-20090713.0]
```

Solution To synchronize the Junos OS versions running on the Routing Engines in a routing matrix, perform the following steps on each Routing Engine that has an incorrect version of Junos OS installed:

1. Log in to the Routing Engine that has the incorrect version of Junos OS installed. To log in to a Routing Engine, issue the [request routing-engine login](#) command.

In the example scenario, the backup Routing Engine on the TX Matrix Plus router is running an incorrect version of software. To log in to that Routing Engine, you would enter the following command:

```
root@mysfc0> request routing-engine login other-routing-engine

--- JUNOS 1.1-1111111.1 built 1111-11-11 11:11:11 UTC
% cli
root@mysfc0_alt_re>
```



NOTE: Throughout the software upgrade procedure instructions, we assume that the master Routing Engines are in slot 0 and the backup Routing Engines are in slot 1, which is the recommended installation. Therefore, we could issue the [request routing-engine login](#) command with the [re1](#) option (instead of the [other-routing-engine](#) option) and obtain the same results.

2. If the appropriate software package or bundle is not already present on the Routing Engine that has the incorrect version of Junos OS installed, copy the software onto the Routing Engine.

For more information, see the *Junos OS Release Notes* and the *Installation and Upgrade Guide*.

3. To install a software package or bundle on the Routing Engine that has the incorrect version of Junos OS installed, use the [request system software add](#) command.
4. When all the Routing Engines in the routing matrix are running the same version of the Junos OS, try the software upgrade procedure again.

Related Documentation

- [Routing Matrix with a TX Matrix Plus Router Solutions Page](#)
- [Overview of a Routing Matrix with a TX Matrix Plus Router on page 3](#)
- [Roadmap for Configuring the Routing Matrix on page 17](#)
- [Example Configuration for the Routing Matrix on page 35](#)
- [Upgrading the Junos OS on the Routing Matrix on page 85](#)
- [Troubleshooting: Upgrade Failure Due to Insufficient Disk Space on page 109](#)
- [Troubleshooting: Upgrade Failure Due to Insufficient DRAM on page 114](#)

PART 5

Operational Commands

- [Miscellaneous Chassis Commands on page 121](#)
- [Miscellaneous System Software Commands on page 621](#)

CHAPTER 12

Miscellaneous Chassis Commands

clear chassis display message

Syntax	clear chassis display message
Syntax (TX Matrix Router)	clear chassis display message <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	clear chassis display message <lcc <i>number</i> sfc <i>number</i> >
Syntax (QFabric Systems)	clear chassis display message <node-device <i>name</i> interconnect-device <i>name</i> >
Release Information	Command introduced in Junos OS Release 7.5. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option for the TX Matrix Plus routers introduced in Junos OS Release 9.6. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	(M40e, M160, M320, T Series routers, EX Series, and QFabric systems only) Clear or stop a text message on the craft interface display, which is on the front of the router or switch or on the LCD panel display on the router or switch. The craft interface alternates the display of text messages with standard craft interface messages, switching between messages every 2 seconds. By default, on both the router and the switch, the text message is displayed for 5 minutes. The craft interface display has four 20-character lines. The LCD panel display has two 16-character lines, and text messages appear only on the second line.
Options	none —Clear or stop a text message on the craft interface display. interconnect-device <i>name</i> —(QFabric systems only) (Optional) On a QFabric system, clear or stop a text message on the LCD panel display on the specified Interconnect device. lcc <i>number</i> —(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, clear or stop a text message on the craft interface on a specific T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, clear or stop a text message on the craft interface on a specific T1600 router that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3 . node-device <i>name</i> —(QFabric systems only) (Optional) On a QFabric system, clear or stop a text message on the LCD panel display on the specified Node device in a Node group. scc —(TX Matrix routers only) (Optional) Clear or stop a text message on the craft interface on the TX Matrix router (or switch-card chassis). sfc <i>number</i> —(TX Matrix Plus routers only) (Optional) Clear or stop a text message on the craft interface on the TX Matrix Plus router (or switch-fabric chassis). Replace <i>number</i> with 0 .

Required Privilege Level clear

Related Documentation

- [Configuring the LCD Panel on EX Series Switches \(CLI Procedure\)](#)
- [set chassis display message on page 146](#)
- [show chassis craft-interface on page 161](#)

List of Sample Output [clear chassis display message on page 123](#)

Output Fields See [show chassis craft-interface](#) for an explanation of output fields.

Sample Output



clear chassis display message The following example displays and then clears the text message on the craft interface display:

```
user@host> show chassis craft-interface
Red alarm:      LED off, relay off
Yellow alarm:   LED off, relay off
Host OK LED:    On
Host fail LED:  Off
FPCs           0  1  2  3  4  5  6  7
-----
Green  ..  *..  *  *.
Red    .....
LCD screen:
+-----+
|NOC contact Dusty |
|(888) 526-1234    |
+-----+

user@host> clear chassis display message

user@host> show chassis craft-interface
Red alarm:      LED off, relay off
Yellow alarm:   LED off, relay off
Host OK LED:    On
Host fail LED:  Off
FPCs           0  1  2  3  4  5  6  7
-----
Green  ..  *..  *  *.
Red    .....
LCD screen:
+-----+
|host              |
|Up: 0+17:05:47    |
|                  |
|Temperature OK    |
+-----+
```

request chassis cb

Syntax	<code>request chassis cb (offline online) slot <i>slot-number</i></code>
Syntax (TX Matrix Router)	<code>request chassis cb (offline online) <slot <i>slot-number</i> lcc <i>number</i> slot <i>cb-slot-number</i> scc <i>number</i> slot <i>cb-slot-number</i>></code>
Syntax (TX Matrix Plus Router)	<code>request chassis cb (offline online) <slot <i>slot-number</i> lcc <i>number</i> slot <i>cb-slot-number</i> sfc <i>number</i> slot <i>cb-slot-number</i>></code>
Syntax (QFabric System)	<code>request chassis cb (offline online) interconnect-device <i>name</i> slot <i>slot-number</i> <interconnect-device <i>name</i> slot <i>slot-number</i> (offline online)></code>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS 9.4 for EX Series switches.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS 11.3 for QFX Series.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	(M120, M320, and MX Series routers and T Series routers, QFabric systems, and EX8200 switches only) Control the operation of the Control Board (CB). For information about the meaning of “CBs” on the switches, see EX Series Switches Hardware and CLI Terminology Mapping.
Options	<p>offline—Take the Control Board offline.</p> <div style="margin-top: 20px;">  <p>NOTE: On a QFabric system, to bring the backup Control Board on a QFX3008-I Interconnect device offline, issue the <code>request chassis cb slot <i>backup-slot-number</i> offline</code> command.</p> </div> <div style="margin-top: 20px;">  <p>NOTE: Only backup Control Board can be turned offline or online. To turn a Control Board offline or to bring it back online, the Routing Engine should be turned offline first.</p> </div> <p>online—Bring the Control Board online.</p> <p>interconnect-device <i>name</i>—(QFabric systems only) (Optional) Bring the QFX3008-I Interconnect device Control Board either offline or online:</p> <p>slot <i>slot-number</i>—Control Board slot number:</p>

- (TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, if you specify the number of the T640 router by using the **lcc number** option (the recommended method), replace **cb-slot-number** with a value from 0 through 1.

Likewise, on a TX Matrix Plus router, if you specify the number of the T1600 router by using the **lcc number** option (the recommended method), replace **cb-slot-number** with a value from 0 through 1.

- M320 router—Replace **slot-number** with a value from 0 through 1.
- MX480/MX240 routers—Replace **slot-number** with a value from 0 through 1.
- MX960 router—Replace **slot-number** with a value from 0 through 2.
- MX2020 and MX2010 routers—Replace **slot-number** with 0 or 1.
- EX8208 switch—Replace **slot-number** with a value from 0 through 2.
- EX8216 switch—Replace **slot-number** with a value from 0 through 1.
- QFabric System—Replace **slot-number** with a value from 0 through 1.

sfc number—(TX Matrix Plus routers only) (Optional) Change the CB status for the TX Matrix Plus router (or switch-fabric chassis). Replace **number** with 0.

Required Privilege Level maintenance

Related Documentation

- [show chassis environment cb on page 221](#)
- Switching Control Board Redundancy
- Routing Engine and Switching Control Board Redundancy Configuration Statements

List of Sample Output

[request chassis cb on page 125](#)
[request chassis cb interconnect-device \(QFabric System\) on page 125](#)
[request chassis cb \(MX2020 Router\) on page 125](#)
[request chassis cb \(MX2010 Router\) on page 125](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request chassis cb user@host> request chassis cb offline slot 1
Backup CB 1 cannot be set offline, backup RE is online

request chassis cb user@switch> request chassis cb interconnect-device interconnect1 offline slot 1
interconnect-device Backup CB 1 cannot be set offline, backup RE is online
(QFabric System)

request chassis cb user@host> request chassis cb offline slot 1
(MX2020 Router) Backup CB 1 cannot be set offline, backup RE is online

request chassis cb user@host> request chassis cb offline slot 1
(MX2010 Router)
```

Backup CB 1 cannot be set offline, backup RE is online

request chassis cip

Syntax	<code>request chassis cip (offline online) slot <i>slot-number</i></code>
Release Information	Command introduced for the TX Matrix Plus router in Junos OS Release 9.6.
Description	(TX Matrix Plus routers only) Control the operation of the Connector Interface Panel (CIP).
Options	<p>offline—Take the CIP offline.</p> <p>online—Bring the CIP online.</p> <p>slot <i>slot-number</i>—CIP slot number. Replace <i>slot-number</i> with a value ranging from 0 through 1.</p>
Required Privilege Level	maintenance
Related Documentation	<ul style="list-style-type: none"> • show chassis cip on page 159 • Installing a T1600 CIP • Installing a T640 CIP • Installing a TX-CIP • Installing an M320 CIP • Installing the M40e CIP • Installing the T1600 CIP • Installing the T320 CIP • CIP Overview
List of Sample Output	request chassis cip offline slot (TX Matrix Plus Router) on page 127 request chassis cip offline slot (TX Matrix Plus Router) on page 127
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```

request chassis cip offline slot (TX Matrix Plus Router) user@host > request chassis cip offline slot 0
CIP 0 offline done

request chassis cip offline slot (TX Matrix Plus Router) user@host > request chassis cip online slot 0
CIP 0 online done

```

request chassis fpc

Syntax	request chassis fpc (offline online restart) slot <i>slot-number</i>
Syntax (TX Matrix and TX Matrix Plus Routers)	request chassis fpc (offline online restart) slot <i>slot-number</i> <lcc <i>number</i> >
Syntax (MX Series Routers)	request chassis fpc (offline online restart) slot <i>slot-number</i> <all-members> <local> <member <i>member-id</i> >
Syntax (MX2020 3D Universal Edge Routers)	request chassis fpc (offline online restart) slot <i>slot-number</i>
Syntax (MX2010 3D Universal Edge Routers)	request chassis fpc (offline online restart) slot <i>slot-number</i>
Syntax (QFabric System)	request chassis fpc <interconnect-device <i>name</i> slot <i>slot-number</i> (offline online)> <(offline online) interconnect-device <i>name</i> slot <i>slot-number</i> > <slot <i>slot-number</i> interconnect-device <i>name</i> (offline online)>
Syntax (PTX Series Packet Transport Switches)	request chassis fpc (offline online restart) slot <i>slot-number</i>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Command introduced in Junos OS 11.3 for QFX Series.</p> <p>Command introduced in Junos OS 12.1 for PTX Series Packet Transport Switches.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	(M20, M40, M40e, M120, M160, M320, MX Series, and T Series routers, QFabric systems, EX Series switches, and PTX Series Packet Transport Switches only) Control the operation of the Flexible PIC Concentrator (FPC). For information about the meaning of “FPCs” on the switches, see EX Series Switches Hardware and CLI Terminology Mapping.
Options	<p>offline—Take the FPC offline.</p> <p>online—Bring the FPC online.</p> <p>interconnect-device <i>name</i>—(QFabric systems only) Bring the Flexible Port Concentrator (FPC) on the QFX3008-I Interconnect device either offline or online:</p>

- (QFabric System) On a QFabric system, specify the name of the QFX3008-I Interconnect device containing the Flexible Port Concentrator (FPC) you want to bring either offline or online.

restart—Restart the FPC.

slot slot-number—FPC slot number:

- M20 router—0 through 3.
- M120 router—0 through 5.
- MX240 router—0 through 2. On the MX240 router, slot-number corresponds to the Dense Port Concentrator (DPC) slot number. If an MPC is installed, slot-number corresponds to the MPC slot number.
- MX480 router—0 through 5. On the MX480 router, slot-number corresponds to the Dense Port Concentrator (DPC) slot number. If an MPC is installed, slot-number corresponds to the MPC slot number.
- MX960 router—0 through 11. On the MX960 router, slot-number corresponds to the Dense Port Concentrator (DPC) slot number. If an MPC is installed, slot-number corresponds to the MPC slot number.
- MX2020 router—0 through 19.
- MX2010 router—0 through 9.
- TX Matrix and TX Matrix Plus routers only—On the TX Matrix router, if you specify the number of the T640 router by using the **lcc number** option (the recommended method), replace **slot-number** with a value from 0 through 7. Otherwise, replace **slot-number** with a value from 0 through 31.

Likewise, on a TX Matrix Plus router, if you specify the number of the T1600 router by using the **lcc number** option (the recommended method), replace **slot-number** with a value from 0 through 7. Otherwise, replace **slot-number** with a value from 0 through 31. For example, the following commands have the same result:

```
user@host> request chassis fpc lcc 1 slot 1 offline
user@host> request chassis fpc slot 9 offline
```

- Other routers—0 through 7.
- QFabric System—Replace **slot-number** with a value from 0 through 2.
- EX Series switches:
 - EX4200 switches in a Virtual Chassis configuration—Replace **slot-number** with a value from 0 through 9.
 - EX6210 switches—Replace **slot-number** with a value from 0 through 9.



NOTE: These commands are not supported for slots 4 and 5 when a Switch Fabric and Routing Engine (SRE) module is installed in those slots. These commands are supported for slots 4 and 5 only if a line card is installed in them.

- EX8208 switches—Replace **slot-number** with a value from 0 through 7.
- EX8216 switches—Replace **slot-number** with a value from 0 through 15.
- PTX5000 Packet Transport Switch—Replace **slot-number** with a value from 0 through 7.

all-members—(MX Series routers only) (Optional) Change FPC status of all members of the Virtual Chassis configuration.

local—(MX Series routers only) (Optional) Change FPC status of the local Virtual Chassis member.

member member-id—(MX Series routers only) (Optional) Change FPC status of the specified member of the Virtual Chassis configuration. Replace **member-id** with a value of 0 or 1.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, control the FPC in a specified T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, control the FPC in a specified T1600 router that is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

Required Privilege Level maintenance

Related Documentation

- [show chassis fpc on page 438](#)
- show chassis fpc-feb-connectivity
- [show chassis fabric fpcs on page 352](#)
- Configuring the Junos OS to Make a Flexible PIC Concentrator Stay Offline
- Configuring the Junos OS to Resynchronize FPC Sequence Numbers with Active FPCs when an FPC Comes Online
- MX960 Flexible PIC Concentrator Description

List of Sample Output [request chassis fpc on page 130](#)
[request chassis fpc \(MX Series Routers with Media Services Blade \[MSB\]\) on page 130](#)
[request chassis fpc \(MX2020 Router\) on page 131](#)
[request chassis fpc \(MX2010 Router\) on page 131](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request chassis fpc user@host> request chassis fpc online slot 0
FPC 0 already online

request chassis fpc (MX Series Routers) user@host> request chassis fpc slot 0
Possible completions:
offline Take FPC offline

with Media Services Blade [MSB])	<code>online</code> <code>restart</code>	Bring FPC online Restart FPC
request chassis fpc (MX2020 Router)	<code>user@host >request chassis fpc online slot 2</code> FPC 2 already online	
request chassis fpc (MX2010 Router)	<code>user@host >request chassis fpc offline slot 5</code> Offline initiated, use "show chassis fpc" to verify	

request chassis fpm resync

Syntax	request chassis fpm resync
Syntax (TX Matrix Routers)	request chassis fpm resync (lcc <i>number</i> scc)
Syntax (TX Matrix Plus Routers)	request chassis fpm resync (lcc <i>number</i> sfc <i>number</i>)
Syntax (MX Series Routers)	request chassis fpm resync <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	request chassis fpm resync
Syntax (MX2020 3D Universal Edge Routers)	request chassis fpm resync
Release Information	Command introduced before Junos OS Release 7.4. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.
Description	(M40e, M120, M160, M320, MX Series, and T Series routers only) Resynchronize the craft interface status.
Options	<p>all-members—(MX Series routers only) (Optional) Resynchronize the craft interface status on all members of the Virtual Chassis configuration.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, resynchronize the craft interface status on a specified T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, resynchronize the craft interface status on a specified T1600 router that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>local—(MX Series routers only) (Optional) Resynchronize the craft interface status on the local Virtual Chassis member.</p> <p>member <i>member-id</i>—(MX Series routers only) (Optional) Resynchronize the craft interface status on the specified member of the Virtual Chassis configuration. Replace <i>member-id</i> with a value of 0 or 1.</p> <p>scc—(TX Matrix routers only) Resynchronize the craft interface status on the TX Matrix router (or switch-card chassis).</p> <p>sfc <i>number</i>—(TX Matrix Plus routers only) Resynchronize the craft interface status on the TX Matrix Plus router (or switch-fabric chassis). Replace <i>number</i> with 0.</p>

Required Privilege Level maintenance

Related Documentation

- [show chassis environment fpm on page 265](#)
- Configuring the Junos OS to Resynchronize FPC Sequence Numbers with Active FPCs when an FPC Comes Online

List of Sample Output [request chassis fpm resync on page 133](#)
[request chassis fpm resync \(MX2010 Router\) on page 133](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request chassis fpm resync user@host> request chassis fpm resync
Front Panel resynced

request chassis fpm resync (MX2010 Router) user@host > request chassis fpm resync
Front Panel resynced.

request chassis lcc

Syntax (TX Matrix and TX Matrix Plus Router) request chassis lcc (offline | online) slot *slot-number*

Release Information Command introduced before Junos OS Release 7.4.

Description (TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, control the operation of a T640 router (or line-card chassis) that is connected to the TX matrix router. On a TX Matrix Plus router, control the operation of a T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router.

Options **offline**—On a routing matrix based on the TX Matrix router (or switch-card chassis), take the T640 router (or line-card chassis) offline. On a routing matrix based on a TX Matrix Plus router (or switch-fabric chassis), take the T1600 router (or line-card chassis) offline.

online—On a routing matrix based on the TX Matrix router (or switch-card chassis), bring the T640 router (or line-card chassis) online. On a routing matrix based on a TX Matrix Plus router (or switch-fabric chassis), bring the T1600 router (or line-card chassis) online.

slot *slot-number*—On a TX Matrix router (or switch-card chassis), the slot number of a T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router (or switch-fabric chassis), the slot number of a T1600 router (or line-card chassis) that is connected to the TX Matrix Plus (or switch-fabric chassis) router. Replace *slot-number* with a value from 0 through 3.

Required Privilege Level maintenance

Related Documentation

- [show chassis lccs on page 564](#)
- Configuring Line-Card Upgrade Groups for Nonstop Software Upgrade (CLI Procedure)
- fpc

List of Sample Output [request chassis lcc on page 134](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request chassis lcc user@host> request chassis lcc offline slot 0

request chassis pic

Syntax	<code>request chassis pic (offline online) fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i></code>
Syntax (ACX4000 Series Routers)	<code>request chassis pic (offline online) fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i></code>
Syntax (TX Matrix and TX Matrix Plus Routers)	<code>request chassis pic (offline online) fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i> <lcc <i>number</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 12.3 for ACX4000 Routers.
Description	Control the operation of the PIC.



NOTE: The `request chassis pic (offline | online) fpc-slot slot number pic-slot slot-number` command is not supported for built-in PICs on MX Series routers.

To view a list of built-in PICs on the router or switch chassis, use the `show chassis hardware` command.



NOTE: T1600 routers and TX Matrix Plus routers with 100-Gigabit Ethernet PICs require two adjacent PIC slots, 0 and 1, for each PIC. Therefore, only online and offline command options to PIC slot 0 are allowed. Use of the online and offline command options for PIC slot 1 with the described router and PIC combination is not allowed.



NOTE: In T Series routers, when the PIC state is set from offline to online or vice-versa before the processing is complete for the previous command, you are provided feedback on the status of your request. The following sample messages are displayed if you try to set a PIC offline or online:

```
user@switch> request chassis pic fpc-slot 1 pic-slot 0 online
fpc 1 pic 0 online initiated, use "show chassis fpc pic-status" to verify
```

```
user@switch> request chassis pic fpc-slot 1 pic-slot 0 online
FPC 1 PIC 0 already transitioning to online
```

When the same PIC is set to a different state while the transition is in progress, you are provided feedback on the status of your request.

```
user@switch> request chassis pic fpc-slot 1 pic-slot 0 offline
FPC 1, PIC 0 already transitioning to online. Please retry later.
```

Options **offline**—Take the PIC offline.

online—Bring the PIC online.

fpc-slot slot-number—Flexible PIC Concentrator (FPC) slot number. Replace *slot-number* with a value appropriate for your router or switch:

- ACX4000 routers—1 or 2.
- EX Series switches:
 - EX3200 switches and EX4200 standalone switches—0.
 - EX4200 switches in a Virtual Chassis configuration—0 through 9 (switch's member ID).
 - EX8208 switches—0 through 7 (line card).
 - EX8216 switches—0 through 15 (line card).
- M5, M7i, M10, and M10i routers—0 or 1.
- M20 routers—0 through 3.
- M120 routers—0 through 5.
- MX960 routers—0 through 11.
- M40, M40e, M160, M320, T320, T640, and T1600 routers—0 through 7.
- TX Matrix and TX Matrix Plus routers only—On a TX Matrix router, if you specify the number of the T640 router by using the **lcc number** option (the recommended method), replace *slot-number* with a value from 0 through 7. Otherwise, replace *slot-number* with a value from 0 through 31.

Likewise, on a TX Matrix Plus router, if you specify the *number* of the T1600 router by using the **lcc number** option (the recommended method), replace *slot-number* with a value from 0 through 7. Otherwise, replace *slot-number* with a value from 0 through 31. For example, the following commands have the same result:

```
user@host> request chassis pic fpc-slot 1 lcc 1 pic-slot 0 offline
user@host> request chassis pic fpc-slot 9 pic-slot 0 offline
```

pic-slots slot-number—PIC slot number. For the M Series router, the T640 router, the T1600 router, the TX Matrix and TX Matrix Plus routers, it can be 0, 1, 2, or 3. On the MX960 router, *slot-number* corresponds to the slot number of the Packet Forwarding Engine. For the T320 router, it can be 0 or 1. For EX3200 and EX4200 switches, it is 0 for built-in network interfaces and 1 for interfaces on uplink modules. For EX8208 and EX8216 switches, it is 0.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, control the PIC in a specified T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, control the PIC in a specified T1600 router that is connected to the TX Matrix Plus router. Replace *number* with a value from 0 through 3.

Required Privilege Level maintenance

Related Documentation

- [show chassis hardware on page 463](#)
- [show chassis pic on page 570](#)
- Configuring the PIC Type
- 100-Gigabit Ethernet PIC Overview

List of Sample Output [request chassis pic on page 137](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request chassis pic user@host> request chassis pic pic-slot 0 online fpc-slot 0
FPC 0, PIC 0 is already online
```

request chassis routing-engine master

Syntax	request chassis routing-engine master (acquire release switch) <force> <no-confirm>
Syntax (TX Matrix Routers)	request chassis routing-engine master (acquire release switch) (lcc <i>number</i> scc all-chassis) <force> <no-confirm>
Syntax (TX Matrix Plus Routers)	request chassis routing-engine master (acquire release switch) (lcc <i>number</i> sfc all-chassis all-lcc) <force> <no-confirm>
Syntax (MX Series Routers)	request chassis routing-engine master (acquire release switch) <all-members> <force> <local> <member <i>member-id</i> > <no-confirm>
Syntax (MX2010 3D Universal Edge Routers)	request chassis routing-engine master (acquire release switch <check>) <no-confirm>
Syntax (MX2020 3D Universal Edge Routers)	request chassis routing-engine master (acquire release switch <check>) <no-confirm>
Syntax (QFX Series)	request chassis routing-engine master (release switch) <check> <interconnect-device <i>name</i> > <node-group <i>name</i> > <no-confirm>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>all-chassis option added in Junos OS Release 8.0.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 11.3 for QFX Series.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	For routers or switches with multiple Routing Engines, control which Routing Engine is the master.



CAUTION: (Routing matrix based on the TX Matrix or TX Matrix Plus routers only) Within the routing matrix, we recommend that all Routing Engines run the same Junos OS Release. If you run different releases on the Routing

Engines and a change in mastership occurs on any backup Routing Engine in the routing matrix, one or all T640 routers (in a routing matrix based on the TX Matrix router) or T1600 routers (in a routing matrix based on a TX Matrix Plus router) might become logically disconnected from the TX Matrix router and cause data loss. For more information, see the [TX Matrix Router Hardware Guide](#) or the Junos OS High Availability Configuration Guide.



NOTE: Successive graceful Routing Engine switchover events must be a minimum of 240 seconds (4 minutes) apart after both Routing Engines have come up.

If the router or switch displays a warning message similar to “Standby Routing Engine is not ready for graceful switchover. Packet Forwarding Engines that are not ready for graceful switchover might be reset,” do not attempt switchover. If you choose to proceed with switchover, only the Packet Forwarding Engines that were not ready for graceful switchover are reset. None of the Flexible PIC concentrators (FPCs) should spontaneously restart. We recommend that you wait until the warning no longer appears and then proceed with the switchover.

You will receive an error message stating “Command aborted. Not ready for mastership switch, try after n seconds” when this command is re-entered before 240 seconds have elapsed on EX Series switches.



NOTE: On a QFabric system, to avoid traffic loss on the network Node group, switch mastership of the routing engine to the backup routing engine, and then reboot.

Options **acquire**—Attempt to become the master Routing Engine.

release—Request that the other Routing Engine become the master.

switch—Toggle mastership between Routing Engines.

The **acquire**, **release**, and **switch** options have the following suboptions:

all-chassis—(TX Matrix and TX Matrix Plus routers only) On a routing matrix composed of a TX Matrix router and the attached T640 routers, switch mastership on all the Routing Engines in the routing matrix. Likewise, on a routing matrix composed of a TX Matrix Plus router and the attached T1600 routers, switch mastership on all the Routing Engines in the routing matrix.

all-lcc—(TX Matrix Plus routers only) Request to acquire mastership for all line-card chassis (LCC).

all-members—(MX Series routers only) (Optional) Control Routing Engine mastership on the Routing Engines in all member routers of the Virtual Chassis configuration.

check—(QFabric systems, MX240, MX480, MX960, MX2010, and MX2020 Routers only) (Optional) Available only with the **switch** option. Check graceful switchover status of the standby Routing Engine before toggling mastership between Routing Engines.

interconnect-device *name*—(QFabric systems only) (Optional) Control Routing Engine mastership on the Routing Engines on an Interconnect device.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, the T640 router (or LCC) that is connected to the TX Matrix router (or switch-card chassis). On a TX Matrix Plus router, the T1600 router (or LCC) that is connected to the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Control Routing Engine mastership on the Routing Engines in the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Control Routing Engine mastership on the Routing Engines of the specified member in the Virtual Chassis Configuration. Replace ***member-id*** with a value of 0 or 1.

no-confirm—(Optional) Do not request confirmation for the switch.

node-group *name*—(QFabric systems only) (Optional) Control Routing Engine mastership on the Routing Engines on a Node group.

scc—(TX Matrix routers only) TX Matrix (or switch-card chassis).

sfc—(TX Matrix Plus routers only) TX Matrix Plus router (or switch-fabric chassis).

force—(Optional) Available only with the acquire option. Force the change to a new master Routing Engine.

Additional Information Because both Routing Engines are always running, the transition from one to the other as the master Routing Engine is immediate. However, the changeover interrupts communication to the System and Switch Board (SSB). The SSB takes several seconds to reinitialize the Flexible PIC Concentrators (FPCs) and restart the PICs. Interior gateway protocol (IGP) and BGP convergence times depend on the specific network environment.

By default, the Routing Engine in slot 0 (RE0) is the master and the Routing Engine in slot 1 (RE1) is the backup. To change the default master Routing Engine, include the **routing-engine** statement at the [edit chassis redundancy] hierarchy level in the configuration. For more information, see the Junos OS System Basics Configuration Guide

To have the backup Routing Engine become the master Routing Engine, use the **request chassis routing-engine master switch** command. If you use this command to change the master and then restart the chassis software for any reason, the master reverts to the default setting.



NOTE: Although the configurations on the two Routing Engines do not have to be the same and are not automatically synchronized, we recommend making both configurations the same.

Required Privilege Level	maintenance
Related Documentation	<ul style="list-style-type: none"> • show chassis routing-engine on page 582 • Configuring Routing Engine Redundancy • Switching the Global Master and Backup Roles in a Virtual Chassis Configuration
List of Sample Output	request chassis routing-engine master acquire on page 141 request chassis routing-engine master switch on page 141
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```

request chassis routing-engine master acquire
user@host> request chassis routing-engine master acquire

warning: Traffic will be interrupted while the PFE is re-initialized
warning: The other routing engine's file system could be corrupted
Reset other routing engine and become master ? [yes,no] (no)

request chassis routing-engine master switch
user@host> request chassis routing-engine master switch

warning: Traffic will be interrupted while the PFE is re-initialized
Toggle mastership between Routing Engines ? [yes,no] (no) yes

Resolving mastership...
Complete. The other Routing Engine becomes the master.

Switch mastership back to the local Routing Engine:

user@host> request chassis routing-engine master switch

warning: Traffic will be interrupted while the PFE is re-initialized
Toggle mastership between routing engines ? [yes,no] (no) yes

Resolving mastership...
Complete. The local routing engine becomes the master.
```

request chassis scg

Syntax	request chassis scg (offline online) slot <i>slot-number</i>
Syntax (TX Matrix and TX Matrix Plus Routers)	request chassis scg lcc <i>number</i> (offline online) slot <i>slot-number</i>
Release Information	Command introduced before Junos OS Release 7.4.
Description	(T Series routers only) Control the operation of the specified SONET Clock Generator (SCG).
Options	<p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix Plus router, change the SCG status on a specified T640 router (or line-card chassis [LCC]) that is connected to the TX Matrix router. On a TX Matrix Plus router, change the SCG status on a specified T1600 router (or LCC) that is connected to a TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>offline—Take the SCG offline. When you change the SCG status to offline, the unit is not powered down.</p> <p>online—Bring the SCG online.</p> <p>slot <i>slot-number</i>—SCG slot number. Replace <i>slot-number</i> with 0 or 1.</p>
Required Privilege Level	maintenance
Related Documentation	<ul style="list-style-type: none">• show chassis environment scg on page 283• Configuring the Clock Source• T320 SONET Clock Generator (SCG) Description
List of Sample Output	request chassis scg on page 142
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

request chassis scg	user@host> request chassis scg online slot 0 Online initiated, use "show chassis environment scg" to verify
---------------------	--

request chassis sib

Syntax	request chassis sib (offline online) slot <i>slot-number</i>
Syntax (TX Matrix Router)	request chassis sib (all-chassis lcc <i>number</i> scc) (offline online) slot <i>slot-number</i> (start-receiver <i>number</i> stop-receiver <i>number</i>)
Syntax (TX Matrix Plus Router)	request chassis sib (all-lcc f13 <i>slot-number</i> f2s <i>sib-slot/sib-f2s-slot-number</i> lcc <i>number</i> (offline online) slot <i>slot-number</i>)
Release Information	Command introduced before Junos OS Release 7.4. f13 and f2s options for the TX Matrix Plus router introduced in Junos OS Release 9.6.
Description	(M320 routers and T Series routers only) Control the operation of the specified Switch Interface Board (SIB).
Options	<p>all-chassis—(TX Matrix routers only) Control the status of the specified SIB.</p> <p>all-lcc—(TX Matrix Plus routers only) Control the operation of the SIB on all T1600 routers connected to the TX Matrix Plus router.</p> <p>f13 <i>slot-number</i>—Control the operation of F13 SIBs. Replace <i>slot-number</i> with a value 0, 1, 3, 4, 6, 7, 8, 9, 11, or 12.</p> <p>f2s <i>sib-slot/sib-f2s-slot-number</i>—(TX Matrix Plus routers only) (Optional) Control the operation of the SIB F2s. Replace <i>sib-slot</i> with a value from 0 through 4, followed by a <i>sib-f2s-slot-number</i> value 0, 2, 4 or 6.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, the T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, the T1600 router (or line-card chassis) and TX Matrix Plus that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>scc—(TX Matrix router only) TX Matrix router (or switch-card chassis) on a routing matrix.</p> <p>offline—Take the SIB offline.</p> <p>online—Bring the SIB online.</p> <p>slot <i>slot-number</i>—SIB slot number. For the T320 router, replace <i>slot-number</i> with a value from 0 through 2. For the T640 router, TX Matrix router, and T1600 router in a routing matrix, replace <i>slot-number</i> with a value from 0 through 4.</p> <p>start-receiver <i>number</i>—(TX Matrix routers only) Start the SIB optical receiver. Replace <i>number</i> with a value from 0 through 3.</p> <p>stop-receiver <i>number</i>—(TX Matrix routers only) Stop the SIB optical receiver. Replace <i>number</i> with a value from 0 through 3.</p>
Required Privilege Level	maintenance

- Related Documentation**
- [show chassis sibs on page 601](#)
 - [show chassis environment sib on page 288](#)
 - Configuring the Junos OS to Upgrade and Downgrade Switch Interface Boards on a TX Matrix Router
 - M320 SIB Description

List of Sample Output [request chassis sib on page 144](#)
[request chassis sib on page 144](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request chassis sib user@host> request chassis sib slot 0 online
Online initiated, use "show chassis sibs" to verify

request chassis sib user@host> request chassis sib f13 slot 0 offline
Offline initiated, use "show chassis sibs" to verify

request chassis spmb restart

Syntax	<code>request chassis spmb restart slot <i>slot-number</i></code>
Syntax (TX Matrix Router)	<code>request chassis spmb restart (<i>lcc number</i> <i>scc</i>) slot <i>slot-number</i></code>
Syntax (TX Matrix Plus Router)	<code>request chassis spmb restart (<i>lcc number</i> <i>sfc number</i>) slot <i>slot-number</i></code>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>sfc option for the TX Matrix Plus router introduced in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	Restart the specified Switch Processor Mezzanine Board (SPMB) on the Control Board (CB).
Options	<p><i>lcc number</i>—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, the T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, the T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p><i>scc</i>—(TX Matrix routers only) TX Matrix router (or switch-card chassis) in the routing matrix.</p> <p><i>sfc</i>—(TX Matrix Plus routers only) TX Matrix Plus router (or switch-fabric chassis) in the routing matrix.</p> <p><i>slot slot-number</i>—CB slot number. Replace <i>slot-number</i> with 0 or 1.</p>
Required Privilege Level	maintenance
Related Documentation	<ul style="list-style-type: none"> • show chassis spmb on page 608 • show chassis spmb sibs on page 616
List of Sample Output	request chassis spmb restart on page 145 request chassis spmb restart (MX2010 Router) on page 145
Output Fields	When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request chassis spmb restart
user@host> request chassis spmb restart slot 0

request chassis spmb restart (MX2010 Router)
user@host> request chassis spmb restart slot 0
Restart initiated, use "show chassis spmb" to verify
```

set chassis display message

Syntax	set chassis display message " <i>message</i> " <permanent>
Syntax (TX Matrix Router)	set chassis display message " <i>message</i> " (<i>lcc number</i> <i>scc</i>) <permanent>
Syntax (TX Matrix Plus Router)	set chassis display message " <i>message</i> " (<i>fpc-slot slot-number</i> <i>lcc number</i> <i>sfc number</i>) <permanent>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option for TX Matrix Plus router introduced in Junos OS Release 9.6.
Description	Display or stop a text message on the craft interface display, which is on the front of the router, or on the LCD panel display on the switch. The craft interface alternates the display of text messages with standard craft interface messages three times, switching between messages every 60 seconds.



NOTE: On T Series routers, when this command is executed with the **permanent** option, the display of the text message alternates with that of the standard craft interface message continuously every 60 seconds.

By default, on both the router and the switch, the text message is displayed for 5 minutes. The craft interface display has four 20-character lines. The LCD panel display has two 16-character lines, and text messages appear only on the second line.

Options **"message"**—Message to display. On the craft interface display, if the message is longer than 20 characters, it wraps onto the next line. If a word does not fit on one line, the entire word moves down to the next line. Any portion of the message that does not fit on the display is truncated. An empty pair of quotation marks ("") deletes the text message from the craft interface display. On the LCD panel display, the message is limited to 16 characters.

fpc-slot slot-number—(TX Matrix Plus routers and EX4200 and QFX Series only) On the router or switch, display the text message on the craft interface for a specific Flexible PIC Concentrator (FPC). Replace **slot-number** with a value from 0 through 31. On the switch, display the text message for a specific member of a Virtual Chassis, where **fpc-slot slot-number** corresponds to the member ID. Replace **slot-number** with a value from 0 through 9. On the QFX Series, the **slot-number** is always 0.

lcc number —(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, display the text message on the craft interface display of a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display the text message on the craft interface display of a specified T1600 router (or

line-card chassis) that is connected to the TX Matrix Plus router. Replace *number* with a value from 0 through 3.

permanent—(Optional) Display a text message on the craft interface display or LCD panel display permanently.

scc—(TX Matrix routers only) Display the text message on the craft interface display of the TX Matrix router (or switch-card chassis).

sfc number—(TX Matrix Plus routers only) Display the text message on the craft interface display of the TX Matrix Plus router (or switch-fabric chassis).

Required Privilege Level

clear

Related Documentation

- Configuring the LCD Panel on EX Series Switches (CLI Procedure)
- [clear chassis display message on page 122](#)
- [show chassis craft-interface on page 161](#)
- Understanding the Implementation of System Log Messages on the QFabric System

List of Sample Output

[set chassis display message \(Creating\) on page 147](#)
[set chassis display message \(Deleting\) on page 147](#)

Output Fields

See [show chassis craft-interface](#) for an explanation of output fields.

Sample Output

set chassis display message (Creating)

The following example shows how to set the display message and verify the result:

```
user@host> set chassis display message "NOC contact Dusty (888) 555-1234"
message sent

user@host> show chassis craft-interface
Red alarm:      LED off, relay off
Yellow alarm:   LED off, relay off
Host OK LED:    On
Host fail LED:  Off
FPCs           0  1  2  3  4  5  6  7
-----
Green  ..  *..  *  *.
Red    .....
LCD screen:
+-----+
|NOC contact Dusty |
|(888) 555-1234   |
+-----+
```

set chassis display message (Deleting)

The following example shows how to delete the display message and verify that the message is removed:

```
user@host> set chassis display message ""
```

message sent

user@host> **show chassis craft-interface**

Red alarm: LED off, relay off

Yellow alarm: LED off, relay off

Host OK LED: On

Host fail LED: Off

FPCs 0 1 2 3 4 5 6 7

Green .. *.. * *.

Red

LCD screen:

```
+-----+
|host    |
|Up: 0+17:05:47|
|        |
|Temperature OK|
+-----+
```

show chassis alarms

Syntax	show chassis alarms
Syntax (TX Matrix Routers)	show chassis alarms <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Routers)	show chassis alarms <lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Routers)	show chassis alarms <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis alarms
Syntax (MX2020 3D Universal Edge Routers)	show chassis alarms
Syntax (QFX Series)	show chassis alarms <interconnect-device <i>name</i> > <node-device <i>name</i> >
Syntax (PTX Series Packet Transport Switches)	show chassis alarms
Syntax (ACX Series Universal Access Routers)	show chassis alarms
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>sfc option for the TX Matrix Plus router introduced in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 11.1 for the QFX Series.</p> <p>Command introduced in Junos OS Release 12.1 for the PTX Series Packet Transport Switches.</p> <p>Command introduced in Junos OS Release 12.2 for the ACX Series Universal Access Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	Display information about the conditions that have been configured to trigger alarms.
Options	none —Display information about the conditions that have been configured to trigger alarms.

all-members—(MX Series routers only) (Optional) Display information about alarm conditions for all the member routers of the Virtual Chassis configuration.

interconnect-device *name*—(QFabric systems only) (Optional) Display information about alarm conditions for the Interconnect device.

lcc *number* — (TX Matrix and TX Matrix Plus routers only) (Optional) On the TX Matrix router, show information about a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On the TX Matrix Plus router, show information about a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace ***number*** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display information about alarm conditions for the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Display information about alarm conditions for the specified member of the Virtual Chassis configuration. Replace ***member-id*** with a value of 0 or 1.

node-device *name*—(QFabric systems only) (Optional) Display information about alarm conditions for the Node device.

scc—(TX Matrix router only) (Optional) Show information about the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus router only) (Optional) Show information about the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

Additional Information You cannot clear the alarms for chassis components. Instead, you must remedy the cause of the alarm. When a chassis alarm is lit, it indicates that you are running the router or switch in a manner that we do not recommend.

On routers, you can manually silence external devices connected to the alarm relay contacts by pressing the alarm cutoff button, located on the craft interface. Silencing the device does not remove the alarm messages from the display (if present on the router) or extinguish the alarm LEDs. In addition, new alarms that occur after you silence an external device reactivate the external device.

In Junos OS release 11.1 and later, alarms for fans also show the slot number of the fans in the CLI output.

In Junos OS Release 11.2 and later, the command output on EX8200 switches shows the detailed location (**Plane/FPC/PFE**) for link errors in the chassis.

In Junos OS Release 10.2 and later, an alarm is shown on T Series routers for a standby sonic clock generator (SCG) that is offline or absent.

Understanding Error Codes

You may often see the following error messages, in which only the error code is shown and no other information is provided:

Apr 12 08:04:10 send: red alarm set, device FPC 6, reason FPC 6 Major Errors - Error code: 257

Apr 12 08:04:19 send: red alarm set, device FPC 1, reason FPC 1 Major Errors - Error code: 559

To understand what CM_ALARM error codes mean, you need to first identify the structure of the CM Alarm codes. A CM_ALARM code has the following structure:

Bits:	Error type:
1-31	Major (1)
0	Minor (0)

As per the above table, the LSB (bit 0) identifies the **Error Type** (major alarm, if the bit is set and minor alarm if the bit is unset). The rest of the bits (1 - 31) identify the actual error code.

Take an example of the following error code, which was logged on a T1600:

Apr 12 08:04:10 send: red alarm set, device FPC 1, reason FPC 1 Major Errors - Error code: 559

First, you have to convert 559 to binary; that is **1000101111**. The LSB in this case is 1, which means that this is a major alarm. After removing the LSB, you are left with **100010111**, which is equal to 279 in decimal. This is the actual error code, its meaning can be found from the following list:

Chip Type: L Chip	Code
CMALARM_LCHIP_LOUT_DESRD_PARITY_ERR	1
CMALARM_LCHIP_LOUT_DESRD_UNINIT_ERR	2
CMALARM_LCHIP_LOUT_DESRD_ILLEGALLINK_ERR	3
CMALARM_LCHIP_LOUT_DESRD_ILLEGALSIZERR	4
CMALARM_LCHIP_LOUT_HDRF_TOERR_ERR	5
CMALARM_LCHIP_LOUT_HDRF_PARITY_ERR	6
CMALARM_LCHIP_LOUT_HDRF_UCERR_ERR	7
CMALARM_LCHIP_LOUT_NLIF_CRCDROP_ERR	8
CMALARM_LCHIP_LOUT_NLIF_CRCERR_ERR	9
CMALARM_LCHIP_UCODE_TIMEOUT_ERR	10
CMALARM_LCHIP_LIN_SRCTL_ACCT_DROP_ERR	11

CMALARM_LCHIP_LIN_SRCTL_ACCT_ADDR_SIZE_ERR	12
CMALARM_LCHIP_SRAM_PARITY_ERR	13
CMALARM_LCHIP_UCODE_OVFLW_ERR	14
CMALARM_LCHIP_LOUT_HDRF_MTU_ERR	15
<hr/>	
Chip Type: M Chip	Code
CMALARM_MCHIP_ECC_UNCORRECT_ERR	128
<hr/>	
Chip Type: N Chip	Code
CMALARM_NCHIP_RDDMA_JBUS_TIMEOUT_ERR	256
CMALARM_NCHIP_RDDMA_FIFO_OVFLW_ERR	257
CMALARM_NCHIP_RDDMA_FIFO_UNFLW_ERR	258
CMALARM_NCHIP_RDDMA_SIZE_ERR	259
CMALARM_NCHIP_RDDMA_JBUS_CRC_ERR	260
CMALARM_NCHIP_WRDMA_PKTR_ERR	261
CMALARM_NCHIP_WRDMA_PKT_CRC_ERR	262
CMALARM_NCHIP_WRDMA_JBUS_TIMEOUT_ERR	263
CMALARM_NCHIP_WRDMA_FIFO_OVFLW_ERR	264
CMALARM_NCHIP_WRDMA_FIFO_UNFLW_ERR	265
CMALARM_NCHIP_WRDMA_PKT_LEN_ERR	266
CMALARM_NCHIP_WRDMA_JBUS_CRC_ERR	267
CMALARM_NCHIP_PKTR_DMA_AGE_ERR	268
CMALARM_NCHIP_PKTR_ICELLSIG_ERR	269
CMALARM_NCHIP_PKTR_FTTL_ERR	270
CMALARM_NCHIP_RODR_OFFSET_OVFLW_ERR	271
CMALARM_NCHIP_PKTR_TMO_CELL_ERR	272
CMALARM_NCHIP_PKTR_TMO_OUTRANGE_ERR	273

CMALARM_NCHIP_PKTR_MD_REQUEST_Q_OVFLW_ERR	274
CMALARM_NCHIP_PKTR_DMA_BUFFER_OVFLW_ERR	275
CMALARM_NCHIP_PKTR_GRT_OVFLW_ERR	276
CMALARM_NCHIP_FRQ_ERR	277
CMALARM_NCHIP_RODR_IN_Q_OVFLW_ERR	278
CMALARM_NCHIP_DBUF_CRC_ERR	279

Chip Type: R Chip	Code
CMALARM_RCHIP_SRAM_PARITY_ERR	512

Chip Type: R Chip	Code
CMALARM_ICHIP_WO_DESRD_ID_ERR	601
CMALARM_ICHIP_WO_DESRD_DATA_ERR	602
CMALARM_ICHIP_WO_DESRD_OFLOW_ERR	603
CMALARM_ICHIP_WO_HDRF_UCERR_ERR	604
CMALARM_ICHIP_WO_HDRF_MTUERR_ERR	605
CMALARM_ICHIP_WO_HDRF_PARITY_ERR	606
CMALARM_ICHIP_WO_HDRF_TOERR_ERR	607
CMALARM_ICHIP_WO_IP_CRC_ERR	608
CMALARM_ICHIP_WO_IP_INTER_ERR	609
CMALARM_ICHIP_WI_WAN_TIMEOUT_ERR	625
CMALARM_ICHIP_WI_FAB_TIMEOUT_ERR	626
CMALARM_ICHIP_RLDRAM_BIST_ERR	630
CMALARM_ICHIP_SDRAM_BIST_ERR	631
CMALARM_ICHIP_RLDRAM_PARITY_ERR	632
CMALARM_ICHIP_SDRAM_UNCORRECT_ERR	633
CMALARM_ICHIP_SDRAM_CORRECT_ERR	634

CMALARM_ICHIP_FUSE_DONE_ERR

635

According to the table above, the **279** error code corresponds to **CMALARM_NCHIP_DBUF_CRC_ERR**; this means that new CRC errors were seen on the NCHIP of this particular FPC, which is FPC as per the logs.

If you do not want to convert decimal to binary and vice-versa, you may use the following shortcut:

For major alarms, the **Actual Error Code = (Error Code - 1)/2**, where **Error Code** is the code that you get in the log message. For example, if you get the following log:

Apr 12 08:04:10 send: red alarm set, device FPC 6, reason FPC 6 Major Errors - Error code: 257

Actual Error Code = $(257-1)/2 = 128$. Similarly, for minor alarms, Actual Error Code = $(\text{Error Code})/2$

Required Privilege Level view

Related Documentation

- [Configuring an Alarm Entry and Its Attributes](#)
- [Chassis Conditions That Trigger Alarms](#)

List of Sample Output

- [show chassis alarms \(Alarms Active\) on page 155](#)
- [show chassis alarms \(No Alarms Active\) on page 155](#)
- [show chassis alarms \(Fan Tray\) on page 155](#)
- [show chassis alarms \(MX2020 Router\) on page 155](#)
- [show chassis alarms \(MX2010 Router\) on page 155](#)
- [show chassis alarms \(T4000 Router\) on page 155](#)
- [show chassis alarms \(Unreachable Destinations Present on a T Series Router\) on page 156](#)
- [show chassis alarms \(FPC Offline Due to Unreachable Destinations on a T Series Router\) on page 156](#)
- [show chassis alarms \(SCG Absent on a T Series Router\) on page 156](#)
- [show chassis alarms \(Alarms Active on a TX Matrix Router\) on page 156](#)
- [show chassis alarms \(Alarms on a T4000 Router After the enhanced-mode Statement is Enabled\) on page 157](#)
- [show chassis alarms \(Backup Routing Engine\) on page 157](#)
- [show chassis alarms \(Alarms Active on the QFX Series\) on page 157](#)
- [show chassis alarms node-device \(Alarms Active on the QFabric System\) on page 157](#)
- [show chassis alarms \(Alarms Active on the QFabric System\) on page 157](#)
- [show chassis alarms \(Alarms Active on an EX8200 Switch\) on page 158](#)
- [show chassis alarms \(Alarms Active on a PTX5000 Packet Transport Switch\) on page 158](#)
- [show chassis alarms \(Alarms Active on an ACX2000 Universal Access Router\) on page 158](#)

Output Fields Table 5 on page 155 lists the output fields for the **show chassis alarms** command. Output fields are listed in the approximate order in which they appear.

Table 5: show chassis alarms Output Fields

Field Name	Field Description
Alarm time	Date and time the alarm was first recorded.
Class	Severity class for this alarm: Minor or Major .
Description	Information about the alarm.

Sample Output

```

show chassis alarms      user@host> show chassis alarms
(Alarms Active)          3 alarms are currently active
                          Alarm time      Class  Description
                          2000-02-07 10:12:22 UTC Major fxp0: ethernet link down
                          2000-02-07 10:11:54 UTC Minor YELLOW ALARM - PEM 1 Removed
                          2000-02-07 10:11:03 UTC Minor YELLOW ALARM - Lower Fan Tray Removed

show chassis alarms      user@host> show chassis alarms
(No Alarms Active)      No alarms are currently active

show chassis alarms      user@host> show chassis alarms
(Fan Tray)              4 alarms currently active
                          Alarm time      Class  Description
                          2010-11-11 20:27:38 UTC Major Side Fan Tray 7 Failure
                          2010-11-11 20:27:13 UTC Minor Side Fan Tray 7 Overspeed
                          2010-11-11 20:27:13 UTC Major Side Fan Tray 5 Failure
                          2010-11-11 20:27:13 UTC Major Side Fan Tray 0 Failure

show chassis alarms      user@host> show chassis alarms
(MX2020 Router)         1 alarms currently active
                          Alarm time      Class  Description
                          2012-10-03 12:14:59 PDT Minor Plane 0 not online

show chassis alarms      user@host> show chassis alarms
(MX2010 Router)         7 alarms currently active
                          Alarm time      Class  Description
                          2012-08-07 00:46:06 PDT Major Fan Tray 2 Failure
                          2012-08-06 18:24:36 PDT Minor Redundant feed missing for PSM 6
                          2012-08-06 07:41:04 PDT Minor Redundant feed missing for PSM 8
                          2012-08-04 02:42:06 PDT Minor Redundant feed missing for PSM 5
                          2012-08-03 21:14:24 PDT Minor Loss of communication with Backup RE
                          2012-08-03 12:26:03 PDT Minor Redundant feed missing for PSM 4
                          2012-08-03 10:40:18 PDT Minor Redundant feed missing for PSM 7

show chassis alarms      user@host> show chassis alarms
(T4000 Router)          9 alarms currently active
                          Alarm time      Class  Description
                          2007-06-02 01:41:10 UTC Minor RE 0 Not Supported
                          2007-06-02 01:41:10 UTC Minor CB 0 Not Supported
                          2007-06-02 01:41:10 UTC Minor Mixed Master and Backup RE types
                          2007-05-30 19:37:33 UTC Major SPMB 1 not online

```

```

2007-05-30 19:37:29 UTC Minor Front Bottom Fan Tray Absent
2007-05-30 19:37:13 UTC Major PEM 1 Input Failure
2007-05-30 19:37:13 UTC Major PEM 0 Not OK
2007-05-30 19:37:03 UTC Major PEM 0 Improper for Platform
2007-05-30 19:37:03 UTC Minor Backup RE Active

```

**show chassis alarms
(Unreachable
Destinations Present
on a T Series Router)**

```

user@host> show chassis alarms
10 alarms currently active
Alarm time          Class Description
2011-08-30 18:43:53 PDT Major FPC 7 has unreachable destinations
2011-08-30 18:43:53 PDT Major FPC 5 has unreachable destinations
2011-08-30 18:43:52 PDT Major FPC 3 has unreachable destinations
2011-08-30 18:43:52 PDT Major FPC 2 has unreachable destinations
2011-08-30 18:43:52 PDT Minor SIB 0 Not Online
2011-08-30 18:43:33 PDT Minor SIB 4 Not Online
2011-08-30 18:43:28 PDT Minor SIB 3 Not Online
2011-08-30 18:43:05 PDT Minor SIB 2 Not Online
2011-08-30 18:43:28 PDT Minor SIB 1 Not Online
2011-08-30 18:43:05 PDT Major PEM 1 Not Ok

```

**show chassis alarms
(FPC Offline Due to
Unreachable
Destinations on a T
Series Router)**

```

user@host> show chassis alarms
10 alarms currently active
Alarm time          Class Description
2011-08-30 18:43:53 PDT Major FPC 7 offline due to unreachable destinations
2011-08-30 18:43:53 PDT Major FPC 5 offline due to unreachable destinations
2011-08-30 18:43:52 PDT Major FPC 3 offline due to unreachable destinations
2011-08-30 18:43:52 PDT Major FPC 2 offline due to unreachable destinations
2011-08-30 18:43:52 PDT Minor SIB 0 Not Online
2011-08-30 18:43:33 PDT Minor SIB 4 Not Online
2011-08-30 18:43:28 PDT Minor SIB 3 Not Online
2011-08-30 18:43:05 PDT Minor SIB 2 Not Online
2011-08-30 18:43:28 PDT Minor SIB 1 Not Online
2011-08-30 18:43:05 PDT Major PEM 1 Not Ok

```

**show chassis alarms
(SCG Absent on a T
Series Router)**

```

user@host> show chassis alarms
4 alarms currently active
Alarm time          Class Description
2011-01-23 21:42:46 PST Major SCG 0 NO EXT CLK MEAS-BKUP SCG ABS

```

**show chassis alarms
(Alarms Active on a TX
Matrix Router)**

```

user@host> show chassis alarms
scc-re0:
-----
8 alarms currently active
Alarm time          Class Description
2004-08-05 18:43:53 PDT Minor LCC 0 Minor Errors
2004-08-05 18:43:53 PDT Minor SIB 3 Not Online
2004-08-05 18:43:52 PDT Major SIB 2 Absent
2004-08-05 18:43:52 PDT Major SIB 1 Absent
2004-08-05 18:43:52 PDT Major SIB 0 Absent
2004-08-05 18:43:33 PDT Major LCC 2 Major Errors
2004-08-05 18:43:28 PDT Major LCC 0 Major Errors
2004-08-05 18:43:05 PDT Minor LCC 2 Minor Errors
lcc0-re0:
-----
5 alarms currently active
Alarm time          Class Description
2004-08-05 18:43:53 PDT Minor SIB 3 Not Online
2004-08-05 18:43:49 PDT Major SIB 2 Absent
2004-08-05 18:43:49 PDT Major SIB 1 Absent
2004-08-05 18:43:49 PDT Major SIB 0 Absent

```

```
2004-08-05 18:43:28 PDT Major PEM 0 Not OK
lcc2-re0:
```

```
-----
5 alarms currently active
Alarm time          Class Description
2004-08-05 18:43:35 PDT Minor SIB 3 Not Online
2004-08-05 18:43:33 PDT Major SIB 2 Absent
2004-08-05 18:43:33 PDT Major SIB 1 Absent
2004-08-05 18:43:33 PDT Major SIB 0 Absent
2004-08-05 18:43:05 PDT Minor PEM 1 Absent
```

show chassis alarms
(Alarms on a T4000 Router After the enhanced-mode Statement is Enabled)

On T4000 routers, when you include the **enhanced-mode** statement at the **[edit chassis network-services]** hierarchy level and reboot the system, only the T4000 Type 5 FPCs present on the router are online while the remaining FPCs are offline, and FPC misconfiguration alarms are generated. The **show chassis alarm** command output displays FPC misconfiguration (**FPC *fpc-slot* misconfig**) as the reason for the generation of the alarms.

```
user@host> show chassis alarms
2 alarms currently active
Alarm time          Class Description
2011-10-22 10:10:47 PDT Major FPC 1 misconfig
2011-10-22 10:10:46 PDT Major FPC 0 misconfig
```

show chassis alarms
(Backup Routing Engine)

```
user@host> show chassis alarms
2 alarms are currently active
Alarm time          Class Description
2005-04-07 10:12:22 PDT Minor Host 1 Boot from alternate media
2005-04-07 10:11:54 PDT Major Host 1 compact-flash missing in Boot List
```

show chassis alarms
(Alarms Active on the QFX Series)

```
user@switch> show chassis alarms
1 alarms currently active
Alarm time          Class Description
2012-03-05 2:10:24 UTC Major FPC 0 PEM 0 Airflow not matching Chassis Airflow
```

show chassis alarms
node-device (Alarms Active on the QFabric System)

```
user@switch> show chassis alarms node-device ED3691
node-device ED3694
3 alarms currently active
Alarm time          Class Description
2011-08-24 16:04:15 UTC Major ED3694:fte-0/1/2: Link down
2011-08-24 16:04:14 UTC Major ED3694:fte-0/1/0: Link down
2011-08-24 14:21:14 UTC Major ED3694 PEM 0 is not supported/powered
```

show chassis alarms
(Alarms Active on the QFabric System)

```
user@switch> show chassis alarms
IC-A0001:
-----
1 alarms currently active
Alarm time          Class Description
2011-08-24 16:04:15 UTC Minor Backup RE Active

ED3694:
-----
3 alarms currently active
Alarm time          Class Description
2011-08-24 16:04:15 UTC Major ED3694:fte-0/1/2: Link down
2011-08-24 16:04:14 UTC Major ED3694:fte-0/1/0: Link down
2011-08-24 14:21:14 UTC Major ED3694 PEM 0 is not supported/powered
```

SNG-0:

NW-NG-0:

1 alarms currently active

Alarm time	Class	Description
2011-08-24 15:49:27 UTC	Major	ED3691 PEM 0 is not supported/powered

show chassis alarms
(Alarms Active on an
EX8200 Switch)

user@switch> show chassis alarms

6 alarms currently active

Alarm time	Class	Description
2010-12-02 19:15:22 UTC	Major	Fan Tray Failure
2010-12-02 19:15:22 UTC	Major	Fan Tray Failure
2010-12-02 19:15:14 UTC	Minor	Check CB 0 Fabric Chip 1 on Plane/FPC/PFE: 1/5/0, 1/5/1, 1/5/2, 1/5/3, 1/7/0, 1/7/1, 1/7/2, 1/7/3, 2/5/0, 2/5/1, ...
2010-12-02 19:15:14 UTC	Minor	Check CB 0 Fabric Chip 0 on Plane/FPC/PFE: 1/5/0, 1/5/1, 1/5/2, 1/5/3, 1/7/0, 1/7/1, 1/7/2, 1/7/3, 2/5/0, 2/5/1, ...
2010-12-02 19:14:18 UTC	Major	PSU 1 Output Failure
2010-12-02 19:14:18 UTC	Minor	Loss of communication with Backup RE

show chassis alarms
(Alarms Active on a
PTX5000 Packet
Transport Switch)

user@switch> show chassis alarms

23 alarms currently active

Alarm time	Class	Description
2011-07-12 16:22:05 PDT	Minor	No Redundant Power for Rear Chassis
2011-07-12 16:22:05 PDT	Major	PDU 0 PSM 1 Not OK
2011-07-12 16:21:57 PDT	Minor	No Redundant Power for Fan 0-2
2011-07-12 16:21:57 PDT	Major	PDU 0 PSM 0 Not OK
2011-07-12 15:56:06 PDT	Major	PDU 1 PSM 2 Not OK
2011-07-12 15:56:06 PDT	Minor	No Redundant Power for FPC 0-7
2011-07-12 15:56:06 PDT	Major	PDU 0 PSM 3 Not OK
2011-07-12 15:28:20 PDT	Major	PDU 0 PSM 2 Not OK
2011-07-12 15:19:14 PDT	Minor	Backup RE Active

show chassis alarms
(Alarms Active on an
ACX2000 Universal
Access Router)

user@host> show chassis alarms

7 alarms currently active

Alarm time	Class	Description
2012-05-22 11:19:09 UTC	Major	xe-0/3/1: Link down
2012-05-22 11:19:09 UTC	Major	xe-0/3/0: Link down
2012-05-22 11:19:09 UTC	Major	ge-0/1/7: Link down
2012-05-22 11:19:09 UTC	Major	ge-0/1/6: Link down
2012-05-22 11:19:09 UTC	Major	ge-0/1/3: Link down
2012-05-22 11:19:09 UTC	Major	ge-0/1/2: Link down
2012-05-22 11:19:09 UTC	Major	ge-0/1/1: Link down

show chassis cip

Syntax (TX Matrix Plus Router)	show chassis cip
Release Information	Command introduced in Junos OS Release 9.6.
Description	(TX Matrix Plus routers only) Display environmental information about the Connector Interface Panel (CIP) that provides Ethernet Control Plane connectivity to line-card chassis (LCCs), switch fabric chassis, and other devices.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • request chassis cip on page 127 • Installing a T1600 CIP • Installing a T640 CIP • Installing a TX-CIP • Installing an M320 CIP • Installing an M320 CIP • Installing the T1600 CIP • Installing the T320 CIP • CIP Overview
Output Fields	Table 6 on page 159 lists the output fields for the show chassis cip command. Output fields are listed in the approximate order in which they appear.

Table 6: show chassis cip Output Fields

Field Name	Field Description
Eswitch	Ethernet switch used to connect to the LCC or to a JCS1200: 0 or 1.
Port	<p>Physical port number of the Ethernet switch:</p> <ul style="list-style-type: none"> • Port numbers: 4 to 8 on Ethernet switch 0 can be used to connect up to four (reserved for future use) other SFCs or optional JCS1200s. <p>NOTE: The current configuration of the routing matrix based on a TX Matrix Plus router supports only one SFC.</p> <ul style="list-style-type: none"> • Port numbers 0 to 15 on Ethernet switch 1 can be used to connect up to 16 LCCs. <p>NOTE: The current configuration of a routing matrix based on a TX Matrix Plus router supports only up to four LCCs. You can connect the four LCCs to any of the ports (0 to 15) on the Ethernet switch 1.</p>

Table 6: show chassis cip Output Fields (*continued*)

Field Name	Field Description
Type	Type of CIP: <ul style="list-style-type: none"> XE—Ethernet switch 0 ports used for connections to the SFC control plane or other devices such as JCS1200. GE—Ethernet switch 1 ports used for connections to the LCC control plane.
Connected-to	Show control plane connection to a specific LCC or SFC.
Link	State of the connection to an LCC control plane, SFC control plane, or other devices: Up or Down .
Speed	Ethernet link speed.
Duplex	Type of Ethernet link: Full or Half Duplex .
Auto-neg	Status of autonegotiation for the CIP connection to the LCC, SFC, or other devices: On or Off .

show chassis cip (TX Matrix Plus Router)

```

user@host> show chassis cip
sfc0-cip0
Eswitch Port Type Connected-to Link Speed Duplex Auto-Neg
0 4 XE SFC1 Down 0 Full Off
0 5 XE SFC0 Down 0 Full Off
0 6 XE SFC3 Down 0 Full Off
0 7 XE SFC2 Down 0 Full Off
0 8 XE SFC4 Down 0 Full Off
1 0 GE LCC0 Up 1000Mbps Full On
1 1 GE LCC8 Down 0 Half On
1 2 GE LCC1 Up 1000Mbps Full On
1 3 GE LCC9 Down 0 Half On
1 4 GE LCC2 Up 1000Mbps Full On
1 5 GE LCC10 Down 0 Half On
1 6 GE LCC3 Up 1000Mbps Full On
1 7 GE LCC11 Down 0 Half On
1 8 GE LCC4 Down 0 Half On
1 9 GE LCC12 Down 0 Half On
1 10 GE LCC5 Down 0 Half On
1 11 GE LCC13 Down 0 Half On
1 12 GE LCC6 Down 0 Half On
1 13 GE LCC14 Down 0 Half On
1 14 GE LCC7 Down 0 Half On
1 15 GE LCC15 Down 0 Half On
1 16 GE GE17 Up 1000Mbps Full On
1 17 GE GE16 Down 0 Half On

```

show chassis craft-interface

Syntax	show chassis craft-interface
Syntax (MX Series Routers)	show chassis craft-interface <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 Universal Edge Routers)	show chassis craft-interface
Syntax (MX2020 Universal Edge Routers)	show chassis craft-interface
Syntax (TX Matrix Routers)	show chassis craft-interface <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Routers)	show chassis craft-interface <lcc <i>number</i> sfc <i>number</i> >
Syntax (ACX Series Universal Access Routers)	show chassis craft-interface
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>sfc option for the TX Matrix Plus router introduced in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 12.2 for ACX Series Universal Access Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	For routers or switches that have a display on the craft interface, show the messages that are currently displayed. On all routers except for the M20 router, you must enter this command on the master Routing Engine.
Options	<p>none—(TX Matrix, TX Matrix Plus routers, MX2020 and MX2010 routers, and ACX Series routers only) On a TX Matrix router, show messages that are currently displayed on the craft interface on the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, show messages that are currently displayed on the craft interface on the TX Matrix Plus router and its attached T1600 routers.</p> <p>all-members—(MX Series routers only) (Optional) Display information currently on the craft interface for all members of the Virtual Chassis configuration.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, show messages that are currently displayed on the craft interface for a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, show messages that are currently displayed on the craft</p>

interface for a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace **number** with a value from **0** through **3**.

local—(MX Series routers only) (Optional) Display information currently on the craft interface for the local Virtual Chassis member.

member member-id—(MX Series routers only) (Optional) Display information currently on the craft interface for the specified member of the Virtual Chassis configuration. For an MX Series Virtual Chassis, replace **member-id** with a value of 0 or 1.

scc—(TX Matrix router only) (Optional) Show messages that are currently displayed on the craft interface for the TX Matrix router (or switch-card chassis).

sfc number—(TX Matrix Plus router only) (Optional) Show messages that are currently displayed on the craft interface for the TX Matrix Plus router (or switch-fabric chassis). Replace **number** with **0**.

Required Privilege Level view

Related Documentation

- [clear chassis display message on page 122](#)
- [set chassis display message on page 146](#)

List of Sample Output

- [show chassis craft-interface \(M20 Router\) on page 163](#)
- [show chassis craft-interface \(M40 Router\) on page 164](#)
- [show chassis craft-interface \(M120 Router\) on page 164](#)
- [show chassis craft-interface \(M160 Router\) on page 165](#)
- [show chassis craft-interface \(MX2020 Router\) on page 165](#)
- [show chassis craft-interface \(MX2010 Router\) on page 166](#)
- [show chassis craft-interface \(T4000 Router\) on page 167](#)
- [show chassis craft-interface \(TX Matrix Routing Matrix\) on page 168](#)
- [show chassis craft-interface \(TX Matrix Plus Routing Matrix\) on page 170](#)
- [show chassis craft-interface \(ACX2000 Universal Access Router\) on page 172](#)

Output Fields [Table 7 on page 162](#) lists the output fields for the **show chassis craft-interface** command. Output fields are listed in the approximate order in which they appear.

Table 7: show chassis craft-interface Output Fields

Field Name	Field Description
LCD screen or FPM Display Contents	<p>Contents of the Front Panel Module display:</p> <ul style="list-style-type: none"> • router-name—Name of the router. • Up—How long the router has been operational, in days, hours, minutes, and seconds. • message—Information about the router traffic load, the power supply status, the fan status, and the temperature status. The display of this information changes every 2 seconds. If a text message has been created with the set chassis display command, this message appears on all four lines of the craft interface display. The display alternates between the text message and the standard system status messages every 2 seconds.

Table 7: show chassis craft-interface Output Fields (*continued*)

Field Name	Field Description
Front Panel System LEDs	(MX2010 and MX2020 Routers) Status of the Front Panel System LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit.
Front Panel Alarm Indicators	(MX2010 and MX2020 Routers) Status of the Front Panel Alarm indicators. A dot (.) indicates the relay is off. An asterisk (*) indicates the relay is active.
Input Relay	Status of the configured input relay ports—0 through 3. The mode is normally open or closed. The status is clear or raised.
Output Relay	Status of the configured output ports—0 or 1. The mode is normally open or closed. The status is clear or raised.
Front Panel FPC LEDs	(MX2010 and MX2020 Routers) Status of the Front Panel Flexible PIC Concentrator (FPC) LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit. On MX2010 routers, there are 10 (0-9) FPCs LEDs. On MX2020 routers, there are 20 (0-9 and 10-19) FPCs LEDs.
CB LEDs	Status of the Control Board (CB) LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit.
PS LEDs	(MX2010 and MX2020 Routers) Status of the Power Supply (PS) LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit. On MX2010 routers, there are 9 (0-8) PS LEDs. On MX2020 routers, there are 18 (0-8 and 9-17) PS LEDs.
FAN Tray LEDs	(MX2010 and MX2020 Routers) Status of the Fan Tray LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit.
Front Panel SFB LEDs	(MX2010 and MX2020 Routers) Status of the Front Panel Switch Fabric Boards (SFB) LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit.
Front Panel Chassis Info	(MX2010 and MX2020 Routers) Information about the chassis such as the chassis number and role. User can set the chassis number in multi-chassis configurations.
MCS and SFM LEDs	Status of the Miscellaneous Control Subsystem (MCS) and Switching and Forwarding Module (SFM) LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit. When neither a dot nor an asterisk is displayed, there is no board in that slot.
SIB LEDs	Status of the Switch Interface Board (SIB) LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit.
SCG LEDs	Status of the SONET Clock Generator (SCG) LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit.

Sample Output

```

show chassis user@host> show chassis craft-interface
craft-interface (M20 Red alarm:      LED off, relay off
Router)          Yellow alarm:   LED on, relay on
                  Host OK LED:   On
                  Host fail LED: Off
                  FPCs          0  1  2  3

```

```

-----
Green  .  *  *.
Red    ....
LCD screen:
+-----+
|host
|1 Alarm active
|Y: FERF
|
+-----+

```

show chassis craft-interface (M40 Router)

```

user@host> show chassis craft-interface
Front Panel LCD Display: enabled
Red alarm:      LED off, relay off
Yellow alarm:   LED off, relay off
Host OK LED:    On
Host Fail LED:  Off
NICs    0  1  2  3  4  5  6  7

```

```

-----
Green  *.  *.  *.  *.
Red    .....
LCD Screen:
+-----+
|host
|Up: 27+18:52:37
|
|52.649kpps Load
|
+-----+

```

show chassis craft-interface (M120 Router)

```

user@host> show chassis craft-interface
Front Panel System LEDs:
Routing Engine    0    1

```

```

-----
OK                *    .
Fail              .    .
Master            *    .

```

Front Panel Alarm Indicators:

```

-----
Red LED          *
Yellow LED       .
Major relay      *
Minor relay      .

```

```

Front Panel FPC LEDs:
FPC    0    1    2    3    4    5

```

```

-----
Red      .    .    .    .    .    .
Green    .    *    .    *    *    *

```

```

CB LEDs:
CB      0    1

```

```

-----
Amber    .    .
Green    *    *

```

```

PS LEDs:
PS      0    1

```

```

-----
Red      .    .
Green    *    *

```

```

FEB LEDs:
  FEB  0   1   2   3   4   5
-----
Red    .   .   .   .   .   .
Green  .   .   .   *   *   *
Active .   .   .   *   *   *

```

```

show chassis craft-interface (M160 Router)
user@host> show chassis craft-interface
FPM Display contents:

```

```

+-----+
|hosts   |
|Up: 1+16:46|
|        |
|Fans OK |
+-----+

```

```

Front Panel System LEDs:
Host    0    1
-----

```

```

OK      .    *
Fail    .    .
Master  .    *

```

```

Front Panel Alarm Indicators:
-----

```

```

Red LED   .
Yellow LED .
Major relay.
Minor relay.

```

```

Front Panel FPC LEDs:

```

```

FPC    0   1   2   3   4   5   6   7
-----
Red    .   .   .   .   .   .   .   .
Green  *   *   .   .   .   .   .   .

```

```

MCS and SFM LEDs:

```

```

MCS    0   1       SFM    0   1   2   3
-----
Amber   .           .   .
Green   .           .   .
Blue    .   *       .   *   *

```

```

show chassis craft-interface (MX2020 Router)
user@host > show chassis craft-interface
Front Panel System LEDs:
Routing Engine 0 1
-----

```

```

OK * *
Fail . .
Master * .

```

```

Front Panel Alarm Indicators:
-----

```

```

Red LED .
Yellow LED .
Major relay .
Minor relay .

```

```

Front Panel FPC LEDs:
FPC 0 1 2 3 4 5 6 7 8 9
-----

```

```

Red . . . . .

```

```

Green * * * * *
Front Panel FPC LEDs:
FPC 10 11 12 13 14 15 16 17 18 19

```

```

-----
Red . . . . .
Green * * * * *
CB LEDs:
CB 0 1

```

```

-----
Amber . .
Green * *
PS LEDs:
PS 0 1 2 3 4 5 6 7 8

```

```

-----
Red . . . . .
Green * * * * *
PS LEDs:
PS 9 10 11 12 13 14 15 16 17

```

```

-----
Red . . . . .
Green * * * * *
Fan Tray LEDs:
FT 0 1 2 3

```

```

-----
Red . . . .
Green * * * *
Front Panel SFB LEDs:
SFB 0 1 2 3 4 5 6 7

```

```

-----
Red . . . . .
Green * * * * *
Front Panel Chassis Info:
Chassis Number 0x57
Chassis Role M

```

**show chassis
craft-interface
(MX2010 Router)**

```
user@host > show chassis craft-interface
```

```
Front Panel System LEDs:
Routing Engine 0 1

```

```

-----
OK          *      .
Fail        .      *
Master      *      .

```

```
Front Panel Alarm Indicators:

```

```

-----
Red LED      .
Yellow LED   *
Major relay   .
Minor relay   *

```

```
Front Panel FPC LEDs:
FPC  0  1  2  3  4  5  6  7  8  9
-----
Red   .   .   .   .   .   .   .   .   .   .
Green *   *   .   .   .   .   .   .   *   *
```

```
CB LEDs:
CB  0  1

```

```

-----
Amber .   .
Green *   *
```

```

PS LEDs:
  PS   0   1   2   3   4   5   6   7   8
-----
Red    .   .   .   .   .   .   .   .   .
Green  .   .   .   .   *   *   *   *   *

Fan Tray LEDs:
  FT   0   1   2   3
-----
Red    .   .   .   .
Green  *   *   *   *

Front Panel SFB LEDs:
SFB    0   1   2   3   4   5   6   7
-----
Red    .   .   .   .   .   .   .   .
Green  *   *   *   *   *   *   *   *

Front Panel Chassis Info:
Chassis Number    0x0
Chassis Role      S

```

```

show chassis user@host> show chassis craft-interface
craft-interface (T4000 Router) FPM Display contents:

```

```

+-----+
|stymphalian      |
|2 Alarms active  |
|R: Front Top Fan Tra|
|Y: PEM 1 Absent  |
+-----+

```

```

Front Panel System LEDs:
Routing Engine    0   1
-----
OK                *   *
Fail              .   .
Master            *   .

```

```

Front Panel Alarm Indicators:

```

```

-----
Red LED          *
Yellow LED       *
Major relay      *
Minor relay      *

```

```

Front Panel FPC LEDs:
FPC    0   1   2   3   4   5   6   7
-----
Red    .   .   .   .   .   .   .   .
Green  *   .   .   *   .   *   *   .

```

```

CB LEDs:
  CB   0   1
-----
Amber  .   .
Green  *   *
Blue   *   .

```

```

SCG LEDs:

```

```

SCG 0 1
-----
Amber . .
Green * *
Blue  * .

SIB LEDs:
SIB 0 1 2 3 4
-----
Red . . . . .
Green * * * * *

```

**show chassis
craft-interface (TX
Matrix Routing Matrix)**

```

user@host> show chassis craft-interface
scc-re0:

```

```

-----
FPM Display contents:
+-----+
|bradley      |
|8 Alarms active|
|R: SIB 2 Absent|
|R: SIB 1 Absent|
+-----+

```

```

Front Panel System LEDs:
Routing Engine 0 1
-----
OK                * .
Fail              . .
Master            * .

```

```

Front Panel Alarm Indicators:
-----
Red LED          *
Yellow LED       *
Major relay      *
Minor relay      *

```

```

CB LEDs:
CB 0 1
-----
Amber. .
Green * .
Blue  * .

```

```

SIB LEDs:
SIB 0 1 2 3 4
-----
Fail . . . . .
OK   . . . . *
Active . . . . *

```

```

lcc0-re0:

```

```

-----
FPM Display contents:
+-----+
|hybrid      |
|5 Alarms active|
|R: SIB 2 Absent|
|R: SIB 1 Absent|
+-----+

```

```

Front Panel System LEDs:

```

```

Routing Engine      0      1
-----
OK                  *      .
Fail                .      .
Master              *      .

Front Panel Alarm Indicators:
-----
Red LED             *
Yellow LED          *
Major relay         *
Minor relay         *

Front Panel FPC LEDs:
FPC      0      1      2      3      4      5      6      7
-----
Red      .      .      .      .      .      .      .      .
Green    *      *      *      .      .      .      .      .

CB LEDs:
  CB      0      1
-----
Amber    .
Green    *      .
Blue     *      .

SCG LEDs:
  SCG      0      1
-----
Amber    .
Green    *      .
Blue     *      .

SIB LEDs:
  SIB      0      1      2      3      4
-----
Red      .      .      .      .      .
Green    .      .      .      *      .

lcc2-re0:
-----
FPM Display contents:
+-----+
| prius          |
| 5 Alarms active |
| R: SIB 2 Absent |
| R: SIB 1 Absent |
+-----+

Front Panel System LEDs:
Routing Engine      0      1
-----
OK                  *      .
Fail                .      .
Master              *      .

Front Panel Alarm Indicators:
-----
Red LED             *
Yellow LED          *
Major relay         *

```

```

Minor relay  *

Front Panel FPC LEDs:
FPC    0    1    2    3    4    5    6    7
-----
Red    .    .    .    .    .    .    .    .
Green  *    *    *    .    .    .    .    .

CB LEDs:
CB     0    1
-----
Amber.  .
Green  *  .
Blue   *  .

SCG LEDs:
SCG    0    1
-----
Amber.  .
Green  *  .
Blue   *  .

SIB LEDs:
SIB    0    1    2    3    4
-----
Red    .    .    .    .    .
Green.  .    .    .    *

```

**show chassis
craft-interface (TX
Matrix Plus
Routing Matrix)**

```

user@host> show chassis craft-interface
sfc0-re0:

```

```

-----
FPM Display Contents:
+-----+
|finalfive      |
|22 Alarms active|
|R: LCC 0 Major Error|
|R: SIB F2S 4/6 Absent|
+-----+

```

```

Front Panel System LEDs:
Routing Engine    0    1
-----
OK                *    *
Fail              .    .
Master            *    .

```

```

Front Panel Alarm Indicators:
-----
Red LED          *
Yellow LED       *
Major relay      *
Minor relay      *

```

```

Front Panel F13 SIB LEDs:
SIB    0    1    2    3    4    5    6    7    8    9    10   11   12   13   14   15
-----
Fail    .    .    .    .    .    .    .    .    .    .    .    .    .    .    .
OK      *    *    .    .    .    .    .    .    .    .    .    .    .    .    .
Active  *    *    .    .    .    .    .    .    .    .    .    .    .    .    .

```

```

PS LEDs:

```

```

PS    0    1
-----
Red    .    .
Green  *    .

Fan Tray LEDs:
  FT    0    1    2    3    4    5
-----
Red    .    .    .    .    .    .
Green  *    *    *    *    *    *

CB LEDs:
  CB    0    1
-----
Amber  .    .
Green  *    *
Blue   *    .
FPM Display contents:
+-----+
|tigh          |
|5 Alarms active|
|R: SIB-L - Fan Rev M|
|Y: Check SIB 0  |
+-----+

Front Panel System LEDs:
Routing Engine    0    1
-----
OK                *    *
Fail              .    .
Master            *    .

Front Panel Alarm Indicators:
-----
Red LED           *
Yellow LED        *
Major relay       *
Minor relay       *

Front Panel FPC LEDs:
FPC    0    1    2    3    4    5    6    7
-----
Red    .    .    .    .    .    .    .    .
Green  *    *    .    .    .    .    .    .

CB LEDs:
  CB    0    1
-----
Amber  .    .
Green  *    *
Blue   *    .

SCG LEDs:
  SCG    0    1
-----
Amber  .    .
Green  *    *
Blue   *    .

SIB LEDs:
  SIB    0    1    2    3    4

```

```

-----
Red      .      .      .      .      .
Green    *      .      .      .      .

show chassis user@host> show chassis craft-interface
craft-interface Front Panel System LEDs:
(ACX2000 Universal Routing Engine
Access Router) -----
OK                      *
Fail                     .

Front Panel Alarm Indicators:
-----
Red LED      .
Yellow LED   .
Major relay   .
Minor relay   .

Input relay:
-----
Port    Mode    Status
0       Open    Clear
1       Open    Clear
2       Open    Clear
3       Open    Clear

Output relay:
-----
Port    Mode    Status
0       Open    Clear
1       Open    Clear

PS Status:
  PS    0    1
-----
Red      .    .
Green    *    *

```

show chassis environment

Syntax	show chassis environment
Syntax (T320, T640, T1600, and T4000 Routers)	show chassis environment <cb <i>cb-slot-number</i> > <fpc <i>fpc-slot-number</i> > <fpm> <pem <i>pem-slot-number</i> > <routing-engine <i>re-slot-number</i> > <scg <i>scg-slot-number</i> > <sib <i>sib-slot-number</i> >
Syntax (TX Matrix Routers)	show chassis environment <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Routers)	show chassis environment <lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Routers)	show chassis environment <all-members> <local> <member <i>member-id</i> >
Syntax (MX2020 3D Universal Edge Routers)	show chassis environment <adc <i>adc-slot-number</i> > <cb <i>cb-slot-number</i> > <fpc <i>fpc-slot-number</i> > <fpm> <monitored> <psm <i>psm-slot-number</i> > <routing-engine <i>re-slot-number</i> > <sfb <i>sfb-slot-number</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis environment <adc <i>adc-slot-number</i> > <cb <i>cb-slot-number</i> > <fpc <i>fpc-slot-number</i> > <fpm> <monitored> <psm <i>psm-slot-number</i> > <routing-engine <i>re-slot-number</i> > <sfb <i>sfb-slot-number</i> >
Syntax (EX Series Switch)	show chassis environment <all-members> <cb <i>cb-slot-number</i> > <fpc <i>fpc-slot-number</i> > <local> <member <i>member-id</i> > <routing-engine <i>re-slot-number</i> >

Syntax (EX Series Switch)	<pre>show chassis environment <all-members> <cb <i>cb-slot-number</i>> <fpc <i>fpc-slot-number</i>> <local> <member <i>member-id</i>> <power-supply-unit <i>psu-slot-number</i>> <routing-engine <i>slot-number</i>></pre>
Syntax (QFX Series)	<pre>show chassis environment <cb <i>slot-number</i> <interconnect-device <i>name</i>>> <fpc <i>slot-number</i> <interconnect-device <i>name</i>>> <interconnect-device <i>name</i> <slot-number> <node-device <i>name</i>> <pem <i>slot-number</i> (interconnect-device <i>name</i> <i>slot-number</i>) (node-device <i>name</i>)> <routing-engine <i>name</i> <interconnect-device <i>name</i> <i>slot-number</i>>></pre>
Syntax (PTX Series Packet Transport Switches)	<pre>show chassis environment <cb <i>cb-slot-number</i>> <ccg <i>ccg-slot-number</i>> <fpc <i>fpc-slot-number</i>> <fpm> <monitored> <pdu <i>pdu-slot-number</i>> <routing-engine <i>re-slot-number</i>> <sib <i>sib-slot-number</i>></pre>
Syntax (ACX Series Universal Access Routers)	<pre>show chassis environment <cb <i>cb-slot-number</i>> <pem <i>pem-slot-number</i>> <routing-engine <i>re-slot-number</i>></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 11.1 for QFX Series.</p> <p>Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches.</p> <p>monitored option added in Junos OS Release 12.1 for PTX Series Packet Transport Switches.</p> <p>Command introduced in Junos OS Release 12.1 for T4000 Core Routers.</p> <p>Command introduced in Junos OS Release 12.2 for ACX Series Universal Access Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p> <p>pem option introduced in Junos OS Release 12.3 for ACX4000 Universal Access Routers.</p>
Description	Display environmental information about the router or switch chassis, including the temperature and information about the fans, power supplies, and Routing Engine.
Options	none —Display environmental information about the router or switch chassis. On a TX Matrix router, display environmental information about the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display environmental information about the TX Matrix Plus router and its attached T1600 routers.

all-members—(MX Series routers and EX Series switches only) (Optional) Display chassis environmental information for all the members of the Virtual Chassis configuration.

adc *adc-slot-number*—(MX2020 and MX2010 routers only) (Optional) Display chassis environmental information for the adapter cards. For MX2020 routers, replace *adc-slot-number* with a value from 0 through 19. For MX2010 routers, replace *adc-slot-number* with a value from 0 through 9.

cb *cb-slot-number*—(ACX Series Universal Access Routers, EX Series switches, M120, M320, and M40e routers, MX Series routers, MX2020 routers, MX2010 routers, PTX Series Packet Transport Switches, QFX Series, and T Series routers only) (Optional) Display chassis environmental information for the Control Board. On devices other than EX Series switches, replace *cb-slot* with 0 or 1. For the EX Series switches, see EX Series Switches Hardware and CLI Terminology Mapping for information on CB slot numbering.

cb interconnect-device *name*—(QFabric systems only) (Optional) Display chassis environmental information for the Control Board on an Interconnect device.

ccg *ccg-slot-number*—(PTX Series only) (Optional) Display chassis environmental information for the Centralized Clock Generator. Replace *cb-slot* with a value of 0 or 1.

fpc *fpc-slot*—(EX Series switches, M120, M320, and M40e routers, MX Series routers, MX2010 routers, MX2020 routers, PTX Series Packet Transport Switches, QFX Series, QFX3500 switches, QFabric systems, and T Series routers) (Optional) Display chassis environmental information for a specified Flexible PIC Concentrator. For MX2010 routers, replace *fpc-slot* with a value from 0 through 9. For MX2020 routers, replace *fpc-slot* with a value from 0 through 19. For information about FPC numbering, see [show chassis environment fpc](#). On a QFabric system, display chassis environmental information for a specified Flexible PIC Concentrator on an Interconnect device. On an EX Series switch, display chassis environmental information for a specified Flexible PIC Concentrator; see EX Series Switches Hardware and CLI Terminology Mapping for information on FPC numbering.

fpm—(M120, M320, and M40e routers, MX2010 routers, MX2020 routers, PTX Series, Packet Transport Switches, and T Series routers only) (Optional) Display chassis environmental information for the craft interface (FPM).

interconnect-device *name*—(QFabric systems only) (Optional) Display chassis environmental information for the Interconnect device.

monitored—(MX2020 routers and PTX Series Packet Transport Switches only) (Optional) Display chassis environmental information for monitored temperatures only. Temperatures that are not included in temperature alarm computations are not displayed.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display chassis environmental information for a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display chassis environmental information for a specified T1600 router (or line-card chassis)

that is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

local—(MX Series routers and EX Series switches) (Optional) Display chassis environmental information for the local Virtual Chassis member.

member member-id—(MX Series routers and EX Series switches only) (Optional) Display chassis environmental information for the specified member of the Virtual Chassis configuration. On MX Series routers, replace **member-id** with a value of 0 or 1. For EX Series switches, see member for member ID values.

node-device name—(QFabric systems only) (Optional) Display chassis environmental information for the Node device.

pdu pdu-slot-number—(PTX Series only) (Optional) Display chassis environmental information for the specified power distribution unit.

pem—(QFX3500 switches and QFabric systems only) (Optional) Display chassis environmental information for the Power Entry Module on the specified Interconnect device or Node device.

pem pem-slot-number—(ACX Series Universal Access Routers, M120, M320, and M40e routers, MX Series routers, QFX Series, and T Series routers only) (Optional) Display chassis environmental information for the Power Entry Module on the specified Power Entry Module. For information about the options, see [show chassis environment pem](#).

psm psm-slot-number—(MX2020 and MX2010 routers only) (Optional) Display chassis environmental information for the power supply module. For MX2020 routers, replace **psm-slot-number** with a value from 0 through 17. For MX2010 routers, replace **psm-slot-number** with a value from 0 through 8.

psu psu-slot-number—(EX Series switches only) (Optional) Display chassis environmental information for a specified power supply. See EX Series Switches Hardware and CLI Terminology Mapping for detailed information.

routing-engine—(QFX3500 switches and QFabric systems only) (Optional) Display chassis environmental information for the Routing Engine on the specified Interconnect device.

routing-engine re-slot-number—(Optional) Display chassis environmental information for the specified Routing Engine. For information about the options, see [show chassis environment routing-engine](#).

scg—(T Series routers only) (Optional) Display chassis environmental information about the SONET Clock Generator.

scc—(TX Matrix routers only) (Optional) Display chassis environmental information about the TX Matrix router (or switch-card chassis).

sfb *sfb-slot-number*—(MX2020 and MX2010 routers only) (Optional) Display chassis environmental information for the power supply module. Replace ***sfb-slot-number*** with a value from 0 through 7.

sfc *number*—(TX Matrix Plus routers only) (Optional) Display chassis environmental information about the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

sib *sib-slot-number*—(M320 routers, PTX Series Packet Transport Switches, and T Series routers only) (Optional) Display chassis environmental information about the specified switch interface board. For information about the options, see [show chassis environment sib](#).

Required Privilege Level view

Related Documentation

- show chassis environment adc
- [show chassis environment cb on page 221](#)
- show chassis environment ccg
- [show chassis environment cip on page 238](#)
- [show chassis environment fpc on page 240](#)
- [show chassis environment fpm on page 265](#)
- show chassis environment mcs
- show chassis environment monitored
- show chassis environment pcg
- show chassis environment pdu
- [show chassis environment pem on page 271](#)
- show chassis environment psm
- show chassis environment psu
- [show chassis environment routing-engine on page 279](#)
- [show chassis environment scg on page 283](#)
- show chassis environment sfb
- [show chassis environment sib on page 288](#)

List of Sample Output

[show chassis environment \(J2300 Router\) on page 180](#)
[show chassis environment \(J4300 or J6300 Router\) on page 180](#)
[show chassis environment \(M5 Router\) on page 180](#)
[show chassis environment \(M7i Router\) on page 180](#)
[show chassis environment \(M10 Router\) on page 180](#)
[show chassis environment \(M10i Router\) on page 181](#)
[show chassis environment \(M20 Router\) on page 181](#)

[show chassis environment \(M40 Router\) on page 181](#)
[show chassis environment \(M40e Router\) on page 182](#)
[show chassis environment \(M120 Router\) on page 182](#)
[show chassis environment \(M160 Router\) on page 183](#)
[show chassis environment \(M320 Router\) on page 184](#)
[show chassis environment \(MX240 Router\) on page 184](#)
[show chassis environment \(MX240 Router with Enhanced MX SCB\) on page 185](#)
[show chassis environment \(MX480 Router\) on page 186](#)
[show chassis environment \(MX480 Router with Enhanced MX SCB\) on page 187](#)
[show chassis environment \(MX960 Router\) on page 188](#)
[show chassis environment \(MX960 Router with Enhanced MX SCB\) on page 189](#)
[show chassis environment \(MX2020 Router\) on page 191](#)
[show chassis environment \(MX2010 Router\) on page 201](#)
[show chassis environment \(T320 Router\) on page 206](#)
[show chassis environment \(T640 Router\) on page 207](#)
[show chassis environment \(T4000 Router\) on page 208](#)
[show chassis environment \(TX Matrix Router\) on page 209](#)
[show chassis environment \(T1600 Router\) on page 211](#)
[show chassis environment \(TX Matrix Plus Router\) on page 212](#)
[show chassis environment \(EX4200 Standalone Switch\) on page 214](#)
[show chassis environment \(EX8216 Switch\) on page 214](#)
[show chassis environment \(QFX Series\) on page 215](#)
[show chassis environment interconnect-device \(QFabric System\) on page 215](#)
[show chassis environment node-device \(QFabric System\) on page 217](#)
[show chassis environment pem node-device \(QFabric System\) on page 217](#)
[show chassis environment \(PTX5000 Packet Transport Switch\) on page 217](#)
[show chassis environment \(ACX2000 Universal Access Router\) on page 220](#)
[show chassis environment \(ACX4000 Universal Access Router\) on page 220](#)

Output Fields [Table 8 on page 179](#) lists the output fields for the **show chassis environment** command. Output fields are listed in the approximate order in which they appear.

Table 8: show chassis environment Output Fields

Field Name	Field Description
Class	<p>Information about the category or class of chassis component:</p> <ul style="list-style-type: none"> • Power: Power information: <ul style="list-style-type: none"> • (M5, M10, M20, and M40 routers and EX Series switches only) Power supply status: OK, Testing, (during initial power-on), Failed, or Absent. • (M7i, M10i, M40e, M120, M160, M320, and T Series routers and EX Series switches only) Power Entry Modules status: OK, Testing, (during initial power-on), Check, Failed, or Absent. • (PTX Series only) Power information is reported in PDU or PSM combinations. The status is: OK, Testing, (during initial power-on), Check, Failed, or Absent. • Temp: Temperature of air flowing through the chassis in degrees Celsius (C) and Fahrenheit (F). On PTX Series Packet Transport Switches and MX2010 and MX2020 Routers, multiple cooling zones are supported. FRU temperatures in each zone are coordinated with the fan speed of fan trays in those zones. • Fan: Fan status: OK, Testing (during initial power-on), Failed, or Absent. On PTX Series Packet Transport Switches and MX2010 and MX2020 Routers, multiple fan trays are supported. Fan status is reported in Fan Tray or Fan combinations. Measurement indicates actual fan RPM (PTX and MX2010 and MX2020 Routers only). • Misc: Information about other components of the chassis. <ul style="list-style-type: none"> • On some routers, this field indicates the status of one or more additional components. • On the M40e, M160, and M320 router, Misc includes CIP (Connector Interface Panel). OK indicates that the CIP is present. Absent indicates that the CIP is not present. • On T Series routers, Misc includes CIP and SPMB (Switch Processor Mezzanine Board). OK indicates that the CIP or SPMB is present. Absent indicates that the CIP or SPMB is not present. • On PTX Series Packet Transport Switches, Misc includes the SPMB (Switch Processor Mezzanine Board). The SPMB is located on the control boards. OK indicates that the control board is present. Absent indicates that the control board is not present.
Item	(MX2010 and MX2020 Routers) Information about the chassis component: Routing Engines, Controls Boards (CBs), Switch Fabric Boards (SFBs), PICs, Flexible PIC Concentrators (FPCs), and Adapter Cards (ADCs).
Status	<p>(MX2010 and MX2020 Routers) Status of the specified chassis component. For example, if the Class is Fan, the fan status can be:</p> <ul style="list-style-type: none"> • OK: The fans are operational. • Testing: The fans are being tested during initial power-on. • Failed: The fans have failed or the fans are not spinning. • Absent: The fan tray is not installed. <p>If the Class is Power, the power supply status can be:</p> <ul style="list-style-type: none"> • OK: The power component is operational. • Testing: The power component is being tested during initial power-on. • Check: There is insufficient power---that is, fewer than the minimum required feeds are connected. • Failed: The inputs leads have failed. • Absent: The power component is not installed.
Measurement	(MX2010 and MX2020 Routers) Dependant on the Class. For example, if the Class is Temp, indicates the temperature in degree Celsius and degrees Fahrenheit. If the Class is Fan, indicates actual fan RPM.

Sample Output

```

show chassis environment (J2300 Router) user@host> show chassis environment
Class Item Status Measurement
Temp Routing Engine OK 40 degrees C / 104 degrees F
Fan Fan OK

```

```

show chassis environment (J4300 or J6300 Router) user@host> show chassis environment
Class Item Status Measurement
Temp Routing Engine OK 41 degrees C / 105 degrees F
Fan Fan 0 OK
Fan Fan 1 OK

```

```

show chassis environment (M5 Router) user@host> show chassis environment
Class Item Status Measurement
Power Power Supply A OK
Power Power Supply B Absent
Temp FPC 0 OK 30 degrees C / 86 degrees F
FEB OK 33 degrees C / 91 degrees F
PS Intake OK 27 degrees C / 80 degrees F
PS Exhaust OK 27 degrees C / 80 degrees F
Routing Engine OK 34 degrees C / 93 degrees F
Fans Left Fan 1 OK Spinning at normal speed
Left Fan 2 OK Spinning at normal speed
Left Fan 3 OK Spinning at normal speed
Left Fan 4 OK Spinning at normal speed
Misc Craft Interface OK

```

```

show chassis environment (M7i Router) user@host> show chassis environment
Class Item Status Measurement
Power Power Supply 0 OK
Power Power Supply 1 Absent
Temp Intake OK 22 degrees C / 71 degrees F
FPC 0 OK 23 degrees C / 73 degrees F
Power Supplies OK 23 degrees C / 73 degrees F
CFEB Intake OK 24 degrees C / 75 degrees F
CFEB Exhaust OK 29 degrees C / 84 degrees F
Routing Engine OK 26 degrees C / 78 degrees F
Fans Fan 1 OK Spinning at normal speed
Fan 2 OK Spinning at normal speed
Fan 3 OK Spinning at normal speed
Fan 4 OK Spinning at normal speed

```

```

show chassis environment (M10 Router) user@host> show chassis environment
Class Item Status Measurement
Power Power Supply A OK
Power Power Supply B Failed
Temp FPC 0 OK 36 degrees C / 96 degrees F
FPC 1 OK 35 degrees C / 95 degrees F
FEB OK 34 degrees C / 93 degrees F
PS Intake OK 31 degrees C / 87 degrees F
PS Exhaust OK 34 degrees C / 93 degrees F
Routing Engine OK 35 degrees C / 95 degrees F
Fans Left Fan 1 OK Spinning at normal speed
Left Fan 2 OK Spinning at normal speed
Left Fan 3 OK Spinning at normal speed
Left Fan 4 OK Spinning at normal speed

```

Misc Craft Interface OK

```

show chassis user@host> show chassis environment
environment (M10i Class Item Status Measurement
Router) Power Power Supply 0 OK
Power Supply 1 OK
Power Supply 2 Absent
Power Supply 3 Absent
Temp Intake OK 26 degrees C / 78 degrees F
FPC 0 OK 27 degrees C / 80 degrees F
FPC 1 OK 28 degrees C / 82 degrees F
Lower Power Supplies OK 29 degrees C / 84 degrees F
Upper Power Supplies OK 28 degrees C / 80 degrees F
CFEB Intake OK 27 degrees C / 80 degrees F
CFEB Exhaust OK 36 degrees C / 96 degrees F
Routing Engine 0 OK 31 degrees C / 87 degrees F
Routing Engine 1 OK 27 degrees C / 80 degrees F
Fans Fan Tray 0 Fan 1 OK Spinning at normal speed
Fan Tray 0 Fan 2 OK Spinning at normal speed
Fan Tray 0 Fan 3 OK Spinning at normal speed
Fan Tray 0 Fan 4 OK Spinning at normal speed
Fan Tray 0 Fan 5 OK Spinning at normal speed
Fan Tray 0 Fan 6 OK Spinning at normal speed
Fan Tray 0 Fan 7 OK Spinning at normal speed
Fan Tray 0 Fan 8 OK Spinning at normal speed
Fan Tray 1 Fan 1 Absent
Fan Tray 1 Fan 2 Absent
Fan Tray 1 Fan 3 Absent
Fan Tray 1 Fan 4 Absent
Fan Tray 1 Fan 5 Absent
Fan Tray 1 Fan 6 Absent
Fan Tray 1 Fan 7 Absent
Fan Tray 1 Fan 8 Absent

```

```

show chassis user@host> show chassis environment
environment (M20 Class Item Status Measurement
Router) Power Power Supply A OK
Power Supply B Absent
Temp FPC 0 OK 28 degrees C / 82 degrees F
FPC 1 OK 27 degrees C / 80 degrees F
Power Supply A OK 22 degrees C / 71 degrees F
Power Supply B Absent
SSB 0 OK 30 degrees C / 86 degrees F
Backplane OK 22 degrees C / 71 degrees F
Routing Engine 0 OK 26 degrees C / 78 degrees F
Routing Engine 1 Testing
Fans Rear Fan OK Spinning at normal speed
Front Upper Fan OK Spinning at normal speed
Front Middle Fan OK Spinning at normal speed
Front Bottom Fan OK Spinning at normal speed
Misc Craft Interface OK

```

```

show chassis user@host> show chassis environment
environment (M40 Class Item Status Measurement
Router) Power Power Supply A OK
Power Supply B Absent
Temp FPC 3 OK 24 degrees C / 75 degrees F

```

	FPC 6	OK	26 degrees C / 78 degrees F
	SCB	OK	26 degrees C / 78 degrees F
	Backplane @ A1	OK	28 degrees C / 82 degrees F
	Backplane @ A2	OK	23 degrees C / 73 degrees F
	Routing Engine	OK	26 degrees C / 78 degrees F
Fans	Top Impeller	OK	Spinning at normal speed
	Bottom impeller	OK	Spinning at normal speed
	Rear Left Fan	OK	Spinning at normal speed
	Rear Center Fan	OK	Spinning at normal speed
	Rear Right Fan	OK	Spinning at normal speed
Misc	Craft Interface	OK	

**show chassis
environment (M40e
Router)**

user@host> show chassis environment

Class	Item	Status	Measurement
Power	PEM 0	OK	
	PEM 1	Absent	
Temp	PCG 0	OK	44 degrees C / 111 degrees F
	PCG 1	OK	47 degrees C / 116 degrees F
	Routing Engine 0	OK	40 degrees C / 104 degrees F
	Routing Engine 1	OK	37 degrees C / 98 degrees F
	MCS 0	OK	45 degrees C / 113 degrees F
	MCS 1	OK	42 degrees C / 107 degrees F
	SFM 0 SPP	OK	40 degrees C / 104 degrees F
	SFM 0 SPR	OK	44 degrees C / 111 degrees F
	SFM 1 SPP	OK	43 degrees C / 109 degrees F
	SFM 1 SPR	OK	45 degrees C / 113 degrees F
	FPC 0	OK	38 degrees C / 100 degrees F
	FPC 1	OK	40 degrees C / 104 degrees F
	FPC 2	OK	38 degrees C / 100 degrees F
	FPC 4	OK	34 degrees C / 93 degrees F
	FPC 5	OK	43 degrees C / 109 degrees F
	FPC 6	OK	41 degrees C / 105 degrees F
	FPC 7	OK	43 degrees C / 109 degrees F
	FPM CMB	OK	28 degrees C / 82 degrees F
	FPM Display	OK	28 degrees C / 82 degrees F
Fans	Rear Bottom Blower	OK	Spinning at normal speed
	Rear Top Blower	OK	Spinning at normal speed
	Front Top Blower	OK	Spinning at normal speed
	Fan Tray Rear Left	OK	Spinning at normal speed
	Fan Tray Rear Right	OK	Spinning at normal speed
	Fan Tray Front Left	OK	Spinning at normal speed
	Fan Tray Front Right	OK	Spinning at normal speed
Misc	CIP	OK	

**show chassis
environment (M120
Router)**

user@host> show chassis environment

Class	Item	Status	Measurement
Temp	PEM 0	OK	
	PEM 1	OK	
	Routing Engine 0	OK	43 degrees C / 109 degrees F
	Routing Engine 1	OK	44 degrees C / 111 degrees F
	CB 0 Intake	OK	33 degrees C / 91 degrees F
	CB 0 Exhaust A	OK	36 degrees C / 96 degrees F
	CB 0 Exhaust B	OK	35 degrees C / 95 degrees F
	CB 1 Intake	OK	34 degrees C / 93 degrees F
	CB 1 Exhaust A	OK	38 degrees C / 100 degrees F
	CB 1 Exhaust B	OK	35 degrees C / 95 degrees F
	FEB 3 Intake	OK	35 degrees C / 95 degrees F
	FEB 3 Exhaust A	OK	37 degrees C / 98 degrees F
	FEB 3 Exhaust B	OK	39 degrees C / 102 degrees F

	FEB 4 Intake	OK	33 degrees C / 91 degrees F
	FEB 4 Exhaust A	OK	39 degrees C / 102 degrees F
	FEB 4 Exhaust B	OK	36 degrees C / 96 degrees F
	FPC 2 Exhaust A	OK	32 degrees C / 89 degrees F
	FPC 2 Exhaust B	OK	31 degrees C / 87 degrees F
	FPC 3 Exhaust A	OK	32 degrees C / 89 degrees F
	FPC 3 Exhaust B	OK	33 degrees C / 91 degrees F
	FPC 4 Exhaust A	OK	32 degrees C / 89 degrees F
	FPC 4 Exhaust B	OK	30 degrees C / 86 degrees F
Fans	Front Top Tray Fan 1	OK	Spinning at normal speed
	Front Top Tray Fan 2	OK	Spinning at normal speed
	Front Top Tray Fan 3	OK	Spinning at normal speed
	Front Top Tray Fan 4	OK	Spinning at normal speed
	Front Top Tray Fan 5	OK	Spinning at normal speed
	Front Top Tray Fan 6	OK	Spinning at normal speed
	Front Top Tray Fan 7	OK	Spinning at normal speed
	Front Top Tray Fan 8	OK	Spinning at normal speed
	Front Bottom Tray Fan 1	OK	Spinning at normal speed
	Front Bottom Tray Fan 2	OK	Spinning at normal speed
	Front Bottom Tray Fan 3	OK	Spinning at normal speed
	Front Bottom Tray Fan 4	OK	Spinning at normal speed
	Front Bottom Tray Fan 5	OK	Spinning at normal speed
	Front Bottom Tray Fan 6	OK	Spinning at normal speed
	Front Bottom Tray Fan 7	OK	Spinning at normal speed
	Front Bottom Tray Fan 8	OK	Spinning at normal speed
	Rear Top Tray Fan 1	OK	Spinning at normal speed
	Rear Top Tray Fan 2	OK	Spinning at normal speed
	Rear Top Tray Fan 3	OK	Spinning at normal speed
	Rear Top Tray Fan 4	OK	Spinning at normal speed
	Rear Top Tray Fan 5	OK	Spinning at normal speed
	Rear Top Tray Fan 6	OK	Spinning at normal speed
	Rear Top Tray Fan 7	OK	Spinning at normal speed
	Rear Top Tray Fan 8	OK	Spinning at normal speed
	Rear Bottom Tray Fan 1	OK	Spinning at normal speed
	Rear Bottom Tray Fan 2	OK	Spinning at normal speed
	Rear Bottom Tray Fan 3	OK	Spinning at normal speed
	Rear Bottom Tray Fan 4	OK	Spinning at normal speed
	Rear Bottom Tray Fan 5	OK	Spinning at normal speed
	Rear Bottom Tray Fan 6	OK	Spinning at normal speed
	Rear Bottom Tray Fan 7	OK	Spinning at normal speed
	Rear Bottom Tray Fan 8	OK	Spinning at normal speed

```

show chassis environment (M160 Router)
user@host> show chassis environment

```

Class	Item	Status	Measurement
Power	PEM 0	OK	PEM 1 Absent
Temp	PCG 0	OK	45 degrees C / 113 degrees F
	PCG 1	Absent	
	Routing Engine 0	OK	35 degrees C / 95 degrees F
	Routing Engine 1	Absent	
	MCS 0	OK	50 degrees C / 122 degrees F
	SFM 0 SPP	OK	47 degrees C / 116 degrees F
	SFM 0 SPR	OK	49 degrees C / 120 degrees F
	SFM 1 SPP	OK	50 degrees C / 122 degrees F
	SFM 1 SPR	OK	50 degrees C / 122 degrees F
	SFM 2 SPP	OK	51 degrees C / 123 degrees F
	SFM 2 SPR	OK	52 degrees C / 125 degrees F
	SFM 3 SPP	OK	52 degrees C / 125 degrees F
	SFM 3 SPR	OK	48 degrees C / 118 degrees F
	FPC 0	OK	45 degrees C / 113 degrees F
	FPC 6	OK	43 degrees C / 109 degrees F
	FPM CMB	OK	31 degrees C / 87 degrees F

	FPM Display	OK	33 degrees C / 91 degrees F
Fans	Rear Bottom Blower	OK	Spinning at normal speed
	Rear Top Blower	OK	Spinning at normal speed
	Front Top Blower	OK	Spinning at normal speed
	Fan Tray Rear Left	OK	Spinning at normal speed
	Fan Tray Rear Right	OK	Spinning at normal speed
	Fan Tray Front Left	OK	Spinning at normal speed
	Fan Tray Front Right	OK	Spinning at normal speed
Misc	CIP	OK	

**show chassis
environment (M320
Router)**

user@host> show chassis environment

Class	Item	Status	Measurement
Temp	PEM 0	Absent	
	PEM 1	Absent	
	PEM 2	OK	
	PEM 3	OK	
	Routing Engine 0	OK	33 degrees C / 91 degrees F
	Routing Engine 1	OK	32 degrees C / 89 degrees F
	CB 0	OK	36 degrees C / 96 degrees F
	CB 1	OK	36 degrees C / 96 degrees F
	SIB 0	OK	38 degrees C / 100 degrees F
	SIB 1	OK	29 degrees C / 84 degrees F
	SIB 2	OK	38 degrees C / 100 degrees F
	SIB 3	OK	41 degrees C / 105 degrees F
	FPC 0 Intake	OK	28 degrees C / 82 degrees F
	FPC 0 Exhaust	OK	40 degrees C / 104 degrees F
	FPC 1 Intake	OK	29 degrees C / 84 degrees F
	FPC 1 Exhaust	OK	39 degrees C / 102 degrees F
	FPC 2 Intake	OK	28 degrees C / 82 degrees F
	FPC 2 Exhaust	OK	38 degrees C / 100 degrees F
	FPC 3 Intake	OK	28 degrees C / 82 degrees F
	FPC 3 Exhaust	OK	39 degrees C / 102 degrees F
	FPC 6 Intake	OK	27 degrees C / 80 degrees F
	FPC 6 Exhaust	OK	39 degrees C / 102 degrees F
	FPC 7 Intake	OK	27 degrees C / 80 degrees F
	FPC 7 Exhaust	OK	42 degrees C / 107 degrees F
	FPM GBUS	OK	30 degrees C / 86 degrees F
Fan	Top Left Front fan	OK	Spinning at normal speed
	Top Right Rear fan	OK	Spinning at normal speed
	Top Right Front fan	OK	Spinning at normal speed
	Top Left Rear fan	OK	Spinning at normal speed
	Bottom Left Front fan	OK	Spinning at normal speed
	Bottom Right Rear fan	OK	Spinning at normal speed
	Bottom Right Front fan	OK	Spinning at normal speed
	Bottom Left Rear fan	OK	Spinning at normal speed
	Rear Fan 1 (TOP)	OK	Spinning at normal speed
	Rear Fan 2	OK	Spinning at normal speed
	Rear Fan 3	OK	Spinning at normal speed
	Rear Fan 4	OK	Spinning at normal speed
	Rear Fan 5	OK	Spinning at normal speed
	Rear Fan 6	OK	Spinning at normal speed
	Rear Fan 7 (Bottom)	OK	Spinning at normal speed
Misc	CIP	OK	

**show chassis
environment (MX240
Router)**

user@host> show chassis environment

Class	Item	Status	Measurement
Temp	PEM 0	OK	40 degrees C / 104 degrees F
	PEM 1	OK	45 degrees C / 113 degrees F
	PEM 2	Absent	

PEM 3	Absent	
Routing Engine 0	OK	39 degrees C / 102 degrees F
Routing Engine 1	OK	37 degrees C / 98 degrees F
CB 0 Intake	OK	36 degrees C / 96 degrees F
CB 0 Exhaust A	OK	34 degrees C / 93 degrees F
CB 0 Exhaust B	OK	38 degrees C / 100 degrees F
CB 0 ACBC	OK	37 degrees C / 98 degrees F
CB 0 SF A	OK	49 degrees C / 120 degrees F
CB 0 SF B	OK	41 degrees C / 105 degrees F
CB 1 Intake	OK	37 degrees C / 98 degrees F
CB 1 Exhaust A	OK	34 degrees C / 93 degrees F
CB 1 Exhaust B	OK	39 degrees C / 102 degrees F
CB 1 ACBC	OK	38 degrees C / 100 degrees F
CB 1 SF A	OK	47 degrees C / 116 degrees F
CB 1 SF B	OK	41 degrees C / 105 degrees F
FPC 1 Intake	OK	33 degrees C / 91 degrees F
FPC 1 Exhaust A	OK	38 degrees C / 100 degrees F
FPC 1 Exhaust B	OK	53 degrees C / 127 degrees F
FPC 1 I3 0 TSensor	OK	50 degrees C / 122 degrees F
FPC 1 I3 0 Chip	OK	53 degrees C / 127 degrees F
FPC 1 I3 1 TSensor	OK	49 degrees C / 120 degrees F
FPC 1 I3 1 Chip	OK	52 degrees C / 125 degrees F
FPC 1 I3 2 TSensor	OK	47 degrees C / 116 degrees F
FPC 1 I3 2 Chip	OK	49 degrees C / 120 degrees F
FPC 1 I3 3 TSensor	OK	44 degrees C / 111 degrees F
FPC 1 I3 3 Chip	OK	46 degrees C / 114 degrees F
FPC 1 IA 0 TSensor	OK	45 degrees C / 113 degrees F
FPC 1 IA 0 Chip	OK	44 degrees C / 111 degrees F
FPC 1 IA 1 TSensor	OK	44 degrees C / 111 degrees F
FPC 1 IA 1 Chip	OK	48 degrees C / 118 degrees F
FPC 2 Intake	OK	32 degrees C / 89 degrees F
FPC 2 Exhaust A	OK	40 degrees C / 104 degrees F
FPC 2 Exhaust B	OK	52 degrees C / 125 degrees F
FPC 2 I3 0 TSensor	OK	52 degrees C / 125 degrees F
FPC 2 I3 0 Chip	OK	56 degrees C / 132 degrees F
FPC 2 I3 1 TSensor	OK	52 degrees C / 125 degrees F
FPC 2 I3 1 Chip	OK	55 degrees C / 131 degrees F
FPC 2 I3 2 TSensor	OK	49 degrees C / 120 degrees F
FPC 2 I3 2 Chip	OK	52 degrees C / 125 degrees F
FPC 2 I3 3 TSensor	OK	44 degrees C / 111 degrees F
FPC 2 I3 3 Chip	OK	48 degrees C / 118 degrees F
FPC 2 IA 0 TSensor	OK	50 degrees C / 122 degrees F
FPC 2 IA 0 Chip	OK	48 degrees C / 118 degrees F
FPC 2 IA 1 TSensor	OK	47 degrees C / 116 degrees F
FPC 2 IA 1 Chip	OK	53 degrees C / 127 degrees F
Fans Front Fan	OK	Spinning at normal speed
Middle Fan	OK	Spinning at normal speed
Rear Fan	OK	Spinning at normal speed

```

show chassis environment (MX240 Router with Enhanced MX SCB)
user@host> show chassis environment
Class Item Status Measurement
Temp PEM 0 OK 40 degrees C / 104 degrees F
PEM 1 OK 45 degrees C / 113 degrees F
PEM 2 Absent
PEM 3 Absent
Routing Engine 0 OK 39 degrees C / 102 degrees F
Routing Engine 1 OK 37 degrees C / 98 degrees F
CB 0 Intake OK 36 degrees C / 96 degrees F
CB 0 Exhaust A OK 34 degrees C / 93 degrees F
CB 0 Exhaust B OK 38 degrees C / 100 degrees F
CB 0 ACBC OK 37 degrees C / 98 degrees F

```

CB 0 XF A	OK	49 degrees C / 120 degrees F
CB 0 XF B	OK	41 degrees C / 105 degrees F
CB 1 Intake	OK	37 degrees C / 98 degrees F
CB 1 Exhaust A	OK	34 degrees C / 93 degrees F
CB 1 Exhaust B	OK	39 degrees C / 102 degrees F
CB 1 ACBC	OK	38 degrees C / 100 degrees F
CB 1 XF A	OK	47 degrees C / 116 degrees F
CB 1 XF B	OK	41 degrees C / 105 degrees F
FPC 1 Intake	OK	33 degrees C / 91 degrees F
FPC 1 Exhaust A	OK	38 degrees C / 100 degrees F
FPC 1 Exhaust B	OK	53 degrees C / 127 degrees F
FPC 1 I3 0 TSensor	OK	50 degrees C / 122 degrees F
FPC 1 I3 0 Chip	OK	53 degrees C / 127 degrees F
FPC 1 I3 1 TSensor	OK	49 degrees C / 120 degrees F
FPC 1 I3 1 Chip	OK	52 degrees C / 125 degrees F
FPC 1 I3 2 TSensor	OK	47 degrees C / 116 degrees F
FPC 1 I3 2 Chip	OK	49 degrees C / 120 degrees F
FPC 1 I3 3 TSensor	OK	44 degrees C / 111 degrees F
FPC 1 I3 3 Chip	OK	46 degrees C / 114 degrees F
FPC 1 IA 0 TSensor	OK	45 degrees C / 113 degrees F
FPC 1 IA 0 Chip	OK	44 degrees C / 111 degrees F
FPC 1 IA 1 TSensor	OK	44 degrees C / 111 degrees F
FPC 1 IA 1 Chip	OK	48 degrees C / 118 degrees F
FPC 2 Intake	OK	32 degrees C / 89 degrees F
FPC 2 Exhaust A	OK	40 degrees C / 104 degrees F
FPC 2 Exhaust B	OK	52 degrees C / 125 degrees F
FPC 2 I3 0 TSensor	OK	52 degrees C / 125 degrees F
FPC 2 I3 0 Chip	OK	56 degrees C / 132 degrees F
FPC 2 I3 1 TSensor	OK	52 degrees C / 125 degrees F
FPC 2 I3 1 Chip	OK	55 degrees C / 131 degrees F
FPC 2 I3 2 TSensor	OK	49 degrees C / 120 degrees F
FPC 2 I3 2 Chip	OK	52 degrees C / 125 degrees F
FPC 2 I3 3 TSensor	OK	44 degrees C / 111 degrees F
FPC 2 I3 3 Chip	OK	48 degrees C / 118 degrees F
FPC 2 IA 0 TSensor	OK	50 degrees C / 122 degrees F
FPC 2 IA 0 Chip	OK	48 degrees C / 118 degrees F
FPC 2 IA 1 TSensor	OK	47 degrees C / 116 degrees F
FPC 2 IA 1 Chip	OK	53 degrees C / 127 degrees F
Fans Front Fan	OK	Spinning at normal speed
Middle Fan	OK	Spinning at normal speed
Rear Fan	OK	Spinning at normal speed

show chassis environment (MX480 Router)		user@host> show chassis environment	
Class	Item	Status	Measurement
Temp	PEM 0	OK	35 degrees C / 95 degrees F
	PEM 1	OK	40 degrees C / 104 degrees F
	PEM 2	Absent	
	PEM 3	Absent	
	Routing Engine 0	OK	44 degrees C / 111 degrees F
	Routing Engine 1	OK	45 degrees C / 113 degrees F
	CB 0 Intake	OK	36 degrees C / 96 degrees F
	CB 0 Exhaust A	OK	38 degrees C / 100 degrees F
	CB 0 Exhaust B	OK	39 degrees C / 102 degrees F
	CB 0 ACBC	OK	37 degrees C / 98 degrees F
	CB 0 SF A	OK	51 degrees C / 123 degrees F
	CB 0 SF B	OK	44 degrees C / 111 degrees F
	CB 1 Intake	OK	36 degrees C / 96 degrees F
	CB 1 Exhaust A	OK	39 degrees C / 102 degrees F
	CB 1 Exhaust B	OK	40 degrees C / 104 degrees F
	CB 1 ACBC	OK	37 degrees C / 98 degrees F
	CB 1 SF A	OK	50 degrees C / 122 degrees F

CB 1 SF B	OK	43 degrees C / 109 degrees F
FPC 0 Intake	OK	36 degrees C / 96 degrees F
FPC 0 Exhaust A	OK	39 degrees C / 102 degrees F
FPC 0 Exhaust B	OK	51 degrees C / 123 degrees F
FPC 0 I3 0 TSensor	OK	49 degrees C / 120 degrees F
FPC 0 I3 0 Chip	OK	56 degrees C / 132 degrees F
FPC 0 I3 1 TSensor	OK	47 degrees C / 116 degrees F
FPC 0 I3 1 Chip	OK	52 degrees C / 125 degrees F
FPC 0 I3 2 TSensor	OK	46 degrees C / 114 degrees F
FPC 0 I3 2 Chip	OK	48 degrees C / 118 degrees F
FPC 0 I3 3 TSensor	OK	42 degrees C / 107 degrees F
FPC 0 I3 3 Chip	OK	45 degrees C / 113 degrees F
FPC 0 IA 0 TSensor	OK	45 degrees C / 113 degrees F
FPC 0 IA 0 Chip	OK	45 degrees C / 113 degrees F
FPC 0 IA 1 TSensor	OK	44 degrees C / 111 degrees F
FPC 0 IA 1 Chip	OK	48 degrees C / 118 degrees F
FPC 1 Intake	OK	37 degrees C / 98 degrees F
FPC 1 Exhaust A	OK	41 degrees C / 105 degrees F
FPC 1 Exhaust B	OK	52 degrees C / 125 degrees F
FPC 1 I3 0 TSensor	OK	51 degrees C / 123 degrees F
FPC 1 I3 0 Chip	OK	57 degrees C / 134 degrees F
FPC 1 I3 1 TSensor	OK	48 degrees C / 118 degrees F
FPC 1 I3 1 Chip	OK	52 degrees C / 125 degrees F
FPC 1 I3 2 TSensor	OK	46 degrees C / 114 degrees F
FPC 1 I3 2 Chip	OK	50 degrees C / 122 degrees F
FPC 1 I3 3 TSensor	OK	42 degrees C / 107 degrees F
FPC 1 I3 3 Chip	OK	46 degrees C / 114 degrees F
FPC 1 IA 0 TSensor	OK	49 degrees C / 120 degrees F
FPC 1 IA 0 Chip	OK	48 degrees C / 118 degrees F
FPC 1 IA 1 TSensor	OK	46 degrees C / 114 degrees F
FPC 1 IA 1 Chip	OK	50 degrees C / 122 degrees F
Fans Top Rear Fan	OK	Spinning at normal speed
Bottom Rear Fan	OK	Spinning at normal speed
Top Middle Fan	OK	Spinning at normal speed
Bottom Middle Fan	OK	Spinning at normal speed
Top Front Fan	OK	Spinning at normal speed
Bottom Front Fan	OK	Spinning at normal speed

**show chassis
environment (MX480
Router with Enhanced
MX SCB)**

user@host> show chassis environment

Class	Item	Status	Measurement
Temp	PEM 0	OK	35 degrees C / 95 degrees F
	PEM 1	OK	40 degrees C / 104 degrees F
	PEM 2	Absent	
	PEM 3	Absent	
	Routing Engine 0	OK	44 degrees C / 111 degrees F
	Routing Engine 1	OK	45 degrees C / 113 degrees F
	CB 0 Intake	OK	36 degrees C / 96 degrees F
	CB 0 Exhaust A	OK	38 degrees C / 100 degrees F
	CB 0 Exhaust B	OK	39 degrees C / 102 degrees F
	CB 0 ACBC	OK	37 degrees C / 98 degrees F
	CB 0 XF A	OK	51 degrees C / 123 degrees F
	CB 0 XF B	OK	44 degrees C / 111 degrees F
	CB 1 Intake	OK	36 degrees C / 96 degrees F
	CB 1 Exhaust A	OK	39 degrees C / 102 degrees F
	CB 1 Exhaust B	OK	40 degrees C / 104 degrees F
	CB 1 ACBC	OK	37 degrees C / 98 degrees F
	CB 1 XF A	OK	50 degrees C / 122 degrees F
	CB 1 XF B	OK	43 degrees C / 109 degrees F
	FPC 0 Intake	OK	36 degrees C / 96 degrees F
	FPC 0 Exhaust A	OK	39 degrees C / 102 degrees F
	FPC 0 Exhaust B	OK	51 degrees C / 123 degrees F

FPC 0 I3 0 TSensor	OK	49 degrees C / 120 degrees F
FPC 0 I3 0 Chip	OK	56 degrees C / 132 degrees F
FPC 0 I3 1 TSensor	OK	47 degrees C / 116 degrees F
FPC 0 I3 1 Chip	OK	52 degrees C / 125 degrees F
FPC 0 I3 2 TSensor	OK	46 degrees C / 114 degrees F
FPC 0 I3 2 Chip	OK	48 degrees C / 118 degrees F
FPC 0 I3 3 TSensor	OK	42 degrees C / 107 degrees F
FPC 0 I3 3 Chip	OK	45 degrees C / 113 degrees F
FPC 0 IA 0 TSensor	OK	45 degrees C / 113 degrees F
FPC 0 IA 0 Chip	OK	45 degrees C / 113 degrees F
FPC 0 IA 1 TSensor	OK	44 degrees C / 111 degrees F
FPC 0 IA 1 Chip	OK	48 degrees C / 118 degrees F
FPC 1 Intake	OK	37 degrees C / 98 degrees F
FPC 1 Exhaust A	OK	41 degrees C / 105 degrees F
FPC 1 Exhaust B	OK	52 degrees C / 125 degrees F
FPC 1 I3 0 TSensor	OK	51 degrees C / 123 degrees F
FPC 1 I3 0 Chip	OK	57 degrees C / 134 degrees F
FPC 1 I3 1 TSensor	OK	48 degrees C / 118 degrees F
FPC 1 I3 1 Chip	OK	52 degrees C / 125 degrees F
FPC 1 I3 2 TSensor	OK	46 degrees C / 114 degrees F
FPC 1 I3 2 Chip	OK	50 degrees C / 122 degrees F
FPC 1 I3 3 TSensor	OK	42 degrees C / 107 degrees F
FPC 1 I3 3 Chip	OK	46 degrees C / 114 degrees F
FPC 1 IA 0 TSensor	OK	49 degrees C / 120 degrees F
FPC 1 IA 0 Chip	OK	48 degrees C / 118 degrees F
FPC 1 IA 1 TSensor	OK	46 degrees C / 114 degrees F
FPC 1 IA 1 Chip	OK	50 degrees C / 122 degrees F
Fans Top Rear Fan	OK	Spinning at normal speed
Bottom Rear Fan	OK	Spinning at normal speed
Top Middle Fan	OK	Spinning at normal speed
Bottom Middle Fan	OK	Spinning at normal speed
Top Front Fan	OK	Spinning at normal speed
Bottom Front Fan	OK	Spinning at normal speed

show chassis environment (MX960 Router)	user@host> show chassis environment		
Class	Item	Status	Measurement
Temp	PEM 0	Absent	
	PEM 1	Absent	
	PEM 2	Check	
	PEM 3	OK	35 degrees C / 95 degrees F
	Routing Engine 0	OK	37 degrees C / 98 degrees F
	Routing Engine 1	Absent	
	CB 0 Intake	OK	24 degrees C / 75 degrees F
	CB 0 Exhaust A	OK	30 degrees C / 86 degrees F
	CB 0 Exhaust B	OK	27 degrees C / 80 degrees F
	CB 1 Intake	Absent	
	CB 1 Exhaust A	Absent	
	CB 1 Exhaust B	Absent	
	CB 1 ACBC	Absent	
	CB 1 SF A	Absent	
	CB 1 SF B	Absent	
	CB 2 Intake	Absent	
	CB 2 Exhaust A	Absent	
	CB 2 Exhaust B	Absent	
	CB 2 ACBC	Absent	
	CB 2 SF A	Absent	
	CB 2 SF B	Absent	
	FPC 4 Intake	OK	24 degrees C / 75 degrees F
	FPC 4 Exhaust A	OK	36 degrees C / 96 degrees F
	FPC 4 Exhaust B	OK	38 degrees C / 100 degrees F
	FPC 7 Intake	OK	24 degrees C / 75 degrees F

	FPC 7 Exhaust A	OK	36 degrees C / 96 degrees F
	FPC 7 Exhaust B	OK	42 degrees C / 107 degrees F
Fans	Top Fan Tray Temp	Failed	
	Top Tray Fan 1	OK	Spinning at normal speed
	Top Tray Fan 2	OK	Spinning at normal speed
	Top Tray Fan 3	OK	Spinning at normal speed
	Top Tray Fan 4	OK	Spinning at normal speed
	Top Tray Fan 5	OK	Spinning at normal speed
	Top Tray Fan 6	OK	Spinning at normal speed
	Bottom Fan Tray Temp	Failed	
	Bottom Tray Fan 1	OK	Spinning at normal speed
	Bottom Tray Fan 2	OK	Spinning at normal speed
	Bottom Tray Fan 3	OK	Spinning at normal speed
	Bottom Tray Fan 4	OK	Spinning at normal speed
	Bottom Tray Fan 5	OK	Spinning at normal speed
	Bottom Tray Fan 6	OK	Spinning at normal speed

**show chassis
environment (MX960
Router with Enhanced
MX SCB)**

user@host> show chassis environment

Class	Item	Status	Measurement
Temp	PEM 0	Absent	
	PEM 1	OK	50 degrees C / 122 degrees F
	PEM 2	OK	50 degrees C / 122 degrees F
	PEM 3	OK	50 degrees C / 122 degrees F
	Routing Engine 0	OK	42 degrees C / 107 degrees F
	Routing Engine 0 CPU	OK	51 degrees C / 123 degrees F
	Routing Engine 1	OK	39 degrees C / 102 degrees F
	Routing Engine 1 CPU	OK	44 degrees C / 111 degrees F
	CB 0 Intake	OK	35 degrees C / 95 degrees F
	CB 0 Exhaust A	OK	36 degrees C / 96 degrees F
	CB 0 Exhaust B	OK	43 degrees C / 109 degrees F
	CB 0 ACBC	OK	38 degrees C / 100 degrees F
	CB 0 XF A	OK	53 degrees C / 127 degrees F
	CB 0 XF B	OK	47 degrees C / 116 degrees F
	CB 1 Intake	OK	35 degrees C / 95 degrees F
	CB 1 Exhaust A	OK	35 degrees C / 95 degrees F
	CB 1 Exhaust B	OK	41 degrees C / 105 degrees F
	CB 1 ACBC	OK	38 degrees C / 100 degrees F
	CB 1 XF A	OK	52 degrees C / 125 degrees F
	CB 1 XF B	OK	47 degrees C / 116 degrees F
	CB 2 Intake	OK	32 degrees C / 89 degrees F
	CB 2 Exhaust A	OK	30 degrees C / 86 degrees F
	CB 2 Exhaust B	OK	35 degrees C / 95 degrees F
	CB 2 ACBC	OK	33 degrees C / 91 degrees F
	CB 2 XF A	OK	51 degrees C / 123 degrees F
	CB 2 XF B	OK	50 degrees C / 122 degrees F
	FPC 0 Intake	OK	35 degrees C / 95 degrees F
	FPC 0 Exhaust A	OK	39 degrees C / 102 degrees F
	FPC 0 Exhaust B	OK	50 degrees C / 122 degrees F
	FPC 0 I3 0 TSensor	OK	50 degrees C / 122 degrees F
	FPC 0 I3 0 Chip	OK	56 degrees C / 132 degrees F
	FPC 0 I3 1 TSensor	OK	47 degrees C / 116 degrees F
	FPC 0 I3 1 Chip	OK	50 degrees C / 122 degrees F
	FPC 0 I3 2 TSensor	OK	45 degrees C / 113 degrees F
	FPC 0 I3 2 Chip	OK	48 degrees C / 118 degrees F
	FPC 0 I3 3 TSensor	OK	41 degrees C / 105 degrees F
	FPC 0 I3 3 Chip	OK	44 degrees C / 111 degrees F
	FPC 0 IA 0 TSensor	OK	45 degrees C / 113 degrees F
	FPC 0 IA 0 Chip	OK	45 degrees C / 113 degrees F
	FPC 0 IA 1 TSensor	OK	44 degrees C / 111 degrees F
	FPC 0 IA 1 Chip	OK	48 degrees C / 118 degrees F
	FPC 1 Intake	OK	36 degrees C / 96 degrees F

FPC 1 Exhaust A	OK	47 degrees C / 116 degrees F
FPC 1 Exhaust B	OK	43 degrees C / 109 degrees F
FPC 1 LU 0 TCAM TSensor	OK	53 degrees C / 127 degrees F
FPC 1 LU 0 TCAM Chip	OK	57 degrees C / 134 degrees F
FPC 1 LU 0 TSensor	OK	53 degrees C / 127 degrees F
FPC 1 LU 0 Chip	OK	60 degrees C / 140 degrees F
FPC 1 MQ 0 TSensor	OK	53 degrees C / 127 degrees F
FPC 1 MQ 0 Chip	OK	56 degrees C / 132 degrees F
FPC 1 LU 1 TCAM TSensor	OK	51 degrees C / 123 degrees F
FPC 1 LU 1 TCAM Chip	OK	52 degrees C / 125 degrees F
FPC 1 LU 1 TSensor	OK	51 degrees C / 123 degrees F
FPC 1 LU 1 Chip	OK	53 degrees C / 127 degrees F
FPC 1 MQ 1 TSensor	OK	51 degrees C / 123 degrees F
FPC 1 MQ 1 Chip	OK	58 degrees C / 136 degrees F
FPC 2 Intake	OK	35 degrees C / 95 degrees F
FPC 2 Exhaust A	OK	39 degrees C / 102 degrees F
FPC 2 Exhaust B	OK	54 degrees C / 129 degrees F
FPC 2 I3 0 TSensor	OK	52 degrees C / 125 degrees F
FPC 2 I3 0 Chip	OK	59 degrees C / 138 degrees F
FPC 2 I3 1 TSensor	OK	48 degrees C / 118 degrees F
FPC 2 I3 1 Chip	OK	52 degrees C / 125 degrees F
FPC 2 I3 2 TSensor	OK	47 degrees C / 116 degrees F
FPC 2 I3 2 Chip	OK	49 degrees C / 120 degrees F
FPC 2 I3 3 TSensor	OK	41 degrees C / 105 degrees F
FPC 2 I3 3 Chip	OK	44 degrees C / 111 degrees F
FPC 2 IA 0 TSensor	OK	47 degrees C / 116 degrees F
FPC 2 IA 0 Chip	OK	46 degrees C / 114 degrees F
FPC 2 IA 1 TSensor	OK	45 degrees C / 113 degrees F
FPC 2 IA 1 Chip	OK	49 degrees C / 120 degrees F
FPC 3 Intake	OK	34 degrees C / 93 degrees F
FPC 3 Exhaust A	OK	34 degrees C / 93 degrees F
FPC 3 Exhaust B	OK	47 degrees C / 116 degrees F
FPC 3 I3 0 TSensor	OK	48 degrees C / 118 degrees F
FPC 3 I3 0 Chip	OK	52 degrees C / 125 degrees F
FPC 3 I3 1 TSensor	OK	46 degrees C / 114 degrees F
FPC 3 I3 1 Chip	OK	48 degrees C / 118 degrees F
FPC 3 IA 0 TSensor	OK	41 degrees C / 105 degrees F
FPC 3 IA 0 Chip	OK	40 degrees C / 104 degrees F
FPC 5 Intake	OK	42 degrees C / 107 degrees F
FPC 5 Exhaust A	OK	42 degrees C / 107 degrees F
FPC 5 Exhaust B	OK	53 degrees C / 127 degrees F
FPC 5 LU 0 TSensor	OK	53 degrees C / 127 degrees F
FPC 5 LU 0 Chip	OK	54 degrees C / 129 degrees F
FPC 5 LU 1 TSensor	OK	53 degrees C / 127 degrees F
FPC 5 LU 1 Chip	OK	61 degrees C / 141 degrees F
FPC 5 LU 2 TSensor	OK	53 degrees C / 127 degrees F
FPC 5 LU 2 Chip	OK	51 degrees C / 123 degrees F
FPC 5 LU 3 TSensor	OK	53 degrees C / 127 degrees F
FPC 5 LU 3 Chip	OK	53 degrees C / 127 degrees F
FPC 5 MQ 0 TSensor	OK	47 degrees C / 116 degrees F
FPC 5 MQ 0 Chip	OK	52 degrees C / 125 degrees F
FPC 5 MQ 1 TSensor	OK	47 degrees C / 116 degrees F
FPC 5 MQ 1 Chip	OK	52 degrees C / 125 degrees F
FPC 5 MQ 2 TSensor	OK	47 degrees C / 116 degrees F
FPC 5 MQ 2 Chip	OK	46 degrees C / 114 degrees F
FPC 5 MQ 3 TSensor	OK	47 degrees C / 116 degrees F
FPC 5 MQ 3 Chip	OK	45 degrees C / 113 degrees F
FPC 7 Intake	OK	36 degrees C / 96 degrees F
FPC 7 Exhaust A	OK	35 degrees C / 95 degrees F
FPC 7 Exhaust B	OK	33 degrees C / 91 degrees F
FPC 7 QX 0 TSensor	OK	42 degrees C / 107 degrees F

FPC 7 QX 0 Chip	OK	47 degrees C / 116 degrees F
FPC 7 LU 0 TCAM TSensor	OK	42 degrees C / 107 degrees F
FPC 7 LU 0 TCAM Chip	OK	44 degrees C / 111 degrees F
FPC 7 LU 0 TSensor	OK	42 degrees C / 107 degrees F
FPC 7 LU 0 Chip	OK	46 degrees C / 114 degrees F
FPC 7 MQ 0 TSensor	OK	42 degrees C / 107 degrees F
FPC 7 MQ 0 Chip	OK	45 degrees C / 113 degrees F
FPC 8 Intake	OK	33 degrees C / 91 degrees F
FPC 8 Exhaust A	OK	33 degrees C / 91 degrees F
FPC 8 Exhaust B	OK	36 degrees C / 96 degrees F
FPC 8 I3 0 TSensor	OK	38 degrees C / 100 degrees F
FPC 8 I3 0 Chip	OK	43 degrees C / 109 degrees F
FPC 8 BDS 0 TSensor	OK	37 degrees C / 98 degrees F
FPC 8 BDS 0 Chip	OK	36 degrees C / 96 degrees F
FPC 8 IA 0 TSensor	OK	37 degrees C / 98 degrees F
FPC 8 IA 0 Chip	OK	37 degrees C / 98 degrees F
FPC 10 Intake	OK	38 degrees C / 100 degrees F
FPC 10 Exhaust A	OK	36 degrees C / 96 degrees F
FPC 10 Exhaust B	OK	41 degrees C / 105 degrees F
FPC 10 I3 0 TSensor	OK	40 degrees C / 104 degrees F
FPC 10 I3 0 Chip	OK	42 degrees C / 107 degrees F
FPC 10 I3 1 TSensor	OK	40 degrees C / 104 degrees F
FPC 10 I3 1 Chip	OK	44 degrees C / 111 degrees F
FPC 10 I3 2 TSensor	OK	42 degrees C / 107 degrees F
FPC 10 I3 2 Chip	OK	43 degrees C / 109 degrees F
FPC 10 I3 3 TSensor	OK	39 degrees C / 102 degrees F
FPC 10 I3 3 Chip	OK	44 degrees C / 111 degrees F
FPC 10 IA 0 TSensor	OK	36 degrees C / 96 degrees F
FPC 10 IA 0 Chip	OK	36 degrees C / 96 degrees F
FPC 10 IA 1 TSensor	OK	43 degrees C / 109 degrees F
FPC 10 IA 1 Chip	OK	42 degrees C / 107 degrees F
Fans Top Fan Tray Temp	OK	37 degrees C / 98 degrees F
Top Tray Fan 1	OK	Spinning at normal speed
Top Tray Fan 2	OK	Spinning at normal speed
Top Tray Fan 3	OK	Spinning at normal speed
Top Tray Fan 4	OK	Spinning at normal speed
Top Tray Fan 5	OK	Spinning at normal speed
Top Tray Fan 6	OK	Spinning at normal speed
Bottom Fan Tray Temp	OK	28 degrees C / 82 degrees F
Bottom Tray Fan 1	OK	Spinning at normal speed
Bottom Tray Fan 2	OK	Spinning at normal speed
Bottom Tray Fan 3	OK	Spinning at normal speed
Bottom Tray Fan 4	OK	Spinning at normal speed
Bottom Tray Fan 5	OK	Spinning at normal speed
Bottom Tray Fan 6	OK	Spinning at normal speed

```

show chassis environment (MX2020 Router)
user@host> show chassis environment

```

Class	Item	Status	Measurement
Temp	PSM 0	Absent	
	PSM 1	Absent	
	PSM 2	OK	41 degrees C / 105 degrees F
	PSM 3	OK	39 degrees C / 102 degrees F
	PSM 4	OK	39 degrees C / 102 degrees F
	PSM 5	OK	38 degrees C / 100 degrees F
	PSM 6	OK	38 degrees C / 100 degrees F
	PSM 7	OK	38 degrees C / 100 degrees F
	PSM 8	OK	37 degrees C / 98 degrees F
	PSM 9	Absent	
	PSM 10	Absent	
	PSM 11	OK	47 degrees C / 116 degrees F
	PSM 12	OK	45 degrees C / 113 degrees F

PSM 13	OK	44 degrees C / 111 degrees F
PSM 14	OK	44 degrees C / 111 degrees F
PSM 15	OK	43 degrees C / 109 degrees F
PSM 16	OK	42 degrees C / 107 degrees F
PSM 17	OK	41 degrees C / 105 degrees F
PDM 0	OK	
PDM 1	Absent	
PDM 2	Absent	
PDM 3	OK	
CB 0 IntakeA-Zone0	OK	45 degrees C / 113 degrees F
CB 0 IntakeB-Zone1	OK	34 degrees C / 93 degrees F
CB 0 IntakeC-Zone0	OK	48 degrees C / 118 degrees F
CB 0 ExhaustA-Zone0	OK	45 degrees C / 113 degrees F
CB 0 ExhaustB-Zone1	OK	37 degrees C / 98 degrees F
CB 0 TCBC-Zone0	OK	41 degrees C / 105 degrees F
CB 1 IntakeA-Zone0	OK	46 degrees C / 114 degrees F
CB 1 IntakeB-Zone1	OK	42 degrees C / 107 degrees F
CB 1 IntakeC-Zone0	OK	49 degrees C / 120 degrees F
CB 1 ExhaustA-Zone0	OK	46 degrees C / 114 degrees F
CB 1 ExhaustB-Zone1	OK	41 degrees C / 105 degrees F
CB 1 TCBC-Zone0	OK	46 degrees C / 114 degrees F
SPMB 0 Intake	OK	33 degrees C / 91 degrees F
SPMB 1 Intake	OK	42 degrees C / 107 degrees F
Routing Engine 0	OK	35 degrees C / 95 degrees F
Routing Engine 0 CPU	OK	34 degrees C / 93 degrees F
Routing Engine 1	OK	44 degrees C / 111 degrees F
Routing Engine 1 CPU	OK	42 degrees C / 107 degrees F
SFB 0 Intake-Zone0	OK	55 degrees C / 131 degrees F
SFB 0 Exhaust-Zone1	OK	48 degrees C / 118 degrees F
SFB 0 IntakeA-Zone0	OK	50 degrees C / 122 degrees F
SFB 0 IntakeB-Zone1	OK	40 degrees C / 104 degrees F
SFB 0 Exhaust-Zone0	OK	52 degrees C / 125 degrees F
SFB 0 SFB-XF2-Zone1	OK	61 degrees C / 141 degrees F
SFB 0 SFB-XF1-Zone0	OK	69 degrees C / 156 degrees F
SFB 0 SFB-XF0-Zone0	OK	68 degrees C / 154 degrees F
SFB 1 Intake-Zone0	OK	56 degrees C / 132 degrees F
SFB 1 Exhaust-Zone1	OK	47 degrees C / 116 degrees F
SFB 1 IntakeA-Zone0	OK	51 degrees C / 123 degrees F
SFB 1 IntakeB-Zone1	OK	40 degrees C / 104 degrees F
SFB 1 Exhaust-Zone0	OK	51 degrees C / 123 degrees F
SFB 1 SFB-XF2-Zone1	OK	62 degrees C / 143 degrees F
SFB 1 SFB-XF1-Zone0	OK	67 degrees C / 152 degrees F
SFB 1 SFB-XF0-Zone0	OK	69 degrees C / 156 degrees F
SFB 2 Intake-Zone0	OK	56 degrees C / 132 degrees F
SFB 2 Exhaust-Zone1	OK	47 degrees C / 116 degrees F
SFB 2 IntakeA-Zone0	OK	51 degrees C / 123 degrees F
SFB 2 IntakeB-Zone1	OK	40 degrees C / 104 degrees F
SFB 2 Exhaust-Zone0	OK	53 degrees C / 127 degrees F
SFB 2 SFB-XF2-Zone1	OK	65 degrees C / 149 degrees F
SFB 2 SFB-XF1-Zone0	OK	69 degrees C / 156 degrees F
SFB 2 SFB-XF0-Zone0	OK	70 degrees C / 158 degrees F
SFB 3 Intake-Zone0	OK	57 degrees C / 134 degrees F
SFB 3 Exhaust-Zone1	OK	48 degrees C / 118 degrees F
SFB 3 IntakeA-Zone0	OK	52 degrees C / 125 degrees F
SFB 3 IntakeB-Zone1	OK	41 degrees C / 105 degrees F
SFB 3 Exhaust-Zone0	OK	53 degrees C / 127 degrees F
SFB 3 SFB-XF2-Zone1	OK	66 degrees C / 150 degrees F
SFB 3 SFB-XF1-Zone0	OK	69 degrees C / 156 degrees F
SFB 3 SFB-XF0-Zone0	OK	71 degrees C / 159 degrees F
SFB 4 Intake-Zone0	OK	58 degrees C / 136 degrees F
SFB 4 Exhaust-Zone1	OK	49 degrees C / 120 degrees F

SFB 4 IntakeA-Zone0	OK	54 degrees C / 129 degrees F
SFB 4 IntakeB-Zone1	OK	42 degrees C / 107 degrees F
SFB 4 Exhaust-Zone0	OK	53 degrees C / 127 degrees F
SFB 4 SFB-XF2-Zone1	OK	64 degrees C / 147 degrees F
SFB 4 SFB-XF1-Zone0	OK	68 degrees C / 154 degrees F
SFB 4 SFB-XF0-Zone0	OK	71 degrees C / 159 degrees F
SFB 5 Intake-Zone0	OK	58 degrees C / 136 degrees F
SFB 5 Exhaust-Zone1	OK	50 degrees C / 122 degrees F
SFB 5 IntakeA-Zone0	OK	53 degrees C / 127 degrees F
SFB 5 IntakeB-Zone1	OK	43 degrees C / 109 degrees F
SFB 5 Exhaust-Zone0	OK	54 degrees C / 129 degrees F
SFB 5 SFB-XF2-Zone1	OK	66 degrees C / 150 degrees F
SFB 5 SFB-XF1-Zone0	OK	69 degrees C / 156 degrees F
SFB 5 SFB-XF0-Zone0	OK	74 degrees C / 165 degrees F
SFB 6 Intake-Zone0	OK	58 degrees C / 136 degrees F
SFB 6 Exhaust-Zone1	OK	49 degrees C / 120 degrees F
SFB 6 IntakeA-Zone0	OK	53 degrees C / 127 degrees F
SFB 6 IntakeB-Zone1	OK	43 degrees C / 109 degrees F
SFB 6 Exhaust-Zone0	OK	53 degrees C / 127 degrees F
SFB 6 SFB-XF2-Zone1	OK	65 degrees C / 149 degrees F
SFB 6 SFB-XF1-Zone0	OK	68 degrees C / 154 degrees F
SFB 6 SFB-XF0-Zone0	OK	72 degrees C / 161 degrees F
SFB 7 Intake-Zone0	OK	57 degrees C / 134 degrees F
SFB 7 Exhaust-Zone1	OK	50 degrees C / 122 degrees F
SFB 7 IntakeA-Zone0	OK	53 degrees C / 127 degrees F
SFB 7 IntakeB-Zone1	OK	43 degrees C / 109 degrees F
SFB 7 Exhaust-Zone0	OK	54 degrees C / 129 degrees F
SFB 7 SFB-XF2-Zone1	OK	68 degrees C / 154 degrees F
SFB 7 SFB-XF1-Zone0	OK	69 degrees C / 156 degrees F
SFB 7 SFB-XF0-Zone0	OK	73 degrees C / 163 degrees F
FPC 0 Intake	OK	41 degrees C / 105 degrees F
FPC 0 Exhaust A	OK	48 degrees C / 118 degrees F
FPC 0 Exhaust B	OK	62 degrees C / 143 degrees F
FPC 0 LU 0 TSen	OK	59 degrees C / 138 degrees F
FPC 0 LU 0 Chip	OK	62 degrees C / 143 degrees F
FPC 0 LU 1 TSen	OK	59 degrees C / 138 degrees F
FPC 0 LU 1 Chip	OK	64 degrees C / 147 degrees F
FPC 0 LU 2 TSen	OK	59 degrees C / 138 degrees F
FPC 0 LU 2 Chip	OK	53 degrees C / 127 degrees F
FPC 0 LU 3 TSen	OK	59 degrees C / 138 degrees F
FPC 0 LU 3 Chip	OK	53 degrees C / 127 degrees F
FPC 0 MQ 0 TSen	OK	47 degrees C / 116 degrees F
FPC 0 MQ 0 Chip	OK	49 degrees C / 120 degrees F
FPC 0 MQ 1 TSen	OK	47 degrees C / 116 degrees F
FPC 0 MQ 1 Chip	OK	51 degrees C / 123 degrees F
FPC 0 MQ 2 TSen	OK	47 degrees C / 116 degrees F
FPC 0 MQ 2 Chip	OK	44 degrees C / 111 degrees F
FPC 0 MQ 3 TSen	OK	47 degrees C / 116 degrees F
FPC 0 MQ 3 Chip	OK	45 degrees C / 113 degrees F
FPC 1 Intake	OK	40 degrees C / 104 degrees F
FPC 1 Exhaust A	OK	49 degrees C / 120 degrees F
FPC 1 Exhaust B	OK	58 degrees C / 136 degrees F
FPC 1 LU 0 TSen	OK	55 degrees C / 131 degrees F
FPC 1 LU 0 Chip	OK	56 degrees C / 132 degrees F
FPC 1 LU 1 TSen	OK	55 degrees C / 131 degrees F
FPC 1 LU 1 Chip	OK	58 degrees C / 136 degrees F
FPC 1 LU 2 TSen	OK	55 degrees C / 131 degrees F
FPC 1 LU 2 Chip	OK	49 degrees C / 120 degrees F
FPC 1 LU 3 TSen	OK	55 degrees C / 131 degrees F
FPC 1 LU 3 Chip	OK	51 degrees C / 123 degrees F
FPC 1 MQ 0 TSen	OK	47 degrees C / 116 degrees F

FPC 1 MQ 0 Chip	OK	48 degrees C / 118 degrees F
FPC 1 MQ 1 TSen	OK	47 degrees C / 116 degrees F
FPC 1 MQ 1 Chip	OK	50 degrees C / 122 degrees F
FPC 1 MQ 2 TSen	OK	47 degrees C / 116 degrees F
FPC 1 MQ 2 Chip	OK	44 degrees C / 111 degrees F
FPC 1 MQ 3 TSen	OK	47 degrees C / 116 degrees F
FPC 1 MQ 3 Chip	OK	44 degrees C / 111 degrees F
FPC 2 Intake	OK	39 degrees C / 102 degrees F
FPC 2 Exhaust A	OK	49 degrees C / 120 degrees F
FPC 2 Exhaust B	OK	61 degrees C / 141 degrees F
FPC 2 LU 0 TSen	OK	58 degrees C / 136 degrees F
FPC 2 LU 0 Chip	OK	60 degrees C / 140 degrees F
FPC 2 LU 1 TSen	OK	58 degrees C / 136 degrees F
FPC 2 LU 1 Chip	OK	65 degrees C / 149 degrees F
FPC 2 LU 2 TSen	OK	58 degrees C / 136 degrees F
FPC 2 LU 2 Chip	OK	51 degrees C / 123 degrees F
FPC 2 LU 3 TSen	OK	58 degrees C / 136 degrees F
FPC 2 LU 3 Chip	OK	53 degrees C / 127 degrees F
FPC 2 MQ 0 TSen	OK	47 degrees C / 116 degrees F
FPC 2 MQ 0 Chip	OK	50 degrees C / 122 degrees F
FPC 2 MQ 1 TSen	OK	47 degrees C / 116 degrees F
FPC 2 MQ 1 Chip	OK	52 degrees C / 125 degrees F
FPC 2 MQ 2 TSen	OK	47 degrees C / 116 degrees F
FPC 2 MQ 2 Chip	OK	45 degrees C / 113 degrees F
FPC 2 MQ 3 TSen	OK	47 degrees C / 116 degrees F
FPC 2 MQ 3 Chip	OK	46 degrees C / 114 degrees F
FPC 3 Intake	OK	40 degrees C / 104 degrees F
FPC 3 Exhaust A	OK	49 degrees C / 120 degrees F
FPC 3 Exhaust B	OK	61 degrees C / 141 degrees F
FPC 3 LU 0 TSen	OK	58 degrees C / 136 degrees F
FPC 3 LU 0 Chip	OK	61 degrees C / 141 degrees F
FPC 3 LU 1 TSen	OK	58 degrees C / 136 degrees F
FPC 3 LU 1 Chip	OK	62 degrees C / 143 degrees F
FPC 3 LU 2 TSen	OK	58 degrees C / 136 degrees F
FPC 3 LU 2 Chip	OK	51 degrees C / 123 degrees F
FPC 3 LU 3 TSen	OK	58 degrees C / 136 degrees F
FPC 3 LU 3 Chip	OK	53 degrees C / 127 degrees F
FPC 3 MQ 0 TSen	OK	48 degrees C / 118 degrees F
FPC 3 MQ 0 Chip	OK	50 degrees C / 122 degrees F
FPC 3 MQ 1 TSen	OK	48 degrees C / 118 degrees F
FPC 3 MQ 1 Chip	OK	54 degrees C / 129 degrees F
FPC 3 MQ 2 TSen	OK	48 degrees C / 118 degrees F
FPC 3 MQ 2 Chip	OK	45 degrees C / 113 degrees F
FPC 3 MQ 3 TSen	OK	48 degrees C / 118 degrees F
FPC 3 MQ 3 Chip	OK	48 degrees C / 118 degrees F
FPC 4 Intake	OK	40 degrees C / 104 degrees F
FPC 4 Exhaust A	OK	49 degrees C / 120 degrees F
FPC 4 Exhaust B	OK	62 degrees C / 143 degrees F
FPC 4 LU 0 TSen	OK	59 degrees C / 138 degrees F
FPC 4 LU 0 Chip	OK	62 degrees C / 143 degrees F
FPC 4 LU 1 TSen	OK	59 degrees C / 138 degrees F
FPC 4 LU 1 Chip	OK	65 degrees C / 149 degrees F
FPC 4 LU 2 TSen	OK	59 degrees C / 138 degrees F
FPC 4 LU 2 Chip	OK	51 degrees C / 123 degrees F
FPC 4 LU 3 TSen	OK	59 degrees C / 138 degrees F
FPC 4 LU 3 Chip	OK	53 degrees C / 127 degrees F
FPC 4 MQ 0 TSen	OK	48 degrees C / 118 degrees F
FPC 4 MQ 0 Chip	OK	52 degrees C / 125 degrees F
FPC 4 MQ 1 TSen	OK	48 degrees C / 118 degrees F
FPC 4 MQ 1 Chip	OK	53 degrees C / 127 degrees F
FPC 4 MQ 2 TSen	OK	48 degrees C / 118 degrees F

FPC 4 MQ 2 Chip	OK	46 degrees C / 114 degrees F
FPC 4 MQ 3 TSen	OK	48 degrees C / 118 degrees F
FPC 4 MQ 3 Chip	OK	47 degrees C / 116 degrees F
FPC 5 Intake	OK	41 degrees C / 105 degrees F
FPC 5 Exhaust A	OK	50 degrees C / 122 degrees F
FPC 5 Exhaust B	OK	63 degrees C / 145 degrees F
FPC 5 LU 0 TSen	OK	60 degrees C / 140 degrees F
FPC 5 LU 0 Chip	OK	63 degrees C / 145 degrees F
FPC 5 LU 1 TSen	OK	60 degrees C / 140 degrees F
FPC 5 LU 1 Chip	OK	66 degrees C / 150 degrees F
FPC 5 LU 2 TSen	OK	60 degrees C / 140 degrees F
FPC 5 LU 2 Chip	OK	56 degrees C / 132 degrees F
FPC 5 LU 3 TSen	OK	60 degrees C / 140 degrees F
FPC 5 LU 3 Chip	OK	54 degrees C / 129 degrees F
FPC 5 MQ 0 TSen	OK	49 degrees C / 120 degrees F
FPC 5 MQ 0 Chip	OK	52 degrees C / 125 degrees F
FPC 5 MQ 1 TSen	OK	49 degrees C / 120 degrees F
FPC 5 MQ 1 Chip	OK	53 degrees C / 127 degrees F
FPC 5 MQ 2 TSen	OK	49 degrees C / 120 degrees F
FPC 5 MQ 2 Chip	OK	48 degrees C / 118 degrees F
FPC 5 MQ 3 TSen	OK	49 degrees C / 120 degrees F
FPC 5 MQ 3 Chip	OK	47 degrees C / 116 degrees F
FPC 6 Intake	OK	42 degrees C / 107 degrees F
FPC 6 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 6 Exhaust B	OK	63 degrees C / 145 degrees F
FPC 6 LU 0 TSen	OK	61 degrees C / 141 degrees F
FPC 6 LU 0 Chip	OK	64 degrees C / 147 degrees F
FPC 6 LU 1 TSen	OK	61 degrees C / 141 degrees F
FPC 6 LU 1 Chip	OK	66 degrees C / 150 degrees F
FPC 6 LU 2 TSen	OK	61 degrees C / 141 degrees F
FPC 6 LU 2 Chip	OK	56 degrees C / 132 degrees F
FPC 6 LU 3 TSen	OK	61 degrees C / 141 degrees F
FPC 6 LU 3 Chip	OK	56 degrees C / 132 degrees F
FPC 6 MQ 0 TSen	OK	50 degrees C / 122 degrees F
FPC 6 MQ 0 Chip	OK	56 degrees C / 132 degrees F
FPC 6 MQ 1 TSen	OK	50 degrees C / 122 degrees F
FPC 6 MQ 1 Chip	OK	59 degrees C / 138 degrees F
FPC 6 MQ 2 TSen	OK	50 degrees C / 122 degrees F
FPC 6 MQ 2 Chip	OK	49 degrees C / 120 degrees F
FPC 6 MQ 3 TSen	OK	50 degrees C / 122 degrees F
FPC 6 MQ 3 Chip	OK	49 degrees C / 120 degrees F
FPC 7 Intake	OK	41 degrees C / 105 degrees F
FPC 7 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 7 Exhaust B	OK	63 degrees C / 145 degrees F
FPC 7 LU 0 TSen	OK	60 degrees C / 140 degrees F
FPC 7 LU 0 Chip	OK	61 degrees C / 141 degrees F
FPC 7 LU 1 TSen	OK	60 degrees C / 140 degrees F
FPC 7 LU 1 Chip	OK	65 degrees C / 149 degrees F
FPC 7 LU 2 TSen	OK	60 degrees C / 140 degrees F
FPC 7 LU 2 Chip	OK	54 degrees C / 129 degrees F
FPC 7 LU 3 TSen	OK	60 degrees C / 140 degrees F
FPC 7 LU 3 Chip	OK	53 degrees C / 127 degrees F
FPC 7 MQ 0 TSen	OK	50 degrees C / 122 degrees F
FPC 7 MQ 0 Chip	OK	53 degrees C / 127 degrees F
FPC 7 MQ 1 TSen	OK	50 degrees C / 122 degrees F
FPC 7 MQ 1 Chip	OK	54 degrees C / 129 degrees F
FPC 7 MQ 2 TSen	OK	50 degrees C / 122 degrees F
FPC 7 MQ 2 Chip	OK	47 degrees C / 116 degrees F
FPC 7 MQ 3 TSen	OK	50 degrees C / 122 degrees F
FPC 7 MQ 3 Chip	OK	47 degrees C / 116 degrees F
FPC 8 Intake	OK	41 degrees C / 105 degrees F

FPC 8 Exhaust A	OK	50 degrees C / 122 degrees F
FPC 8 Exhaust B	OK	62 degrees C / 143 degrees F
FPC 8 LU 0 TSen	OK	59 degrees C / 138 degrees F
FPC 8 LU 0 Chip	OK	62 degrees C / 143 degrees F
FPC 8 LU 1 TSen	OK	59 degrees C / 138 degrees F
FPC 8 LU 1 Chip	OK	64 degrees C / 147 degrees F
FPC 8 LU 2 TSen	OK	59 degrees C / 138 degrees F
FPC 8 LU 2 Chip	OK	55 degrees C / 131 degrees F
FPC 8 LU 3 TSen	OK	59 degrees C / 138 degrees F
FPC 8 LU 3 Chip	OK	54 degrees C / 129 degrees F
FPC 8 MQ 0 TSen	OK	49 degrees C / 120 degrees F
FPC 8 MQ 0 Chip	OK	51 degrees C / 123 degrees F
FPC 8 MQ 1 TSen	OK	49 degrees C / 120 degrees F
FPC 8 MQ 1 Chip	OK	52 degrees C / 125 degrees F
FPC 8 MQ 2 TSen	OK	49 degrees C / 120 degrees F
FPC 8 MQ 2 Chip	OK	46 degrees C / 114 degrees F
FPC 8 MQ 3 TSen	OK	49 degrees C / 120 degrees F
FPC 8 MQ 3 Chip	OK	47 degrees C / 116 degrees F
FPC 9 Intake	OK	42 degrees C / 107 degrees F
FPC 9 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 9 Exhaust B	OK	63 degrees C / 145 degrees F
FPC 9 LU 0 TSen	OK	60 degrees C / 140 degrees F
FPC 9 LU 0 Chip	OK	65 degrees C / 149 degrees F
FPC 9 LU 1 TSen	OK	60 degrees C / 140 degrees F
FPC 9 LU 1 Chip	OK	67 degrees C / 152 degrees F
FPC 9 LU 2 TSen	OK	60 degrees C / 140 degrees F
FPC 9 LU 2 Chip	OK	54 degrees C / 129 degrees F
FPC 9 LU 3 TSen	OK	60 degrees C / 140 degrees F
FPC 9 LU 3 Chip	OK	54 degrees C / 129 degrees F
FPC 9 MQ 0 TSen	OK	51 degrees C / 123 degrees F
FPC 9 MQ 0 Chip	OK	55 degrees C / 131 degrees F
FPC 9 MQ 1 TSen	OK	51 degrees C / 123 degrees F
FPC 9 MQ 1 Chip	OK	59 degrees C / 138 degrees F
FPC 9 MQ 2 TSen	OK	51 degrees C / 123 degrees F
FPC 9 MQ 2 Chip	OK	49 degrees C / 120 degrees F
FPC 9 MQ 3 TSen	OK	51 degrees C / 123 degrees F
FPC 9 MQ 3 Chip	OK	49 degrees C / 120 degrees F
FPC 10 Intake	OK	44 degrees C / 111 degrees F
FPC 10 Exhaust A	OK	49 degrees C / 120 degrees F
FPC 10 Exhaust B	OK	55 degrees C / 131 degrees F
FPC 10 LU 0 TSen	OK	54 degrees C / 129 degrees F
FPC 10 LU 0 Chip	OK	55 degrees C / 131 degrees F
FPC 10 LU 1 TSen	OK	54 degrees C / 129 degrees F
FPC 10 LU 1 Chip	OK	59 degrees C / 138 degrees F
FPC 10 LU 2 TSen	OK	54 degrees C / 129 degrees F
FPC 10 LU 2 Chip	OK	52 degrees C / 125 degrees F
FPC 10 LU 3 TSen	OK	54 degrees C / 129 degrees F
FPC 10 LU 3 Chip	OK	51 degrees C / 123 degrees F
FPC 10 MQ 0 TSen	OK	48 degrees C / 118 degrees F
FPC 10 MQ 0 Chip	OK	49 degrees C / 120 degrees F
FPC 10 MQ 1 TSen	OK	48 degrees C / 118 degrees F
FPC 10 MQ 1 Chip	OK	52 degrees C / 125 degrees F
FPC 10 MQ 2 TSen	OK	48 degrees C / 118 degrees F
FPC 10 MQ 2 Chip	OK	47 degrees C / 116 degrees F
FPC 10 MQ 3 TSen	OK	48 degrees C / 118 degrees F
FPC 10 MQ 3 Chip	OK	47 degrees C / 116 degrees F
FPC 11 Intake	OK	30 degrees C / 86 degrees F
FPC 11 Exhaust A	OK	35 degrees C / 95 degrees F
FPC 11 Exhaust B	OK	30 degrees C / 86 degrees F
FPC 11 LU 0 TSen	OK	57 degrees C / 134 degrees F
FPC 11 LU 0 Chip	OK	58 degrees C / 136 degrees F

FPC 11 LU 1 TSen	OK	57 degrees C / 134 degrees F
FPC 11 LU 1 Chip	OK	62 degrees C / 143 degrees F
FPC 11 LU 2 TSen	OK	57 degrees C / 134 degrees F
FPC 11 LU 2 Chip	OK	53 degrees C / 127 degrees F
FPC 11 LU 3 TSen	OK	57 degrees C / 134 degrees F
FPC 11 LU 3 Chip	OK	54 degrees C / 129 degrees F
FPC 11 MQ 0 TSen	OK	52 degrees C / 125 degrees F
FPC 11 MQ 0 Chip	OK	52 degrees C / 125 degrees F
FPC 11 MQ 1 TSen	OK	52 degrees C / 125 degrees F
FPC 11 MQ 1 Chip	OK	57 degrees C / 134 degrees F
FPC 11 MQ 2 TSen	OK	52 degrees C / 125 degrees F
FPC 11 MQ 2 Chip	OK	48 degrees C / 118 degrees F
FPC 11 MQ 3 TSen	OK	52 degrees C / 125 degrees F
FPC 11 MQ 3 Chip	OK	52 degrees C / 125 degrees F
FPC 12 Intake	OK	40 degrees C / 104 degrees F
FPC 12 Exhaust A	OK	47 degrees C / 116 degrees F
FPC 12 Exhaust B	OK	52 degrees C / 125 degrees F
FPC 12 LU 0 TSen	OK	51 degrees C / 123 degrees F
FPC 12 LU 0 Chip	OK	52 degrees C / 125 degrees F
FPC 12 LU 1 TSen	OK	51 degrees C / 123 degrees F
FPC 12 LU 1 Chip	OK	55 degrees C / 131 degrees F
FPC 12 LU 2 TSen	OK	51 degrees C / 123 degrees F
FPC 12 LU 2 Chip	OK	47 degrees C / 116 degrees F
FPC 12 LU 3 TSen	OK	51 degrees C / 123 degrees F
FPC 12 LU 3 Chip	OK	50 degrees C / 122 degrees F
FPC 12 MQ 0 TSen	OK	46 degrees C / 114 degrees F
FPC 12 MQ 0 Chip	OK	46 degrees C / 114 degrees F
FPC 12 MQ 1 TSen	OK	46 degrees C / 114 degrees F
FPC 12 MQ 1 Chip	OK	50 degrees C / 122 degrees F
FPC 12 MQ 2 TSen	OK	46 degrees C / 114 degrees F
FPC 12 MQ 2 Chip	OK	44 degrees C / 111 degrees F
FPC 12 MQ 3 TSen	OK	46 degrees C / 114 degrees F
FPC 12 MQ 3 Chip	OK	46 degrees C / 114 degrees F
FPC 13 Intake	OK	40 degrees C / 104 degrees F
FPC 13 Exhaust A	OK	48 degrees C / 118 degrees F
FPC 13 Exhaust B	OK	52 degrees C / 125 degrees F
FPC 13 LU 0 TSen	OK	51 degrees C / 123 degrees F
FPC 13 LU 0 Chip	OK	52 degrees C / 125 degrees F
FPC 13 LU 1 TSen	OK	51 degrees C / 123 degrees F
FPC 13 LU 1 Chip	OK	55 degrees C / 131 degrees F
FPC 13 LU 2 TSen	OK	51 degrees C / 123 degrees F
FPC 13 LU 2 Chip	OK	48 degrees C / 118 degrees F
FPC 13 LU 3 TSen	OK	51 degrees C / 123 degrees F
FPC 13 LU 3 Chip	OK	48 degrees C / 118 degrees F
FPC 13 MQ 0 TSen	OK	46 degrees C / 114 degrees F
FPC 13 MQ 0 Chip	OK	46 degrees C / 114 degrees F
FPC 13 MQ 1 TSen	OK	46 degrees C / 114 degrees F
FPC 13 MQ 1 Chip	OK	50 degrees C / 122 degrees F
FPC 13 MQ 2 TSen	OK	46 degrees C / 114 degrees F
FPC 13 MQ 2 Chip	OK	44 degrees C / 111 degrees F
FPC 13 MQ 3 TSen	OK	46 degrees C / 114 degrees F
FPC 13 MQ 3 Chip	OK	46 degrees C / 114 degrees F
FPC 14 Intake	OK	40 degrees C / 104 degrees F
FPC 14 Exhaust A	OK	50 degrees C / 122 degrees F
FPC 14 Exhaust B	OK	51 degrees C / 123 degrees F
FPC 14 LU 0 TSen	OK	50 degrees C / 122 degrees F
FPC 14 LU 0 Chip	OK	50 degrees C / 122 degrees F
FPC 14 LU 1 TSen	OK	50 degrees C / 122 degrees F
FPC 14 LU 1 Chip	OK	54 degrees C / 129 degrees F
FPC 14 LU 2 TSen	OK	50 degrees C / 122 degrees F
FPC 14 LU 2 Chip	OK	47 degrees C / 116 degrees F

FPC 14 LU 3 TSen	OK	50 degrees C / 122 degrees F
FPC 14 LU 3 Chip	OK	49 degrees C / 120 degrees F
FPC 14 MQ 0 TSen	OK	47 degrees C / 116 degrees F
FPC 14 MQ 0 Chip	OK	46 degrees C / 114 degrees F
FPC 14 MQ 1 TSen	OK	47 degrees C / 116 degrees F
FPC 14 MQ 1 Chip	OK	51 degrees C / 123 degrees F
FPC 14 MQ 2 TSen	OK	47 degrees C / 116 degrees F
FPC 14 MQ 2 Chip	OK	45 degrees C / 113 degrees F
FPC 14 MQ 3 TSen	OK	47 degrees C / 116 degrees F
FPC 14 MQ 3 Chip	OK	48 degrees C / 118 degrees F
FPC 15 Intake	OK	44 degrees C / 111 degrees F
FPC 15 Exhaust A	OK	49 degrees C / 120 degrees F
FPC 15 Exhaust B	OK	60 degrees C / 140 degrees F
FPC 15 LU 0 TSen	OK	50 degrees C / 122 degrees F
FPC 15 LU 0 Chip	OK	56 degrees C / 132 degrees F
FPC 15 LU 1 TSen	OK	50 degrees C / 122 degrees F
FPC 15 LU 1 Chip	OK	50 degrees C / 122 degrees F
FPC 15 LU 2 TSen	OK	50 degrees C / 122 degrees F
FPC 15 LU 2 Chip	OK	58 degrees C / 136 degrees F
FPC 15 LU 3 TSen	OK	50 degrees C / 122 degrees F
FPC 15 LU 3 Chip	OK	63 degrees C / 145 degrees F
FPC 15 XM 0 TSen	OK	50 degrees C / 122 degrees F
FPC 15 XM 0 Chip	OK	56 degrees C / 132 degrees F
FPC 15 XF 0 TSen	OK	50 degrees C / 122 degrees F
FPC 15 XF 0 Chip	OK	68 degrees C / 154 degrees F
FPC 15 PLX Switch TSen	OK	50 degrees C / 122 degrees F
FPC 15 PLX Switch Chip	OK	56 degrees C / 132 degrees F
FPC 16 Intake	OK	42 degrees C / 107 degrees F
FPC 16 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 16 Exhaust B	OK	53 degrees C / 127 degrees F
FPC 16 LU 0 TSen	OK	51 degrees C / 123 degrees F
FPC 16 LU 0 Chip	OK	52 degrees C / 125 degrees F
FPC 16 LU 1 TSen	OK	51 degrees C / 123 degrees F
FPC 16 LU 1 Chip	OK	55 degrees C / 131 degrees F
FPC 16 LU 2 TSen	OK	51 degrees C / 123 degrees F
FPC 16 LU 2 Chip	OK	48 degrees C / 118 degrees F
FPC 16 LU 3 TSen	OK	51 degrees C / 123 degrees F
FPC 16 LU 3 Chip	OK	49 degrees C / 120 degrees F
FPC 16 MQ 0 TSen	OK	49 degrees C / 120 degrees F
FPC 16 MQ 0 Chip	OK	48 degrees C / 118 degrees F
FPC 16 MQ 1 TSen	OK	49 degrees C / 120 degrees F
FPC 16 MQ 1 Chip	OK	53 degrees C / 127 degrees F
FPC 16 MQ 2 TSen	OK	49 degrees C / 120 degrees F
FPC 16 MQ 2 Chip	OK	46 degrees C / 114 degrees F
FPC 16 MQ 3 TSen	OK	49 degrees C / 120 degrees F
FPC 16 MQ 3 Chip	OK	49 degrees C / 120 degrees F
FPC 17 Intake	OK	43 degrees C / 109 degrees F
FPC 17 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 17 Exhaust B	OK	55 degrees C / 131 degrees F
FPC 17 LU 0 TSen	OK	54 degrees C / 129 degrees F
FPC 17 LU 0 Chip	OK	57 degrees C / 134 degrees F
FPC 17 LU 1 TSen	OK	54 degrees C / 129 degrees F
FPC 17 LU 1 Chip	OK	60 degrees C / 140 degrees F
FPC 17 LU 2 TSen	OK	54 degrees C / 129 degrees F
FPC 17 LU 2 Chip	OK	53 degrees C / 127 degrees F
FPC 17 LU 3 TSen	OK	54 degrees C / 129 degrees F
FPC 17 LU 3 Chip	OK	53 degrees C / 127 degrees F
FPC 17 MQ 0 TSen	OK	49 degrees C / 120 degrees F
FPC 17 MQ 0 Chip	OK	50 degrees C / 122 degrees F
FPC 17 MQ 1 TSen	OK	49 degrees C / 120 degrees F
FPC 17 MQ 1 Chip	OK	54 degrees C / 129 degrees F

FPC 17 MQ 2 TSen	OK	49 degrees C / 120 degrees F
FPC 17 MQ 2 Chip	OK	47 degrees C / 116 degrees F
FPC 17 MQ 3 TSen	OK	49 degrees C / 120 degrees F
FPC 17 MQ 3 Chip	OK	51 degrees C / 123 degrees F
FPC 18 Intake	OK	44 degrees C / 111 degrees F
FPC 18 Exhaust A	OK	53 degrees C / 127 degrees F
FPC 18 Exhaust B	OK	57 degrees C / 134 degrees F
FPC 18 LU 0 TSen	OK	56 degrees C / 132 degrees F
FPC 18 LU 0 Chip	OK	57 degrees C / 134 degrees F
FPC 18 LU 1 TSen	OK	56 degrees C / 132 degrees F
FPC 18 LU 1 Chip	OK	62 degrees C / 143 degrees F
FPC 18 LU 2 TSen	OK	56 degrees C / 132 degrees F
FPC 18 LU 2 Chip	OK	53 degrees C / 127 degrees F
FPC 18 LU 3 TSen	OK	56 degrees C / 132 degrees F
FPC 18 LU 3 Chip	OK	55 degrees C / 131 degrees F
FPC 18 MQ 0 TSen	OK	51 degrees C / 123 degrees F
FPC 18 MQ 0 Chip	OK	54 degrees C / 129 degrees F
FPC 18 MQ 1 TSen	OK	51 degrees C / 123 degrees F
FPC 18 MQ 1 Chip	OK	58 degrees C / 136 degrees F
FPC 18 MQ 2 TSen	OK	51 degrees C / 123 degrees F
FPC 18 MQ 2 Chip	OK	50 degrees C / 122 degrees F
FPC 18 MQ 3 TSen	OK	51 degrees C / 123 degrees F
FPC 18 MQ 3 Chip	OK	53 degrees C / 127 degrees F
FPC 19 Intake	OK	48 degrees C / 118 degrees F
FPC 19 Exhaust A	OK	56 degrees C / 132 degrees F
FPC 19 Exhaust B	OK	64 degrees C / 147 degrees F
FPC 19 LU 0 TSen	OK	63 degrees C / 145 degrees F
FPC 19 LU 0 Chip	OK	64 degrees C / 147 degrees F
FPC 19 LU 1 TSen	OK	63 degrees C / 145 degrees F
FPC 19 LU 1 Chip	OK	70 degrees C / 158 degrees F
FPC 19 LU 2 TSen	OK	63 degrees C / 145 degrees F
FPC 19 LU 2 Chip	OK	61 degrees C / 141 degrees F
FPC 19 LU 3 TSen	OK	63 degrees C / 145 degrees F
FPC 19 LU 3 Chip	OK	62 degrees C / 143 degrees F
FPC 19 MQ 0 TSen	OK	56 degrees C / 132 degrees F
FPC 19 MQ 0 Chip	OK	60 degrees C / 140 degrees F
FPC 19 MQ 1 TSen	OK	56 degrees C / 132 degrees F
FPC 19 MQ 1 Chip	OK	62 degrees C / 143 degrees F
FPC 19 MQ 2 TSen	OK	56 degrees C / 132 degrees F
FPC 19 MQ 2 Chip	OK	56 degrees C / 132 degrees F
FPC 19 MQ 3 TSen	OK	56 degrees C / 132 degrees F
FPC 19 MQ 3 Chip	OK	57 degrees C / 134 degrees F
ADC 0 Intake	OK	40 degrees C / 104 degrees F
ADC 0 Exhaust	OK	52 degrees C / 125 degrees F
ADC 0 ADC-XF1	OK	59 degrees C / 138 degrees F
ADC 0 ADC-XF0	OK	66 degrees C / 150 degrees F
ADC 1 Intake	OK	38 degrees C / 100 degrees F
ADC 1 Exhaust	OK	50 degrees C / 122 degrees F
ADC 1 ADC-XF1	OK	59 degrees C / 138 degrees F
ADC 1 ADC-XF0	OK	63 degrees C / 145 degrees F
ADC 2 Intake	OK	37 degrees C / 98 degrees F
ADC 2 Exhaust	OK	52 degrees C / 125 degrees F
ADC 2 ADC-XF1	OK	53 degrees C / 127 degrees F
ADC 2 ADC-XF0	OK	61 degrees C / 141 degrees F
ADC 3 Intake	OK	40 degrees C / 104 degrees F
ADC 3 Exhaust	OK	51 degrees C / 123 degrees F
ADC 3 ADC-XF1	OK	61 degrees C / 141 degrees F
ADC 3 ADC-XF0	OK	64 degrees C / 147 degrees F
ADC 4 Intake	OK	39 degrees C / 102 degrees F
ADC 4 Exhaust	OK	51 degrees C / 123 degrees F
ADC 4 ADC-XF1	OK	60 degrees C / 140 degrees F

ADC 4	ADC-XF0	OK	63 degrees C / 145 degrees F
ADC 5	Intake	OK	38 degrees C / 100 degrees F
ADC 5	Exhaust	OK	54 degrees C / 129 degrees F
ADC 5	ADC-XF1	OK	56 degrees C / 132 degrees F
ADC 5	ADC-XF0	OK	67 degrees C / 152 degrees F
ADC 6	Intake	OK	39 degrees C / 102 degrees F
ADC 6	Exhaust	OK	52 degrees C / 125 degrees F
ADC 6	ADC-XF1	OK	59 degrees C / 138 degrees F
ADC 6	ADC-XF0	OK	66 degrees C / 150 degrees F
ADC 7	Intake	OK	39 degrees C / 102 degrees F
ADC 7	Exhaust	OK	54 degrees C / 129 degrees F
ADC 7	ADC-XF1	OK	62 degrees C / 143 degrees F
ADC 7	ADC-XF0	OK	70 degrees C / 158 degrees F
ADC 8	Intake	OK	39 degrees C / 102 degrees F
ADC 8	Exhaust	OK	52 degrees C / 125 degrees F
ADC 8	ADC-XF1	OK	61 degrees C / 141 degrees F
ADC 8	ADC-XF0	OK	65 degrees C / 149 degrees F
ADC 9	Intake	OK	41 degrees C / 105 degrees F
ADC 9	Exhaust	OK	51 degrees C / 123 degrees F
ADC 9	ADC-XF1	OK	63 degrees C / 145 degrees F
ADC 9	ADC-XF0	OK	63 degrees C / 145 degrees F
ADC 10	Intake	OK	48 degrees C / 118 degrees F
ADC 10	Exhaust	OK	53 degrees C / 127 degrees F
ADC 10	ADC-XF1	OK	67 degrees C / 152 degrees F
ADC 10	ADC-XF0	OK	66 degrees C / 150 degrees F
ADC 12	Intake	OK	49 degrees C / 120 degrees F
ADC 12	Exhaust	OK	54 degrees C / 129 degrees F
ADC 12	ADC-XF1	OK	67 degrees C / 152 degrees F
ADC 12	ADC-XF0	OK	67 degrees C / 152 degrees F
ADC 13	Intake	OK	49 degrees C / 120 degrees F
ADC 13	Exhaust	OK	57 degrees C / 134 degrees F
ADC 13	ADC-XF1	OK	66 degrees C / 150 degrees F
ADC 13	ADC-XF0	OK	69 degrees C / 156 degrees F
ADC 14	Intake	OK	51 degrees C / 123 degrees F
ADC 14	Exhaust	OK	59 degrees C / 138 degrees F
ADC 14	ADC-XF1	OK	69 degrees C / 156 degrees F
ADC 14	ADC-XF0	OK	74 degrees C / 165 degrees F
ADC 15	Intake	OK	50 degrees C / 122 degrees F
ADC 15	Exhaust	OK	59 degrees C / 138 degrees F
ADC 15	ADC-XF1	OK	68 degrees C / 154 degrees F
ADC 15	ADC-XF0	OK	69 degrees C / 156 degrees F
ADC 16	Intake	OK	52 degrees C / 125 degrees F
ADC 16	Exhaust	OK	58 degrees C / 136 degrees F
ADC 16	ADC-XF1	OK	68 degrees C / 154 degrees F
ADC 16	ADC-XF0	OK	70 degrees C / 158 degrees F
ADC 17	Intake	OK	52 degrees C / 125 degrees F
ADC 17	Exhaust	OK	59 degrees C / 138 degrees F
ADC 17	ADC-XF1	OK	69 degrees C / 156 degrees F
ADC 17	ADC-XF0	OK	71 degrees C / 159 degrees F
ADC 18	Intake	OK	53 degrees C / 127 degrees F
ADC 18	Exhaust	OK	59 degrees C / 138 degrees F
ADC 18	ADC-XF1	OK	68 degrees C / 154 degrees F
ADC 18	ADC-XF0	OK	73 degrees C / 163 degrees F
ADC 19	Intake	OK	50 degrees C / 122 degrees F
ADC 19	Exhaust	OK	59 degrees C / 138 degrees F
ADC 19	ADC-XF1	OK	68 degrees C / 154 degrees F
ADC 19	ADC-XF0	OK	72 degrees C / 161 degrees F
Fans	Fan Tray 0 Fan 1	OK	7440 RPM
	Fan Tray 0 Fan 2	OK	7200 RPM
	Fan Tray 0 Fan 3	OK	6960 RPM
	Fan Tray 0 Fan 4	OK	7200 RPM

Fan Tray 0 Fan 5	OK	7080 RPM
Fan Tray 0 Fan 6	OK	6840 RPM
Fan Tray 1 Fan 1	OK	6840 RPM
Fan Tray 1 Fan 2	OK	6960 RPM
Fan Tray 1 Fan 3	OK	6960 RPM
Fan Tray 1 Fan 4	OK	7080 RPM
Fan Tray 1 Fan 5	OK	6960 RPM
Fan Tray 1 Fan 6	OK	6960 RPM
Fan Tray 2 Fan 1	OK	8640 RPM
Fan Tray 2 Fan 2	OK	8640 RPM
Fan Tray 2 Fan 3	OK	8760 RPM
Fan Tray 2 Fan 4	OK	8760 RPM
Fan Tray 2 Fan 5	OK	8640 RPM
Fan Tray 2 Fan 6	OK	8640 RPM
Fan Tray 3 Fan 1	OK	8520 RPM
Fan Tray 3 Fan 2	OK	8520 RPM
Fan Tray 3 Fan 3	OK	8640 RPM
Fan Tray 3 Fan 4	OK	8640 RPM
Fan Tray 3 Fan 5	OK	8520 RPM
Fan Tray 3 Fan 6	OK	8520 RPM

```

show chassis environment (MX2010 Router)
user@host> show chassis environment

```

Class	Item	Status	Measurement
Temp	PSM 0	OK	7 degrees C / 44 degrees F
	PSM 1	OK	7 degrees C / 44 degrees F
	PSM 2	OK	7 degrees C / 44 degrees F
	PSM 3	OK	6 degrees C / 42 degrees F
	PSM 4	OK	6 degrees C / 42 degrees F
	PSM 5	OK	6 degrees C / 42 degrees F
	PSM 6	OK	6 degrees C / 42 degrees F
	PSM 7	OK	7 degrees C / 44 degrees F
	PSM 8	OK	7 degrees C / 44 degrees F
	PDM 0	OK	
	PDM 1	Absent	
	CB 0 IntakeA-Zone0	OK	14 degrees C / 57 degrees F
	CB 0 IntakeB-Zone1	OK	7 degrees C / 44 degrees F
	CB 0 IntakeC-Zone0	OK	22 degrees C / 71 degrees F
	CB 0 ExhaustA-Zone0	OK	14 degrees C / 57 degrees F
	CB 0 ExhaustB-Zone1	OK	9 degrees C / 48 degrees F
	CB 0 TCBC-Zone0	OK	11 degrees C / 51 degrees F
	CB 1 IntakeA-Zone0	OK	9 degrees C / 48 degrees F
	CB 1 IntakeB-Zone1	OK	5 degrees C / 41 degrees F
	CB 1 IntakeC-Zone0	OK	20 degrees C / 68 degrees F
	CB 1 ExhaustA-Zone0	OK	12 degrees C / 53 degrees F
	CB 1 ExhaustB-Zone1	OK	7 degrees C / 44 degrees F
	CB 1 TCBC-Zone0	OK	10 degrees C / 50 degrees F
	SPMB 0 Intake	OK	5 degrees C / 41 degrees F
	SPMB 1 Intake	OK	4 degrees C / 39 degrees F
	Routing Engine 0	OK	9 degrees C / 48 degrees F
	Routing Engine 0 CPU	OK	9 degrees C / 48 degrees F
	Routing Engine 1	OK	6 degrees C / 42 degrees F
	Routing Engine 1 CPU	OK	6 degrees C / 42 degrees F
	SFB 0 Intake-Zone0	OK	26 degrees C / 78 degrees F
	SFB 0 Exhaust-Zone1	OK	17 degrees C / 62 degrees F
	SFB 0 IntakeA-Zone0	OK	16 degrees C / 60 degrees F
	SFB 0 IntakeB-Zone1	OK	11 degrees C / 51 degrees F
	SFB 0 Exhaust-Zone0	OK	18 degrees C / 64 degrees F
	SFB 0 SFB-XF2-Zone1	OK	25 degrees C / 77 degrees F
	SFB 0 SFB-XF1-Zone0	OK	23 degrees C / 73 degrees F
	SFB 0 SFB-XF0-Zone0	OK	33 degrees C / 91 degrees F
	SFB 1 Intake-Zone0	OK	27 degrees C / 80 degrees F

SFB 1 Exhaust-Zone1	OK	15 degrees C / 59 degrees F
SFB 1 IntakeA-Zone0	OK	20 degrees C / 68 degrees F
SFB 1 IntakeB-Zone1	OK	10 degrees C / 50 degrees F
SFB 1 Exhaust-Zone0	OK	19 degrees C / 66 degrees F
SFB 1 SFB-XF2-Zone1	OK	26 degrees C / 78 degrees F
SFB 1 SFB-XF1-Zone0	OK	27 degrees C / 80 degrees F
SFB 1 SFB-XF0-Zone0	OK	32 degrees C / 89 degrees F
SFB 2 Intake-Zone0	OK	21 degrees C / 69 degrees F
SFB 2 Exhaust-Zone1	OK	13 degrees C / 55 degrees F
SFB 2 IntakeA-Zone0	OK	18 degrees C / 64 degrees F
SFB 2 IntakeB-Zone1	OK	9 degrees C / 48 degrees F
SFB 2 Exhaust-Zone0	OK	16 degrees C / 60 degrees F
SFB 2 SFB-XF2-Zone1	OK	24 degrees C / 75 degrees F
SFB 2 SFB-XF1-Zone0	OK	21 degrees C / 69 degrees F
SFB 2 SFB-XF0-Zone0	OK	26 degrees C / 78 degrees F
SFB 4 Intake-Zone0	OK	28 degrees C / 82 degrees F
SFB 4 Exhaust-Zone1	OK	16 degrees C / 60 degrees F
SFB 4 IntakeA-Zone0	OK	18 degrees C / 64 degrees F
SFB 4 IntakeB-Zone1	OK	11 degrees C / 51 degrees F
SFB 4 Exhaust-Zone0	OK	19 degrees C / 66 degrees F
SFB 4 SFB-XF2-Zone1	OK	27 degrees C / 80 degrees F
SFB 4 SFB-XF1-Zone0	OK	27 degrees C / 80 degrees F
SFB 4 SFB-XF0-Zone0	OK	32 degrees C / 89 degrees F
SFB 5 Intake-Zone0	OK	22 degrees C / 71 degrees F
SFB 5 Exhaust-Zone1	OK	14 degrees C / 57 degrees F
SFB 5 IntakeA-Zone0	OK	18 degrees C / 64 degrees F
SFB 5 IntakeB-Zone1	OK	10 degrees C / 50 degrees F
SFB 5 Exhaust-Zone0	OK	17 degrees C / 62 degrees F
SFB 5 SFB-XF2-Zone1	OK	22 degrees C / 71 degrees F
SFB 5 SFB-XF1-Zone0	OK	29 degrees C / 84 degrees F
SFB 5 SFB-XF0-Zone0	OK	27 degrees C / 80 degrees F
SFB 6 Intake-Zone0	OK	27 degrees C / 80 degrees F
SFB 6 Exhaust-Zone1	OK	13 degrees C / 55 degrees F
SFB 6 IntakeA-Zone0	OK	19 degrees C / 66 degrees F
SFB 6 IntakeB-Zone1	OK	10 degrees C / 50 degrees F
SFB 6 Exhaust-Zone0	OK	20 degrees C / 68 degrees F
SFB 6 SFB-XF2-Zone1	OK	24 degrees C / 75 degrees F
SFB 6 SFB-XF1-Zone0	OK	32 degrees C / 89 degrees F
SFB 6 SFB-XF0-Zone0	OK	33 degrees C / 91 degrees F
SFB 7 Intake-Zone0	OK	25 degrees C / 77 degrees F
SFB 7 Exhaust-Zone1	OK	13 degrees C / 55 degrees F
SFB 7 IntakeA-Zone0	OK	14 degrees C / 57 degrees F
SFB 7 IntakeB-Zone1	OK	8 degrees C / 46 degrees F
SFB 7 Exhaust-Zone0	OK	17 degrees C / 62 degrees F
SFB 7 SFB-XF2-Zone1	OK	21 degrees C / 69 degrees F
SFB 7 SFB-XF1-Zone0	OK	21 degrees C / 69 degrees F
SFB 7 SFB-XF0-Zone0	OK	33 degrees C / 91 degrees F
FPC 0 Intake	OK	13 degrees C / 55 degrees F
FPC 0 Exhaust A	OK	13 degrees C / 55 degrees F
FPC 0 Exhaust B	OK	14 degrees C / 57 degrees F
FPC 0 LU 0 TSen	OK	28 degrees C / 82 degrees F
FPC 0 LU 0 Chip	OK	25 degrees C / 77 degrees F
FPC 0 LU 1 TSen	OK	28 degrees C / 82 degrees F
FPC 0 LU 1 Chip	OK	27 degrees C / 80 degrees F
FPC 0 LU 2 TSen	OK	28 degrees C / 82 degrees F
FPC 0 LU 2 Chip	OK	19 degrees C / 66 degrees F
FPC 0 LU 3 TSen	OK	28 degrees C / 82 degrees F
FPC 0 LU 3 Chip	OK	23 degrees C / 73 degrees F
FPC 0 XM 0 TSen	OK	28 degrees C / 82 degrees F
FPC 0 XM 0 Chip	OK	33 degrees C / 91 degrees F
FPC 0 XM 1 TSen	OK	28 degrees C / 82 degrees F

FPC 0 XM 1 Chip	OK	26 degrees C / 78 degrees F
FPC 0 PLX Switch TSen	OK	28 degrees C / 82 degrees F
FPC 0 PLX Switch Chip	OK	26 degrees C / 78 degrees F
FPC 1 Intake	OK	10 degrees C / 50 degrees F
FPC 1 Exhaust A	OK	24 degrees C / 75 degrees F
FPC 1 Exhaust B	OK	28 degrees C / 82 degrees F
FPC 1 LU 0 TSen	OK	22 degrees C / 71 degrees F
FPC 1 LU 0 Chip	OK	31 degrees C / 87 degrees F
FPC 1 LU 1 TSen	OK	22 degrees C / 71 degrees F
FPC 1 LU 1 Chip	OK	21 degrees C / 69 degrees F
FPC 1 LU 2 TSen	OK	22 degrees C / 71 degrees F
FPC 1 LU 2 Chip	OK	25 degrees C / 77 degrees F
FPC 1 LU 3 TSen	OK	22 degrees C / 71 degrees F
FPC 1 LU 3 Chip	OK	33 degrees C / 91 degrees F
FPC 1 XM 0 TSen	OK	22 degrees C / 71 degrees F
FPC 1 XM 0 Chip	OK	30 degrees C / 86 degrees F
FPC 1 XF 0 TSen	OK	22 degrees C / 71 degrees F
FPC 1 XF 0 Chip	OK	37 degrees C / 98 degrees F
FPC 1 PLX Switch TSen	OK	22 degrees C / 71 degrees F
FPC 1 PLX Switch Chip	OK	22 degrees C / 71 degrees F
FPC 2 Intake	OK	9 degrees C / 48 degrees F
FPC 2 Exhaust A	OK	10 degrees C / 50 degrees F
FPC 2 Exhaust B	OK	10 degrees C / 50 degrees F
FPC 2 LU 0 TSen	OK	26 degrees C / 78 degrees F
FPC 2 LU 0 Chip	OK	25 degrees C / 77 degrees F
FPC 2 LU 1 TSen	OK	26 degrees C / 78 degrees F
FPC 2 LU 1 Chip	OK	26 degrees C / 78 degrees F
FPC 2 LU 2 TSen	OK	26 degrees C / 78 degrees F
FPC 2 LU 2 Chip	OK	17 degrees C / 62 degrees F
FPC 2 LU 3 TSen	OK	26 degrees C / 78 degrees F
FPC 2 LU 3 Chip	OK	22 degrees C / 71 degrees F
FPC 2 XM 0 TSen	OK	26 degrees C / 78 degrees F
FPC 2 XM 0 Chip	OK	34 degrees C / 93 degrees F
FPC 2 XM 1 TSen	OK	26 degrees C / 78 degrees F
FPC 2 XM 1 Chip	OK	26 degrees C / 78 degrees F
FPC 2 PLX Switch TSen	OK	26 degrees C / 78 degrees F
FPC 2 PLX Switch Chip	OK	20 degrees C / 68 degrees F
FPC 3 Intake	OK	12 degrees C / 53 degrees F
FPC 3 Exhaust A	OK	16 degrees C / 60 degrees F
FPC 3 Exhaust B	OK	26 degrees C / 78 degrees F
FPC 3 LU 0 TSen	OK	23 degrees C / 73 degrees F
FPC 3 LU 0 Chip	OK	26 degrees C / 78 degrees F
FPC 3 LU 1 TSen	OK	23 degrees C / 73 degrees F
FPC 3 LU 1 Chip	OK	27 degrees C / 80 degrees F
FPC 3 LU 2 TSen	OK	23 degrees C / 73 degrees F
FPC 3 LU 2 Chip	OK	22 degrees C / 71 degrees F
FPC 3 LU 3 TSen	OK	23 degrees C / 73 degrees F
FPC 3 LU 3 Chip	OK	21 degrees C / 69 degrees F
FPC 3 MQ 0 TSen	OK	15 degrees C / 59 degrees F
FPC 3 MQ 0 Chip	OK	18 degrees C / 64 degrees F
FPC 3 MQ 1 TSen	OK	15 degrees C / 59 degrees F
FPC 3 MQ 1 Chip	OK	20 degrees C / 68 degrees F
FPC 3 MQ 2 TSen	OK	15 degrees C / 59 degrees F
FPC 3 MQ 2 Chip	OK	17 degrees C / 62 degrees F
FPC 3 MQ 3 TSen	OK	15 degrees C / 59 degrees F
FPC 3 MQ 3 Chip	OK	16 degrees C / 60 degrees F
FPC 4 Intake	OK	11 degrees C / 51 degrees F
FPC 4 Exhaust A	OK	22 degrees C / 71 degrees F
FPC 4 Exhaust B	OK	28 degrees C / 82 degrees F
FPC 4 LU 0 TSen	OK	22 degrees C / 71 degrees F
FPC 4 LU 0 Chip	OK	33 degrees C / 91 degrees F

FPC 4 LU 1 TSen	OK	22 degrees C / 71 degrees F
FPC 4 LU 1 Chip	OK	21 degrees C / 69 degrees F
FPC 4 LU 2 TSen	OK	22 degrees C / 71 degrees F
FPC 4 LU 2 Chip	OK	26 degrees C / 78 degrees F
FPC 4 LU 3 TSen	OK	22 degrees C / 71 degrees F
FPC 4 LU 3 Chip	OK	33 degrees C / 91 degrees F
FPC 4 XM 0 TSen	OK	22 degrees C / 71 degrees F
FPC 4 XM 0 Chip	OK	30 degrees C / 86 degrees F
FPC 4 XF 0 TSen	OK	22 degrees C / 71 degrees F
FPC 4 XF 0 Chip	OK	37 degrees C / 98 degrees F
FPC 4 PLX Switch TSen	OK	22 degrees C / 71 degrees F
FPC 4 PLX Switch Chip	OK	23 degrees C / 73 degrees F
FPC 5 Intake	OK	12 degrees C / 53 degrees F
FPC 5 Exhaust A	OK	12 degrees C / 53 degrees F
FPC 5 Exhaust B	OK	12 degrees C / 53 degrees F
FPC 5 LU 0 TSen	OK	27 degrees C / 80 degrees F
FPC 5 LU 0 Chip	OK	28 degrees C / 82 degrees F
FPC 5 LU 1 TSen	OK	27 degrees C / 80 degrees F
FPC 5 LU 1 Chip	OK	27 degrees C / 80 degrees F
FPC 5 LU 2 TSen	OK	27 degrees C / 80 degrees F
FPC 5 LU 2 Chip	OK	19 degrees C / 66 degrees F
FPC 5 LU 3 TSen	OK	27 degrees C / 80 degrees F
FPC 5 LU 3 Chip	OK	22 degrees C / 71 degrees F
FPC 5 XM 0 TSen	OK	27 degrees C / 80 degrees F
FPC 5 XM 0 Chip	OK	36 degrees C / 96 degrees F
FPC 5 XM 1 TSen	OK	27 degrees C / 80 degrees F
FPC 5 XM 1 Chip	OK	26 degrees C / 78 degrees F
FPC 5 PLX Switch TSen	OK	27 degrees C / 80 degrees F
FPC 5 PLX Switch Chip	OK	24 degrees C / 75 degrees F
FPC 6 Intake	OK	12 degrees C / 53 degrees F
FPC 6 Exhaust A	OK	17 degrees C / 62 degrees F
FPC 6 Exhaust B	OK	28 degrees C / 82 degrees F
FPC 6 LU 0 TSen	OK	24 degrees C / 75 degrees F
FPC 6 LU 0 Chip	OK	29 degrees C / 84 degrees F
FPC 6 LU 1 TSen	OK	24 degrees C / 75 degrees F
FPC 6 LU 1 Chip	OK	30 degrees C / 86 degrees F
FPC 6 LU 2 TSen	OK	24 degrees C / 75 degrees F
FPC 6 LU 2 Chip	OK	24 degrees C / 75 degrees F
FPC 6 LU 3 TSen	OK	24 degrees C / 75 degrees F
FPC 6 LU 3 Chip	OK	22 degrees C / 71 degrees F
FPC 6 MQ 0 TSen	OK	16 degrees C / 60 degrees F
FPC 6 MQ 0 Chip	OK	19 degrees C / 66 degrees F
FPC 6 MQ 1 TSen	OK	16 degrees C / 60 degrees F
FPC 6 MQ 1 Chip	OK	20 degrees C / 68 degrees F
FPC 6 MQ 2 TSen	OK	16 degrees C / 60 degrees F
FPC 6 MQ 2 Chip	OK	17 degrees C / 62 degrees F
FPC 6 MQ 3 TSen	OK	16 degrees C / 60 degrees F
FPC 6 MQ 3 Chip	OK	16 degrees C / 60 degrees F
FPC 7 Intake	OK	10 degrees C / 50 degrees F
FPC 7 Exhaust A	OK	10 degrees C / 50 degrees F
FPC 7 Exhaust B	OK	11 degrees C / 51 degrees F
FPC 7 LU 0 TSen	OK	26 degrees C / 78 degrees F
FPC 7 LU 0 Chip	OK	26 degrees C / 78 degrees F
FPC 7 LU 1 TSen	OK	26 degrees C / 78 degrees F
FPC 7 LU 1 Chip	OK	29 degrees C / 84 degrees F
FPC 7 LU 2 TSen	OK	26 degrees C / 78 degrees F
FPC 7 LU 2 Chip	OK	19 degrees C / 66 degrees F
FPC 7 LU 3 TSen	OK	26 degrees C / 78 degrees F
FPC 7 LU 3 Chip	OK	24 degrees C / 75 degrees F
FPC 7 XM 0 TSen	OK	26 degrees C / 78 degrees F
FPC 7 XM 0 Chip	OK	34 degrees C / 93 degrees F

FPC 7 XM 1 TSen	OK	26 degrees C / 78 degrees F
FPC 7 XM 1 Chip	OK	32 degrees C / 89 degrees F
FPC 7 PLX Switch TSen	OK	26 degrees C / 78 degrees F
FPC 7 PLX Switch Chip	OK	22 degrees C / 71 degrees F
FPC 8 Intake	OK	10 degrees C / 50 degrees F
FPC 8 Exhaust A	OK	22 degrees C / 71 degrees F
FPC 8 Exhaust B	OK	28 degrees C / 82 degrees F
FPC 8 LU 0 TSen	OK	20 degrees C / 68 degrees F
FPC 8 LU 0 Chip	OK	33 degrees C / 91 degrees F
FPC 8 LU 1 TSen	OK	20 degrees C / 68 degrees F
FPC 8 LU 1 Chip	OK	23 degrees C / 73 degrees F
FPC 8 LU 2 TSen	OK	20 degrees C / 68 degrees F
FPC 8 LU 2 Chip	OK	26 degrees C / 78 degrees F
FPC 8 LU 3 TSen	OK	20 degrees C / 68 degrees F
FPC 8 LU 3 Chip	OK	33 degrees C / 91 degrees F
FPC 8 XM 0 TSen	OK	20 degrees C / 68 degrees F
FPC 8 XM 0 Chip	OK	29 degrees C / 84 degrees F
FPC 8 XF 0 TSen	OK	20 degrees C / 68 degrees F
FPC 8 XF 0 Chip	OK	38 degrees C / 100 degrees F
FPC 8 PLX Switch TSen	OK	20 degrees C / 68 degrees F
FPC 8 PLX Switch Chip	OK	24 degrees C / 75 degrees F
FPC 9 Intake	OK	11 degrees C / 51 degrees F
FPC 9 Exhaust A	OK	11 degrees C / 51 degrees F
FPC 9 Exhaust B	OK	11 degrees C / 51 degrees F
FPC 9 LU 0 TSen	OK	25 degrees C / 77 degrees F
FPC 9 LU 0 Chip	OK	24 degrees C / 75 degrees F
FPC 9 LU 1 TSen	OK	25 degrees C / 77 degrees F
FPC 9 LU 1 Chip	OK	26 degrees C / 78 degrees F
FPC 9 LU 2 TSen	OK	25 degrees C / 77 degrees F
FPC 9 LU 2 Chip	OK	16 degrees C / 60 degrees F
FPC 9 LU 3 TSen	OK	25 degrees C / 77 degrees F
FPC 9 LU 3 Chip	OK	21 degrees C / 69 degrees F
FPC 9 XM 0 TSen	OK	25 degrees C / 77 degrees F
FPC 9 XM 0 Chip	OK	32 degrees C / 89 degrees F
FPC 9 XM 1 TSen	OK	25 degrees C / 77 degrees F
FPC 9 XM 1 Chip	OK	25 degrees C / 77 degrees F
FPC 9 PLX Switch TSen	OK	25 degrees C / 77 degrees F
FPC 9 PLX Switch Chip	OK	21 degrees C / 69 degrees F
ADC 0 Intake	OK	12 degrees C / 53 degrees F
ADC 0 Exhaust	OK	20 degrees C / 68 degrees F
ADC 0 ADC-XF1	OK	26 degrees C / 78 degrees F
ADC 0 ADC-XF0	OK	32 degrees C / 89 degrees F
ADC 1 Intake	OK	11 degrees C / 51 degrees F
ADC 1 Exhaust	OK	21 degrees C / 69 degrees F
ADC 1 ADC-XF1	OK	24 degrees C / 75 degrees F
ADC 1 ADC-XF0	OK	31 degrees C / 87 degrees F
ADC 2 Intake	OK	14 degrees C / 57 degrees F
ADC 2 Exhaust	OK	21 degrees C / 69 degrees F
ADC 2 ADC-XF1	OK	28 degrees C / 82 degrees F
ADC 2 ADC-XF0	OK	34 degrees C / 93 degrees F
ADC 3 Intake	OK	13 degrees C / 55 degrees F
ADC 3 Exhaust	OK	19 degrees C / 66 degrees F
ADC 3 ADC-XF1	OK	24 degrees C / 75 degrees F
ADC 3 ADC-XF0	OK	31 degrees C / 87 degrees F
ADC 4 Intake	OK	9 degrees C / 48 degrees F
ADC 4 Exhaust	OK	22 degrees C / 71 degrees F
ADC 4 ADC-XF1	OK	28 degrees C / 82 degrees F
ADC 4 ADC-XF0	OK	35 degrees C / 95 degrees F
ADC 5 Intake	OK	12 degrees C / 53 degrees F
ADC 5 Exhaust	OK	22 degrees C / 71 degrees F
ADC 5 ADC-XF1	OK	28 degrees C / 82 degrees F

	ADC 5 ADC-XF0	OK	34 degrees C / 93 degrees F
	ADC 6 Intake	OK	11 degrees C / 51 degrees F
	ADC 6 Exhaust	OK	21 degrees C / 69 degrees F
	ADC 6 ADC-XF1	OK	26 degrees C / 78 degrees F
ADC 6 ADC-XF0		OK	35 degrees C / 95 degrees F
	ADC 7 Intake	OK	14 degrees C / 57 degrees F
	ADC 7 Exhaust	OK	22 degrees C / 71 degrees F
	ADC 7 ADC-XF1	OK	26 degrees C / 78 degrees F
	ADC 7 ADC-XF0	OK	34 degrees C / 93 degrees F
	ADC 8 Intake	OK	14 degrees C / 57 degrees F
	ADC 8 Exhaust	OK	21 degrees C / 69 degrees F
	ADC 8 ADC-XF1	OK	24 degrees C / 75 degrees F
	ADC 8 ADC-XF0	OK	31 degrees C / 87 degrees F
	ADC 9 Intake	OK	10 degrees C / 50 degrees F
	ADC 9 Exhaust	OK	22 degrees C / 71 degrees F
	ADC 9 ADC-XF1	OK	28 degrees C / 82 degrees F
	ADC 9 ADC-XF0	OK	36 degrees C / 96 degrees F
Fans	Fan Tray 0 Fan 1	OK	3480 RPM
	Fan Tray 0 Fan 2	OK	3480 RPM
	Fan Tray 0 Fan 3	OK	3480 RPM
	Fan Tray 0 Fan 4	OK	3360 RPM
	Fan Tray 0 Fan 5	OK	3360 RPM
	Fan Tray 0 Fan 6	OK	3480 RPM
	Fan Tray 1 Fan 1	OK	3360 RPM
	Fan Tray 1 Fan 2	OK	3360 RPM
	Fan Tray 1 Fan 3	OK	3360 RPM
	Fan Tray 1 Fan 4	OK	3480 RPM
	Fan Tray 1 Fan 5	OK	3480 RPM
	Fan Tray 1 Fan 6	OK	3480 RPM
	Fan Tray 2 Fan 1	OK	3360 RPM
	Fan Tray 2 Fan 2	OK	3360 RPM
	Fan Tray 2 Fan 3	OK	3480 RPM
	Fan Tray 2 Fan 4	OK	3480 RPM
	Fan Tray 2 Fan 5	OK	3360 RPM
	Fan Tray 2 Fan 6	OK	3480 RPM
	Fan Tray 3 Fan 1	OK	3360 RPM
	Fan Tray 3 Fan 2	OK	3360 RPM
	Fan Tray 3 Fan 3	OK	3480 RPM
	Fan Tray 3 Fan 4	OK	3480 RPM
	Fan Tray 3 Fan 5	OK	3480 RPM
	Fan Tray 3 Fan 6	OK	3360 RPM

show chassis environment (T320 Router)		user@host> show chassis environment	
Class	Item	Status	Measurement
Power	PEM 0	OK	
	PEM 1	Absent	
Temp	SCG 0	OK	28 degrees C / 82 degrees F
	SCG 1	OK	28 degrees C / 82 degrees F
	Routing Engine 0	OK	31 degrees C / 87 degrees F
	Routing Engine 1	OK	30 degrees C / 86 degrees F
	CB 0	OK	32 degrees C / 89 degrees F
	CB 1	OK	32 degrees C / 89 degrees F
	SIB 0	OK	33 degrees C / 91 degrees F
	SIB 1	OK	33 degrees C / 91 degrees F
	SIB 2	OK	34 degrees C / 93 degrees F
	FPC 0 Top	OK	38 degrees C / 100 degrees F
	FPC 0 Bottom	OK	32 degrees C / 89 degrees F
	FPC 1 Top	OK	38 degrees C / 100 degrees F
	FPC 1 Bottom	OK	33 degrees C / 91 degrees F
	FPC 2 Top	OK	36 degrees C / 96 degrees F
	FPC 2 Bottom	OK	31 degrees C / 87 degrees F

	FPM GBUS	OK	26 degrees C / 78 degrees F
	FPM Display	OK	29 degrees C / 84 degrees F
Fans	Top Left Front fan	OK	Spinning at normal speed
	Top Left Middle fan	OK	Spinning at normal speed
	Top Left Rear fan	OK	Spinning at normal speed
	Top Right Front fan	OK	Spinning at normal speed
	Top Right Middle fan	OK	Spinning at normal speed
	Top Right Rear fan	OK	Spinning at normal speed
	Bottom Left Front fan	OK	Spinning at normal speed
	Bottom Left Middle fan	OK	Spinning at normal speed
	Bottom Left Rear fan	OK	Spinning at normal speed
	Bottom Right Front fan	OK	Spinning at normal speed
	Bottom Right Middle fan	OK	Spinning at normal speed
	Bottom Right Rear fan	OK	Spinning at normal speed
	Rear Tray Top fan	OK	Spinning at normal speed
	Rear Tray Second fan	OK	Spinning at normal speed
	Rear Tray Middle fan	OK	Spinning at normal speed
	Rear Tray Fourth fan	OK	Spinning at normal speed
	Rear Tray Bottom fan	OK	Spinning at normal speed
Misc	CIP	OK	
	SPMB 0	OK	
	SPMB 1	OK	

```

show chassis environment (T640 Router)
user@host> show chassis environment

```

Class	Item	Status	Measurement
Temp	PEM 0	Absent	
	PEM 1	OK	22 degrees C / 71 degrees F
	SCG 0	OK	30 degrees C / 86 degrees F
	SCG 1	OK	30 degrees C / 86 degrees F
	Routing Engine 0	Present	
	Routing Engine 1	OK	27 degrees C / 80 degrees F
	CB 0	Present	
	CB 1	OK	33 degrees C / 91 degrees F
	SIB 0	Absent	
	SIB 1	Absent	
	SIB 2	Absent	
	SIB 3	Absent	
	SIB 4	Absent	
	FPC 4 Top	Testing	
	FPC 4 Bottom	Testing	
	FPC 5 Top	Testing	
	FPC 5 Bottom	Testing	
	FPC 6 Top	Testing	
	FPC 6 Bottom	Testing	
	FPM GBUS	OK	23 degrees C / 73 degrees F
	FPM Display	Absent	
Fans	Top Left Front fan	OK	Spinning at normal speed
	Top Left Middle fan	OK	Spinning at normal speed
	Top Left Rear fan	OK	Spinning at normal speed
	Top Right Front fan	OK	Spinning at normal speed
	Top Right Middle fan	OK	Spinning at normal speed
	Top Right Rear fan	OK	Spinning at normal speed
	Bottom Left Front fan	OK	Spinning at normal speed
	Bottom Left Middle fan	OK	Spinning at normal speed
	Bottom Left Rear fan	OK	Spinning at normal speed
	Bottom Right Front fan	OK	Spinning at normal speed
	Bottom Right Middle fan	OK	Spinning at normal speed
	Bottom Right Rear fan	OK	Spinning at normal speed
	Fourth Blower from top	OK	Spinning at normal speed
	Bottom Blower	OK	Spinning at normal speed

	Middle Blower	OK	Spinning at normal speed
	Top Blower	OK	Spinning at normal speed
	Second Blower from top	OK	Spinning at normal speed
Misc	CIP	OK	
	SPMB 0	OK	
	SPMB 1	OK	

```

show chassis environment (T4000 Router)
user@host> show chassis environment

```

Class	Item	Status	Measurement
Temp	PEM 0	OK	33 degrees C / 91 degrees F
	PEM 1	Absent	
	SCG 0	OK	33 degrees C / 91 degrees F
	SCG 1	OK	33 degrees C / 91 degrees F
	Routing Engine 0	OK	33 degrees C / 91 degrees F
	Routing Engine 0 CPU	OK	50 degrees C / 122 degrees F
	Routing Engine 1	OK	32 degrees C / 89 degrees F
	Routing Engine 1 CPU	OK	46 degrees C / 114 degrees F
	CB 0	OK	32 degrees C / 89 degrees F
	CB 1	OK	33 degrees C / 91 degrees F
	SIB 0	OK	42 degrees C / 107 degrees F
	SIB 1	OK	42 degrees C / 107 degrees F
	SIB 2	OK	42 degrees C / 107 degrees F
	SIB 3	OK	43 degrees C / 109 degrees F
	SIB 4	OK	45 degrees C / 113 degrees F
	FPC 0 Fan Intake	OK	34 degrees C / 93 degrees F
	FPC 0 Fan Exhaust	OK	48 degrees C / 118 degrees F
	FPC 0 PMB	OK	47 degrees C / 116 degrees F
	FPC 0 LMB0	OK	50 degrees C / 122 degrees F
	FPC 0 LMB1	OK	41 degrees C / 105 degrees F
	FPC 0 LMB2	OK	35 degrees C / 95 degrees F
	FPC 0 PFE1 LU2	OK	46 degrees C / 114 degrees F
	FPC 0 PFE1 LU0	OK	41 degrees C / 105 degrees F
	FPC 0 PFE0 LU0	OK	57 degrees C / 134 degrees F
	FPC 0 XF1	OK	46 degrees C / 114 degrees F
	FPC 0 XF0	OK	52 degrees C / 125 degrees F
	FPC 0 XM1	OK	41 degrees C / 105 degrees F
	FPC 0 XM0	OK	50 degrees C / 122 degrees F
	FPC 0 PFE0 LU1	OK	56 degrees C / 132 degrees F
	FPC 0 PFE0 LU2	OK	45 degrees C / 113 degrees F
	FPC 0 PFE1 LU1	OK	37 degrees C / 98 degrees F
	FPC 3 Fan Intake	OK	36 degrees C / 96 degrees F
	FPC 3 Fan Exhaust	OK	51 degrees C / 123 degrees F
	FPC 3 PMB	OK	43 degrees C / 109 degrees F
	FPC 3 LMB0	OK	57 degrees C / 134 degrees F
	FPC 3 LMB1	OK	54 degrees C / 129 degrees F
	FPC 3 LMB2	OK	38 degrees C / 100 degrees F
	FPC 3 PFE1 LU2	OK	63 degrees C / 145 degrees F
	FPC 3 PFE1 LU0	OK	45 degrees C / 113 degrees F
	FPC 3 PFE0 LU0	OK	69 degrees C / 156 degrees F
	FPC 3 XF1	OK	62 degrees C / 143 degrees F
	FPC 3 XF0	OK	63 degrees C / 145 degrees F
	FPC 3 XM1	OK	43 degrees C / 109 degrees F
	FPC 3 XM0	OK	67 degrees C / 152 degrees F
	FPC 3 PFE0 LU1	OK	63 degrees C / 145 degrees F
	FPC 3 PFE0 LU2	OK	66 degrees C / 150 degrees F
	FPC 3 PFE1 LU1	OK	41 degrees C / 105 degrees F
	FPC 5 Top	OK	39 degrees C / 102 degrees F
	FPC 5 Bottom	OK	38 degrees C / 100 degrees F
	FPC 6 Fan Intake	OK	33 degrees C / 91 degrees F
	FPC 6 Fan Exhaust	OK	49 degrees C / 120 degrees F

	FPC 6 PMB	OK	40 degrees C / 104 degrees F
	FPC 6 LMB0	OK	60 degrees C / 140 degrees F
	FPC 6 LMB1	OK	58 degrees C / 136 degrees F
	FPC 6 LMB2	OK	40 degrees C / 104 degrees F
	FPC 6 PFE1 LU2	OK	69 degrees C / 156 degrees F
	FPC 6 PFE1 LU0	OK	45 degrees C / 113 degrees F
	FPC 6 PFE0 LU0	OK	71 degrees C / 159 degrees F
	FPC 6 XF1	OK	58 degrees C / 136 degrees F
	FPC 6 XF0	OK	65 degrees C / 149 degrees F
	FPC 6 XM1	OK	39 degrees C / 102 degrees F
	FPC 6 XM0	OK	66 degrees C / 150 degrees F
	FPC 6 PFE0 LU1	OK	69 degrees C / 156 degrees F
	FPC 6 PFE0 LU2	OK	69 degrees C / 156 degrees F
	FPC 6 PFE1 LU1	OK	42 degrees C / 107 degrees F
	FPM GBUS	OK	24 degrees C / 75 degrees F
	FPM Display	OK	27 degrees C / 80 degrees F
Fans	Top Left Front fan	OK	Spinning at high speed
	Top Left Middle fan	OK	Spinning at high speed
	Top Left Rear fan	OK	Spinning at high speed
	Top Right Front fan	OK	Spinning at high speed
	Top Right Middle fan	OK	Spinning at high speed
	Top Right Rear fan	OK	Spinning at high speed
	Bottom Left Front fan	OK	Spinning at high speed
	Bottom Left Middle fan	OK	Spinning at high speed
	Bottom Left Rear fan	OK	Spinning at high speed
	Bottom Right Front fan	OK	Spinning at high speed
	Bottom Right Middle fan	OK	Spinning at high speed
	Bottom Right Rear fan	OK	Spinning at high speed
	Rear Tray Top fan	OK	Spinning at high speed
	Rear Tray Second fan	OK	Spinning at high speed
	Rear Tray Third fan	OK	Spinning at high speed
	Rear Tray Fourth fan	OK	Spinning at high speed
	Rear Tray Fifth fan	OK	Spinning at high speed
	Rear Tray Sixth fan	OK	Spinning at high speed
	Rear Tray Seventh fan	OK	Spinning at high speed
	Rear Tray Bottom fan	OK	Spinning at high speed
Misc	CIP	OK	
	SPMB 0	OK	
	SPMB 1	OK	

show chassis environment (TX Matrix Router)

user@host> show chassis environment
scc-re0:

	Class	Item	Status	Measurement
	Temp	PEM 0	Absent	
		PEM 1	OK	29 degrees C / 84 degrees F
		Routing Engine 0	OK	34 degrees C / 93 degrees F
		Routing Engine 1	OK	34 degrees C / 93 degrees F
		CB 0	OK	32 degrees C / 89 degrees F
		CB 1	OK	32 degrees C / 89 degrees F
		SIB 0	OK	44 degrees C / 111 degrees F
		SIB 0 (B)	OK	44 degrees C / 111 degrees F
		FPM GBUS	OK	27 degrees C / 80 degrees F
		FPM Display	OK	32 degrees C / 89 degrees F
Fans		Top Left Front fan	OK	Spinning at normal speed
		Top Left Middle fan	OK	Spinning at normal speed
		Top Left Rear fan	OK	Spinning at normal speed
		Top Right Front fan	OK	Spinning at normal speed
		Top Right Middle fan	OK	Spinning at normal speed
		Top Right Rear fan	OK	Spinning at normal speed
		Bottom Left Front fan	OK	Spinning at normal speed

	Bottom Left Middle fan	OK	Spinning at normal speed
	Bottom Left Rear fan	OK	Spinning at normal speed
	Bottom Right Front fan	OK	Spinning at normal speed
	Bottom Right Middle fan	OK	Spinning at normal speed
	Bottom Right Rear fan	OK	Spinning at normal speed
	Rear Tray Top fan	OK	Spinning at normal speed
	Rear Tray Second fan	OK	Spinning at normal speed
	Rear Tray Third fan	OK	Spinning at normal speed
	Rear Tray Fourth fan	OK	Spinning at normal speed
	Rear Tray Fifth fan	OK	Spinning at normal speed
	Rear Tray Sixth fan	OK	Spinning at normal speed
	Rear Tray Seventh fan	OK	Spinning at normal speed
	Rear Tray Bottom fan	OK	Spinning at normal speed
Misc	CIP 0	OK	
	CIP 1	OK	
	SPMB 0	OK	
	SPMB 1	OK	

1cc0-re0:

Class	Item	Status	Measurement
Temp	PEM 0	OK	29 degrees C / 84 degrees F
	PEM 1	Absent	
	SCG 0	OK	35 degrees C / 95 degrees F
	SCG 1	Absent	
	Routing Engine 0	OK	39 degrees C / 102 degrees F
	Routing Engine 1	OK	36 degrees C / 96 degrees F
	CB 0	OK	32 degrees C / 89 degrees F
	CB 1	OK	32 degrees C / 89 degrees F
	SIB 0	OK	40 degrees C / 104 degrees F
	SIB 0 (B)	OK	51 degrees C / 123 degrees F
	FPC 0 Top	OK	45 degrees C / 113 degrees F
	FPC 0 Bottom	OK	31 degrees C / 87 degrees F
	FPC 1 Top	OK	34 degrees C / 93 degrees F
	FPC 1 Bottom	OK	31 degrees C / 87 degrees F
	FPM GBUS	OK	30 degrees C / 86 degrees F
	FPM Display	OK	34 degrees C / 93 degrees F
Fans	Top Left Front fan	OK	Spinning at normal speed
	Top Left Middle fan	OK	Spinning at normal speed
	Top Left Rear fan	OK	Spinning at normal speed
	Top Right Front fan	OK	Spinning at normal speed
	Top Right Middle fan	OK	Spinning at normal speed
	Top Right Rear fan	OK	Spinning at normal speed
	Bottom Left Front fan	OK	Spinning at normal speed
	Bottom Left Middle fan	OK	Spinning at normal speed
	Bottom Left Rear fan	OK	Spinning at normal speed
	Bottom Right Front fan	OK	Spinning at normal speed
	Bottom Right Middle fan	OK	Spinning at normal speed
	Bottom Right Rear fan	OK	Spinning at normal speed
	Rear Tray Top fan	OK	Spinning at normal speed
	Rear Tray Second fan	OK	Spinning at normal speed
	Rear Tray Third fan	OK	Spinning at normal speed
	Rear Tray Fourth fan	OK	Spinning at normal speed
	Rear Tray Fifth fan	OK	Spinning at normal speed
	Rear Tray Sixth fan	OK	Spinning at normal speed
	Rear Tray Seventh fan	OK	Spinning at normal speed
	Rear Tray Bottom fan	OK	Spinning at normal speed
Misc	CIP	OK	
	SPMB 0	OK	
	SPMB 1	OK	

```
lcc2-re0:
```

```
-----
Class Item                Status      Measurement
Temp  PEM 0                OK          29 degrees C / 84 degrees F
      PEM 1                Absent
      SCG 0                OK          32 degrees C / 89 degrees F
      SCG 1                Absent
      Routing Engine 0     OK          31 degrees C / 87 degrees F
      Routing Engine 1     OK          32 degrees C / 89 degrees F
      CB 0                 OK          30 degrees C / 86 degrees F
      SIB 0                OK          38 degrees C / 100 degrees F
      SIB 0 (B)            OK          49 degrees C / 120 degrees F
      FPC 0 Top            OK          45 degrees C / 113 degrees F
      FPC 0 Bottom        OK          33 degrees C / 91 degrees F
      FPC 1 Top            OK          37 degrees C / 98 degrees F
      FPC 1 Bottom        OK          33 degrees C / 91 degrees F
      FPM GBUS             OK          30 degrees C / 86 degrees F
      FPM Display          OK          34 degrees C / 93 degrees F
Fans  Top Left Front fan   OK          Spinning at normal speed
      Top Left Middle fan  OK          Spinning at normal speed
...

```

```
show chassis user@host> show chassis environment
environment (T1600 Router)
```

```
Class Item                Status      Measurement
Temp  PEM 0                OK          27 degrees C / 80 degrees F
      PEM 1                Absent
      SCG 0                OK          31 degrees C / 87 degrees F
      SCG 1                OK          35 degrees C / 95 degrees F
      Routing Engine 0     OK          30 degrees C / 86 degrees F
      Routing Engine 1     OK          30 degrees C / 86 degrees F
      CB 0                 OK          31 degrees C / 87 degrees F
      CB 1                 OK          31 degrees C / 87 degrees F
      SIB 0                OK          41 degrees C / 105 degrees F
      SIB 0 (B)            OK          34 degrees C / 93 degrees F
      SIB 1                OK          0 degrees C / 32 degrees F
      SIB 1 (B)            OK          0 degrees C / 32 degrees F
      SIB 2                OK          0 degrees C / 32 degrees F
      SIB 2 (B)            OK          0 degrees C / 32 degrees F
      SIB 3                OK          0 degrees C / 32 degrees F
      SIB 3 (B)            OK          0 degrees C / 32 degrees F
      SIB 4                OK          0 degrees C / 32 degrees F
      SIB 4 (B)            OK          0 degrees C / 32 degrees F
      FPC 0 Top            OK          49 degrees C / 120 degrees F
      FPC 0 Bottom        OK          50 degrees C / 122 degrees F
      FPC 1 Top            OK          48 degrees C / 118 degrees F
      FPC 1 Bottom        OK          49 degrees C / 120 degrees F
      FPM GBUS             OK          27 degrees C / 80 degrees F
      FPM Display          OK          30 degrees C / 86 degrees F
Fans  Top Left Front fan   OK          Spinning at normal speed
      Top Left Middle fan  OK          Spinning at normal speed
      Top Left Rear fan    OK          Spinning at normal speed
      Top Right Front fan   OK          Spinning at normal speed
      Top Right Middle fan  OK          Spinning at normal speed
      Top Right Rear fan    OK          Spinning at normal speed
      Bottom Left Front fan OK          Spinning at normal speed
      Bottom Left Middle fan OK          Spinning at normal speed
      Bottom Left Rear fan  OK          Spinning at normal speed
      Bottom Right Front fan OK          Spinning at normal speed
      Bottom Right Middle fan OK          Spinning at normal speed
      Bottom Right Rear fan OK          Spinning at normal speed
      Rear Tray Top fan     OK          Spinning at normal speed

```

	Rear Tray Second fan	OK	Spinning at normal speed
	Rear Tray Third fan	OK	Spinning at normal speed
	Rear Tray Fourth fan	OK	Spinning at normal speed
	Rear Tray Fifth fan	OK	Spinning at normal speed
	Rear Tray Sixth fan	OK	Spinning at normal speed
	Rear Tray Seventh fan	OK	Spinning at normal speed
	Rear Tray Bottom fan	OK	Spinning at normal speed
Misc	CIP	OK	
	SPMB 0	OK	
	SPMB 1	OK	

show chassis environment (TX Matrix Plus Router)

user@host> show chassis environment
sfc0-re0:

Class	Item	Status	Measurement
Temp	PEM 0	OK	28 degrees C / 82 degrees F
	PEM 1	Absent	
	Routing Engine 0	OK	27 degrees C / 80 degrees F
	Routing Engine 1	OK	29 degrees C / 84 degrees F
	CB 0 Intake	OK	26 degrees C / 78 degrees F
	CB 0 Exhaust A	OK	25 degrees C / 77 degrees F
	CB 0 Exhaust B	OK	25 degrees C / 77 degrees F
	CB 1 Intake	OK	26 degrees C / 78 degrees F
	CB 1 Exhaust A	OK	26 degrees C / 78 degrees F
	CB 1 Exhaust B	OK	26 degrees C / 78 degrees F
	SIB F13 0	OK	47 degrees C / 116 degrees F
	SIB F13 0 (B)	OK	48 degrees C / 118 degrees F
	SIB F13 1	OK	38 degrees C / 100 degrees F
	SIB F13 1 (B)	OK	37 degrees C / 98 degrees F
	SIB F2S 0/0	OK	27 degrees C / 80 degrees F
	SIB F2S 0/2	OK	28 degrees C / 82 degrees F
	SIB F2S 0/4	OK	27 degrees C / 80 degrees F
	SIB F2S 0/6	OK	28 degrees C / 82 degrees F
	SIB F2S 1/0	OK	26 degrees C / 78 degrees F
	SIB F2S 1/2	OK	26 degrees C / 78 degrees F
	SIB F2S 1/4	OK	26 degrees C / 78 degrees F
	SIB F2S 1/6	OK	26 degrees C / 78 degrees F
	SIB F2S 2/0	OK	25 degrees C / 77 degrees F
	SIB F2S 2/2	OK	25 degrees C / 77 degrees F
	SIB F2S 2/4	OK	23 degrees C / 73 degrees F
	CIP 0 Intake	OK	23 degrees C / 73 degrees F
	CIP 0 Exhaust A	OK	24 degrees C / 75 degrees F
	CIP 0 Exhaust B	OK	24 degrees C / 75 degrees F
	CIP 1 Intake	OK	24 degrees C / 75 degrees F
	CIP 1 Exhaust A	OK	25 degrees C / 77 degrees F
	CIP 1 Exhaust B	OK	25 degrees C / 77 degrees F
Fans	Fan Tray 0 Fan 1	OK	Spinning at normal speed
	Fan Tray 0 Fan 2	OK	Spinning at normal speed
	Fan Tray 0 Fan 3	OK	Spinning at normal speed
	Fan Tray 0 Fan 4	OK	Spinning at normal speed
	Fan Tray 0 Fan 5	OK	Spinning at normal speed
	Fan Tray 0 Fan 6	OK	Spinning at normal speed
	Fan Tray 1 Fan 1	OK	Spinning at normal speed
	Fan Tray 1 Fan 2	OK	Spinning at normal speed
	Fan Tray 1 Fan 3	OK	Spinning at normal speed
	Fan Tray 1 Fan 4	OK	Spinning at normal speed
	Fan Tray 1 Fan 5	OK	Spinning at normal speed
	Fan Tray 1 Fan 6	OK	Spinning at normal speed
	Fan Tray 2 Fan 1	OK	Spinning at normal speed
	Fan Tray 2 Fan 2	OK	Spinning at normal speed
	Fan Tray 2 Fan 3	OK	Spinning at normal speed

Fan Tray 2 Fan 4	OK	Spinning at normal speed
Fan Tray 2 Fan 5	OK	Spinning at normal speed
Fan Tray 2 Fan 6	OK	Spinning at normal speed
Fan Tray 2 Fan 7	OK	Spinning at normal speed
Fan Tray 2 Fan 8	OK	Spinning at normal speed
Fan Tray 2 Fan 9	OK	Spinning at normal speed
Fan Tray 3 Fan 1	OK	Spinning at normal speed
Fan Tray 3 Fan 2	OK	Spinning at normal speed
Fan Tray 3 Fan 3	OK	Spinning at normal speed
Fan Tray 3 Fan 4	OK	Spinning at normal speed
Fan Tray 3 Fan 5	OK	Spinning at normal speed
Fan Tray 3 Fan 6	OK	Spinning at normal speed
Fan Tray 3 Fan 7	OK	Spinning at normal speed
Fan Tray 3 Fan 8	OK	Spinning at normal speed
Fan Tray 3 Fan 9	OK	Spinning at normal speed
Fan Tray 4 Fan 1	OK	Spinning at normal speed
Fan Tray 4 Fan 2	OK	Spinning at normal speed
Fan Tray 4 Fan 3	OK	Spinning at normal speed
Fan Tray 4 Fan 4	OK	Spinning at normal speed
Fan Tray 4 Fan 5	OK	Spinning at normal speed
Fan Tray 4 Fan 6	OK	Spinning at normal speed
Fan Tray 4 Fan 7	OK	Spinning at normal speed
Fan Tray 4 Fan 8	OK	Spinning at normal speed
Fan Tray 4 Fan 9	OK	Spinning at normal speed
Fan Tray 5 Fan 1	OK	Spinning at normal speed
Fan Tray 5 Fan 2	OK	Spinning at normal speed
Fan Tray 5 Fan 3	OK	Spinning at normal speed
Fan Tray 5 Fan 4	OK	Spinning at normal speed
Fan Tray 5 Fan 5	OK	Spinning at normal speed
Fan Tray 5 Fan 6	OK	Spinning at normal speed
Fan Tray 5 Fan 7	OK	Spinning at normal speed
Fan Tray 5 Fan 8	OK	Spinning at normal speed
Fan Tray 5 Fan 9	OK	Spinning at normal speed
Misc SPMB 0	OK	
SPMB 1	OK	

```
1cc0-re0:
```

Class	Item	Status	Measurement
Temp	PEM 0	OK	27 degrees C / 80 degrees F
	PEM 1	Absent	
	SCG 0	OK	31 degrees C / 87 degrees F
	SCG 1	OK	35 degrees C / 95 degrees F
	Routing Engine 0	OK	30 degrees C / 86 degrees F
	Routing Engine 1	OK	30 degrees C / 86 degrees F
	CB 0	OK	31 degrees C / 87 degrees F
	CB 1	OK	31 degrees C / 87 degrees F
	SIB 0	OK	41 degrees C / 105 degrees F
	SIB 0 (B)	OK	34 degrees C / 93 degrees F
	SIB 1	OK	0 degrees C / 32 degrees F
	SIB 1 (B)	OK	0 degrees C / 32 degrees F
	SIB 2	OK	0 degrees C / 32 degrees F
	SIB 2 (B)	OK	0 degrees C / 32 degrees F
	SIB 3	OK	0 degrees C / 32 degrees F
	SIB 3 (B)	OK	0 degrees C / 32 degrees F
	SIB 4	OK	0 degrees C / 32 degrees F
	SIB 4 (B)	OK	0 degrees C / 32 degrees F
	FPC 0 Top	OK	49 degrees C / 120 degrees F
	FPC 0 Bottom	OK	50 degrees C / 122 degrees F
	FPC 1 Top	OK	48 degrees C / 118 degrees F
	FPC 1 Bottom	OK	49 degrees C / 120 degrees F

	FPM GBUS	OK	27 degrees C / 80 degrees F
	FPM Display	OK	30 degrees C / 86 degrees F
Fans	Top Left Front fan	OK	Spinning at normal speed
	Top Left Middle fan	OK	Spinning at normal speed
	Top Left Rear fan	OK	Spinning at normal speed
	Top Right Front fan	OK	Spinning at normal speed
	Top Right Middle fan	OK	Spinning at normal speed
	Top Right Rear fan	OK	Spinning at normal speed
	Bottom Left Front fan	OK	Spinning at normal speed
	Bottom Left Middle fan	OK	Spinning at normal speed
	Bottom Left Rear fan	OK	Spinning at normal speed
	Bottom Right Front fan	OK	Spinning at normal speed
	Bottom Right Middle fan	OK	Spinning at normal speed
	Bottom Right Rear fan	OK	Spinning at normal speed
	Rear Tray Top fan	OK	Spinning at normal speed
	Rear Tray Second fan	OK	Spinning at normal speed
	Rear Tray Third fan	OK	Spinning at normal speed
	Rear Tray Fourth fan	OK	Spinning at normal speed
	Rear Tray Fifth fan	OK	Spinning at normal speed
	Rear Tray Sixth fan	OK	Spinning at normal speed
	Rear Tray Seventh fan	OK	Spinning at normal speed
	Rear Tray Bottom fan	OK	Spinning at normal speed
Misc	CIP	OK	
	SPMB 0	OK	
	SPMB 1	OK	

**show chassis
environment (EX4200
Standalone Switch)**

user@switch> show chassis environment			
Class	Item	Status	Measurement
Power	FPC 0 Power Supply 0	OK	
	FPC 0 Power Supply 1	Absent	
Temp	FPC 0 CPU	OK	41 degrees C / 105 degrees F
	FPC 0 EX-PFE1	OK	42 degrees C / 107 degrees F
	FPC 0 EX-PFE2	OK	46 degrees C / 114 degrees F
	FPC 0 GEPHY Front Left	OK	25 degrees C / 77 degrees F
	FPC 0 GEPHY Front Right	OK	27 degrees C / 80 degrees F
	FPC 0 UpLink Conn	OK	29 degrees C / 84 degrees F
	FPC 0 Fan 1	OK	Spinning at normal speed
Fans	FPC 0 Fan 2	OK	Spinning at normal speed
	FPC 0 Fan 3	OK	Spinning at normal speed

**show chassis
environment (EX8216
Switch)**

user@switch> show chassis environment			
Class	Item	Status	Measurement
Power	PSU 0	OK	
	PSU 1	OK	
	PSU 2	OK	
	PSU 3	Check	
	PSU 4	Absent	
	PSU 5	Absent	
Temp	CB 0 Intake	OK	23 degrees C / 73 degrees F
	CB 0 Exhaust	OK	26 degrees C / 78 degrees F
	CB 1 Intake	OK	22 degrees C / 71 degrees F
	CB 1 Exhaust	OK	25 degrees C / 77 degrees F
	FPC 4 Intake	OK	49 degrees C / 120 degrees F
	FPC 4 Exhaust	OK	59 degrees C / 138 degrees F
	SIB 5 Intake	OK	25 degrees C / 77 degrees F
	SIB 5 Exhaust	OK	35 degrees C / 95 degrees F
	SIB 6 Intake	OK	25 degrees C / 77 degrees F
	SIB 6 Exhaust	OK	38 degrees C / 100 degrees F
Fans	Top Fan 1	OK	Spinning at normal speed
	Top Fan 2	OK	Spinning at normal speed
	Top Fan 3	OK	Spinning at normal speed

Top Fan 4	OK	Spinning at normal speed
Top Fan 5	OK	Spinning at normal speed
Top Fan 6	OK	Spinning at normal speed
Top Fan 7	OK	Spinning at normal speed
Top Fan 8	OK	Spinning at normal speed
Top Fan 9	OK	Spinning at normal speed
Bottom Fan 1	OK	Spinning at normal speed
Bottom Fan 2	OK	Spinning at normal speed
Bottom Fan 3	OK	Spinning at normal speed
Bottom Fan 4	OK	Spinning at normal speed
Bottom Fan 5	OK	Spinning at normal speed
Bottom Fan 6	OK	Spinning at normal speed
Bottom Fan 7	OK	Spinning at normal speed
Bottom Fan 8	OK	Spinning at normal speed
Bottom Fan 9	OK	Spinning at normal speed

show chassis environment (QFX Series) user@switch> **show chassis environment**

Class	Item	Status	Measurement
Power	FPC 0 Power Supply 0	OK	
	FPC 0 Power Supply 1	OK	
Temp	FPC 0 Sensor TopLeft I	OK	26 degrees C / 78 degrees F
	FPC 0 Sensor TopRight I	OK	24 degrees C / 75 degrees F
	FPC 0 Sensor TopLeft E	OK	30 degrees C / 86 degrees F
	FPC 0 Sensor TopRight E	OK	30 degrees C / 86 degrees F
	FPC 0 Sensor TopMiddle I	OK	30 degrees C / 86 degrees F
	FPC 0 Sensor TopMiddle E	OK	38 degrees C / 100 degrees F
	FPC 0 Sensor Bottom I	OK	34 degrees C / 93 degrees F
	FPC 0 Sensor Bottom E	OK	38 degrees C / 100 degrees F
	FPC 0 Sensor Die Temp	OK	38 degrees C / 100 degrees F
	FPC 0 Sensor Mgmt Brd I	OK	24 degrees C / 75 degrees F
	FPC 0 Sensor Switch I	OK	28 degrees C / 82 degrees F
Fans	FPC 0 Fan 1 (left)	Failed	
	FPC 0 Fan 2 (right)	OK	Spinning at normal speed
	FPC 0 Fan 3 (middle)	OK	Spinning at normal speed

show chassis environment interconnect-device (QFabric System) user@switch> **show chassis environment interconnect-device IC-A0004**

Class	Item	Status	Measurement
	CB 0		
	CB 0 L Intake	OK	30 degrees C / 86 degrees F
	CB 0 R Intake	OK	31 degrees C / 87 degrees F
	CB 0 L Exhaust	OK	32 degrees C / 89 degrees F
	CB 0 R Exhaust	OK	33 degrees C / 91 degrees F
	Routing Engine 0 CPU temp	OK	51 degrees C / 123 degrees F
	CB 1		
	CB 1 L Intake	OK	27 degrees C / 80 degrees F
	CB 1 R Intake	OK	29 degrees C / 84 degrees F
	CB 1 L Exhaust	OK	31 degrees C / 87 degrees F
	CB 1 R Exhaust	OK	32 degrees C / 89 degrees F
	Routing Engine 1 CPU temp	OK	40 degrees C / 104 degrees F
	FC 0 FPC 0		
	FPC 0 L Intake	OK	25 degrees C / 77 degrees F
	FPC 0 R Intake	OK	28 degrees C / 82 degrees F
	FPC 0 L Exhaust	OK	28 degrees C / 82 degrees F
	FPC 0 R Exhaust	OK	29 degrees C / 84 degrees F
	FC 7 FPC 7		
	FPC 7 L Intake	OK	25 degrees C / 77 degrees F
	FPC 7 R Intake	OK	26 degrees C / 78 degrees F
	FPC 7 L Exhaust	OK	28 degrees C / 82 degrees F
	FPC 7 R Exhaust	OK	29 degrees C / 84 degrees F
	RC 0 FPC 8		
	FPC 8 L Intake	OK	25 degrees C / 77 degrees F

FPC 8 R Intake	OK	26 degrees C / 78 degrees F
FPC 8 L Exhaust	OK	32 degrees C / 89 degrees F
FPC 8 R Exhaust	OK	30 degrees C / 86 degrees F
RC 7 FPC 15		
FPC 15 L Intake	OK	24 degrees C / 75 degrees F
FPC 15 R Intake	OK	25 degrees C / 77 degrees F
FPC 15 L Exhaust	OK	33 degrees C / 91 degrees F
FPC 15 R Exhaust	OK	31 degrees C / 87 degrees F
Fans TFT 0 Fan 0	OK	Spinning at normal speed
Fans TFT 0 Fan 1	OK	Spinning at normal speed
Fans TFT 0 Fan 2	OK	Spinning at normal speed
Fans TFT 0 Fan 3	OK	Spinning at normal speed
Fans TFT 0 Fan 4	OK	Spinning at normal speed
Fans TFT 0 Fan 5	OK	Spinning at normal speed
Fans BFT 1 Fan 0	OK	Spinning at normal speed
Fans BFT 1 Fan 1	OK	Spinning at normal speed
Fans BFT 1 Fan 2	OK	Spinning at normal speed
Fans BFT 1 Fan 3	Check	
Fans BFT 1 Fan 4	OK	Spinning at normal speed
Fans BFT 1 Fan 5	OK	Spinning at normal speed
Fans SFT 0 Fan 0 Rotor 0	OK	Spinning at normal speed
Fans SFT 0 Fan 0 Rotor 1	OK	Spinning at normal speed
Fans SFT 0 Fan 1 Rotor 0	OK	Spinning at normal speed
Fans SFT 0 Fan 1 Rotor 1	OK	Spinning at normal speed
Fans SFT 0 Fan 2 Rotor 0	OK	Spinning at normal speed
Fans SFT 0 Fan 2 Rotor 1	OK	Spinning at normal speed
Fans SFT 0 Fan 3 Rotor 0	OK	Spinning at normal speed
Fans SFT 0 Fan 3 Rotor 1	OK	Spinning at normal speed
Fans SFT 1 Fan 0 Rotor 0	OK	Spinning at normal speed
Fans SFT 1 Fan 0 Rotor 1	OK	Spinning at normal speed
Fans SFT 1 Fan 1 Rotor 0	OK	Spinning at normal speed
Fans SFT 1 Fan 1 Rotor 1	OK	Spinning at normal speed
Fans SFT 1 Fan 2 Rotor 0	OK	Spinning at normal speed
Fans SFT 1 Fan 2 Rotor 1	OK	Spinning at normal speed
Fans SFT 1 Fan 3 Rotor 0	OK	Spinning at normal speed
Fans SFT 1 Fan 3 Rotor 1	OK	Spinning at normal speed
Fans SFT 2 Fan 0 Rotor 0	OK	Spinning at normal speed
Fans SFT 2 Fan 0 Rotor 1	OK	Spinning at normal speed
Fans SFT 2 Fan 1 Rotor 0	OK	Spinning at normal speed
Fans SFT 2 Fan 1 Rotor 1	OK	Spinning at normal speed
Fans SFT 2 Fan 2 Rotor 0	OK	Spinning at normal speed
Fans SFT 2 Fan 2 Rotor 1	OK	Spinning at normal speed
Fans SFT 2 Fan 3 Rotor 0	OK	Spinning at normal speed
Fans SFT 2 Fan 3 Rotor 1	OK	Spinning at normal speed
Fans SFT 3 Fan 0 Rotor 0	OK	Spinning at normal speed
Fans SFT 3 Fan 0 Rotor 1	OK	Spinning at normal speed
Fans SFT 3 Fan 1 Rotor 0	OK	Spinning at normal speed
Fans SFT 3 Fan 1 Rotor 1	OK	Spinning at normal speed
Fans SFT 3 Fan 2 Rotor 0	OK	Spinning at normal speed
Fans SFT 3 Fan 2 Rotor 1	OK	Spinning at normal speed
Fans SFT 3 Fan 3 Rotor 0	OK	Spinning at normal speed
Fans SFT 3 Fan 3 Rotor 1	OK	Spinning at normal speed
Fans SFT 4 Fan 0 Rotor 0	OK	Spinning at normal speed
Fans SFT 4 Fan 0 Rotor 1	OK	Spinning at normal speed
Fans SFT 4 Fan 1 Rotor 0	OK	Spinning at normal speed
Fans SFT 4 Fan 1 Rotor 1	OK	Spinning at normal speed
Fans SFT 4 Fan 2 Rotor 0	OK	Spinning at normal speed
Fans SFT 4 Fan 2 Rotor 1	OK	Spinning at normal speed
Fans SFT 4 Fan 3 Rotor 0	OK	Spinning at normal speed
Fans SFT 4 Fan 3 Rotor 1	OK	Spinning at normal speed
Fans SFT 5 Fan 0 Rotor 0	OK	Spinning at normal speed

```

Fans SFT 5 Fan 0 Rotor 1      OK      Spinning at normal speed
Fans SFT 5 Fan 1 Rotor 0      OK      Spinning at normal speed
Fans SFT 5 Fan 1 Rotor 1      OK      Spinning at normal speed
Fans SFT 5 Fan 2 Rotor 0      OK      Spinning at normal speed
Fans SFT 5 Fan 2 Rotor 1      OK      Spinning at normal speed
Fans SFT 5 Fan 3 Rotor 0      OK      Spinning at normal speed
Fans SFT 5 Fan 3 Rotor 1      OK      Spinning at normal speed
Fans SFT 6 Fan 0 Rotor 0      OK      Spinning at normal speed
Fans SFT 6 Fan 0 Rotor 1      OK      Spinning at normal speed
Fans SFT 6 Fan 1 Rotor 0      OK      Spinning at normal speed
Fans SFT 6 Fan 1 Rotor 1      OK      Spinning at normal speed
Fans SFT 6 Fan 2 Rotor 0      OK      Spinning at normal speed
Fans SFT 6 Fan 2 Rotor 1      OK      Spinning at normal speed
Fans SFT 6 Fan 3 Rotor 0      OK      Spinning at normal speed
Fans SFT 6 Fan 3 Rotor 1      OK      Spinning at normal speed
Fans SFT 7 Fan 0 Rotor 0      OK      Spinning at normal speed
Fans SFT 7 Fan 0 Rotor 1      OK      Spinning at normal speed
Fans SFT 7 Fan 1 Rotor 0      OK      Spinning at normal speed
Fans SFT 7 Fan 1 Rotor 1      OK      Spinning at normal speed
Fans SFT 7 Fan 2 Rotor 0      OK      Spinning at normal speed
Fans SFT 7 Fan 2 Rotor 1      OK      Spinning at normal speed
Fans SFT 7 Fan 3 Rotor 0      OK      Spinning at normal speed
Fans SFT 7 Fan 3 Rotor 1      OK      Spinning at normal speed
Power PEM 0                   OK      30 degrees C / 86 degrees F
Power PEM 1                   OK      30 degrees C / 86 degrees F
Power PEM 2                   OK      30 degrees C / 86 degrees F
Power PEM 3                   Absent
Power PEM 4                   Absent
Power PEM 5                   Absent

```

```

show chassis environment node-device (QFabric System)
user@switch> show chassis environment node-device node1
Class Item                               Status Measurement
Power node1 Power Supply 0              Absent
      node1 Power Supply 1              Absent
Fans  node1 Fan Tray 0                  Testing
      node1 Fan Tray 1                  Testing
      node1 Fan Tray 2                  Testing

```

```

show chassis environment pem node-device (QFabric System)
user@switch> show chassis environment pem node-device node1
FPC 0 PEM 0 status:
State           Check
Airflow         Front to Back
Temperature      OK
AC Input:        OK
DC Output        Voltage(V) Current(A) Power(W) Load(%)
                  12          10        120      18

FPC 0 PEM 1 status:
State           Online
Airflow         Back to Front
Temperature      OK
AC Input:        OK
DC Output        Voltage(V) Current(A) Power(W) Load(%)
                  11          10        110      17

```

```

show chassis environment (PTX5000 Packet Transport Switch)
user@switch> show chassis environment
Class Item                               Status Measurement
Temp PDU 0                               OK
      PDU 0 PSM 0                         OK      36 degrees C / 96 degrees F
      PDU 0 PSM 1                         OK      38 degrees C / 100 degrees F
      PDU 0 PSM 2                         OK      38 degrees C / 100 degrees F

```

PDU 0 PSM 3	OK	37 degrees C / 98 degrees F
PDU 1	Absent	
CCG 0	OK	44 degrees C / 111 degrees F
CCG 1	OK	44 degrees C / 111 degrees F
Routing Engine 0	OK	62 degrees C / 143 degrees F
Routing Engine 0 CPU	OK	75 degrees C / 167 degrees F
Routing Engine 1	OK	51 degrees C / 123 degrees F
Routing Engine 1 CPU	OK	64 degrees C / 147 degrees F
CB 0 Intake	OK	38 degrees C / 100 degrees F
CB 0 Exhaust A	OK	46 degrees C / 114 degrees F
CB 0 Exhaust B	OK	42 degrees C / 107 degrees F
CB 1 Intake	OK	35 degrees C / 95 degrees F
CB 1 Exhaust A	OK	39 degrees C / 102 degrees F
CB 1 Exhaust B	OK	36 degrees C / 96 degrees F
SIB 0 Intake	OK	39 degrees C / 102 degrees F
SIB 0 Exhaust	OK	37 degrees C / 98 degrees F
SIB 0 Junction	OK	43 degrees C / 109 degrees F
SIB 1 Intake	OK	39 degrees C / 102 degrees F
SIB 1 Exhaust	OK	36 degrees C / 96 degrees F
SIB 1 Junction	OK	46 degrees C / 114 degrees F
SIB 2 Intake	OK	37 degrees C / 98 degrees F
SIB 2 Exhaust	OK	37 degrees C / 98 degrees F
SIB 2 Junction	OK	42 degrees C / 107 degrees F
SIB 3 Intake	OK	40 degrees C / 104 degrees F
SIB 3 Exhaust	OK	40 degrees C / 104 degrees F
SIB 3 Junction	OK	45 degrees C / 113 degrees F
SIB 4 Intake	OK	47 degrees C / 116 degrees F
SIB 4 Exhaust	OK	44 degrees C / 111 degrees F
SIB 4 Junction	OK	58 degrees C / 136 degrees F
SIB 5 Intake	OK	58 degrees C / 136 degrees F
SIB 5 Exhaust	OK	43 degrees C / 109 degrees F
SIB 5 Junction	OK	71 degrees C / 159 degrees F
SIB 6 Intake	OK	57 degrees C / 134 degrees F
SIB 6 Exhaust	OK	42 degrees C / 107 degrees F
SIB 6 Junction	OK	65 degrees C / 149 degrees F
SIB 7 Intake	OK	58 degrees C / 136 degrees F
SIB 7 Exhaust	OK	42 degrees C / 107 degrees F
SIB 7 Junction	OK	66 degrees C / 150 degrees F
SIB 8 Intake	OK	57 degrees C / 134 degrees F
SIB 8 Exhaust	OK	42 degrees C / 107 degrees F
SIB 8 Junction	OK	70 degrees C / 158 degrees F
FPC 0 PMB	OK	35 degrees C / 95 degrees F
FPC 0 Intake	OK	33 degrees C / 91 degrees F
FPC 0 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 0 Exhaust B	OK	43 degrees C / 109 degrees F
FPC 0 TL0	OK	48 degrees C / 118 degrees F
FPC 0 TQ0	OK	53 degrees C / 127 degrees F
FPC 0 TL1	OK	56 degrees C / 132 degrees F
FPC 0 TQ1	OK	58 degrees C / 136 degrees F
FPC 0 TL2	OK	55 degrees C / 131 degrees F
FPC 0 TQ2	OK	56 degrees C / 132 degrees F
FPC 0 TL3	OK	59 degrees C / 138 degrees F
FPC 0 TQ3	OK	59 degrees C / 138 degrees F
FPC 2 PMB	OK	35 degrees C / 95 degrees F
FPC 2 Intake	OK	34 degrees C / 93 degrees F
FPC 2 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 2 Exhaust B	OK	52 degrees C / 125 degrees F
FPC 2 TL0	OK	53 degrees C / 127 degrees F
FPC 2 TQ0	OK	53 degrees C / 127 degrees F
FPC 2 TL1	OK	57 degrees C / 134 degrees F
FPC 2 TQ1	OK	58 degrees C / 136 degrees F

FPC 2 TL2	OK	54 degrees C / 129 degrees F
FPC 2 TQ2	OK	59 degrees C / 138 degrees F
FPC 2 TL3	OK	60 degrees C / 140 degrees F
FPC 2 TQ3	OK	64 degrees C / 147 degrees F
PIC 2/0 Ambient	OK	49 degrees C / 120 degrees F
FPC 3 PMB	OK	34 degrees C / 93 degrees F
FPC 3 Intake	OK	35 degrees C / 95 degrees F
FPC 3 Exhaust A	OK	54 degrees C / 129 degrees F
FPC 3 Exhaust B	OK	49 degrees C / 120 degrees F
FPC 3 TL0	OK	49 degrees C / 120 degrees F
FPC 3 TQ0	OK	55 degrees C / 131 degrees F
FPC 3 TL1	OK	56 degrees C / 132 degrees F
FPC 3 TQ1	OK	58 degrees C / 136 degrees F
FPC 3 TL2	OK	56 degrees C / 132 degrees F
FPC 3 TQ2	OK	59 degrees C / 138 degrees F
FPC 3 TL3	OK	62 degrees C / 143 degrees F
FPC 3 TQ3	OK	63 degrees C / 145 degrees F
PIC 3/1	Absent	
FPC 5 PMB	OK	35 degrees C / 95 degrees F
FPC 5 Intake	OK	34 degrees C / 93 degrees F
FPC 5 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 5 Exhaust B	OK	53 degrees C / 127 degrees F
FPC 5 TL0	OK	54 degrees C / 129 degrees F
FPC 5 TQ0	OK	52 degrees C / 125 degrees F
FPC 5 TL1	OK	61 degrees C / 141 degrees F
FPC 5 TQ1	OK	60 degrees C / 140 degrees F
FPC 5 TL2	OK	55 degrees C / 131 degrees F
FPC 5 TQ2	OK	55 degrees C / 131 degrees F
FPC 5 TL3	OK	59 degrees C / 138 degrees F
FPC 5 TQ3	OK	58 degrees C / 136 degrees F
PIC 5/0 Ambient	OK	51 degrees C / 123 degrees F
PIC 5/1 Ambient	OK	34 degrees C / 93 degrees F
PIC 5/1 cfp-5/1/0	OK	34 degrees C / 93 degrees F
PIC 5/1 cfp-5/1/1	OK	36 degrees C / 96 degrees F
FPC 6 PMB	OK	36 degrees C / 96 degrees F
FPC 6 Intake	OK	33 degrees C / 91 degrees F
FPC 6 Exhaust A	OK	51 degrees C / 123 degrees F
FPC 6 Exhaust B	OK	39 degrees C / 102 degrees F
FPC 6 TL0	OK	44 degrees C / 111 degrees F
FPC 6 TQ0	OK	54 degrees C / 129 degrees F
FPC 6 TL1	OK	59 degrees C / 138 degrees F
FPC 6 TQ1	OK	58 degrees C / 136 degrees F
FPC 6 TL2	OK	60 degrees C / 140 degrees F
FPC 6 TQ2	OK	57 degrees C / 134 degrees F
FPC 6 TL3	OK	65 degrees C / 149 degrees F
FPC 6 TQ3	OK	60 degrees C / 140 degrees F
FPC 7 PMB	OK	35 degrees C / 95 degrees F
FPC 7 Intake	OK	33 degrees C / 91 degrees F
FPC 7 Exhaust A	OK	53 degrees C / 127 degrees F
FPC 7 Exhaust B	OK	40 degrees C / 104 degrees F
FPC 7 TL0	OK	46 degrees C / 114 degrees F
FPC 7 TQ0	OK	58 degrees C / 136 degrees F
FPC 7 TL1	OK	53 degrees C / 127 degrees F
FPC 7 TQ1	OK	59 degrees C / 138 degrees F
FPC 7 TL2	OK	56 degrees C / 132 degrees F
FPC 7 TQ2	OK	61 degrees C / 141 degrees F
FPC 7 TL3	OK	63 degrees C / 145 degrees F
FPC 7 TQ3	OK	63 degrees C / 145 degrees F
FPM I2CS	OK	37 degrees C / 98 degrees F
Fans Fan Tray 0 Fan 1	OK	3042 RPM
Fans Fan Tray 0 Fan 2	OK	3042 RPM

Fan Tray 0 Fan 3	OK	3000 RPM
Fan Tray 0 Fan 4	OK	3042 RPM
Fan Tray 0 Fan 5	OK	3000 RPM
Fan Tray 0 Fan 6	OK	3042 RPM
Fan Tray 0 Fan 7	OK	3085 RPM
Fan Tray 0 Fan 8	OK	3042 RPM
Fan Tray 0 Fan 9	OK	3042 RPM
Fan Tray 0 Fan 10	OK	3085 RPM
Fan Tray 0 Fan 11	OK	3085 RPM
Fan Tray 0 Fan 12	OK	3128 RPM
Fan Tray 0 Fan 13	OK	3128 RPM
Fan Tray 0 Fan 14	OK	3042 RPM
Fan Tray 1 Fan 1	OK	2299 RPM
Fan Tray 1 Fan 2	OK	2399 RPM
Fan Tray 1 Fan 3	OK	2299 RPM
Fan Tray 1 Fan 4	OK	2266 RPM
Fan Tray 1 Fan 5	OK	2266 RPM
Fan Tray 1 Fan 6	OK	2366 RPM
Fan Tray 2 Fan 1	OK	2199 RPM
Fan Tray 2 Fan 2	OK	2133 RPM
Fan Tray 2 Fan 3	OK	2366 RPM
Fan Tray 2 Fan 4	OK	2233 RPM
Fan Tray 2 Fan 5	OK	2399 RPM
Fan Tray 2 Fan 6	OK	2233 RPM
Misc SPMB 0 Intake	OK	50 degrees C / 122 degrees F
SPMB 1 Intake	OK	40 degrees C / 104 degrees F

**show chassis
environment
(ACX2000 Universal
Access Router)**

```
user@host> show chassis environment
```

Class	Item	Status	Measurement
	PCB Left	OK	44 degrees C / 111 degrees F
	SFP+ Xcvr	OK	50 degrees C / 122 degrees F
	FEB	OK	70 degrees C / 158 degrees F
	PCB Up	OK	63 degrees C / 145 degrees F
	PCB Mid	OK	66 degrees C / 150 degrees F
	Telecom Mod	OK	65 degrees C / 149 degrees F
	Routing Engine	OK	54 degrees C / 129 degrees F
	Heater off		

**show chassis
environment
(ACX4000 Universal
Access Router)**

```
user@host> show chassis environment
```

Class	Item	Status	Measurement
Temp	PEM 0	OK	
	PEM 1	Absent	
	RE 0 Intake	OK	37 degrees C / 98 degrees F
	RE 0 Front Exhaust	OK	42 degrees C / 107 degrees F
	RE 0 Rear Exhaust	OK	39 degrees C / 102 degrees F
	Routing Engine	OK	47 degrees C / 116 degrees F
	Routing Engine CPU	OK	58 degrees C / 136 degrees F
	FEB 0 Intake	OK	45 degrees C / 113 degrees F
	FEB 0 Front Exhaust	OK	47 degrees C / 116 degrees F
	FEB 0 Rear Exhaust	OK	45 degrees C / 113 degrees F
Fans	Fan 1	OK	Spinning at high speed
	Fan 2	OK	Spinning at high speed
Heater		OK	On

show chassis environment cb

Syntax	show chassis environment cb <slot>
Syntax (TX Matrix Routers)	show chassis environment cb <lcc number scc> <slot>
Syntax (TX Matrix Plus Routers)	show chassis environment cb <lcc number sfc number > <slot>
Syntax (MX Series Routers)	show chassis environment cb <slot> <all-members> <local> <member member-id>
Syntax (MX2010 3D Universal Edge Routers)	show chassis environment cb <slot>
Syntax (MX2020 3D Universal Edge Routers)	show chassis environment cb <slot>
Syntax (QFabric System)	show chassis environment cb <slot interconnect-device interconnect-device-name> < interconnect-device interconnect-device-name slot>
Release Information	<p>Command introduced before Junos Release 7.4.</p> <p>Command introduced in Junos OS Release 9.4 for EX Series switches.</p> <p>Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches.</p> <p>Command introduced in Junos OS Release 12.1 for T4000 Core Routers.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos Release 9.6.</p> <p>Command introduced in Junos OS Release 11.3 for the QFX Series.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	(M120, M320, MX Series, and T Series routers, EX8200 switches, and PTX Series Packet Transport Switches only) Display environmental information about the Control Boards (CBs). For information about the meaning of “CBs” on the switches, see EX Series Switches Hardware and CLI Terminology Mapping.
Options	none —Display environmental information about all CBs. For a TX Matrix router, display environmental information about all CBs on the TX Matrix router and its attached T640 routers. For a TX Matrix Plus router, display environmental information about all CBs on the TX Matrix Plus router and its attached T1600 routers.

all-members—(MX Series routers only) (Optional) Display environmental information about the CBs on all the members of the Virtual Chassis configuration.

interconnect-device—(QFabric systems only) Display environmental information about the CBs on the Interconnect device.

lcc-number—(TX Matrix and TX Matrix Plus routers only) (Optional) For a TX Matrix router, display environmental information about the CBs in a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. For a TX Matrix Plus router, display environmental information about the CBs in a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display environmental information about the CBs on the local Virtual Chassis member.

member member-id—(MX Series routers only) (Optional) Display environmental information about the CBs on the specified member of the Virtual Chassis configuration. Replace **member-id** with a value of 0 or 1.

scc—(TX Matrix router only) (Optional) Display environmental information about the CBs in the TX Matrix router (or switch-card chassis).

sfc-number—(TX Matrix Plus router only) (Optional) Display environmental information about the CBs in the TX Matrix Plus router (or switch-fabric chassis).

slot—(Optional) Display environmental information about the specified CB. On routers and PTX Series Packet Transport Switches, replace **slot** with 0 or 1. On EX Series switches replace **slot** with 0, 1, or 2. On QFX Series switches, replace **slot** with 0 or 1.

Required Privilege Level

view

Related Documentation

- [request chassis cb on page 124](#)
- Switching Control Board Redundancy
- Routing Engine and Switching Control Board Redundancy Configuration Statements

List of Sample Output

[show chassis environment cb \(M120 Router\) on page 224](#)
[show chassis environment cb \(M320 Router\) on page 224](#)
[show chassis environment cb \(MX80 Router\) on page 225](#)
[show chassis environment cb \(MX240 Router\) on page 225](#)
[show chassis environment cb \(MX240 Router with Enhanced MX SCB\) on page 225](#)
[show chassis environment cb \(MX480 Router\) on page 226](#)
[show chassis environment cb \(MX480 Router with Enhanced MX SCB\) on page 226](#)
[show chassis environment cb \(MX960 Router\) on page 227](#)
[show chassis environment cb \(MX960 Router with Enhanced MX SCB\) on page 227](#)
[show chassis environment cb \(MX2020 Router\) on page 227](#)
[show chassis environment cb \(MX2010 Router\) on page 228](#)
[show chassis environment cb \(T4000 Core Router\) on page 229](#)

[show chassis environment cb \(TX Matrix Router\) on page 229](#)
[show chassis environment cb \(TX Matrix Plus Router\) on page 230](#)
[show chassis environment cb \(EX8200 Switch\) on page 234](#)
[show chassis environment cb \(EX8208 Switch\) on page 235](#)
[show chassis environment cb \(PTX5000 Packet Transport Switch\) on page 236](#)
[show chassis environment cb \(QFabric System\) on page 236](#)

Output Fields [Table 9 on page 223](#) lists the output fields for the **show chassis environment cb** command. Output fields are listed in the approximate order in which they appear.

Table 9: show chassis environment cb Output Fields

Field Name	Field Description
State	<p>Status of the CB. If two CBs are installed and online, one is functioning as the master, and the other is the standby.</p> <ul style="list-style-type: none"> • Online—CB is online and running. • Offline—CB is powered down. <p>NOTE: On the EX8208 switch, the installation can include three CBs. See EX Series Switches Hardware and CLI Terminology Mapping.</p>
Temperature	<p>Temperature in Celsius (C) and Fahrenheit (F) of the air flowing past the CB.</p> <ul style="list-style-type: none"> • Temperature Intake—Measures the temperature of the air intake to cool the power supplies. • Temperature Exhaust—Measures the temperature of the hot air exhaust. <p>NOTE: On the MX2010 and MX2020 routers, the intake temperature measures the temperature of the air intake to cool the Control Board (CB). The MX2010 and MX2020 routers include intake and exhaust temperatures for multiple zones (Intake A, Intake B, Intake C, Exhaust A, Exhaust B, and TCBC).</p>
Power	<p>Power required and measured on the CB. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.</p>
BUS Revision	<p>Revision level of the generic bus device. (Not on switches.)</p>
FPGA Revision	<p>Revision level of the field-programmable gate array (FPGA). (Not on switches.)</p>
PMBus device (on MX240, MX480, and MX960 routers with Enhanced MX SCB)	<p>Enhanced SCB on MX 240, MX480, and MX960 routers allows the system to save power by supplying only the amount of voltage that is required. Configurable PMBus devices are used to provide the voltage for each individual device. There is one PMBus device for each XF ASIC so that the output can be customized to each device. The following PMBus device information is displayed for routers with Enhanced MX SCB:</p> <ul style="list-style-type: none"> • Expected voltage • Measured voltage • Measured current • Calculated power

Sample Output

```

show chassis environment cb (M120 Router) user@host> show chassis environment cb
CB 0 status:
  State Online Master
  Temperature 33 degrees C / 91 degrees F
  Power
    1.2 V 1214 mV
    1.5 V 1495 mV
    2.5 V 2494 mV
    3.3 V 3319 mV
    5.0 V 5085 mV
    3.3 V bias 3296 mV
  Bus Revision 12
  FPGA Revision 17
CB 1 status:
  State Online Standby
  Temperature 34 degrees C / 93 degrees F
  Power
    1.2 V 1195 mV
    1.5 V 1495 mV
    2.5 V 2504 mV
    3.3 V 3312 mV
    5.0 V 5111 mV
    3.3 V bias 3296 mV
  Bus Revision 12
  FPGA Revision 17

show chassis environment cb (M320 Router) user@host> show chassis environment cb
CB 0 status:
  State Online Master
  Temperature 29 degrees C / 84 degrees F
  Power:
    1.8 V 1805 mV
    2.5 V 2501 mV
    3.3 V 3293 mV
    4.6 V 4725 mV
    5.0 V 5032 mV
    12.0 V 11975 mV
    3.3 V bias 3286 mV
    8.0 V bias 7589 mV
  BUS Revision 40
  FPGA Revision 7
CB 1 status:
  State Online Standby
  Temperature 32 degrees C / 89 degrees F
  Power:
    1.8 V 1802 mV
    2.5 V 2482 mV
    3.3 V 3289 mV
    4.6 V 4720 mV
    5.0 V 5001 mV
    12.0 V 11946 mV
    3.3 V bias 3274 mV
    8.0 V bias 7562 mV
  BUS Revision 40
  FPGA Revision 7

```

```

show chassis environment cb (MX80 Router)
user@host> show chassis environment cb
CB 0 status:
State Online Master
Temperature 36 degrees C / 96 degrees F
Power 1
  1.0 V 1034 mV
  1.0 V MQ 1037 mV
  1.0 V LU 1005 mV
  1.2 V 1218 mV
  1.5 V 1524 mV
  1.8 V 1814 mV
  2.5 V 2558 mV
  3.3 V 3296 mV
  5.0 V 5233 mV
  5.0 V bias 5207 mV
  12.0 V 12162 mV

```

```

show chassis environment cb (MX240 Router)
user@host> show chassis environment cb
CB 0 status:
State Online Standby
Temperature 37 degrees C / 98 degrees F
Power 1
  1.2 V 1208 mV
  1.5 V 1521 mV
  1.8 V 1811 mV
  2.5 V 2513 mV
  3.3 V 3332 mV
  5.0 V 5059 mV
  12.0 V 12162 mV
  1.25 V 1260 mV
  3.3 V SM3 3306 mV
  5.0 V RE 5085 mV
  12.0 V RE 11872 mV
Power 2
  11.3 V bias PEM 11272 mV
  4.6 V bias MidPlane 4827 mV
  11.3 V bias FPD 11272 mV
  11.3 V bias POE 0 11292 mV
  11.3 V bias POE 1 11253 mV
Bus Revision 42
FPGA Revision 1

```

```

show chassis environment cb (MX240 Router with Enhanced MX SCB)
user@host> show chassis environment cb
CB 0 status:
State Online Standby
Temperature 37 degrees C / 98 degrees F
Power 1
  1.2 V 1208 mV
  1.5 V 1521 mV
  1.8 V 1811 mV
  2.5 V 2513 mV
  3.3 V 3332 mV
  5.0 V 5059 mV
  12.0 V 12162 mV
  1.25 V 1260 mV
  3.3 V SM3 3306 mV
  5.0 V RE 5085 mV
  12.0 V RE 11872 mV
Power 2
  11.3 V bias PEM 11272 mV

```

4.6 V bias MidPlane	4827 mV			
11.3 V bias FPD	11272 mV			
11.3 V bias POE 0	11292 mV			
11.3 V bias POE 1	11253 mV			
Bus Revision	42			
FPGA Revision	1			
PMBus	Expected	Measured	Measured	Calculated
device	voltage	voltage	current	power
XF ASIC A	1000 mV	997 mV	11031 mA	10997 mW
XF ASIC B	1000 mV	996 mV	12125 mA	12076 mW

**show chassis
environment cb
(MX480 Router)**

```
user@host> show chassis environment cb
CB 0 status:
State Online Master
Temperature 41 degrees C / 105 degrees F
Power 1
  1.2 V 1202 mV
  1.5 V 1511 mV
  1.8 V 1798 mV
  2.5 V 2507 mV
  3.3 V 3312 mV
  5.0 V 5027 mV
  12.0 V 12200 mV
  1.25 V 1260 mV
  3.3 V SM3 3293 mV
  5 V RE 5040 mV
  12 V RE 11910 mV
Power 2
  11.3 V bias PEM 11156 mV
  4.6 V bias MidPlane 4801 mV
  11.3 V bias FPD 11214 mV
  11.3 V bias POE 0 11098 mV
  11.3 V bias POE 1 11330 mV
Bus Revision 42
FPGA Revision 1
```

**show chassis
environment cb
(MX480 Router with
Enhanced MX SCB)**

```
user@host> show chassis environment cb
CB 0 status:
State Online Master
Temperature 41 degrees C / 105 degrees F
Power 1
  1.2 V 1202 mV
  1.5 V 1511 mV
  1.8 V 1798 mV
  2.5 V 2507 mV
  3.3 V 3312 mV
  5.0 V 5027 mV
  12.0 V 12200 mV
  1.25 V 1260 mV
  3.3 V SM3 3293 mV
  5 V RE 5040 mV
  12 V RE 11910 mV
Power 2
  11.3 V bias PEM 11156 mV
  4.6 V bias MidPlane 4801 mV
  11.3 V bias FPD 11214 mV
  11.3 V bias POE 0 11098 mV
  11.3 V bias POE 1 11330 mV
Bus Revision 42
FPGA Revision 1
PMBus Expected Measured Measured Calculated
```

device	voltage	voltage	current	power
XF ASIC A	1000 mV	997 mV	11031 mA	10997 mW
XF ASIC B	1000 mV	996 mV	12125 mA	12076 mW

```

show chassis environment cb
(MX960 Router)
user@host> show chassis environment cb
CB 0 status:
State Online Master
Temperature 24 degrees C / 75 degrees F
Power 1
  1.2 V 1965 mV
  1.5 V 2465 mV
  1.8 V 2990 mV
  2.5 V 3296 mV
  3.3 V 3296 mV
  5.0 V 6593 mV
  12.0 V 13187 mV
  3.3 V bias 3296 mV
  1.25 V 1994 mV
  3.3 V SM3 3296 mV
  5 V RE 6593 mV
  12 V RE 13174 mV
Power 2 Sensor failure
Bus Revision 4
FPGA Revision 3

```

```

show chassis environment cb
(MX960 Router with Enhanced MX SCB)
user@host> show chassis environment cb
CB 0 status:
State Online Master
Temperature 24 degrees C / 75 degrees F
Power 1
  1.2 V 1965 mV
  1.5 V 2465 mV
  1.8 V 2990 mV
  2.5 V 3296 mV
  3.3 V 3296 mV
  5.0 V 6593 mV
  12.0 V 13187 mV
  3.3 V bias 3296 mV
  1.25 V 1994 mV
  3.3 V SM3 3296 mV
  5 V RE 6593 mV
  12 V RE 13174 mV
Power 2 Sensor failure
Bus Revision 4
FPGA Revision 3
PMBus
device Expected voltage Measured voltage Measured current Calculated power
XF ASIC A 1000 mV 997 mV 11031 mA 10997 mW
XF ASIC B 1000 mV 996 mV 12125 mA 12076 mW

```

```

show chassis environment cb
(MX2020 Router)
user@host> show chassis environment cb
CB 0 status:
State Online Master
IntakeA-Zone0 Temperature 44 degrees C / 111 degrees F
IntakeB-Zone1 Temperature 34 degrees C / 93 degrees F
IntakeC-Zone0 Temperature 45 degrees C / 113 degrees F
ExhaustA-Zone0 Temperature 43 degrees C / 109 degrees F
ExhaustB-Zone1 Temperature 36 degrees C / 96 degrees F
TCBC-Zone0 Temperature 39 degrees C / 102 degrees F
Power 1

```

```

1.0 V          1011 mV
1.2 V          1208 mV
1.8 V          1801 mV
2.5 V          2552 mV
3.3 V          3312 mV
5.0 V          5040 mV
5.0 V RE       4988 mV
12.0 V         12065 mV
12.0 V RE      12046 mV
Bus Revision    99
FPGA Revision   270
CB 1 status:
State           Online Standby
IntakeA-Zone0 Temperature 45 degrees C / 113 degrees F
IntakeB-Zone1 Temperature 41 degrees C / 105 degrees F
IntakeC-Zone0 Temperature 46 degrees C / 114 degrees F
ExhaustA-Zone0 Temperature 44 degrees C / 111 degrees F
ExhaustB-Zone1 Temperature 41 degrees C / 105 degrees F
TCBC-Zone0 Temperature 45 degrees C / 113 degrees F
Power 1
1.0 V          1008 mV
1.2 V          1208 mV
1.8 V          1798 mV
2.5 V          2539 mV
3.3 V          3325 mV
5.0 V          5033 mV
5.0 V RE       4950 mV
12.0 V         12046 mV
12.0 V RE      11968 mV
Bus Revision    99
FPGA Revision   0

```

**show chassis
environment cb
(MX2010 Router)**

```

user@host> show chassis environment cb
CB 0 status:
State           Online Master
IntakeA-Zone0 Temperature 36 degrees C / 96 degrees F
IntakeB-Zone1 Temperature 30 degrees C / 86 degrees F
IntakeC-Zone0 Temperature 38 degrees C / 100 degrees F
ExhaustA-Zone0 Temperature 36 degrees C / 96 degrees F
ExhaustB-Zone1 Temperature 32 degrees C / 89 degrees F
TCBC-Zone0 Temperature 34 degrees C / 93 degrees F
Power 1
1.0 V          1015 mV
1.2 V          1205 mV
1.8 V          1804 mV
2.5 V          2552 mV
3.3 V          3325 mV
5.0 V          5020 mV
5.0 V RE       4988 mV
12.0 V         12104 mV
12.0 V RE      12026 mV
Bus Revision    100
FPGA Revision   270
CB 1 status:
State           Online
IntakeA-Zone0 Temperature 35 degrees C / 95 degrees F
IntakeB-Zone1 Temperature 28 degrees C / 82 degrees F
IntakeC-Zone0 Temperature 37 degrees C / 98 degrees F
ExhaustA-Zone0 Temperature 34 degrees C / 93 degrees F
ExhaustB-Zone1 Temperature 29 degrees C / 84 degrees F
TCBC-Zone0 Temperature 32 degrees C / 89 degrees F

```

```

Power 1
  1.0 V          1011 mV
  1.2 V          1208 mV
  1.8 V          1788 mV
  2.5 V          2526 mV
  3.3 V          3319 mV
  5.0 V          5046 mV
  5.0 V RE       4975 mV
 12.0 V         12046 mV
 12.0 V RE       12007 mV
Bus Revision     100
FPGA Revision    0

```

**show chassis
environment cb
(T4000 Core Router)**

```
user@host> show chassis environment cb
```

```
CB 0 status:
```

```

State           Online Master
Temperature      33 degrees C / 91 degrees F
Power 1
  1.8 V          1805 mV
  2.5 V          2523 mV
  3.3 V          3324 mV
  3.3 V bias     3296 mV
  4.6 V          4680 mV
  5.0 V          4893 mV
  8.0 V bias     7572 mV
 12.0 V         11916 mV
Power 2
  1.0 V          993 mV
  1.2 V          1210 mV
  3.3 V RE       3330 mV
Bus Revision     51
FPGA Revision    5

```

```
CB 1 status:
```

```

State           Online Standby
Temperature      33 degrees C / 91 degrees F
Power 1
  1.8 V          1810 mV
  2.5 V          2496 mV
  3.3 V          3308 mV
  3.3 V bias     3286 mV
  4.6 V          4692 mV
  5.0 V          4954 mV
  8.0 V bias     7282 mV
 12.0 V         11926 mV
Power 2
  1.0 V          993 mV
  1.2 V          1185 mV
  3.3 V RE       3316 mV
Bus Revision     51
FPGA Revision    5

```

**show chassis
environment cb
(TX Matrix Router)**

```
user@host> show chassis environment cb
```

```
-----
CB 0 status:
```

```

State           Online Master
Temperature      32 degrees C / 89 degrees F
Power:
  1.8 V          1797 mV
  2.5 V          2477 mV
  3.3 V          3311 mV
  4.6 V          4727 mV

```

```

5.0 V          5015 mV
12.0 V         12185 mV
3.3 V bias     3304 mV
8.0 V bias     7870 mV
BUS Revision    40
FPGA Revision   1
CB 1 status:
State           Online Standby
...

lcc0-re0:
-----
CB 0 status:
State           Online Master
Temperature      32 degrees C / 89 degrees F
Power:
1.8 V           1787 mV
2.5 V           2473 mV
3.3 V           3306 mV
4.6 V           4793 mV
5.0 V           5025 mV
12.0 V          12156 mV
3.3 V bias      3289 mV
8.0 V bias      7609 mV
BUS Revision    40
FPGA Revision   5
CB 1 status:
State           Online Standby
....
BUS Revision    40
FPGA Revision   5

lcc2-re0:
-----
CB 0 status:
State           Online Master
...
CB 1 status:
State           Online Standby
...

show chassis user@host> show chassis environment cb
environment cb sfc0-re0:
(TX Matrix Plus Router)
-----
CB 0 status:
State           Online Master
Temperature      38 degrees C / 100 degrees F
Power 1
1.0 V           1005 mV
1.1 V           1108 mV
1.2 V           1205 mV
1.25 V          1269 mV
1.5 V           1508 mV
1.8 V           1814 mV
2.5 V           2507 mV
3.3 V           3306 mV
3.3 V bias      3300 mV
9.0 V           9058 mV
9.0 V RE        9107 mV
Power 2
3.9 V           3963 mV

```

5.0 V	5020 mV
9.0 V	9087 mV
Bus Revision	79
FPGA Revision	23
CB 1 status:	
State	Online Standby
Temperature	39 degrees C / 102 degrees F
Power 1	
1.0 V	1002 mV
1.1 V	1105 mV
1.2 V	1198 mV
1.25 V	1276 mV
1.5 V	1504 mV
1.8 V	1804 mV
2.5 V	2507 mV
3.3 V	3300 mV
3.3 V bias	3293 mV
9.0 V	9039 mV
9.0 V RE	9049 mV
Power 2	
3.9 V	3892 mV
5.0 V	5040 mV
9.0 V	9058 mV
Bus Revision	79
FPGA Revision	23

lcc0-re0:

CB 0 status:	
State	Online Master
Temperature	39 degrees C / 102 degrees F
Power 1	
1.8 V	1799 mV
2.5 V	2499 mV
3.3 V	3327 mV
3.3 V bias	3299 mV
4.6 V	4673 mV
5.0 V	4918 mV
8.0 V bias	7308 mV
12.0 V	11887 mV
Power 2	
1.0 V	996 mV
1.2 V	1199 mV
3.3 V RE	3319 mV
Bus Revision	51
FPGA Revision	3
CB 1 status:	
State	Online Standby
Temperature	40 degrees C / 104 degrees F
Power 1	
1.8 V	1800 mV
2.5 V	2496 mV
3.3 V	3322 mV
3.3 V bias	3284 mV
4.6 V	4680 mV
5.0 V	4954 mV
8.0 V bias	7284 mV
12.0 V	11902 mV
Power 2	
1.0 V	998 mV
1.2 V	1205 mV

3.3 V RE	3327 mV
Bus Revision	51
FPGA Revision	3

lcc1-re0:

CB 0 status:

State	Online Master
Temperature	41 degrees C / 105 degrees F
Power 1	
1.8 V	1804 mV
2.5 V	2517 mV
3.3 V	3300 mV
3.3 V bias	3284 mV
4.6 V	4681 mV
5.0 V	4927 mV
8.0 V bias	7357 mV
12.0 V	11907 mV
Power 2	
1.0 V	991 mV
1.2 V	1202 mV
3.3 V RE	3301 mV
Bus Revision	51
FPGA Revision	3

CB 1 status:

State	Online Standby
Temperature	40 degrees C / 104 degrees F
Power 1	
1.8 V	1805 mV
2.5 V	2528 mV
3.3 V	3324 mV
3.3 V bias	3289 mV
4.6 V	4694 mV
5.0 V	4959 mV
8.0 V bias	7311 mV
12.0 V	11926 mV
Power 2	
1.0 V	998 mV
1.2 V	1200 mV
3.3 V RE	3313 mV
Bus Revision	51
FPGA Revision	3

lcc2-re0:

CB 0 status:

State	Online Master
Temperature	41 degrees C / 105 degrees F
Power 1	
1.8 V	1805 mV
2.5 V	2494 mV
3.3 V	3333 mV
3.3 V bias	3296 mV
4.6 V	4673 mV
5.0 V	4901 mV
8.0 V bias	7343 mV
12.0 V	11916 mV
Power 2	
1.0 V	993 mV
1.2 V	1213 mV
3.3 V RE	3328 mV

```

Bus Revision          51
FPGA Revision         3
CB 1 status:
State                 Online Standby
Temperature            41 degrees C / 105 degrees F
Power 1
  1.8 V               1804 mV
  2.5 V               2523 mV
  3.3 V               3334 mV
  3.3 V bias          3291 mV
  4.6 V               4697 mV
  5.0 V               4969 mV
  8.0 V bias          7308 mV
  12.0 V              11936 mV
Power 2
  1.0 V               996 mV
  1.2 V               1200 mV
  3.3 V RE            3328 mV
Bus Revision          51
FPGA Revision         3

```

```
lcc3-re0:
```

```

-----
CB 0 status:
State                 Online Master
Temperature            37 degrees C / 98 degrees F
Power 1
  1.8 V               1809 mV
  2.5 V               2510 mV
  3.3 V               3296 mV
  3.3 V bias          3291 mV
  4.6 V               4670 mV
  5.0 V               4905 mV
  8.0 V bias          7211 mV
  12.0 V              11882 mV
Power 2
  1.0 V               996 mV
  1.2 V               1188 mV
  3.3 V RE            3326 mV
Bus Revision          51
FPGA Revision         5
CB 1 status:
State                 Online Standby
Temperature            38 degrees C / 100 degrees F
Power 1
  1.8 V               1813 mV
  2.5 V               2510 mV
  3.3 V               3322 mV
  3.3 V bias          3289 mV
  4.6 V               4692 mV
  5.0 V               4967 mV
  8.0 V bias          7194 mV
  12.0 V              11916 mV
Power 2
  1.0 V               996 mV
  1.2 V               1205 mV
  3.3 V RE            3273 mV
Bus Revision          51
FPGA Revision         5

```

```

show chassis environment cb
user@host> show chassis environment cb
(EX8200 Switch)
CB 0 status:
State Online Master
Temperature Intake 20 degrees C / 68 degrees F
Temperature Exhaust 24 degrees C / 75 degrees F
Power 1
  1.1 V 1086 mV
  1.2 V 1179 mV
  1.2 V * 1182 mV
  1.2 V * 1182 mV
  1.25 V 1211 mV
  1.5 V 1472 mV
  1.8 V 1756 mV
  2.5 V 2449 mV
  3.3 V 3254 mV
  3.3 V bias 3300 mV
  5.0 V 4911 mV
  12.0 V 11891 mV
Power 2
  3.3 V bias * 3615 mV
  3.3 V bias * 3615 mV
  3.3 V bias * 3567 mV
  3.3 V bias * 3664 mV
  4.3 V bias * 4224 mV
  4.3 V bias * 4215 mV
  4.3 V bias * 4224 mV
  4.3 V bias * 4205 mV
  4.3 V bias * 4195 mV
  4.3 V bias * 4215 mV
  5.0 V bias 4920 mV
CB 1 status:
State Online Standby
Temperature Intake 19 degrees C / 66 degrees F
Temperature Exhaust 23 degrees C / 73 degrees F
Power 1
  1.1 V 1082 mV
  1.2 V 1169 mV
  1.2 V * 1179 mV
  1.2 V * 1179 mV
  1.25 V 1214 mV
  1.5 V 1482 mV
  1.8 V 1759 mV
  2.5 V 2481 mV
  3.3 V 3248 mV
  3.3 V bias 3306 mV
  5.0 V 4911 mV
  12.0 V 11910 mV
Power 2
  3.3 V bias * 3644 mV
  3.3 V bias * 3664 mV
  3.3 V bias * 3586 mV
  3.3 V bias * 3654 mV
  4.3 V bias * 4224 mV
  4.3 V bias * 4215 mV
  4.3 V bias * 4224 mV
  4.3 V bias * 4205 mV
  4.3 V bias * 4244 mV
  4.3 V bias * 4215 mV
  5.0 V bias 4930 mV
CB 2 status:

```

```

State
Temperature Intake
Temperature Exhaust
Power 1
  1.2 V
  1.5 V
  1.8 V
  2.5 V
  3.3 V
  3.3 V bias
  12.0 V
Online
19 degrees C / 66 degrees F
23 degrees C / 73 degrees F
1195 mV
1511 mV
1804 mV
2526 mV
3300 mV
3306 mV
12220 mV

show chassis environment cb
environment cb
(EX8208 Switch)
user@host> show chassis environment cb
CB 0 status:
State
Temperature Intake
Temperature Exhaust
Power 1
  1.1 V
  1.2 V
  1.2 V *
  1.2 V *
  1.25 V
  1.5 V
  1.8 V
  2.5 V
  3.3 V
  3.3 V bias
  5.0 V
  12.0 V
Power 2
  3.3 V bias *
  3.3 V bias *
  3.3 V bias *
  3.3 V bias *
  4.3 V bias *
  4.3 V bias *
  4.3 V bias *
  4.3 V bias *
  4.3 V bias *
  4.3 V bias *
  5.0 V bias
Online Master
20 degrees C / 68 degrees F
24 degrees C / 75 degrees F
1086 mV
1179 mV
1182 mV
1182 mV
1211 mV
1466 mV
1759 mV
2455 mV
3261 mV
3300 mV
4930 mV
11891 mV
3606 mV
3615 mV
3567 mV
3673 mV
4224 mV
4215 mV
4234 mV
4205 mV
4186 mV
4215 mV
4940 mV

CB 1 status:
State
Temperature Intake
Temperature Exhaust
Power 1
  1.1 V
  1.2 V
  1.2 V *
  1.2 V *
  1.25 V
  1.5 V
  1.8 V
  2.5 V
  3.3 V
  3.3 V bias
  5.0 V
  12.0 V
Power 2
  3.3 V bias *
Online Standby
19 degrees C / 66 degrees F
23 degrees C / 73 degrees F
1086 mV
1169 mV
1179 mV
1179 mV
1211 mV
1479 mV
1759 mV
2475 mV
3235 mV
3306 mV
4930 mV
11891 mV
3644 mV

```

```

3.3 V bias *      3664 mV
3.3 V bias *      3586 mV
3.3 V bias *      3654 mV
4.3 V bias *      4215 mV
4.3 V bias *      4224 mV
4.3 V bias *      4215 mV
4.3 V bias *      4215 mV
4.3 V bias *      4234 mV
4.3 V bias *      4224 mV
5.0 V bias        4920 mV

```

CB 2 status:

```

State                Online
Temperature Intake    20 degrees C / 68 degrees F
Temperature Exhaust   24 degrees C / 75 degrees F
Power 1
  1.2 V              1202 mV
  1.5 V              1508 mV
  1.8 V              1804 mV
  2.5 V              2520 mV
  3.3 V              3300 mV
  3.3 V bias         3300 mV
 12.0 V             12200 mV

```

**show chassis
environment cb
(PTX5000 Packet
Transport Switch)**

user@host> show chassis environment cb

CB 0 status:

```

State                Online Master
Intake Temperature    38 degrees C / 100 degrees F
Exhaust A Temperature 45 degrees C / 113 degrees F
Exhaust B Temperature 42 degrees C / 107 degrees F
Power 1
  1.2 V              1200 mV
  1.25 V             1250 mV
  2.5 V              2500 mV
  3.3 V              3300 mV
Power 2
  1.0 V              1000 mV
  3.3 V bias         3293 mV
  3.9 V              3921 mV
Bus Revision          132
FPGA Revision         27

```

CB 1 status:

```

State                Online Standby
Intake Temperature    34 degrees C / 93 degrees F
Exhaust A Temperature 39 degrees C / 102 degrees F
Exhaust B Temperature 36 degrees C / 96 degrees F
Power 1
  1.2 V              1199 mV
  1.25 V             1250 mV
  2.5 V              2499 mV
  3.3 V              3299 mV
Power 2
  1.0 V              1000 mV
  3.3 V bias         3312 mV
  3.9 V              3961 mV
Bus Revision          132
FPGA Revision         28

```

**show chassis
environment cb
(QFabric System)**

user@switch> show chassis environment cb interconnect-device IC-123 0

CB 0 status:

```

State                Online Master
Left Intake Temperature 33 degrees C / 91 degrees F

```

Right Intake Temperature	33 degrees C / 91 degrees F
Left Exhaust Temperature	36 degrees C / 96 degrees F
Right Exhaust Temperature	35 degrees C / 95 degrees F
Power	OK
VDD 3V3	3294 mV
VDD 2V5	2436 mV
VDD 1V8	1746 mV
VDD 1V5	1460 mV
VDD 1V25	1210 mV
VDD 1V2	1164 mV
CPU CORE 1V2	1120 mV
VDD 1V0	968 mV
VDD 5V0	5088 mV
CPU MP BIAS 4V3	4050 mV
BIAS 3V3	3180 mV
VTT 0V9	866 mV

show chassis environment cip

Syntax (TX Matrix Plus Router)	<code>show chassis environment cip</code> <code><slot-number></code>
Release Information	Command introduced in Junos OS Release 9.6 for the TX Matrix Plus router.
Description	(TX Matrix Plus router only) Display environmental information about the Connector Interface Panel (CIP).
Options	<p>none—Display environmental information about all the CIP.</p> <p>slot—Display environmental information about a specific CIP. Replace slot with a value from 0 through 1.</p>
Required Privilege Level	view
Output Fields	Table 10 on page 238 lists the output fields for the show chassis environment cip command. Output fields are listed in the approximate order in which they appear.

Table 10: show chassis environment cip Output Fields

Field Name	Field Description
State	<p>State of the CIP:</p> <ul style="list-style-type: none"> • Online Active: CIP is online and there is active control plane data transfer between the SFC and LCCs in the routing matrix. • Online Inactive: CIP is online, but inactive. • Offline: CIP is offline.
Temp	Temperature of the CIP in Celsius (C) and Fahrenheit (F).
Power	Information about the voltage supplied to the CIP. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.
Bus Revision	Bus revision number.

show chassis environment cip (TX Matrix Plus Router)

```

user@host> show chassis environment cip
CIP 0 status:
State                Online Active
Temperature          23 degrees C / 73 degrees F
Power 1
  1.0 V              1015 mV
  1.8 V              1817 mV
  2.5 V              2497 mV
  3.3 V              3325 mV
  3.3 V bias         3300 mV
  5.0 V              5001 mV
  9.0 V              9049 mV

```

Bus Revision	74
CIP 1 status:	
State	Online Inactive
Temperature	24 degrees C / 75 degrees F
Power 1	
1.0 V	1008 mV
1.8 V	1820 mV
2.5 V	2504 mV
3.3 V	3325 mV
3.3 V bias	3306 mV
5.0 V	5091 mV
9.0 V	9049 mV
Bus Revision	74

show chassis environment fpc

Syntax	show chassis environment fpc <slot>
Syntax (TX Matrix and TX Matrix Plus Routers)	show chassis environment fpc <fcc number> <slot>
Syntax (MX Series Routers)	show chassis environment fpc <slot> <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis environment fpc <slot>
Syntax (MX2020 3D Universal Edge Routers)	show chassis environment fpc <slot>
Syntax (QFX Series)	show chassis environment fpc <fpc-slot> interconnect-device <i>name</i>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for QFX Series. Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches. Command introduced in Junos OS Release 12.1 for T4000 Core Routers. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.
Description	(M40e, M120, M160, M320, MX Series, T Series routers, EX Series, QFX Series, and PTX Series switches only) Display environmental information about Flexible PIC Concentrators (FPCs).
Options	none —Display environmental information about all FPCs. On a TX Matrix router, display environmental information about all FPCs on the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display environmental information about all FPCs on the TX Matrix Plus router and its attached T1600 routers. all-members —(MX Series routers only) (Optional) Display environmental information for the FPCs in all the members of the Virtual Chassis configuration. interconnect-device <i>name</i> —(QFabric systems only) (Optional) Display chassis environmental information for the Interconnect device. fcc number —(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display environmental information about the FPC in a T640 router (or line-card

chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display environmental information about the FPC in a T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display environmental information for the FPCs in the local Virtual Chassis member.

member member-id—(MX Series routers only) (Optional) Display environmental information for the FPCs in the specified member of the Virtual Chassis configuration. Replace **member-id** with a value of 0 or 1.

slot or fpc-slot—(Optional) Display environmental information about an individual FPC:

- (TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, if you specify the number of the T640 router by using only the **lcc number** option (the recommended method), replace **slot** with a value from 0 through 7. Similarly, on a TX Matrix Plus router, if you specify the number of the T1600 router by using only the **lcc number** option (the recommended method), replace **slot** with a value from 0 through 7. Otherwise, replace **slot** with a value from 0 through 31. For example, the following commands have the same result:

```
user@host> show chassis environment fpc 1 lcc 1
```

```
user@host> show chassis environment fpc 9
```

- M120 router—Replace **slot** with a value from 0 through 5.
- MX240 router—Replace **slot** with a value from 0 through 2.
- MX480 router—Replace **slot** with a value from 0 through 5.
- MX960 router—Replace **slot** with a value from 0 through 11.
- MX2010 router—Replace **slot** with a value from 0 through 9.
- MX2020 router—Replace **slot** with a value from 0 through 19.
- Other routers—Replace **slot** with a value from 0 through 7.
- EX Series switches:
 - EX3200 switches and EX4200 standalone switches—Replace **slot** with 0.
 - EX4200 switches in a Virtual Chassis configuration—Replace **slot** with a value from 0 through 9 (switch's member ID).
 - EX6210 switches—Replace **slot** with a value from 0 through 3 (line card only), 4 or 5 (line card or Switch Fabric and Rotuing Engine (SRE) module), or 6 through 9 (line card only).
 - EX8208 switches—Replace **slot** with a value from 0 through 7 (line card).
 - EX8216 switches—Replace **slot** with a value from 0 through 15 (line card).
- QFX3500 switches —Replace **fpc-slot** with 0 through 15.
- PTX5000 Packet Transport Switch—Replace **fpc-slot** with 0 through 7.

Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • request chassis fpc on page 128 • show chassis fpc on page 438 • show chassis fpc-feb-connectivity • Configuring the Junos OS to Resynchronize FPC Sequence Numbers with Active FPCs when an FPC Comes Online • MX960 Flexible PIC Concentrator Description
List of Sample Output	show chassis environment fpc (M120 Router) on page 244 show chassis environment fpc (M160 Router) on page 245 show chassis environment fpc (M320 Router) on page 245 show chassis environment fpc (MX2020 Router) on page 246 show chassis environment fpc (MX2010 Router) on page 248 show chassis environment fpc (MX240 Router) on page 251 show chassis environment fpc (MX480 Router) on page 252 show chassis environment fpc (MX960 Router) on page 253 show chassis environment fpc (MX480 Router with 100-Gigabit Ethernet CFP) on page 254 show chassis environment fpc (MX240, MX480, MX960 with Application Services Modular Line Card on page 255 show chassis environment fpc (T320, T640, and T1600 Routers) on page 255 show chassis environment fpc (T4000 Router) on page 256 show chassis environment fpc lcc (TX Matrix Router) on page 261 show chassis environment fpc lcc (TX Matrix Plus Router) on page 261 show chassis environment fpc (QFX Series) on page 262 show chassis environment fpc interconnect-device (QFabric Systems) on page 262 show chassis environment fpc 0 (PTX5000 Packet Transport Switch) on page 263 show chassis environment FPC 1 (MX Routers with Media Services Blade [MSB]) on page 263
Output Fields	<p>Table 11 on page 243 lists the output fields for the show chassis environment fpc command. Output fields are listed in the approximate order in which they appear.</p>

Table 11: show chassis environment fpc Output Fields

Field Name	Field Description
State	<p>Status of the FPC:</p> <ul style="list-style-type: none"> • Unknown—FPC is not detected by the router. • Empty—No FPC is present. • Present—FPC is detected by the chassis daemon but is either not supported by the current version of the Junos OS, or the FPC is coming up but not yet online. • Ready—FPC is in intermediate or transition state. • Announce online—Intermediate state during which the FPC is coming up but not yet online, and the chassis manager acknowledges the chassisd FPC online initiative. • Online—FPC is online and running. • Offline—FPC is powered down. • Diagnostics—FPC is set to operate in diagnostics mode.
Temperature	(M40e and M160 routers and QFX Series only) Temperature of the air flowing past the FPC.
PMB Temperature	(PTX Series only) Temperature of the air flowing past the PMB (bottom of the FPC).
Temperature Intake	(M320 routers, MX2010 routers, MX2020 routers, and PTX Series only) Temperature of the air flowing into the chassis.
Temperature Top	(T Series routers only) Temperature of the air flowing past the top of the FPC.
Temperature Exhaust	<p>(M120 and M320 routers, MX2010 routers, MX2020 routers, and PTX Series only) Temperature of the air flowing out of the chassis.</p> <p>The PTX Series Packet Transport Switches, and the MX2010 and MX2020 routers include exhaust temperatures for multiple zones (Exhaust A and Exhaust B).</p>
Temperature Bottom	(T Series routers only) Temperature of the air flowing past the bottom of the FPC.
TL <i>n</i> Temperature	(PTX Series only) Temperature of the air flowing past the specified TL area of the packet forwarding engine (PFE) on the FPC.
TQ <i>n</i> Temperature	(PTX Series only) Temperature of the air flowing past the specified TQ area of the packet forwarding engine (PFE) on the FPC.
Temperature MMBO	(T640 router only) Temperature of the air flowing past the type 3 FPC.
Temperature MMB1	(M320 and T Series routers only) Temperature of the air flowing past the type 1, type 2, and type 3 FPC.
Power	Information about the voltage supplied to the FPC. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.
CMB Revision or BUS revision	Revision level of the chassis management bus device (M Series router) or bus (T Series routers).

Sample Output

```

show chassis environment fpc (M120 Router) user@host> show chassis environment fpc
FPC 2 status:
State Online
Temperature Exhaust A 32 degrees C / 89 degrees F
Temperature Exhaust B 31 degrees C / 87 degrees F
Power A-Board
  1.2 V 1202 mV
  1.5 V 1508 mV
  1.8 V 1798 mV
  2.5 V 2507 mV
  3.3 V 3351 mV
  5.0 V 4995 mV
  3.3 V bias 3296 mV
  1.2 V Rocket IO 1205 mV
  1.5 V Rocket IO 1501 mV
I2C Slave Revision 12
FPC 3 status:
State Online
Temperature Exhaust A 31 degrees C / 87 degrees F
Temperature Exhaust B 33 degrees C / 91 degrees F
Power A-Board
  1.2 V 1211 mV
  1.5 V 1501 mV
  1.8 V 1798 mV
  2.5 V 2471 mV
  3.3 V 3293 mV
  5.0 V 4930 mV
  3.3 V bias 3296 mV
  1.2 V Rocket IO 1205 mV
  1.5 V Rocket IO 1501 mV
Power B-Board
  1.2 V 1214 mV
  1.5 V 1501 mV
  2.5 V 2471 mV
  3.3 V 3300 mV
  5.0 V 4943 mV
  3.3 V bias 3296 mV
  1.2 V Rocket IO 1205 mV
  1.5 V Rocket IO 1501 mV
I2C Slave Revision 12
FPC 4 status:
State Online
Temperature Exhaust A 32 degrees C / 89 degrees F
Temperature Exhaust B 30 degrees C / 86 degrees F
Power A-Board
  1.2 V 1195 mV
  1.5 V 1504 mV
  1.8 V 1801 mV
  2.5 V 2504 mV
  3.3 V 3293 mV
  5.0 V 4917 mV
  3.3 V bias 3296 mV
  1.2 V Rocket IO 1202 mV
  1.5 V Rocket IO 1492 mV
I2C Slave Revision 12

```

```

show chassis environment fpc (M160 Router) user@host> show chassis environment fpc
FPC 0 status:
State Online
Temperature 42 degrees C / 107 degrees F
Power:
  1.5 V 1500 mV
  2.5 V 2509 mV
  3.3 V 3308 mV
  5.0 V 4991 mV
  5.0 V bias 4952 mV
  8.0 V bias 8307 mV
CMB Revision 12
FPC 1 status:
State Online
Temperature 45 degrees C / 113 degrees F
Power:
  1.5 V 1498 mV
  2.5 V 2501 mV
  3.3 V 3319 mV
  5.0 V 5020 mV
  5.0 V bias 5025 mV
  8.0 V bias 8307 mV
CMB Revision 12

show chassis environment fpc (M320 Router) user@host> show chassis environment fpc
FPC 0 status:
State Online
Temperature Intake 27 degrees C / 80 degrees F
Temperature Exhaust 38 degrees C / 100 degrees F
Temperature MMB1 31 degrees C / 87 degrees F
Power:
  1.5 V 1487 mV
  1.5 V * 1494 mV
  1.8 V 1821 mV
  2.5 V 2533 mV
  3.3 V 3323 mV
  5.0 V 5028 mV
  3.3 V bias 3296 mV
  5.0 V bias 4984 mV
CMB Revision 16
FPC 1 status:
State Online
Temperature Intake 27 degrees C / 80 degrees F
Temperature Exhaust 37 degrees C / 98 degrees F
Temperature MMB1 32 degrees C / 89 degrees F
Power:
  1.5 V 1504 mV
  1.5 V * 1499 mV
  1.8 V 1820 mV
  2.5 V 2529 mV
  3.3 V 3328 mV
  5.0 V 5013 mV
  3.3 V bias 3294 mV
  5.0 V bias 4984 mV
CMB Revision 16
FPC 2 status:
State Online
Temperature Intake 28 degrees C / 82 degrees F
Temperature Exhaust 38 degrees C / 100 degrees F
Temperature MMB1 32 degrees C / 89 degrees F
Power:

```

```

1.5 V          1498 mV
1.5 V *        1487 mV
1.8 V          1816 mV
2.5 V          2531 mV
3.3 V          3324 mV
5.0 V          5025 mV
3.3 V bias     3277 mV
5.0 V bias     5013 mV
CMB Revision   17
FPC 3 status:
...

```

**show chassis
environment fpc
(MX2020 Router)**

```
user@host> show chassis environment fpc
```

```
FPC 0 status:
```

```

State          Online
Temperature Intake      41 degrees C / 105 degrees F
Temperature Exhaust A   48 degrees C / 118 degrees F
Temperature Exhaust B   60 degrees C / 140 degrees F
Temperature LU 0 TSen    56 degrees C / 132 degrees F
Temperature LU 0 Chip    59 degrees C / 138 degrees F
Temperature LU 1 TSen    56 degrees C / 132 degrees F
Temperature LU 1 Chip    61 degrees C / 141 degrees F
Temperature LU 2 TSen    56 degrees C / 132 degrees F
Temperature LU 2 Chip    52 degrees C / 125 degrees F
Temperature LU 3 TSen    56 degrees C / 132 degrees F
Temperature LU 3 Chip    52 degrees C / 125 degrees F
Temperature MQ 0 TSen    49 degrees C / 120 degrees F
Temperature MQ 0 Chip    49 degrees C / 120 degrees F
Temperature MQ 1 TSen    49 degrees C / 120 degrees F
Temperature MQ 1 Chip    52 degrees C / 125 degrees F
Temperature MQ 2 TSen    49 degrees C / 120 degrees F
Temperature MQ 2 Chip    45 degrees C / 113 degrees F
Temperature MQ 3 TSen    49 degrees C / 120 degrees F
Temperature MQ 3 Chip    46 degrees C / 114 degrees F
Power

```

```

AS-BIAS3V3-z12105      3299 mV
AS-VDD1V8-z12006       1807 mV
AS-VDD2V5-z12006       2512 mV
AS-AVDD1V0-z12004       997 mV
AS-PCIE_1V0-z12004       996 mV
AS-VDD3V3-z12004       3294 mV
AS-VDD_1V5A-z12004      1501 mV
AS-VDD_1V5B-z12004      1498 mV
AS-LU0_1V0-z12004       998 mV
AS-LU1_1V0-z12004      1002 mV
AS-MQ0_1V0-z12004       999 mV
AS-MQ1_1V0-z12004       994 mV
AS-LU2_1V0-z12004      1000 mV
AS-LU3_1V0-z12004       998 mV
AS-MQ2_1V0-z12004      1002 mV
AS-MQ3_1V0-z12004       999 mV
AS-PMB_1V1-z12006      1096 mV

```

```
I2C Slave Revision    68
```

```
FPC 1 status:
```

```

State          Online
Temperature Intake      39 degrees C / 102 degrees F
Temperature Exhaust A   48 degrees C / 118 degrees F
Temperature Exhaust B   55 degrees C / 131 degrees F
Temperature LU 0 TSen    52 degrees C / 125 degrees F
Temperature LU 0 Chip    54 degrees C / 129 degrees F
Temperature LU 1 TSen    52 degrees C / 125 degrees F

```

```

Temperature LU 1 Chip      56 degrees C / 132 degrees F
Temperature LU 2 TSen      52 degrees C / 125 degrees F
Temperature LU 2 Chip      49 degrees C / 120 degrees F
Temperature LU 3 TSen      52 degrees C / 125 degrees F
Temperature LU 3 Chip      50 degrees C / 122 degrees F
Temperature MQ 0 TSen      48 degrees C / 118 degrees F
Temperature MQ 0 Chip      48 degrees C / 118 degrees F
Temperature MQ 1 TSen      48 degrees C / 118 degrees F
Temperature MQ 1 Chip      51 degrees C / 123 degrees F
Temperature MQ 2 TSen      48 degrees C / 118 degrees F
Temperature MQ 2 Chip      45 degrees C / 113 degrees F
Temperature MQ 3 TSen      48 degrees C / 118 degrees F
Temperature MQ 3 Chip      45 degrees C / 113 degrees F
Power
AS-BIAS3V3-z12105         3291 mV
AS-VDD1V8-z12006          1786 mV
AS-VDD2V5-z12006          2496 mV
AS-AVDD1V0-z12004          1000 mV
AS-PCIE_1V0-z12004          1000 mV
AS-VDD3V3-z12004           3294 mV
AS-VDD_1V5A-z12004         1500 mV
AS-VDD_1V5B-z12004         1498 mV
AS-LU0_1V0-z12004          1003 mV
AS-LU1_1V0-z12004          1000 mV
AS-MQ0_1V0-z12004          1000 mV
AS-MQ1_1V0-z12004           995 mV
AS-LU2_1V0-z12004          1002 mV
AS-LU3_1V0-z12004           997 mV
AS-MQ2_1V0-z12004          1000 mV
AS-MQ3_1V0-z12004           998 mV
AS-PMB_1V1-z12006          1096 mV
I2C Slave Revision        68
FPC 2 status:
State                      Online
Temperature Intake          39 degrees C / 102 degrees F
Temperature Exhaust A       48 degrees C / 118 degrees F
Temperature Exhaust B       58 degrees C / 136 degrees F
Temperature LU 0 TSen       55 degrees C / 131 degrees F
Temperature LU 0 Chip       57 degrees C / 134 degrees F
Temperature LU 1 TSen       55 degrees C / 131 degrees F
Temperature LU 1 Chip       63 degrees C / 145 degrees F
Temperature LU 2 TSen       55 degrees C / 131 degrees F
Temperature LU 2 Chip       51 degrees C / 123 degrees F
Temperature LU 3 TSen       55 degrees C / 131 degrees F
Temperature LU 3 Chip       52 degrees C / 125 degrees F
Temperature MQ 0 TSen       48 degrees C / 118 degrees F
Temperature MQ 0 Chip       50 degrees C / 122 degrees F
Temperature MQ 1 TSen       48 degrees C / 118 degrees F
Temperature MQ 1 Chip       52 degrees C / 125 degrees F
Temperature MQ 2 TSen       48 degrees C / 118 degrees F
Temperature MQ 2 Chip       47 degrees C / 116 degrees F
Temperature MQ 3 TSen       48 degrees C / 118 degrees F
Temperature MQ 3 Chip       47 degrees C / 116 degrees F
Power
AS-BIAS3V3-z12105         3299 mV
AS-VDD1V8-z12006          1805 mV
AS-VDD2V5-z12006          2510 mV
AS-AVDD1V0-z12004           999 mV
AS-PCIE_1V0-z12004           998 mV
AS-VDD3V3-z12004           3296 mV
AS-VDD_1V5A-z12004         1492 mV

```

```

AS-VDD_1V5B-z12004      1497 mV
AS-LU0_1V0-z12004        997 mV
AS-LU1_1V0-z12004       1000 mV
AS-MQ0_1V0-z12004        998 mV
AS-MQ1_1V0-z12004       1001 mV
AS-LU2_1V0-z12004        996 mV
AS-LU3_1V0-z12004        995 mV
AS-MQ2_1V0-z12004        998 mV
AS-MQ3_1V0-z12004        997 mV
AS-PMB_1V1-z12006       1100 mV
I2C Slave Revision      68
FPC 3 status:
State                    Online
Temperature Intake       41 degrees C / 105 degrees F
Temperature Exhaust A    48 degrees C / 118 degrees F
Temperature Exhaust B    58 degrees C / 136 degrees F
Temperature LU 0 TSen    56 degrees C / 132 degrees F
Temperature LU 0 Chip    59 degrees C / 138 degrees F
Temperature LU 1 TSen    56 degrees C / 132 degrees F
Temperature LU 1 Chip    61 degrees C / 141 degrees F
Temperature LU 2 TSen    56 degrees C / 132 degrees F
Temperature LU 2 Chip    51 degrees C / 123 degrees F
Temperature LU 3 TSen    56 degrees C / 132 degrees F
Temperature LU 3 Chip    53 degrees C / 127 degrees F
Temperature MQ 0 TSen    50 degrees C / 122 degrees F
Temperature MQ 0 Chip    51 degrees C / 123 degrees F
Temperature MQ 1 TSen    50 degrees C / 122 degrees F
Temperature MQ 1 Chip    55 degrees C / 131 degrees F
Temperature MQ 2 TSen    50 degrees C / 122 degrees F
Temperature MQ 2 Chip    47 degrees C / 116 degrees F
Temperature MQ 3 TSen    50 degrees C / 122 degrees F
Temperature MQ 3 Chip    50 degrees C / 122 degrees F
Power
AS-BIAS3V3-z12105       3305 mV
AS-VDD1V8-z12006       1810 mV
AS-VDD2V5-z12006       2508 mV
AS-AVDD1V0-z12004       999 mV
AS-PCIE_1V0-z12004      1001 mV
AS-VDD3V3-z12004       3294 mV
AS-VDD_1V5A-z12004     1500 mV
AS-VDD_1V5B-z12004     1498 mV
AS-LU0_1V0-z12004       998 mV
AS-LU1_1V0-z12004       998 mV
AS-MQ0_1V0-z12004       999 mV
AS-MQ1_1V0-z12004       998 mV
AS-LU2_1V0-z12004      1000 mV
AS-LU3_1V0-z12004      1001 mV
AS-MQ2_1V0-z12004       996 mV
AS-MQ3_1V0-z12004       998 mV
AS-PMB_1V1-z12006      1098 mV
I2C Slave Revision      68
FPC 4 status:
...

```

**show chassis
environment fpc
(MX2010 Router)**

```

user@host> show chassis environment fpc
FPC 0 status:
State                    Online
Temperature Intake       36 degrees C / 96 degrees F
Temperature Exhaust A    42 degrees C / 107 degrees F
Temperature Exhaust B    51 degrees C / 123 degrees F
Temperature LU 0 TSen    49 degrees C / 120 degrees F

```

```

Temperature LU 0 Chip      50 degrees C / 122 degrees F
Temperature LU 1 TSen      49 degrees C / 120 degrees F
Temperature LU 1 Chip      54 degrees C / 129 degrees F
Temperature LU 2 TSen      49 degrees C / 120 degrees F
Temperature LU 2 Chip      45 degrees C / 113 degrees F
Temperature LU 3 TSen      49 degrees C / 120 degrees F
Temperature LU 3 Chip      46 degrees C / 114 degrees F
Temperature MQ 0 TSen      40 degrees C / 104 degrees F
Temperature MQ 0 Chip      41 degrees C / 105 degrees F
Temperature MQ 1 TSen      40 degrees C / 104 degrees F
Temperature MQ 1 Chip      44 degrees C / 111 degrees F
Temperature MQ 2 TSen      40 degrees C / 104 degrees F
Temperature MQ 2 Chip      38 degrees C / 100 degrees F
Temperature MQ 3 TSen      40 degrees C / 104 degrees F
Temperature MQ 3 Chip      41 degrees C / 105 degrees F
Power
AS-BIAS3V3-z12105         3300 mV
AS-VDD1V8-z12006         1805 mV
AS-VDD2V5-z12006         2505 mV
AS-AVDD1V0-z12004         998 mV
AS-PCIE_1V0-z12004         999 mV
AS-VDD3V3-z12004         3303 mV
AS-VDD_1V5A-z12004        1497 mV
AS-VDD_1V5B-z12004        1497 mV
AS-LU0_1V0-z12004         998 mV
AS-LU1_1V0-z12004        1003 mV
AS-MQ0_1V0-z12004         998 mV
AS-MQ1_1V0-z12004         998 mV
AS-LU2_1V0-z12004         997 mV
AS-LU3_1V0-z12004        1001 mV
AS-MQ2_1V0-z12004         996 mV
AS-MQ3_1V0-z12004         994 mV
AS-PMB_1V1-z12006        1097 mV
I2C Slave Revision        68
FPC 1 status:
State                      Online
Temperature Intake          34 degrees C / 93 degrees F
Temperature Exhaust A       46 degrees C / 114 degrees F
Temperature Exhaust B       54 degrees C / 129 degrees F
Temperature LU 0 TSen        45 degrees C / 113 degrees F
Temperature LU 0 Chip        55 degrees C / 131 degrees F
Temperature LU 1 TSen        45 degrees C / 113 degrees F
Temperature LU 1 Chip        44 degrees C / 111 degrees F
Temperature LU 2 TSen        45 degrees C / 113 degrees F
Temperature LU 2 Chip        50 degrees C / 122 degrees F
Temperature LU 3 TSen        45 degrees C / 113 degrees F
Temperature LU 3 Chip        58 degrees C / 136 degrees F
Temperature XM 0 TSen        45 degrees C / 113 degrees F
Temperature XM 0 Chip        51 degrees C / 123 degrees F
Temperature XF 0 TSen        45 degrees C / 113 degrees F
Temperature XF 0 Chip        63 degrees C / 145 degrees F
Temperature PLX Switch TSen  45 degrees C / 113 degrees F
Temperature PLX Switch Chip  47 degrees C / 116 degrees F
Power
MPC-BIAS3V3-z12105         3300 mV
MPC-VDD3V3-z16100         3294 mV
MPC-VDD2V5-z16100         2505 mV
MPC-VDD1V8-z12004         1796 mV
MPC-AVDD1V0-z12004         991 mV
MPC-VDD1V2-z16100         1196 mV
MPC-VDD1V5A-z12004        1491 mV

```

MPC-VDD1V5B-z12004	1492 mV
MPC-XF_0V9-z12004	996 mV
MPC-PCIE_1V0-z16100	1003 mV
MPC-LU0_1V0-z12004	996 mV
MPC-LU1_1V0-z12004	996 mV
MPC-LU2_1V0-z12004	998 mV
MPC-LU3_1V0-z12004	994 mV
MPC-12VA-BMR453	12031 mV
MPC-12VB-BMR453	12003 mV
MPC-PMB_1V1-z12006	1104 mV
MPC-PMB_1V2-z12106	1194 mV
MPC-XM_0V9-vt273m	911 mV
I2C Slave Revision	110
FPC 8 status:	
State	Online
Temperature Intake	32 degrees C / 89 degrees F
Temperature Exhaust A	44 degrees C / 111 degrees F
Temperature Exhaust B	37 degrees C / 98 degrees F
Temperature LU 0 TCAM TSen	41 degrees C / 105 degrees F
Temperature LU 0 TCAM Chip	49 degrees C / 120 degrees F
Temperature LU 0 TSen	41 degrees C / 105 degrees F
Temperature LU 0 Chip	52 degrees C / 125 degrees F
Temperature MQ 0 TSen	41 degrees C / 105 degrees F
Temperature MQ 0 Chip	47 degrees C / 116 degrees F
Temperature LU 1 TCAM TSen	39 degrees C / 102 degrees F
Temperature LU 1 TCAM Chip	42 degrees C / 107 degrees F
Temperature LU 1 TSen	39 degrees C / 102 degrees F
Temperature LU 1 Chip	46 degrees C / 114 degrees F
Temperature MQ 1 TSen	39 degrees C / 102 degrees F
Temperature MQ 1 Chip	45 degrees C / 113 degrees F
Power	
MPC-BIAS3V3-z12105	3296 mV
MPC-VDD3V3-z12006	3298 mV
MPC-VDD2V5-z12006	2505 mV
MPC-TCAM_1V0-z12004	997 mV
MPC-AVDD1V0-z12006	1007 mV
MPC-VDD1V8-z12006	1803 mV
MPC-PCIE_1V0-z12006	1004 mV
MPC-LU0_1V0-z12004	1000 mV
MPC-MQ0_1V0-z12004	999 mV
MPC-VDD_1V5-z12004	1498 mV
MPC-PMB_1V1-z12006	1102 mV
MPC-9VA-BMR453	9009 mV
MPC-9VB-BMR453	8960 mV
MPC-PMB_1V2-z12105	1202 mV
MPC-LU1_1V0-z12004	1005 mV
MPC-MQ1_1V0-z12004	1000 mV
I2C Slave Revision	70
FPC 9 status:	
State	Online
Temperature Intake	34 degrees C / 93 degrees F
Temperature Exhaust A	41 degrees C / 105 degrees F
Temperature Exhaust B	54 degrees C / 129 degrees F
Temperature LU 0 TSen	51 degrees C / 123 degrees F
Temperature LU 0 Chip	52 degrees C / 125 degrees F
Temperature LU 1 TSen	51 degrees C / 123 degrees F
Temperature LU 1 Chip	55 degrees C / 131 degrees F
Temperature LU 2 TSen	51 degrees C / 123 degrees F
Temperature LU 2 Chip	47 degrees C / 116 degrees F
Temperature LU 3 TSen	51 degrees C / 123 degrees F
Temperature LU 3 Chip	47 degrees C / 116 degrees F

```

Temperature MQ 0 TSen      40 degrees C / 104 degrees F
Temperature MQ 0 Chip      42 degrees C / 107 degrees F
Temperature MQ 1 TSen      40 degrees C / 104 degrees F
Temperature MQ 1 Chip      44 degrees C / 111 degrees F
Temperature MQ 2 TSen      40 degrees C / 104 degrees F
Temperature MQ 2 Chip      38 degrees C / 100 degrees F
Temperature MQ 3 TSen      40 degrees C / 104 degrees F
Temperature MQ 3 Chip      40 degrees C / 104 degrees F
Power
  AS-BIAS3V3-z12105        3302 mV
  AS-VDD1V8-z12006         1808 mV
  AS-VDD2V5-z12006         2513 mV
  AS-AVDD1V0-z12004         997 mV
  AS-PCIE_1V0-z12004         999 mV
  AS-VDD3V3-z12004         3294 mV
  AS-VDD_1V5A-z12004        1503 mV
  AS-VDD_1V5B-z12004        1502 mV
  AS-LU0_1V0-z12004         996 mV
  AS-LU1_1V0-z12004         999 mV
  AS-MQ0_1V0-z12004         997 mV
  AS-MQ1_1V0-z12004         999 mV
  AS-LU2_1V0-z12004         997 mV
  AS-LU3_1V0-z12004         998 mV
  AS-MQ2_1V0-z12004        1000 mV
  AS-MQ3_1V0-z12004        1000 mV
  AS-PMB_1V1-z12006        1102 mV
I2C Slave Revision        68

```

**show chassis
environment fpc
(MX240 Router)**

```

user@host> show chassis environment fpc
FPC 1 status:
  State      Online
  Temperature Intake      34 degrees C / 93 degrees F
  Temperature Exhaust A   39 degrees C / 102 degrees F
  Temperature Exhaust B   53 degrees C / 127 degrees F
  Temperature I3 0 TSensor 51 degrees C / 123 degrees F
  Temperature I3 0 Chip    54 degrees C / 129 degrees F
  Temperature I3 1 TSensor 50 degrees C / 122 degrees F
  Temperature I3 1 Chip    53 degrees C / 127 degrees F
  Temperature I3 2 TSensor 48 degrees C / 118 degrees F
  Temperature I3 2 Chip    51 degrees C / 123 degrees F
  Temperature I3 3 TSensor 45 degrees C / 113 degrees F
  Temperature I3 3 Chip    48 degrees C / 118 degrees F
  Temperature IA 0 TSensor 45 degrees C / 113 degrees F
  Temperature IA 0 Chip    45 degrees C / 113 degrees F
  Temperature IA 1 TSensor 45 degrees C / 113 degrees F
  Temperature IA 1 Chip    49 degrees C / 120 degrees F
  Power
    1.5 V      1492 mV
    2.5 V      2507 mV
    3.3 V      3306 mV
    1.8 V PFE 0 1801 mV
    1.8 V PFE 1 1804 mV
    1.8 V PFE 2 1798 mV
    1.8 V PFE 3 1798 mV
    1.2 V PFE 0 1169 mV
    1.2 V PFE 1 1189 mV
    1.2 V PFE 2 1182 mV
    1.2 V PFE 3 1176 mV
  I2C Slave Revision      42
FPC 2 status:
  State      Online

```

```

Temperature Intake      33 degrees C / 91 degrees F
Temperature Exhaust A   41 degrees C / 105 degrees F
Temperature Exhaust B   53 degrees C / 127 degrees F
Temperature I3 0 TSensor 53 degrees C / 127 degrees F
Temperature I3 0 Chip   58 degrees C / 136 degrees F
Temperature I3 1 TSensor 52 degrees C / 125 degrees F
Temperature I3 1 Chip   56 degrees C / 132 degrees F
Temperature I3 2 TSensor 50 degrees C / 122 degrees F
Temperature I3 2 Chip   52 degrees C / 125 degrees F
Temperature I3 3 TSensor 46 degrees C / 114 degrees F
Temperature I3 3 Chip   49 degrees C / 120 degrees F
Temperature IA 0 TSensor 51 degrees C / 123 degrees F
Temperature IA 0 Chip   49 degrees C / 120 degrees F
Temperature IA 1 TSensor 48 degrees C / 118 degrees F
Temperature IA 1 Chip   53 degrees C / 127 degrees F
Power
  1.5 V      1492 mV
  2.5 V      2445 mV
  3.3 V      3293 mV
  1.8 V PFE 0 1827 mV
  1.8 V PFE 1 1775 mV
  1.8 V PFE 2 1788 mV
  1.8 V PFE 3 1798 mV
  1.2 V PFE 0 1250 mV
  1.2 V PFE 1 1234 mV
  1.2 V PFE 2 1231 mV
  1.2 V PFE 3 1192 mV
I2C Slave Revision    42

```

**show chassis
environment fpc
(MX480 Router)**

```

user@host> show chassis environment fpc
FPC 1 status:
State      Online
Temperature Intake      36 degrees C / 96 degrees F
Temperature Exhaust A   41 degrees C / 105 degrees F
Temperature Exhaust B   55 degrees C / 131 degrees F
Temperature I3 0 TSensor 55 degrees C / 131 degrees F
Temperature I3 0 Chip   57 degrees C / 134 degrees F
Temperature I3 1 TSensor 53 degrees C / 127 degrees F
Temperature I3 1 Chip   53 degrees C / 127 degrees F
Temperature I3 2 TSensor 52 degrees C / 125 degrees F
Temperature I3 2 Chip   49 degrees C / 120 degrees F
Temperature I3 3 TSensor 47 degrees C / 116 degrees F
Temperature I3 3 Chip   47 degrees C / 116 degrees F
Temperature IA 0 TSensor 54 degrees C / 129 degrees F
Temperature IA 0 Chip   58 degrees C / 136 degrees F
Temperature IA 1 TSensor 48 degrees C / 118 degrees F
Temperature IA 1 Chip   53 degrees C / 127 degrees F
Power
  1.5 V      1479 mV
  2.5 V      2542 mV
  3.3 V      3319 mV
  1.8 V PFE 0 1811 mV
  1.8 V PFE 1 1804 mV
  1.8 V PFE 2 1804 mV
  1.8 V PFE 3 1814 mV
  1.2 V PFE 0 1192 mV
  1.2 V PFE 1 1202 mV
  1.2 V PFE 2 1205 mV

```

```

1.2 V PFE 3          1189 mV
I2C Slave Revision   40

show chassis environment fpc
(MX960 Router) user@host> show chassis environment fpc
FPC 5 status:
State               Online
Temperature Intake   27 degrees C / 80 degrees F
Temperature Exhaust A 34 degrees C / 93 degrees F
Temperature Exhaust B 40 degrees C / 104 degrees F
Temperature I3 0 TSensor 39 degrees C / 102 degrees F
Temperature I3 0 Chip  41 degrees C / 105 degrees F
Temperature I3 1 TSensor 38 degrees C / 100 degrees F
Temperature I3 1 Chip  37 degrees C / 98 degrees F
Temperature I3 2 TSensor 37 degrees C / 98 degrees F
Temperature I3 2 Chip  34 degrees C / 93 degrees F
Temperature I3 3 TSensor 32 degrees C / 89 degrees F
Temperature I3 3 Chip  33 degrees C / 91 degrees F
Temperature IA 0 TSensor 39 degrees C / 102 degrees F
Temperature IA 0 Chip  44 degrees C / 111 degrees F
Temperature IA 1 TSensor 36 degrees C / 96 degrees F
Temperature IA 1 Chip  44 degrees C / 111 degrees F
Power
  1.5 V          1479 mV
  2.5 V          2523 mV
  3.3 V          3254 mV
  1.8 V PFE 0    1798 mV
  1.8 V PFE 1    1798 mV
  1.8 V PFE 2    1807 mV
  1.8 V PFE 3    1791 mV
  1.2 V PFE 0    1173 mV
  1.2 V PFE 1    1179 mV
  1.2 V PFE 2    1179 mV
  1.2 V PFE 3    1185 mV
I2C Slave Revision 6
FPC 6 status:
State               Online
Temperature Intake   25 degrees C / 77 degrees F
Temperature Exhaust A 38 degrees C / 100 degrees F
Temperature Exhaust B 38 degrees C / 100 degrees F
Temperature I3 0 TSensor 40 degrees C / 104 degrees F
Temperature I3 0 Chip  40 degrees C / 104 degrees F
Temperature I3 1 TSensor 40 degrees C / 104 degrees F
Temperature I3 1 Chip  38 degrees C / 100 degrees F
Temperature I3 2 TSensor 37 degrees C / 98 degrees F
Temperature I3 2 Chip  32 degrees C / 89 degrees F
Temperature I3 3 TSensor 34 degrees C / 93 degrees F
Temperature I3 3 Chip  33 degrees C / 91 degrees F
Temperature IA 0 TSensor 45 degrees C / 113 degrees F
Temperature IA 0 Chip  47 degrees C / 116 degrees F
Temperature IA 1 TSensor 37 degrees C / 98 degrees F
Temperature IA 1 Chip  42 degrees C / 107 degrees F
Power
  1.5 V          1485 mV
  2.5 V          2510 mV
  3.3 V          3332 mV
  1.8 V PFE 0    1801 mV
  1.8 V PFE 1    1814 mV
  1.8 V PFE 2    1804 mV
  1.8 V PFE 3    1820 mV
  1.2 V PFE 0    1192 mV
  1.2 V PFE 1    1189 mV

```

```

1.2 V PFE 2          1202 mV
1.2 V PFE 3          1156 mV
I2C Slave Revision   40

```

**show chassis
environment fpc
(MX480 Router with
100-Gigabit Ethernet
CFP)**

```
user@host> show chassis environment fpc
```

```
FPC 0 status:
```

```

State      Online
Temperature Intake      32 degrees C / 89 degrees F
Temperature Exhaust A   39 degrees C / 102 degrees F
Temperature Exhaust B   37 degrees C / 98 degrees F
Temperature QX 0 TSen    44 degrees C / 111 degrees F
Temperature QX 0 Chip    48 degrees C / 118 degrees F
Temperature LU 0 TCAM TSen 44 degrees C / 111 degrees F
Temperature LU 0 TCAM Chip 47 degrees C / 116 degrees F
Temperature LU 0 TSen    44 degrees C / 111 degrees F
Temperature LU 0 Chip    48 degrees C / 118 degrees F
Temperature MQ 0 TSen    44 degrees C / 111 degrees F
Temperature MQ 0 Chip    47 degrees C / 116 degrees F

```

```
Power
```

```

MPC-BIAS3V3-z12105      3297 mV
MPC-VDD3V3-z12105      3306 mV
MPC-VDD2V5-z12105      2498 mV
MPC-TCAM_1V0-z12004      999 mV
MPC-AVDD1V0-z12006      999 mV
MPC-VDD1V8-z12006      1796 mV
MPC-PCIE_1V0-z12006     1002 mV
MPC-LU0_1V0-z12004      997 mV
MPC-MQ0_1V0-z12004      995 mV
MPC-VDD_1V5-z12004     1496 mV
MPC-PMB_1V1-z12006     1094 mV
MPC-9VA-BMR453          9054 mV
MPC-9VB-BMR453          9037 mV
MPC-PMB_1V2-z12106     1191 mV
MPC-QXM0_1V0-z12006     1000 mV

```

```
I2C Slave Revision      66
```

```
FPC 1 status:
```

```

State      Online
Temperature Intake      35 degrees C / 95 degrees F
Temperature Exhaust A   50 degrees C / 122 degrees F
Temperature Exhaust B   56 degrees C / 132 degrees F
Temperature LU 0 TSen    46 degrees C / 114 degrees F
Temperature LU 0 Chip    59 degrees C / 138 degrees F
Temperature LU 1 TSen    46 degrees C / 114 degrees F
Temperature LU 1 Chip    45 degrees C / 113 degrees F
Temperature LU 2 TSen    46 degrees C / 114 degrees F
Temperature LU 2 Chip    60 degrees C / 140 degrees F
Temperature LU 3 TSen    46 degrees C / 114 degrees F
Temperature LU 3 Chip    71 degrees C / 159 degrees F
Temperature XM 0 TSen    46 degrees C / 114 degrees F
Temperature XM 0 Chip    -18 degrees C / 0 degrees F
Temperature XF 0 TSen    46 degrees C / 114 degrees F
Temperature XF 0 Chip    76 degrees C / 168 degrees F

```

```
Power
```

```

MPC-BIAS3V3-z12105      3292 mV
MPC-VDD3V3-z16100      3303 mV
MPC-VDD2V5-z16100      2501 mV
MPC-VDD1V8-z12004      1801 mV
MPC-AVDD1V0-z12006      996 mV
MPC-VDD1V2-z16100      1199 mV
MPC-VDD1V5A-z12004     1493 mV
MPC-VDD1V5B-z12004     1498 mV

```

```

MPC-XF_0V9-z12006      996 mV
MPC-PCIE_1V0-z16100    1000 mV
MPC-LU0_1V0-z12004     994 mV
MPC-LU1_1V0-z12004     994 mV
MPC-LU2_1V0-z12004     992 mV
MPC-LU3_1V0-z12004     993 mV
MPC-12VA-BMR453        12003 mV
MPC-12VB-BMR453        12043 mV
MPC-PMB_1V1-z12006     1091 mV
MPC-PMB_1V2-z12106     1196 mV
MPC-XM_0V9-vt273m      899 mV
I2C Slave Revision      106

```

**show chassis
environment fpc
(MX240, MX480,
MX960 with
Application Services
Modular Line Card**

```
user@host>show chassis environment fpc 1
```

```
FPC 1 status:
```

```

State                Online
Temperature Intake    36 degrees C / 96 degrees F
Temperature Exhaust A 39 degrees C / 102 degrees F
Temperature LU TSen    52 degrees C / 125 degrees F
Temperature LU Chip    54 degrees C / 129 degrees F
Temperature XM TSen    52 degrees C / 125 degrees F
Temperature XM Chip    60 degrees C / 140 degrees F
Temperature PCIE TSen  52 degrees C / 125 degrees F
Temperature PCIE Chip  69 degrees C / 156 degrees F
Power
MPC-BIAS3V3-z12106    3302 mV
MPC-VDD3V3-z16100     3325 mV
MPC-AVDD1V0-z16100    1007 mV
MPC-PCIE_1V0-z16100    904 mV
MPC-LU0_1V0-z12004     996 mV
MPC-VDD_1V5-z12004    1498 mV
MPC-12VA-BMR453        11733 mV
MPC-12VB-BMR453        11728 mV
MPC-XM_0V9-vt273m      900 mV
I2C Slave Revision      81

```

**show chassis
environment fpc
(T320, T640, and
T1600 Routers)**

```
user@host> show chassis environment fpc
```

```
FPC 0 status:
```

```

State                Online
Temperature Top        42 degrees C / 107 degrees F
Temperature Bottom     36 degrees C / 96 degrees F
Temperature MMB1       39 degrees C / 102 degrees F
Power:
1.8 V                 1959 mV
2.5 V                 2495 mV
3.3 V                 3344 mV
5.0 V                 5047 mV
1.8 V bias            1787 mV
3.3 V bias            3291 mV
5.0 V bias            4998 mV
8.0 V bias            7343 mV
BUS Revision          40

```

```
FPC 1 status:
```

```

State                Online
Temperature Top        42 degrees C / 107 degrees F
Temperature Bottom     39 degrees C / 102 degrees F
Temperature MMB1       40 degrees C / 104 degrees F
Power:
1.8 V                 1956 mV
2.5 V                 2498 mV
3.3 V                 3340 mV

```

```

5.0 V          5023 mV
1.8 V bias    1782 mV
3.3 V bias    3277 mV
5.0 V bias    4989 mV
8.0 V bias    7289 mV
BUS Revision   40
FPC 2 status:
State          Online
Temperature Top 43 degrees C / 109 degrees F
Temperature Bottom 39 degrees C / 102 degrees F
Temperature MMB1 41 degrees C / 105 degrees F
Power:
1.8 V          1963 mV
2.5 V          2503 mV
3.3 V          3340 mV
5.0 V          5042 mV
1.8 V bias    1797 mV
3.3 V bias    3311 mV
5.0 V bias    5013 mV
8.0 V bias    7221 mV
BUS Revision   40

```

```

show chassis user@host> show chassis environment fpc
environment fpc FPC 0 status:
(T4000 Router) State          Online

```

```

Fan Intake      34 degrees C / 93 degrees F
Fan Exhaust     48 degrees C / 118 degrees F
PMB             47 degrees C / 116 degrees F
LMB0            50 degrees C / 122 degrees F
LMB1            41 degrees C / 105 degrees F
LMB2            35 degrees C / 95 degrees F
PFE1 LU2        46 degrees C / 114 degrees F
PFE1 LU0        41 degrees C / 105 degrees F
PFE0 LU0        57 degrees C / 134 degrees F
XF1             47 degrees C / 116 degrees F
XF0             52 degrees C / 125 degrees F
XM1             41 degrees C / 105 degrees F
XM0             50 degrees C / 122 degrees F
PFE0 LU1        56 degrees C / 132 degrees F
PFE0 LU2        45 degrees C / 113 degrees F
PFE1 LU1        37 degrees C / 98 degrees F

```

```

Power 1
1.0 V          991 mV
1.2 V bias    1195 mV
1.8 V          1788 mV
2.5 V          2483 mV
3.3 V          3289 mV
3.3 V bias    3299 mV
12.0 V A      10608 mV
12.0 V B      10637 mV

```

```

Power 2
0.9 V          881 mV
0.9 V PFE0     916 mV
0.9 V PFE1     903 mV
1.0 V PFE0    1012 mV
1.0 V PFE1    1002 mV
1.1 V          1095 mV
1.5 V_0        1494 mV
1.5 V_1        1479 mV

```

```

Power 3
1.0 V PFE0     1000 mV

```

```

1.0 V PFE1                1002 mV
1.0 V PFE0 *              995 mV
1.0 V PFE1 *              995 mV
1.8 V PFE 0               1788 mV
1.8 V PFE 1               1789 mV
2.5 V                     2482 mV
12.0 V                    11614 mV
Power 4
1.0 V PFE0 LU0            1003 mV
1.0 V PFE1 LU0            1003 mV
1.0 V PFE1 LU2            1004 mV
1.0 V PFE0 LU0 *          995 mV
1.0 V PFE1 LU0 *          998 mV
1.0 V PFE1 LU2 *          996 mV
12.0 V                    11643 mV
12.0 V C                   11711 mV
Power (Base/PMB/MMB)
LMB0 VDD2V5               2488 mV
LMB0 VDD1V8               1788 mV
LMB0 VDD1V5               1496 mV
LMB0 PFE0 LU0 AVDD1V0     1002 mV
LMB0 PFE0 LU0 VDD1V0      1000 mV
LMB0 VDD12V0              10752 mV
LMB1 VDD2V5               2472 mV
LMB1 VDD1V8               1792 mV
LMB1 VDD1V5               1480 mV
LMB1 PFE0 LU2 AVDD1V0     994 mV
LMB1 PFE0 LU2 VDD1V0      1002 mV
LMB1 VDD12V0              10800 mV
LMB2 VDD2V5               2472 mV
LMB2 VDD1V8               1792 mV
LMB2 VDD1V5               1486 mV
LMB2 PFE1 LU1 AVDD1V0     996 mV
LMB2 PFE1 LU1 VDD1V0      998 mV
LMB2 VDD12V0              10704 mV
PMB 1.05v                 1049 mV
PMB 1.5v                  1500 mV
PMB 2.5v                  2500 mV
PMB 3.3v                  3299 mV
Bus Revision               113
FPC 3 status:
State                      Online
Fan Intake                 37 degrees C / 98 degrees F
Fan Exhaust                51 degrees C / 123 degrees F
PMB                        43 degrees C / 109 degrees F
LMB0                       57 degrees C / 134 degrees F
LMB1                       54 degrees C / 129 degrees F
LMB2                       38 degrees C / 100 degrees F
PFE1 LU2                   63 degrees C / 145 degrees F
PFE1 LU0                   45 degrees C / 113 degrees F
PFE0 LU0                   69 degrees C / 156 degrees F
XF1                         62 degrees C / 143 degrees F
XF0                         63 degrees C / 145 degrees F
XM1                         43 degrees C / 109 degrees F
XM0                         67 degrees C / 152 degrees F
PFE0 LU1                   63 degrees C / 145 degrees F
PFE0 LU2                   66 degrees C / 150 degrees F
PFE1 LU1                   41 degrees C / 105 degrees F
Power 1
1.0 V                      1002 mV
1.2 V bias                 1201 mV

```

1.8 V	1785 mV
2.5 V	2485 mV
3.3 V	3288 mV
3.3 V bias	3285 mV
12.0 V A	10412 mV
12.0 V B	10515 mV
Power 2	
0.9 V	882 mV
0.9 V PFE0	920 mV
0.9 V PFE1	905 mV
1.0 V PFE0	1015 mV
1.0 V PFE1	1001 mV
1.1 V	1094 mV
1.5 V_0	1495 mV
1.5 V_1	1478 mV
Power 3	
0.92 V PFE1	998 mV
1.0 V PFE0	997 mV
1.0 V PFE0 *	992 mV
1.0 V PFE1 *	991 mV
1.8 V PFE 0	1780 mV
1.8 V PFE 1	1797 mV
2.5 V	2492 mV
12.0 V	11604 mV
Power 4	
1.0 V PFE0 LU0	1003 mV
1.0 V PFE1 LU0	1004 mV
1.0 V PFE1 LU2	1003 mV
1.0 V PFE0 LU0 *	1000 mV
1.0 V PFE1 LU0 *	1001 mV
1.0 V PFE1 LU2 *	1003 mV
12.0 V	11653 mV
12.0 V C	11672 mV
Power (Base/PMB/MMB)	
LMB0 VDD2V5	2512 mV
LMB0 VDD1V8	1790 mV
LMB0 VDD1V5	1500 mV
LMB0 PFE0 LU0 AVDD1V0	1004 mV
LMB0 PFE0 LU0 VDD1V0	1002 mV
LMB0 VDD12V0	10608 mV
LMB1 VDD2V5	2472 mV
LMB1 VDD1V8	1788 mV
LMB1 VDD1V5	1480 mV
LMB1 PFE0 LU2 AVDD1V0	1000 mV
LMB1 PFE0 LU2 VDD1V0	1004 mV
LMB1 VDD12V0	10672 mV
LMB2 VDD2V5	2488 mV
LMB2 VDD1V8	1798 mV
LMB2 VDD1V5	1494 mV
LMB2 PFE1 LU1 AVDD1V0	1000 mV
LMB2 PFE1 LU1 VDD1V0	1004 mV
LMB2 VDD12V0	10528 mV
PMB 1.05v	1050 mV
PMB 1.5v	1500 mV
PMB 2.5v	2499 mV
PMB 3.3v	3299 mV
Bus Revision	113
FPC 5 status:	
State	Online
Temperature Top	39 degrees C / 102 degrees F
Temperature Bottom	38 degrees C / 100 degrees F

```

Power
  1.8 V                1804 mV
  1.8 V bias           1802 mV
  3.3 V                3294 mV
  3.3 V bias           3277 mV
  5.0 V bias           5008 mV
  5.0 V TOP            5067 mV
  8.0 V bias           6642 mV
Power (Base/PMB/MMB)
  1.2 V                1202 mV
  1.5 V                1504 mV
  5.0 V BOT            5079 mV
  12.0 V TOP Base      11848 mV
  12.0 V BOT Base      11780 mV
  1.1 V PMB            1111 mV
  1.2 V PMB            1189 mV
  1.5 V PMB            1494 mV
  1.8 V PMB            1819 mV
  2.5 V PMB            2503 mV
  3.3 V PMB            3294 mV
  5.0 V PMB            5035 mV
  12.0 V PMB           11788 mV
  0.75 MMB TOP         766 mV
  1.5 V MMB TOP        1484 mV
  1.8 V MMB TOP        1772 mV
  2.5 V MMB TOP        2485 mV
  1.2 V MMB TOP        1137 mV
  5.0 V MMB TOP        4946 mV
  12.0 V MMB TOP       11772 mV
  3.3 V MMB TOP        3289 mV
  0.75 MMB BOT         759 mV
  1.5 V MMB BOT        1482 mV
  1.8 V MMB BOT        1792 mV
  2.5 V MMB BOT        2490 mV
  1.2 V MMB BOT        1145 mV
  5.0 V MMB BOT        4922 mV
  12.0 V MMB BOT       11625 mV
  3.3 V MMB BOT        3282 mV
  APS 00               2495 mV
  APS 01               3308 mV
  APS 02               3301 mV
  5.0 V PIC 0          4967 mV
  APS 10               2512 mV
  APS 11               3316 mV
  APS 12               3304 mV
  5.0 V PIC 1          5081 mV
Bus Revision           49
FPC 6 status:
  State                Online
  Fan Intake           34 degrees C / 93 degrees F
  Fan Exhaust          49 degrees C / 120 degrees F
  PMB                  40 degrees C / 104 degrees F
  LMB0                 60 degrees C / 140 degrees F
  LMB1                 58 degrees C / 136 degrees F
  LMB2                 40 degrees C / 104 degrees F
  PFE1 LU2             69 degrees C / 156 degrees F
  PFE1 LU0             45 degrees C / 113 degrees F
  PFE0 LU0             71 degrees C / 159 degrees F
  XF1                  58 degrees C / 136 degrees F
  XF0                  65 degrees C / 149 degrees F
  XM1                  40 degrees C / 104 degrees F

```

XM0	66 degrees C / 150 degrees F
PFE0 LU1	69 degrees C / 156 degrees F
PFE0 LU2	68 degrees C / 154 degrees F
PFE1 LU1	42 degrees C / 107 degrees F
Power 1	
1.0 V	998 mV
1.2 V bias	1191 mV
1.8 V	1781 mV
2.5 V	2487 mV
3.3 V	3302 mV
3.3 V bias	3300 mV
12.0 V A	10388 mV
12.0 V B	10388 mV
Power 2	
0.9 V	902 mV
0.9 V PFE0	921 mV
0.9 V PFE1	907 mV
1.0 V PFE0	996 mV
1.0 V PFE1	974 mV
1.1 V	1095 mV
1.5 V_0	1495 mV
1.5 V_1	1478 mV
Power 3	
1.0 V PFE0	997 mV
1.0 V PFE1	998 mV
1.0 V PFE0 *	993 mV
1.0 V PFE1 *	991 mV
1.8 V PFE 0	1796 mV
1.8 V PFE 1	1789 mV
2.5 V	2465 mV
12.0 V	11609 mV
Power 4	
1.0 V PFE0 LU0	1003 mV
1.0 V PFE1 LU0	1006 mV
1.0 V PFE1 LU2	1002 mV
1.0 V PFE0 LU0 *	1000 mV
1.0 V PFE1 LU0 *	998 mV
1.0 V PFE1 LU2 *	998 mV
12.0 V	11638 mV
12.0 V C	11702 mV
Power (Base/PMB/MMB)	
LMB0 VDD2V5	2484 mV
LMB0 VDD1V8	1780 mV
LMB0 VDD1V5	1496 mV
LMB0 PFE0 LU0 AVDD1V0	998 mV
LMB0 PFE0 LU0 VDD1V0	1004 mV
LMB0 VDD12V0	10528 mV
LMB1 VDD2V5	2472 mV
LMB1 VDD1V8	1776 mV
LMB1 VDD1V5	1474 mV
LMB1 PFE0 LU2 AVDD1V0	994 mV
LMB1 PFE0 LU2 VDD1V0	1004 mV
LMB1 VDD12V0	10544 mV
LMB2 VDD2V5	2476 mV
LMB2 VDD1V8	1790 mV
LMB2 VDD1V5	1492 mV
LMB2 PFE1 LU1 AVDD1V0	996 mV
LMB2 PFE1 LU1 VDD1V0	1010 mV
LMB2 VDD12V0	10528 mV
PMB 1.05v	1050 mV
PMB 1.5v	1499 mV

```

PMB 2.5v                2500 mV
PMB 3.3v                3300 mV
Bus Revision            80

show chassis environment fpc lcc (TX Matrix Router) user@host> show chassis environment fpc lcc 0
lcc0-re0:
-----
FPC 1 status:
State                               Online
Temperature Top                     30 degrees C / 86 degrees F
Temperature Bottom                   25 degrees C / 77 degrees F
Temperature MMB0                     Absent
Temperature MMB1                     27 degrees C / 80 degrees F
Power:
  1.8 V                             1813 mV
  2.5 V                             2504 mV
  3.3 V                             3338 mV
  5.0 V                             5037 mV
  1.8 V bias                         1797 mV
  3.3 V bias                         3301 mV
  5.0 V bias                         5013 mV
  8.0 V bias                         7345 mV
BUS Revision                        40
FPC 2 status:
State                               Online
Temperature Top                     37 degrees C / 98 degrees F
Temperature Bottom                   26 degrees C / 78 degrees F
Temperature MMB0                     32 degrees C / 89 degrees F
Temperature MMB1                     27 degrees C / 80 degrees F
Power:
  1.8 V                             1791 mV
  2.5 V                             2517 mV
  3.3 V                             3308 mV
  5.0 V                             5052 mV
  1.8 V bias                         1797 mV
  3.3 V bias                         3289 mV
  5.0 V bias                         4991 mV
  8.0 V bias                         7477 mV
BUS Revision                        40

show chassis environment fpc lcc (TX Matrix Plus Router) user@host> show chassis environment fpc lcc 0
lcc0-re0:
-----
FPC 1 status:
State                               Online
Temperature Top                     46 degrees C / 114 degrees F
Temperature Bottom                   47 degrees C / 116 degrees F
Power
  1.8 V                             1788 mV
  1.8 V bias                         1787 mV
  3.3 V                             3321 mV
  3.3 V bias                         3306 mV
  5.0 V bias                         5018 mV
  5.0 V TOP                         5037 mV
  8.0 V bias                         7223 mV
Power (Base/PMB/MMB)
  1.2 V                             1205 mV
  1.5 V                             1503 mV
  5.0 V BOT                         5084 mV
  12.0 V TOP Base                   11775 mV
  12.0 V BOT Base                   11794 mV

```

1.1 V PMB	1108 mV
1.2 V PMB	1196 mV
1.5 V PMB	1499 mV
1.8 V PMB	1811 mV
2.5 V PMB	2515 mV
3.3 V PMB	3318 mV
5.0 V PMB	5030 mV
12.0 V PMB	11832 mV
0.75 MMB TOP	752 mV
1.5 V MMB TOP	1489 mV
1.8 V MMB TOP	1782 mV
2.5 V MMB TOP	2498 mV
1.2 V MMB TOP	1155 mV
5.0 V MMB TOP	4902 mV
12.0 V MMB TOP	11721 mV
3.3 V MMB TOP	3316 mV
0.75 MMB BOT	754 mV
1.5 V MMB BOT	1482 mV
1.8 V MMB BOT	1758 mV
2.5 V MMB BOT	2488 mV
1.2 V MMB BOT	1157 mV
5.0 V MMB BOT	4962 mV
12.0 V MMB BOT	11691 mV
3.3 V MMB BOT	3308 mV
APS 00	1484 mV
APS 01	2503 mV
APS 02	3313 mV
5.0 V PIC 0	5025 mV
APS 10	1501 mV
APS 11	2466 mV
APS 12	3311 mV
5.0 V PIC 1	5081 mV
Bus Revision	49

```

show chassis user@switch> show chassis environment fpc 0
environment fpc (QFX FPC 0 status:
Series) State Online
Temperature 42 degrees C / 107 degrees F

```

```

show chassis user@switch> show chassis environment fpc interconnect-device interconnect1 0
environment fpc FC 0 FPC 0 status:
interconnect-device State Online
(QFabric Systems) Left Intake Temperature 24 degrees C / 75 degrees F
Right Intake Temperature 24 degrees C / 75 degrees F
Left Exhaust Temperature 27 degrees C / 80 degrees F
Right Exhaust Temperature 27 degrees C / 80 degrees F
Power
BIAS 3V3 3330 mV
VDD 3V3 3300 mV
VDD 2V5 2502 mV
VDD 1V5 1496 mV
VDD 1V2 1194 mV
VDD 1V0 1000 mV
SW0 VDD 1V0 1020 mV
SW0 CVDD 1V025 1032 mV
SW1 VDD 1V0 1022 mV
SW1 CVDD 1V025 1030 mV
VDD 12V0 DIV3_33 3414 mV

```

**show chassis
environment fpc 0
(PTX5000 Packet
Transport Switch)**

user@switch> show chassis environment fpc 0

FPC 0 status:

State	Online
PMB Temperature	35 degrees C / 95 degrees F
Intake Temperature	33 degrees C / 91 degrees F
Exhaust A Temperature	51 degrees C / 123 degrees F
Exhaust B Temperature	43 degrees C / 109 degrees F
TL0 Temperature	48 degrees C / 118 degrees F
TQ0 Temperature	53 degrees C / 127 degrees F
TL1 Temperature	56 degrees C / 132 degrees F
TQ1 Temperature	58 degrees C / 136 degrees F
TL2 Temperature	55 degrees C / 131 degrees F
TQ2 Temperature	57 degrees C / 134 degrees F
TL3 Temperature	59 degrees C / 138 degrees F
TQ3 Temperature	59 degrees C / 138 degrees F

Power

PMB 1.05v	1049 mV
PMB 1.5v	1500 mV
PMB 2.5v	2500 mV
PMB 3.3v	3299 mV
PFE0 1.5v	1500 mV
PFE0 1.0v	999 mV
TQ0 0.9v	900 mV
TL0 0.9v	900 mV
PFE1 1.5v	1499 mV
PFE1 1.0v	999 mV
TQ1 0.9v	899 mV
TL1 0.9v	900 mV
PFE2 1.5v	1500 mV
PFE2 1.0v	1000 mV
TQ2 0.9v	900 mV
TL2 0.9v	900 mV
PFE3 1.5v	1499 mV
PFE3 1.0v	1000 mV
TQ3 0.9v	900 mV
TL3 0.9v	900 mV
Bias 3.3v	3327 mV
FPC 3.3v	3300 mV
FPC 2.5v	2500 mV
SAM 0.9v	900 mV
A 12.0v	2014 mV
B 12.0v	2030 mV

**show chassis
environment FPC1 (MX
Routers with Media
Services Blade [MSB])**

user@switch> show chassis environment fpc 1

FPC 1 status:

State	Online
Temperature Intake	36 degrees C / 96 degrees F
Temperature Exhaust A	39 degrees C / 102 degrees F
Temperature LU TSen	52 degrees C / 125 degrees F
Temperature LU Chip	54 degrees C / 129 degrees F
Temperature XM TSen	52 degrees C / 125 degrees F
Temperature XM Chip	60 degrees C / 140 degrees F
Temperature PCIe TSen	52 degrees C / 125 degrees F
Temperature PCIe Chip	69 degrees C / 156 degrees F

Power

MPC-BIAS3V3-z12106	3302 mV
MPC-VDD3V3-z16100	3325 mV
MPC-AVDD1V0-z16100	1007 mV
MPC-PCIE_1V0-z16100	904 mV
MPC-LU0_1V0-z12004	996 mV
MPC-VDD_1V5-z12004	1498 mV

MPC-12VA-BMR453	11733 mV
MPC-12VB-BMR453	11728 mV
MPC-XM_0V9-vt273m	900 mV
I2C Slave Revision	81

show chassis environment fpm

Syntax	show chassis environment fpm
Syntax (TX Matrix Routers)	show chassis environment fpm <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Routers)	show chassis environment fpm <lcc <i>number</i> sfc <i>number</i> >
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches.</p> <p>Command introduced in Junos OS Release 12.1 for T4000 Core Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	(M40e, M120, M160, M320, MX Series, and T Series routers and the PTX Series Packet Transport Switches only) Display environmental information about the front panel module in the router.
Options	<p>none—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, display environmental information about the front panel modules (craft interfaces) on the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display environmental information about the front panel modules (craft interfaces) on the TX Matrix Plus router and its attached T1600 routers.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display environmental information about the front panel module (craft interface) on a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display environmental information about the front panel module (craft interface) on a specified T1600 router (or line-card chassis) that is connected to a TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>scc—(TX Matrix router only) (Optional) Display environmental information about the front panel module (craft interface) on the TX Matrix router (or switch-card chassis).</p> <p>sfc <i>number</i>—(TX Matrix Plus router only) (Optional) Display environmental information about the front panel module (craft interface) on the TX Matrix Plus router (or switch-fabric chassis).</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • request chassis fpm resync on page 132
List of Sample Output	<p>show chassis environment fpm (M40e and M160 Routers) on page 267</p> <p>show chassis environment fpm (M320 Router) on page 267</p>

[show chassis environment fpm \(MX2010 Router\) on page 267](#)
[show chassis environment fpm \(MX2020 Router\) on page 267](#)
[show chassis environment fpm \(MX240 Router\) on page 267](#)
[show chassis environment fpm \(MX480 Router\) on page 267](#)
[show chassis environment fpm \(T Series Routers\) on page 267](#)
[show chassis environment fpm lcc \(TX Matrix Router\) on page 268](#)
[show chassis environment fpm scc \(TX Matrix Router\) on page 268](#)
[show chassis environment fpm sfc \(TX Matrix Plus Router\) on page 268](#)
[show chassis environment fpm \(T4000 Core Router\) on page 269](#)
[show chassis environment fpm \(PTX5000 Packet Transport Switch\) on page 270](#)

Output Fields [Table 12 on page 266](#) lists the output fields for the **show chassis environment fpm** command. Output fields are listed in the approximate order in which they appear.

Table 12: show chassis environment fpm Output Fields

Field Name	Field Description
State	FPM status: <ul style="list-style-type: none"> • Online—FPM is online and running. • Offline—FPM is powered down.
FPM CMB Voltage	(M40e and M160 routers only) Information about the voltage supplied to the FPM chassis management bus (CMB) device. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.
FPM GBUS Voltage	(M320 and T Series routers only) Information about the voltage supplied to the FPM generic bus (GBUS) device. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.
FPM I2CS Voltage	(PTX Series only) Information about the voltage supplied to the FPM generic bus (I2CS) device. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.
FPM Display Voltage	Information about the voltage supplied to the FPM display. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.
FPM CMB Temperature	(M40e and M160 routers only) Temperature of the air flowing past the FPM CMB device
FPM GBUS Temperature	(M320 and T Series routers only) Temperature of the air flowing past the FPM GBUS device.
FPM I2CS Temperature	(PTX Series only) Temperature of the air flowing past the FPM I2CS device.
FPM Display Temperature	Temperature of the air flowing past the FPM display.
CMB Revision	(M40e and M160 routers only) Revision level of the CMB device.
GBUS Revision	(M320 and T Series routers only) Revision level of the GBUS device.
I2CS Revision	(MX2010 routers, MX2020 routers, and PTX Series only) Revision level of the I2CS device.

Sample Output

```

show chassis environment fpm (M40e and M160 Routers) user@host> show chassis environment fpm
FPM status:
State Online
FPM CMB Voltage:
5.0 V bias 5030 mV
8.0 V bias 8083 mV
FPM Display Voltage:
5.0 V bias 4998 mV
FPM CMB temperature 34 degrees C / 93 degrees F
FPM Display temperature 35 degrees C / 95 degrees F
CMB Revision 12

show chassis environment fpm (M320 Router) user@host> show chassis environment fpm
FPM status:
State Online
FPM GBUS Voltage:
5.0 V 5006 mV
1.8 V bias 1799 mV
3.3 V bias 3294 mV
5.0 V bias 4998 mV
8.0 V bias 7682 mV
FPM GBUS temperature 30 degrees C / 86 degrees F
GBUS Revision 51

show chassis environment fpm (MX2010 Router) user@host > show chassis environment fpm
FPM status:
State Online
I2CS Revision 4

show chassis environment fpm (MX2020 Router) user@host > show chassis environment fpm
FPM status:
State Online
I2CS Revision 3

show chassis environment fpm (MX240 Router) user@host> show chassis environment fpm
FPM status:
State Online
I2CS Revision 41

show chassis environment fpm (MX480 Router) user@host> show chassis environment fpm
FPM status:
State Online
I2CS Revision 41

show chassis environment fpm (T Series Routers) user@host> show chassis environment fpm
FPM status:
State Online
FPM GBUS Voltage:
1.8 V bias 1787 mV
3.3 V bias 3286 mV
5.0 V bias 4991 mV
8.0 V bias 7162 mV
FPM Display Voltage:
5.0 V 4996 mV
FPM GBUS temperature 29 degrees C / 84 degrees F

```

```

FPM Display temperature      26 degrees C / 78 degrees F
GBUS Revision                 37

```

**show chassis
environment fpm lcc
(TX Matrix Router)**

```

user@host> show chassis environment fpm lcc 0
lcc0-re0:
-----
FPM status:
State                               Online
FPM GBUS Voltage:
  1.8 V bias                        1797 mV
  3.3 V bias                        3294 mV
  5.0 V bias                        5015 mV
  8.0 V bias                        7470 mV
FPM Display Voltage:
  5.0 V                             5018 mV
FPM GBUS temperature              25 degrees C / 77 degrees F
FPM Display temperature           29 degrees C / 84 degrees F
GBUS Revision                     37

```

**show chassis
environment fpm scc
(TX Matrix Router)**

```

user@host> show chassis environment fpm scc
scc-re0:
-----
FPM status:
State                               Online
FPM GBUS Voltage:
  1.8 V bias                        1789 mV
  3.3 V bias                        3296 mV
  5.0 V bias                        5003 mV
  8.0 V bias                        7592 mV
FPM Display Voltage:
  5.0 V                             5010 mV
FPM GBUS temperature              22 degrees C / 71 degrees F
FPM Display temperature           27 degrees C / 80 degrees F
GBUS Revision                     37

```

**show chassis
environment fpm sfc
(TX Matrix Plus
Router)**

```

user@host> show chassis environment fpm sfc
sfc0-re0:
-----
FPM status:
State                               Online
FPM I2CS Voltage:
  3.3 V                             3300 mV
  5.0 V                             5001 mV
  9.0 V FPD                         8672 mV
FPM I2CS temperature             33 degrees C / 91 degrees F
I2CS Revision                    69

```

lcc0-re0:

```

-----
FPM status:
State                               Online
FPM GBUS Voltage:
  1.8 V bias                        1802 mV
  3.3 V bias                        3301 mV
  5.0 V bias                        4984 mV
  8.0 V bias                        7377 mV
FPM Display Voltage:
  5.0 V                             5015 mV
FPM GBUS temperature             30 degrees C / 86 degrees F

```

```
FPM Display temperature 32 degrees C / 89 degrees F
GBUS Revision           37
```

```
lcc1-re0:
```

```
-----
FPM status:
```

```
State                   Online
FPM GBUS Voltage:
  1.8 V bias            1789 mV
  3.3 V bias            3311 mV
  5.0 V bias            5013 mV
  8.0 V bias            7467 mV
FPM Display Voltage:
  5.0 V                 5015 mV
FPM GBUS temperature    29 degrees C / 84 degrees F
FPM Display temperature 31 degrees C / 87 degrees F
GBUS Revision           37
```

**show chassis
environment fpm
(T4000 Core Router)**

```
user@host> show chassis environment fpm
```

```
CB 0 status:
```

```
State                   Online Master
Temperature              34 degrees C / 93 degrees F
Power 1
  1.8 V                  1804 mV
  2.5 V                  2499 mV
  3.3 V                  3317 mV
  3.3 V bias             3291 mV
  4.6 V                  4663 mV
  5.0 V                  4905 mV
  8.0 V bias             7658 mV
  12.0 V                 11877 mV
Power 2
  1.0 V                  996 mV
  1.2 V                  1207 mV
  3.3 V RE               3354 mV
Bus Revision             51
FPGA Revision            5
```

```
CB 1 status:
```

```
State                   Online Standby
Temperature              36 degrees C / 96 degrees F
Power 1
  1.8 V                  1791 mV
  2.5 V                  2494 mV
  3.3 V                  3321 mV
  3.3 V bias             3301 mV
  4.6 V                  4666 mV
  5.0 V                  4945 mV
  8.0 V bias             7645 mV
  12.0 V                 11897 mV
Power 2
  1.0 V                  991 mV
  1.2 V                  1201 mV
  3.3 V RE               3289 mV
Bus Revision             51
FPGA Revision            5
```

```
user@host> show chassis environment fpm
```

```
FPM status:
```

```
State                   Online
FPM GBUS Voltage:
  1.8 V bias            1802 mV
```

```

3.3 V bias          3294 mV
5.0 V bias          5003 mV
8.0 V bias          7306 mV
FPM Display Voltage:
5.0 V              5010 mV
FPM GBUS temperature 26 degrees C / 78 degrees F
FPM Display temperature 29 degrees C / 84 degrees F
GBUS Revision       37

```

**show chassis
environment fpm
(PTX5000 Packet
Transport Switch)**

user@host> show chassis environment fpm

```

FPM status:
State          Online
FPM I2CS Voltage:
3.3 V          3300 mV
5.0 V          4975 mV
FPM I2CS temperature 37 degrees C / 98 degrees F
I2CS Revision    109

```

show chassis environment pem

Syntax	show chassis environment pem <slot>
Syntax (ACX4000 Router)	show chassis environment pem
Syntax (TX Matrix Routers)	show chassis environment pem <lcc number scc> <slot>
Syntax (TX Matrix Plus Routers)	show chassis environment pem <lcc number sfc number> <slot>
Syntax (MX Series Router)	show chassis environment pem <slot> <all-members> <local> <member member-id>
Syntax (QFX Series)	show chassis environment pem <slot (interconnect-device name slot) (node-device name)>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS 11.3 for the QFX Series.
Description	Display Power Entry Module (PEM) environmental status information.



NOTE: The new high-capacity (4100W) enhanced DC PEM on MX960 routers includes a new design that can condition the input voltage. This results in the output voltage differing from the input voltage. The earlier generation of DC PEMs coupled the input power directly to the output, thereby making it safe to assume that the output voltage was equal to the input voltage.

- Options** **none**—Display environmental information about both PEMs. For the TX Matrix router, display environmental information about the PEMs, the TX Matrix router, and its attached T640 routers. For the TX Matrix Plus router, display environmental information about the PEMs, the TX Matrix Plus router, and its attached T1600 routers.
- all-members**—(MX Series routers only) (Optional) Display environmental information about the PEMs in all the member routers of the Virtual Chassis configuration.
- interconnect-device name**—(QFabric systems only) (Optional) Display chassis environmental information about the PEMs in the Interconnect device.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display environmental information about the PEM in a specified T640 router (or line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, display environmental information about the PEM in a specified T1600 router (or line-card chassis) that is connected to a TX Matrix Plus router. Replace ***number*** with a value from **0** through **3**.

local—(MX Series routers only) (Optional) Display environmental information about the PEM in the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Display environmental information about the PEM in the specified member of the Virtual Chassis configuration. Replace ***member-id*** with a value of 0 or 1.

node-device *name*—(QFabric systems only) (Optional) Display chassis environmental information about the PEMs in the Node device.

scc—(TX Matrix routers only) (Optional) Display environmental information about the PEM in the TX Matrix router (or switch-card chassis).

sfc—(TX Matrix Plus routers only) (Optional) Display environmental information about the PEM in the TX Matrix Plus router (or switch-fabric chassis).

slot —(Optional) Display environmental information about an individual PEM. Replace ***slot*** with **0** or **1**.

Required Privilege Level

view

Related Documentation

- [show chassis hardware on page 463](#)

List of Sample Output

[show chassis environment pem \(M40e Router\) on page 273](#)
[show chassis environment pem \(M120 Router\) on page 273](#)
[show chassis environment pem \(M160 Router\) on page 274](#)
[show chassis environment pem \(M320 Router\) on page 274](#)
[show chassis environment pem \(MX240 Router\) on page 274](#)
[show chassis environment pem \(MX480 Router\) on page 275](#)
[show chassis environment pem \(MX960 Router\) on page 275](#)
[show chassis environment pem \(T320 Router\) on page 275](#)
[show chassis environment pem \(T640 Router\) on page 275](#)
[show chassis environment pem \(T4000 Router\) on page 275](#)
[show chassis environment pem \(T640/T1600/T4000 Routers With Six-Input DC Power Supply\) on page 276](#)
[show chassis environment pem lcc \(TX Matrix Routing Matrix\) on page 276](#)
[show chassis environment pem scc \(TX Matrix Routing Matrix\) on page 276](#)
[show chassis environment pem sfc \(TX Matrix Plus Routing Matrix\) on page 277](#)
[show chassis environment pem lcc \(TX Matrix Plus Routing Matrix\) on page 277](#)
[show chassis environment pem node-device \(QFabric System\) on page 277](#)
[show chassis environment pem \(QFX Series\) on page 278](#)
[show chassis environment pem interconnect-device \(QFabric System\) on page 278](#)

Output Fields Table 13 on page 273 lists the output fields for the **show chassis environment pem** command. Output fields are listed in the approximate order in which they appear.

Table 13: show chassis environment pem Output Fields

Field Name	Field Description
PEM slot status	Number of the PEM slot.
State	Status of the PEM.
Temperature	Temperature of the air flowing past the PEM.
AC Input	Status of the AC input for the specified component
AC Output	Status of the AC output for the specified component.
DC input	Status of the DC input for the specified component.
DC output	Status of the DC output for the specified component.
Load	(Not available on M40e or M160 routers) Information about the load on supply, in percentage of rated current being used.
Voltage	(M120, M160, M320, T640, T1600, TX Matrix, and TX Matrix Plus routers only) Information about voltage supplied to the PEM.
Current	(T640, T1600, TX Matrix, and TX Matrix Plus routers only) Information about the PEM current.
Power	(T640, T1600, TX Matrix, and TX Matrix Plus routers only) Information about the PEM power.
SCG/CB/SIB	(T640, T1600, TX Matrix, and TX Matrix Plus routers only) SONET Clock Generator/Control Board/Switch Interface Board.
FAN	(T640, T1600, and T4000 routers with six-input DC power supply only) Information about the DC output to the fan.

Sample Output

```

show chassis environment pem (M40e Router) user@host> show chassis environment pem
PEM 0 status:
  State           Online
  Temperature     OK
  AC input        OK
  DC output       OK

show chassis environment pem (M120 Router) user@host> show chassis environment pem
PEM 0 status:
  State           Online
  Temperature     OK
  DC Input:       OK
  DC Output:      OK
  Load           Less than 20 percent

```

```
Voltage:
  48.0 V input      52864 mV
  48.0 V fan supply 41655 mV
  3.3 V             3399 mV
PEM 1 status:
  State             Online
  Temperature       OK
  DC Input:         OK
  DC Output:        OK
  Load             Less than 20 percent
Voltage:
  48.0 V input      54537 mV
  48.0 V fan supply 42910 mV
  3.3 V             3506 mV
```

**show chassis
environment pem
(M160 Router)**

```
user@host> show chassis environment pem
PEM 0 status:
  State             Online
  Temperature       OK
  DC input          OK
  DC output         OK
  Load             Less than 20 percent
Voltage:
  48.0 V input      54833 mV
  48.0 V fan supply 50549 mV
  8.0 V bias        8239 mV
  5.0 V bias        5006 mV
```

**show chassis
environment pem
(M320 Router)**

```
user@host> show chassis environment pem
PEM 2 status:
  State             Online
  Temperature       OK
  DC input          OK
  Load             Less than 40 percent
  48.0 V input      51853 mV
  48.0 V fan supply 48877 mV
  8.0 V bias        8449 mV
  5.0 V bias        4998 mV
PEM 3 status:
  State             Online
  Temperature       OK
  DC input          OK
  Load             Less than 40 percent
  48.0 V input      51717 mV
  48.0 V fan supply 49076 mV
  8.0 V bias        8442 mV
  5.0 V bias        4998 mV
```

**show chassis
environment pem
(MX240 Router)**

```
user@host> show chassis environment pem
PEM 0 status:
  State             Online
  Temperature       OK
  DC Output:        OK
PEM 1 status:
  State             Online
  Temperature       OK
  DC Output:        OK
```

```

show chassis environment pem user@host> show chassis environment pem
(MX480 Router) PEM 0 status:
                  State           Online
                  Temperature      OK
                  DC Input:        OK
                  DC Output:       OK
                  Voltage:
PEM 1 status:
                  State           Online
                  Temperature      OK
                  DC Input:        OK
                  DC Output:       OK
                  Voltage:

show chassis environment pem user@host> show chassis environment pem
(MX960 Router) PEM 2 status:
                  State           Present
PEM 3 status:
                  State           Online
                  Temperature      OK
                  DC Output:       OK

show chassis environment pem user@host> show chassis environment pem
(T320 Router) PEM 0 status:
                  State           Online
                  Temperature      OK
                  DC input:        OK

show chassis environment pem user@host> show chassis environment pem
(T640 Router) PEM 0 status:
                  State           Online
                  Temperature      22 degrees C / 71 degrees F
                  AC input: OK
DC output:      Voltage  Current    Power    Load
                  FPC 0    56875     606      34      4
                  FPC 1    57016     525      29      3
                  FPC 2      0         0        0      0
                  FPC 3      0         0        0      0
                  FPC 4      0         0        0      0
                  FPC 5      0         0        0      0
                  FPC 6    57158    1581      90     12
                  FPC 7      0         0        0      0
                  SCG/CB/SIB 56750    1125      63      5

show chassis environment pem user@host> show chassis environment pem
(T4000 Router) PEM 0 status:
                  State           Online
                  Temperature      33 degrees C / 91 degrees F
                  DC Input:        OK
                  Voltage(V)  Current(A)  Power(W)  Load(%)
INPUT 0          54.625      9.812     535      22
INPUT 1          54.625     10.250     559      23
INPUT 2          55.125      0.125       6       0
INPUT 3          54.500     10.062     548      22
INPUT 4          54.750      9.375     513      21
INPUT 5          54.750     10.187     557      23
DC Output      Voltage(V)  Current(A)  Power(W)  Load(%)
FPC 0          55.750     10.125     564      37
FPC 1          51.625      0.000       0       0
FPC 2          52.000      0.000       0       0

```

FPC 3	55.062	10.437	574	38
FPC 4	52.125	0.000	0	0
FPC 5	55.000	9.375	515	34
FPC 6	55.187	9.687	534	35
FPC 7	51.437	0.000	0	0
SCG/CB/SIB	55.375	15.750	872	35
FAN	54.562	14.750	804	42

**show chassis
environment pem
(T640/T1600/T4000
Routers With Six-Input
DC Power Supply)**

```
user@host> show chassis environment pem
PEM 1 status:
State                Online
Temperature           36 degrees C / 96 degrees F
DC Input:             OK
Voltage(V)            Current(A)    Power(W)    Load(%)
INPUT 0               0.000          0.000        0           0
INPUT 1               54.875         3.812       209         27
INPUT 2               55.375         3.937       218         29
INPUT 3               54.625         3.750       204         27
INPUT 4               55.125         3.375       186         24
INPUT 5               55.125         3.375       186         24
DC Output             Voltage(V)      Current(A)    Power(W)    Load(%)
FPC 0                 52.312         0.000        0           0
FPC 1                 52.687         0.000        0           0
FPC 2                 52.812         0.000        0           0
FPC 3                 55.812         7.062       394         52
FPC 4                 52.625         0.000        0           0
FPC 5                 52.625         0.000        0           0
FPC 6                 52.750         0.000        0           0
FPC 7                 52.750         0.000        0           0
SCG/CB/SIB            55.937        11.937       667         55
FAN                   55.812         4.937       275         36
```

**show chassis
environment pem lcc
(TX Matrix Routing
Matrix)**

```
user@host> show chassis environment pem 0 lcc 0
lcc0-re0:
-----
PEM 0 status:
State                Present
Temperature           27 degrees C / 80 degrees F
DC input:             Check
DC output:            Voltage      Current      Power      Load
FPC 0                 0          0           0          0
FPC 1                 0          0           0          0
FPC 2                 0          0           0          0
FPC 3                 0          0           0          0
FPC 4                 0          0           0          0
FPC 5                 0          0           0          0
FPC 6                 0          0           0          0
FPC 7                 0          0           0          0
SCG/CB/SIB            0          0           0          0
```

**show chassis
environment pem scc
(TX Matrix Routing
Matrix)**

```
user@host> show chassis environment pem scc
scc-re0:
-----
PEM 1 status:
State                Online
Temperature           24 degrees C / 75 degrees F
DC input:             OK
DC output:            Voltage      Current      Power      Load
SIB 0                 0          0           0          0
SIB 1                 0          0           0          0
```

SIB 2	0	0	0	0
SIB 3	56550	0	0	0
SIB 4	55958	6912	386	51

show chassis environment pem sfc
(TX Matrix Plus Routing Matrix)

user@host> show chassis environment pem sfc 0
sfc0-re0:

```
-----
PEM 0 status:
  State                Online
  Temperature          35 degrees C / 95 degrees F
  DC Input:            OK
  DC Output            Voltage    Current    Power    Load
    Channel 0          53820     14140     761     59
    Channel 1          53550     12720     681     53
    Channel 2          53840     12930     696     54
    Channel 3          53690     14990     804     63
    Channel 4          53620     15070     808     63
    Channel 5          53900     14820     798     62
    Channel 6          54120     5020      271     21
```

show chassis environment pem lcc
(TX Matrix Plus Routing Matrix)

user@host> show chassis environment lcc 0
lcc0-re1:

```
-----
PEM 0 status:
  State                Online
  Temperature          38 degrees C / 100 degrees F
  DC Input:            OK
  DC Output            Voltage    Current    Power    Load
    FPC 0              0         0         0         0
    FPC 1              0         0         0         0
    FPC 2              0         0         0         0
    FPC 3              0         0         0         0
    FPC 4              56408     7575     427     56
    FPC 5              0         0         0         0
    FPC 6              56266     7956     447     59
    FPC 7              56283     6100     343     45
    SCG/CB/SIB         55916     8950     500     41

PEM 1 status:
  State                Present
  Temperature          35 degrees C / 95 degrees F
  DC Input:            Check
  DC Output            Voltage    Current    Power    Load
    FPC 0              0         0         0         0
    FPC 1              0         0         0         0
    FPC 2              0         0         0         0
    FPC 3              0         0         0         0
    FPC 4              0         0         0         0
    FPC 5              0         0         0         0
    FPC 6              0         0         0         0
    FPC 7              0         0         0         0
    SCG/CB/SIB         0         0         0         0
```

show chassis environment pem node-device
(QFabric System)

user@switch> show chassis environment pem node-device node1
FPC 0 PEM 0 status:

```
State                Check
Airflow              Front to Back
Temperature          OK
AC Input:            OK
DC Output            Voltage(V) Current(A) Power(W) Load(%)
```

```

FPC 0 PEM 1 status:
  State      Online
  Airflow    Back to Front
  Temperature OK
  AC Input:   OK
  DC Output   Voltage(V) Current(A) Power(W) Load(%)
                11         10       110      17

show chassis environment pem
(QFX Series)
user@switch> show chassis environment pem
FPC 0 PEM 1 status:
  State      Online
  Airflow    Front to Back
  Temperature OK
  AC Input:   OK
  DC Output   Voltage(V) Current(A) Power(W) Load(%)
                12         17       204      31

show chassis environment pem interconnect-device
(QFabric System)
user@switch> show chassis environment pem interconnect-device IC11
IC1 PEM 1 status:
  State      Online
  Airflow    Front to Back
  Temperature OK
  AC Input:   OK
  DC Output   Voltage(V) Current(A) Power(W) Load(%)
                12         18       216      33
```

show chassis environment routing-engine

Syntax	show chassis environment routing-engine <slot>
Syntax (TX Matrix Routers)	show chassis environment routing-engine <lcc number scc> <slot>
Syntax (TX Matrix Plus Routers)	show chassis environment routing-engine <lcc number sfc number> <slot>
Syntax (MX2010 3D Universal Edge Routers)	show chassis environment routing-engine <slot>
Syntax (MX Series Routers)	show chassis environment routing-engine <slot> <all-members> <local> <member member-id>
Syntax (MX2020 3D Universal Edge Routers)	show chassis environment routing-engine <slot>
Syntax (QFX Series)	show chassis environment routing-engine interconnect-device <i>name</i>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 11.1 for the QFX Series.</p> <p>Command introduced in Junos OS Release 12.1 for the PTX Series Packet Transport Switches.</p> <p>Command introduced in Junos OS Release 12.1 for the T4000 Core Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	Display Routing Engine environmental status information.
Options	<p>none—Display environmental information about all Routing Engines. For a TX Matrix router, display environmental information about all Routing Engines on the TX Matrix router and its attached T640 routers. For a TX Matrix Plus router, display environmental information about all Routing Engines on the TX Matrix Plus router and its attached T1600 routers.</p> <p>all-members—(MX Series routers only) (Optional) Display environmental information about the Routing Engines in all member routers in the Virtual Chassis configuration.</p>

interconnect-device *name*—(QFabric systems only) (Optional) Display environmental information about the Routing Engines for the Interconnect device.

lcc *number*—(TX Matrix and TX Matrix routers only) (Optional) On a TX Matrix router, display environmental information about the Routing Engine in a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display environmental information about the Routing Engine in a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace ***number*** with a value from **0** through **3**.

local—(MX Series routers only) (Optional) Display environmental information about the Routing Engines in the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Display environmental information about the Routing Engines in the specified member in the Virtual Chassis configuration. Replace ***member-id*** with the value of **0** or **1**.

scc—(TX Matrix router only) (Optional) Display environmental information about the Routing Engine in the TX Matrix router (or switch-card chassis).

sfc—(TX Matrix Plus router only) (Optional) Display environmental information about the Routing Engine in the TX Matrix Plus router (or switch-fabric chassis).

slot—(Optional) Display environmental information about an individual Routing Engine. On M10i, M20, M40e, M120, M160, M320, MX Series, MX2020 routers, and T Series routers, replace **slot** with **0** or **1**. On M5, M7i, M10, and M40 routers and on the J Series router, replace **slot** with **0**. On EX3200 and EX4200 standalone switches, replace **slot** with **0**. On EX4200 switches in a Virtual Chassis configuration and on EX8208 and EX8216 switches, replace **slot** with **0** or **1**. On the QFX3500 switch, there is only one Routing Engine, so you do not need to specify the slot number. On PTX Series Packet Transport Switches, replace **slot** with **0** or **1**.

Required Privilege Level view

Related Documentation

- [request chassis routing-engine master on page 138](#)
- [show chassis routing-engine on page 582](#)

List of Sample Output

- [show chassis environment routing-engine \(Nonredundant\) on page 281](#)
- [show chassis environment routing-engine \(Redundant\) on page 281](#)
- [show chassis environment routing-engine \(MX2010 Router\) on page 281](#)
- [show chassis environment routing-engine \(MX2020 Router\) on page 281](#)
- [show chassis environment routing-engine \(TX Matrix Plus Router\) on page 282](#)
- [show chassis environment routing-engine \(T4000 Core Router\) on page 282](#)
- [show chassis environment routing-engine \(QFX Series\) on page 282](#)
- [show chassis environment routing-engine interconnect-device \(QFabric System\) on page 282](#)
- [show chassis environment routing-engine \(PTX5000 Packet Transport Switch\) on page 282](#)

Output Fields Table 14 on page 281 lists the output fields for the **show chassis environment routing-engine** command. Output fields are listed in the approximate order in which they appear.

Table 14: show chassis environment routing-engine Output Fields

Field Name	Field Description
Routing engine slot status	Number of the Routing Engine slot: 0 or 1.
State	Status of the Routing Engine: <ul style="list-style-type: none"> • Online Master—Routing Engine is online, operating as Master. • Online Standby—Routing Engine is online, operating as Standby. • Offline—Routing Engine is offline.
Temperature	Temperature of the air flowing past the Routing Engine.
CPU Temperature	(PTX Series and T4000 Core Routers only) Temperature of the air flowing past the Routing Engine CPU.

Sample Output

```

show chassis environment routing-engine
(Nonredundant)
user@host> show chassis environment routing-engine
Routing Engine 0 status:
  State          Online Master
  Temperature    27 degrees C / 80 degrees

show chassis environment routing-engine
(Redundant)
user@host> show chassis environment routing-engine
Route Engine 0 status:
  State          Online Master
  Temperature    26 degrees C / 78 degrees F
Route Engine 1 status:
  State          Online Standby
  Temperature    26 degrees C / 78 degrees F

show chassis environment routing-engine
(MX2010 Router)
user@host> show chassis environment routing-engine
Routing Engine 0 status:
  State          Online Master
  Temperature    37 degrees C / 98 degrees F
  CPU Temperature 37 degrees C / 98 degrees F
Routing Engine 1 status:
  State          Online Standby
  Temperature    35 degrees C / 95 degrees F
  CPU Temperature 34 degrees C / 93 degrees F

show chassis environment routing-engine
(MX2020 Router)
user@host> show chassis environment routing-engine
Routing Engine 0 status:
  State          Online Master
  Temperature    35 degrees C / 95 degrees F
  CPU Temperature 34 degrees C / 93 degrees F
Routing Engine 1 status:
  State          Online Standby
  Temperature    44 degrees C / 111 degrees F
  CPU Temperature 43 degrees C / 109 degrees F

```

**show chassis
environment
routing-engine (TX
Matrix Plus Router)**

```
user@host> show chassis environment routing-engine
sfc0-re0:
```

```
-----
Routing Engine 0 status:
  State           Online Master
  Temperature      26 degrees C / 78 degrees F
Routing Engine 1 status:
  State           Online Standby
  Temperature      28 degrees C / 82 degrees F
```

```
1cc0-re0:
```

```
-----
Routing Engine 0 status:
  State           Online Master
  Temperature      30 degrees C / 86 degrees F
Routing Engine 1 status:
  State           Online Standby
  Temperature      29 degrees C / 84 degrees F
```

**show chassis
environment
routing-engine (T4000
Core Router)**

```
user@host> show chassis environment routing-engine
```

```
Routing Engine 0 status:
  State           Online Master
  Temperature      33 degrees C / 91 degrees F
  CPU Temperature  50 degrees C / 122 degrees F
Routing Engine 1 status:
  State           Online Standby
  Temperature      33 degrees C / 91 degrees F
  CPU Temperature  46 degrees C / 114 degrees F
```

**show chassis
environment
routing-engine (QFX
Series)**

```
user@switch> show chassis environment routing-engine
```

```
Routing Engine 0 status:
  State           Online Master
  Temperature      42 degrees C / 107 degrees F
```

**show chassis
environment
routing-engine
interconnect-device
(QFabric System)**

```
user@switch> show chassis environment routing-engine interconnect-device interconnect1
routing-engine interconnect-device interconnect1
```

```
Routing Engine 0 status:
  State           Online Standby
  Temperature      52 degrees C / 125 degrees F
Routing Engine 1 status:
  State           Online Master
  Temperature      57 degrees C / 134 degrees F
```

**show chassis
environment
routing-engine
(PTX5000 Packet
Transport Switch)**

```
user@switch> show chassis environment routing-engine
```

```
Routing Engine 0 status:
  State           Online Master
  Temperature      55 degrees C / 131 degrees F
  CPU Temperature  66 degrees C / 150 degrees F
Routing Engine 1 status:
  State           Online Standby
  Temperature      52 degrees C / 125 degrees F
  CPU Temperature  64 degrees C / 147 degrees F
```

show chassis environment scg

Syntax	show chassis environment scg <slot>
Syntax (TX Matrix and TX Matrix Plus Router)	show chassis environment scg <fcc number> <slot>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 12.1 for the T4000 Core Routers.
Description	Display SONET Clock Generator (SCG) environmental information.
Options	<p>none—(TX Matrix and TX Matrix Plus routers only) Display environmental information about all SCGs. On a TX Matrix router, display environmental information about all SCGs on the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display environmental information about all SCGs on the TX Matrix Plus router and its attached T1600 routers.</p> <p>fcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display environmental information about the SCG in a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display environmental information about the SCG in a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>slot—(Optional) Display environmental information about the SCG. Replace <i>slot</i> with 0 or 1.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • request chassis scg on page 142 • Configuring the Clock Source • T320 SONET Clock Generator (SCG) Description
List of Sample Output	show chassis environment scg (T Series Routers) on page 284 show chassis environment scg (T4000 Core Routers) on page 284 show chassis environment scg fcc (TX Matrix Router) on page 285 show chassis environment scg fcc (TX Matrix Plus Router) on page 285 show chassis environment scg (TX Matrix Plus Router) on page 285
Output Fields	Table 15 on page 284 lists the output fields for the show chassis environment scg command. Output fields are listed in the approximate order in which they appear.

Table 15: show chassis environment scg Output Fields

Field Name	Field Description
SCG slot status	Number of the SCG slot: 0 or 1.
State	Status of the SCG: <ul style="list-style-type: none"> • Online—SCG is online and running. • Offline—SCG is powered down. If two SCGs are installed and online, one is functioning as the master, and the other is the standby.
Temperature	Temperature of the air flowing past the SCG.
Power	Power on the SCG. The left column displays required power, in volts. The right column displays measured power, in millivolts.
BUS Revision	Revision level of the generic bus device.

Sample Output

**show chassis
environment scg (T
Series Routers)**

```

user@host> show chassis environment scg
SCG 0 status:
  State                Online - Master clock
  Temperature          29 degrees C / 84 degrees F
  Power:
    GROUND              0 mV
    3.3 V               3297 mV
    5.0 V               5050 mV
    5.6 V               5682 mV
    1.8 V bias          1787 mV
    3.3 V bias          3277 mV
    5.0 V bias          4984 mV
    8.0 V bias          8400 mV
  BUS Revision         40
SCG 1 status:
  State                Online - Standby
  Temperature          28 degrees C / 82 degrees F
  Power:
    GROUND              0 mV
    3.3 V               3317 mV
    5.0 V               5057 mV
    5.6 V               5689 mV
    1.8 V bias          1794 mV
    3.3 V bias          3296 mV
    5.0 V bias          4991 mV
    8.0 V bias          8410 mV
  BUS Revision         40

```

**show chassis
environment scg
(T4000 Core Routers)**

```

user@host> show chassis environment scg
SCG 0 status:
  State                Online - Master clock
  Temperature          33 degrees C / 91 degrees F
  Power
    GROUND              0 mV

```

```

1.8 V bias      1794 mV
3.3 V          3310 mV
3.3 V bias     3299 mV
5.0 V          5040 mV
5.0 V bias     5003 mV
5.6 V          5780 mV
8.0 V bias     7416 mV
Bus Revision    40
SCG 1 status:
State           Online - Standby
Temperature     33 degrees C / 91 degrees F
Power
GROUND         0 mV
1.8 V bias     1794 mV
3.3 V          3319 mV
3.3 V bias     3286 mV
5.0 V          5047 mV
5.0 V bias     5013 mV
5.6 V          5758 mV
8.0 V bias     7347 mV
Bus Revision    40

```

show chassis environment scg lcc
(TX Matrix Router)

```

user@host> show chassis environment scg lcc 0 0
lcc0-re0:
-----
SCG 0 status:
State           Online - Master clock
Temperature     30 degrees C / 86 degrees F
Power:
GROUND         0 mV
3.3 V          3321 mV
5.0 V          5062 mV
5.6 V          5682 mV
1.8 V bias     1789 mV
3.3 V bias     3289 mV
5.0 V bias     4993 mV
8.0 V bias     7807 mV
BUS Revision    40

```

show chassis environment scg lcc
(TX Matrix Plus Router)

```

user@host> show chassis environment scg lcc 0
lcc0-re0:
-----
SCG 0 status:
State           Online - Master clock
Temperature     42 degrees C / 107 degrees F
Power
GROUND         0 mV
1.8 V bias     1800 mV
3.3 V          3290 mV
3.3 V bias     3304 mV
5.0 V          5042 mV
5.0 V bias     4979 mV
5.6 V          5765 mV
8.0 V bias     7682 mV
Bus Revision    40

```

show chassis environment scg
lcc0-re0:

(TX Matrix Plus Router) SCG 0 status:

State	Online - Master clock
Temperature	40 degrees C / 104 degrees F
Power	
GROUND	0 mV
1.8 V bias	1800 mV
3.3 V	3291 mV
3.3 V bias	3304 mV
5.0 V	5042 mV
5.0 V bias	4979 mV
5.6 V	5765 mV
8.0 V bias	7643 mV
Bus Revision	40

lcc1-re0:

SCG 0 status:

State	Online - Master clock
Temperature	37 degrees C / 98 degrees F
Power	
GROUND	0 mV
1.8 V bias	1788 mV
3.3 V	3305 mV
3.3 V bias	3284 mV
5.0 V	5042 mV
5.0 V bias	5010 mV
5.6 V	5748 mV
8.0 V bias	7692 mV
Bus Revision	40

lcc2-re0:

SCG 0 status:

State	Online - Master clock
Temperature	39 degrees C / 102 degrees F
Power	
GROUND	0 mV
1.8 V bias	1785 mV
3.3 V	3306 mV
3.3 V bias	3301 mV
5.0 V	5045 mV
5.0 V bias	4993 mV
5.6 V	5765 mV
8.0 V bias	7838 mV
Bus Revision	40

lcc3-re0:

SCG 0 status:

State	Online - Master clock
Temperature	39 degrees C / 102 degrees F
Power	
GROUND	0 mV
1.8 V bias	1800 mV
3.3 V	3290 mV
3.3 V bias	3294 mV
5.0 V	5050 mV
5.0 V bias	4984 mV
5.6 V	5780 mV
8.0 V bias	7716 mV
Bus Revision	40

show chassis environment sib

Syntax	show chassis environment sib <slot>
Syntax (TX Matrix Router)	show chassis environment sib <lcc number scc> <slot>
Syntax (TX Matrix Plus Router)	show chassis environment sib <lcc number sfc number> <slot> <f13 sib-slot> <f2s sib-slot/sib-f2s-slot-number>
Release Information	Command introduced before Junos OS Release 7.4. sfc option introduced in Junos OS Release 9.6. for the TX Matrix Plus router. Command introduced in Junos OS 12.1 for the PTX Series Packet Transport Switches. Command introduced in Junos OS 12.1 for the T4000 Core Routers.
Description	(M320, T Series, TX Matrix, and TX Matrix Plus routers, and PTX Packet Transport Switches only) Display Switch Interface Boards (SIB) environmental information.
Options	<p>none—Display environmental information about all SIBs. On a TX Matrix router, display environmental information about all SIBs on the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display environmental information about all SIBs on the TX Matrix Plus router and its attached T1600 routers.</p> <p>f13 sib-slot—(TX Matrix Plus routers only) (Optional) Display SIB F13 environmental information only. Replace sib-slot with one of the following values: 0, 1, 3, 4, 6, 7, 8, 9, 11, or 12. (Slots 2, 5, 10, 13, 14, and 15 are unused).</p> <p>f2s sib-slot/sib-f2s-slot-number—(TX Matrix Plus routers only) (Optional) Display SIB F2s environmental information only. Replace sib-slot with a value from 0 through 4, followed by a sib-f2s-slot-number value of 0, 2, 4 or 6.</p> <p>lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display environmental information about the SIB in a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display environmental information about the SIB in a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace number with a value from 0 through 4.</p> <p>scc—(TX Matrix routers only) (Optional) Display environmental information about the SIB in the TX Matrix router (or switch-card chassis).</p> <p>sfc—(TX Matrix Plus routers only) (Optional) Display environmental information about the SIB in the TX Matrix Plus router (or switch-fabric chassis).</p> <p>slot—(Optional) Display environmental information about the specified SIB. For the M320 router, replace slot with a value from 0 through 3. For the T640, T1600, T4000, and</p>

TX Matrix routers, replace **slot** with a value from **0** through **4**. For the TX Matrix Plus router, see **f13 sib-slot** and **f2s sib-slot/sib-f2s-slot-number**. For the T320 router, replace **slot** with a value from **0** through **2**. For the PTX5000 Packet Transport Switch, replace **slot** with a value from **0** through **8**.

Required Privilege Level view

- Related Documentation**
- [request chassis sib on page 143](#)
 - [show chassis sibs on page 601](#)
 - Configuring the Junos OS to Upgrade and Downgrade Switch Interface Boards on a TX Matrix Router
 - M320 SIB Description

List of Sample Output

- [show chassis environment sib \(M320 Router\) on page 290](#)
- [show chassis environment sib 1 \(T640 Router\) on page 291](#)
- [show chassis environment sib 1 \(T4000 Router\) on page 291](#)
- [show chassis environment sib scc \(TX Matrix Router\) on page 292](#)
- [show chassis environment sib \(TX Matrix Plus Router\) on page 292](#)
- [show chassis environment sib sfc \(TX Matrix Plus Router\) on page 302](#)
- [show chassis environment sib f13 \(TX Matrix Plus Router\) on page 307](#)
- [show chassis environment sib f2s \(TX Matrix Plus Router\) on page 308](#)
- [show chassis environment sib \(PTX5000 Packet Transport Switch\) on page 308](#)

Output Fields Table 16 on page 289 lists the output fields for the **show chassis environment sib** command. Output fields are listed in the approximate order in which they appear.

Table 16: show chassis environment sib Output Fields

Field Name	Field Description
SIB slot status	<p>SIB slot number:</p> <ul style="list-style-type: none"> • 0 through 3 on an M320 router. • 0 or 2 on a T320 router. • 0 through 4 on a T640, T1600, T4000, or TX Matrix router. • 0, 1, 3, 4, 6, 7, 8, 9, 11, or 12 for F13 SIBs on a TX Matrix Plus router. (Slots 2, 5, 10, 13, 14, and 15 are unused). • 0 through 4, followed by 0, 2, 4, or 6 for F2S SIBs on a TX Matrix Plus router. For example, SIB F2S 0/4. • 0 through 8 on a PTX5000 Packet Transport Switch.

Table 16: show chassis environment sib Output Fields (*continued*)

Field Name	Field Description
State	<p>Status of the SIB:</p> <ul style="list-style-type: none"> • Online—SIB is online and running. • Offline—SIB is powered down. • Spare (T640, T1600, T4000, and TX Matrix routers only)—SIB is redundant and will move to active state if one of the working SIBs fails. <p>Only four of the SIBs are active at any time. The fifth one is marked Spare. It is activated if there is a fault on one of the active SIBs.</p> <p>Online standby (TX Matrix Plus router only).</p>
Temperature	<p>Temperature of the air flowing past the SIB.</p> <p>On PTX Series Packet Transport Switches, separate temperatures are displayed for Intake, Exhaust, and Junction.</p>
Power	<p>Information about the voltage supplied to the SIB. The left column displays the required power, in volts. The right column displays the measured power, in millivolts.</p>

Sample Output

```

show chassis environment sib (M320 Router)
user@host> show chassis environment sib
SIB 0 status:
  State          Online
  Temperature    34 degrees C / 93 degrees F
  Power:
    GROUND        0 mV
    1.8 V         1805 mV
    2.5 V         2498 mV
    3.3 V         3306 mV
    1.8 V bias    1789 mV
    3.3 V bias    3299 mV
    5.0 V bias    5003 mV
    8.0 V bias    7374 mV
SIB 1 status:
  State          Online
  Temperature    35 degrees C / 95 degrees F
  Power:
    GROUND        0 mV
    1.8 V         1814 mV
    2.5 V         2477 mV
    3.3 V         3319 mV
    1.8 V bias    1792 mV
    3.3 V bias    3291 mV
    5.0 V bias    4981 mV
    8.0 V bias    7335 mV
SIB 2 status:
  State          Online
  Temperature    33 degrees C / 91 degrees F
  Power:
    GROUND        0 mV
    1.8 V         1811 mV
    2.5 V         2489 mV

```

```

3.3 V          3330 mV
1.8 V bias     1797 mV
3.3 V bias     3304 mV
5.0 V bias     5025 mV
8.0 V bias     7330 mV
SIB 3 status:
State          Online
Temperature    37 degrees C / 98 degrees F
Power:
GROUND        0 mV
1.8 V         1798 mV
2.5 V         2481 mV
3.3 V         3328 mV
1.8 V bias    1792 mV
3.3 V bias    3313 mV
5.0 V bias    5013 mV
8.0 V bias    7467 mV

```

```

show chassis environment sib 1
(T640 Router)
user@host> show chassis environment sib 1
SIB 1 status:
State          Online
Temperature    39 degrees C / 102 degrees F
Power:
GROUND        0 mV
1.8 V         1809 mV
2.5 V         2478 mV
3.3 V         3308 mV
1.8 V bias    1794 mV
3.3 V bias    3274 mV
5.0 V bias    4996 mV
8.0 V bias    7247 mV

```

```

show chassis environment sib 1
(T4000 Router)
user@host> show chassis environment sib 1
SIB 1 status:
State          Online
Temperature    42 degrees C / 107 degrees F
Power
8.0 V bias     8100 mV
3.3 V bias     3284 mV
0.9 V bias     904 mV
1.1 V bias     1090 mV
1.5 V bias     1488 mV
2.5 V bias     2504 mV
9.0 V          8940 mV
3.3 V          3288 mV
XF0 1.0 V      998 mV
XF0 1.0 V LDO  994 mV
PCIE SW 1.0 V  990 mV
XF0 1.8 V      1788 mV
XF1 1.0 V      1002 mV
XF2 1.0 V      1002 mV
XF3 1.0 V      998 mV
1.2 V          1194 mV
XF1 1.0 V LDO  1000 mV
XF2 1.0 V LDO  998 mV
XF3 1.0 V LDO  998 mV
XF1 1.8 V      1798 mV
XF2 1.8 V      1800 mV
XF3 1.8 V      1794 mV
1.5 V          1488 mV
SW 3.3 V       3320 mV

```

```

show chassis environment sib scc
(TX Matrix Router)
user@host> show chassis environment sib scc
scc-re0:
-----
SIB 3 status:
State                Offline
Reason               Offlined by button press
Temperature           0 degrees C / 32 degrees F
Power:
  GROUND              0 mV
  1.8 V               0 mV
  2.5 V               0 mV
  3.3 V               0 mV
  1.8 V bias          0 mV
  3.3 V bias          0 mV
  5.0 V bias          0 mV
  8.0 V bias          0 mV
SIB 4 status:
State                Online
Temperature           42 degrees C / 107 degrees F
Temperature (B)       41 degrees C / 105 degrees F
Power:
  GROUND              0 mV
  1.8 V               1787 mV
  2.5 V               2488 mV
  3.3 V               3294 mV
  1.8 V bias          1787 mV
  3.3 V bias          3306 mV
  5.0 V bias          5010 mV
  8.0 V bias          7418 mV
Power (B):
  GROUND              0 mV
  1.8 V               1785 mV
  2.5 V               2485 mV
  3.3 V               3289 mV
  1.8 V bias          1799 mV
  3.3 V bias          3284 mV
  5.0 V bias          4979 mV
  8.0 V bias          7882 mV

```

```

show chassis environment sib
(TX Matrix Plus Router)
user@host> show chassis environment sib
sfc0-re0:
-----
SIB F13 0 status:
State                Online - Standby
Temperature           54 degrees C / 129 degrees F
Temperature (B)       50 degrees C / 122 degrees F
Power:
  1.2 V_0             1205 mV
  1.2 V_1             1202 mV
  1.2 V_2             1205 mV
  1.2 V_3             1208 mV
  1.5 V_0             1501 mV
  1.5 V_1             1508 mV
  1.8 V               1798 mV
  2.5 V               2510 mV
  3.3 V               3312 mV
  9.0 V               8991 mV
  9.0 V bias          0 mV
Power (B)
  2.5 V               2510 mV

```

```

3.3 V          3318 mV
9.0 V          9024 mV
SIB F13 1 status:
State          Online - Standby
Temperature    45 degrees C / 113 degrees F
Temperature (B) 42 degrees C / 107 degrees F
Power
1.2 V_0       1202 mV
1.2 V_1       1198 mV
1.2 V_2       1202 mV
1.2 V_3       1202 mV
1.5 V_0       1498 mV
1.5 V_1       1501 mV
1.8 V         1811 mV
2.5 V         2504 mV
3.3 V         3292 mV
9.0 V         8991 mV
9.0 V bias    0 mV
Power (B)
2.5 V         2507 mV
3.3 V         3306 mV
9.0 V         8970 mV
SIB F13 3 status:
State          Online
Temperature    48 degrees C / 118 degrees F
Temperature (B) 44 degrees C / 111 degrees F
Power
1.2 V_0       1205 mV
1.2 V_1       1202 mV
1.2 V_2       1202 mV
1.2 V_3       1202 mV
1.5 V_0       1508 mV
1.5 V_1       1504 mV
1.8 V         1798 mV
2.5 V         2520 mV
3.3 V         3300 mV
9.0 V         9009 mV
9.0 V bias    0 mV
Power (B)
2.5 V         2504 mV
3.3 V         3312 mV
9.0 V         9006 mV
SIB F13 4 status:
State          Online
Temperature    44 degrees C / 111 degrees F
Temperature (B) 40 degrees C / 104 degrees F
Power
1.2 V_0       1205 mV
1.2 V_1       1205 mV
1.2 V_2       1202 mV
1.2 V_3       1205 mV
1.5 V_0       1508 mV
1.5 V_1       1508 mV
1.8 V         1811 mV
2.5 V         2510 mV
3.3 V         3312 mV
9.0 V         8970 mV
9.0 V bias    0 mV
Power (B)
2.5 V         2513 mV
3.3 V         3318 mV

```

9.0 V	9048 mV
SIB F13 6 status:	
State	Online
Temperature	50 degrees C / 122 degrees F
Temperature (B)	46 degrees C / 114 degrees F
Power	
1.2 V_0	1195 mV
1.2 V_1	1205 mV
1.2 V_2	1202 mV
1.2 V_3	1202 mV
1.5 V_0	1495 mV
1.5 V_1	1495 mV
1.8 V	1801 mV
2.5 V	2494 mV
3.3 V	3300 mV
9.0 V	8991 mV
9.0 V bias	0 mV
Power (B)	
2.5 V	2500 mV
3.3 V	3300 mV
9.0 V	9006 mV
SIB F13 7 status:	
State	Online
Temperature	52 degrees C / 125 degrees F
Temperature (B)	49 degrees C / 120 degrees F
Power	
1.2 V_0	1202 mV
1.2 V_1	1202 mV
1.2 V_2	1198 mV
1.2 V_3	1185 mV
1.5 V_0	1501 mV
1.5 V_1	1492 mV
1.8 V	1795 mV
2.5 V	2491 mV
3.3 V	3286 mV
9.0 V	8892 mV
9.0 V bias	0 mV
Power (B)	
2.5 V	2507 mV
3.3 V	3306 mV
9.0 V	8952 mV
SIB F13 8 status:	
State	Online
Temperature	55 degrees C / 131 degrees F
Temperature (B)	50 degrees C / 122 degrees F
Power	
1.2 V_0	1208 mV
1.2 V_1	1205 mV
1.2 V_2	1205 mV
1.2 V_3	1211 mV
1.5 V_0	1514 mV
1.5 V_1	1508 mV
1.8 V	1807 mV
2.5 V	2516 mV
3.3 V	3324 mV
9.0 V	9027 mV
9.0 V bias	0 mV
Power (B)	
2.5 V	2520 mV
3.3 V	3318 mV
9.0 V	9066 mV

```

SIB F13 9 status:
State                               Online
Temperature                         46 degrees C / 114 degrees F
Temperature (B)                     41 degrees C / 105 degrees F
Power
  1.2 V_0                           1208 mV
  1.2 V_1                           1202 mV
  1.2 V_2                           1208 mV
  1.2 V_3                           1202 mV
  1.5 V_0                           1504 mV
  1.5 V_1                           1504 mV
  1.8 V                             1817 mV
  2.5 V                             2516 mV
  3.3 V                             3312 mV
  9.0 V                             9009 mV
  9.0 V bias                         0 mV
Power (B)
  2.5 V                             2510 mV
  3.3 V                             3312 mV
  9.0 V                             9024 mV
SIB F13 11 status:
State                               Online
Temperature                         47 degrees C / 116 degrees F
Temperature (B)                     42 degrees C / 107 degrees F
Power
  1.2 V_0                           1202 mV
  1.2 V_1                           1205 mV
  1.2 V_2                           1202 mV
  1.2 V_3                           1202 mV
  1.5 V_0                           1501 mV
  1.5 V_1                           1501 mV
  1.8 V                             1801 mV
  2.5 V                             2510 mV
  3.3 V                             3312 mV
  9.0 V                             8979 mV
  9.0 V bias                         0 mV
Power (B)
  2.5 V                             2252 mV
  3.3 V                             5014 mV
  9.0 V                             9954 mV
SIB F13 12 status:
State                               Online
Temperature                         45 degrees C / 113 degrees F
Temperature (B)                     40 degrees C / 104 degrees F
Power
  1.2 V_0                           1211 mV
  1.2 V_1                           1208 mV
  1.2 V_2                           1205 mV
  1.2 V_3                           1205 mV
  1.5 V_0                           1511 mV
  1.5 V_1                           1501 mV
  1.8 V                             1817 mV
  2.5 V                             2504 mV
  3.3 V                             3318 mV
  9.0 V                             9027 mV
  9.0 V bias                         0 mV
Power (B)
  2.5 V                             2520 mV
  3.3 V                             3338 mV
  9.0 V                             9006 mV
SIB F2S 0/0 status:

```

State	Online - Standby
Temperature	40 degrees C / 104 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1198 mV
1.2 V_ASF_B	1198 mV
1.2 V_ASF_D	1202 mV
1.5 V	1498 mV
1.8 V	1814 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3286 mV
9.0 V	8250 mV
SIB F2S 0/2 status:	
State	Online - Standby
Temperature	40 degrees C / 104 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1198 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1202 mV
1.5 V	1498 mV
1.8 V	1807 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3286 mV
9.0 V	8250 mV
SIB F2S 0/4 status:	
State	Online - Standby
Temperature	40 degrees C / 104 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1202 mV
1.2 V_ASF_B	1198 mV
1.2 V_ASF_D	1202 mV
1.5 V	1504 mV
1.8 V	1817 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3306 mV
9.0 V	8250 mV
SIB F2S 0/6 status:	
State	Online - Standby
Temperature	39 degrees C / 102 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1202 mV
1.2 V_ASF_B	1198 mV
1.2 V_ASF_D	1202 mV
1.5 V	1495 mV
1.8 V	1814 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3280 mV
9.0 V	8250 mV
SIB F2S 1/0 status:	
State	Online
Temperature	39 degrees C / 102 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1195 mV

```

1.2 V_ASF_B          1192 mV
1.2 V_ASF_D          1195 mV
1.5 V                1488 mV
1.8 V                1798 mV
3.3 V                3300 mV
3.3 V bias           3300 mV
3.3 V ASF            3280 mV
9.0 V                8250 mV
SIB F2S 1/2 status:
State                Online
Temperature          39 degrees C / 102 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1205 mV
  1.2 V_ASF_B        1202 mV
  1.2 V_ASF_D        1205 mV
  1.5 V              1501 mV
  1.8 V              1820 mV
  3.3 V              3300 mV
  3.3 V bias         3300 mV
  3.3 V ASF          3306 mV
  9.0 V              8250 mV
SIB F2S 1/4 status:
State                Online
Temperature          39 degrees C / 102 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1198 mV
  1.2 V_ASF_B        1195 mV
  1.2 V_ASF_D        1195 mV
  1.5 V              1498 mV
  1.8 V              1811 mV
  3.3 V              3300 mV
  3.3 V bias         3300 mV
  3.3 V ASF          3300 mV
  9.0 V              8250 mV
SIB F2S 1/6 status:
State                Online
Temperature          39 degrees C / 102 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1195 mV
  1.2 V_ASF_B        1195 mV
  1.2 V_ASF_D        1198 mV
  1.5 V              1498 mV
  1.8 V              1807 mV
  3.3 V              3306 mV
  3.3 V bias         3300 mV
  3.3 V ASF          3292 mV
  9.0 V              8250 mV
SIB F2S 2/0 status:
State                Online
Temperature          39 degrees C / 102 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1195 mV
  1.2 V_ASF_B        1195 mV
  1.2 V_ASF_D        1198 mV
  1.5 V              1498 mV
  1.8 V              1804 mV
  3.3 V              3300 mV

```

3.3 V bias	3300 mV
3.3 V ASF	3286 mV
9.0 V	8250 mV
SIB F2S 2/2 status:	
State	Online
Temperature	38 degrees C / 100 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1195 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1198 mV
1.5 V	1495 mV
1.8 V	1807 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3300 mV
9.0 V	8250 mV
SIB F2S 2/4 status:	
State	Online
Temperature	38 degrees C / 100 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1198 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1198 mV
1.5 V	1501 mV
1.8 V	1804 mV
3.3 V	3286 mV
3.3 V bias	3292 mV
3.3 V ASF	3300 mV
9.0 V	8230 mV
SIB F2S 2/6 status:	
State	Online
Temperature	38 degrees C / 100 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1202 mV
1.2 V_ASF_B	1198 mV
1.2 V_ASF_D	1202 mV
1.5 V	1501 mV
1.8 V	1817 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3318 mV
9.0 V	8250 mV
SIB F2S 3/0 status:	
State	Online
Temperature	38 degrees C / 100 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1195 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1198 mV
1.5 V	1501 mV
1.8 V	1814 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3274 mV
9.0 V	8250 mV
SIB F2S 3/2 status:	
State	Online

```

Temperature          37 degrees C / 98 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1202 mV
  1.2 V_ASF_B        1195 mV
  1.2 V_ASF_D        1195 mV
  1.5 V              1495 mV
  1.8 V              1804 mV
  3.3 V              3300 mV
  3.3 V bias         3300 mV
  3.3 V ASF          3286 mV
  9.0 V              8250 mV
SIB F2S 3/4 status:
State                Online
Temperature          37 degrees C / 98 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1205 mV
  1.2 V_ASF_B        1198 mV
  1.2 V_ASF_D        1202 mV
  1.5 V              1501 mV
  1.8 V              1811 mV
  3.3 V              3300 mV
  3.3 V bias         3300 mV
  3.3 V ASF          3318 mV
  9.0 V              8250 mV
SIB F2S 3/6 status:
State                Online
Temperature          37 degrees C / 98 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1205 mV
  1.2 V_ASF_B        1202 mV
  1.2 V_ASF_D        1202 mV
  1.5 V              1511 mV
  1.8 V              1820 mV
  3.3 V              3306 mV
  3.3 V bias         3306 mV
  3.3 V ASF          3318 mV
  9.0 V              8265 mV
SIB F2S 4/0 status:
State                Online
Temperature          36 degrees C / 96 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1198 mV
  1.2 V_ASF_B        1198 mV
  1.2 V_ASF_D        1198 mV
  1.5 V              1501 mV
  1.8 V              1814 mV
  3.3 V              3292 mV
  3.3 V bias         3292 mV
  3.3 V ASF          3312 mV
  9.0 V              8230 mV
SIB F2S 4/2 status:
State                Online
Temperature          37 degrees C / 98 degrees F
Power
  1.2 V_1            0 mV
  1.2 V_ASF          1198 mV
  1.2 V_ASF_B        1192 mV

```

1.2 V_ASF_D	1195 mV
1.5 V	1495 mV
1.8 V	1807 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3300 mV
9.0 V	8250 mV

SIB F2S 4/4 status:

State	Online
Temperature	36 degrees C / 96 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1202 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1202 mV
1.5 V	1501 mV
1.8 V	1814 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3312 mV
9.0 V	8250 mV

SIB F2S 4/6 status:

State	Online
Temperature	36 degrees C / 96 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1198 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1198 mV
1.5 V	1498 mV
1.8 V	1820 mV
3.3 V	3292 mV
3.3 V bias	3292 mV
3.3 V ASF	3286 mV
9.0 V	8230 mV

lcc0-re0:

SIB 0 status:

State	Online - Standby
Temperature	49 degrees C / 120 degrees F
Temperature (B)	42 degrees C / 107 degrees F
Power	
1.2 V	1204 mV
1.5 V	1484 mV
2.5 V	2500 mV
3.3 V	3312 mV
3.3 V bias	3312 mV
5.0 V bias	4956 mV
8.0 V bias	7740 mV
9.0 V	8880 mV
Power (B)	
1.2 V	1206 mV
2.5 V	2500 mV
3.3 V	3316 mV
9.0 V	8988 mV

SIB 1 status:

State	Online
Temperature	49 degrees C / 120 degrees F
Temperature (B)	42 degrees C / 107 degrees F
Power	

1.2 V	1202 mV
1.5 V	1482 mV
2.5 V	2500 mV
3.3 V	3296 mV
3.3 V bias	3288 mV
5.0 V bias	4986 mV
8.0 V bias	7800 mV
9.0 V	8868 mV
Power (B)	
1.2 V	1206 mV
2.5 V	2512 mV
3.3 V	3312 mV
9.0 V	8952 mV
SIB 2 status:	
State	Online
Temperature	49 degrees C / 120 degrees F
Temperature (B)	42 degrees C / 107 degrees F
Power	
1.2 V	1202 mV
1.5 V	1480 mV
2.5 V	2476 mV
3.3 V	3292 mV
3.3 V bias	3308 mV
5.0 V bias	5010 mV
8.0 V bias	7800 mV
9.0 V	8880 mV
Power (B)	
1.2 V	1204 mV
2.5 V	2516 mV
3.3 V	3308 mV
9.0 V	8988 mV
SIB 3 status:	
State	Online
Temperature	48 degrees C / 118 degrees F
Temperature (B)	42 degrees C / 107 degrees F
Power	
1.2 V	1204 mV
1.5 V	1480 mV
2.5 V	2500 mV
3.3 V	3292 mV
3.3 V bias	3292 mV
5.0 V bias	4986 mV
8.0 V bias	7812 mV
9.0 V	8892 mV
Power (B)	
1.2 V	1198 mV
2.5 V	2512 mV
3.3 V	3308 mV
9.0 V	8892 mV
SIB 4 status:	
State	Online
Temperature	48 degrees C / 118 degrees F
Temperature (B)	42 degrees C / 107 degrees F
Power	
1.2 V	1206 mV
1.5 V	1482 mV
2.5 V	2484 mV
3.3 V	3324 mV
3.3 V bias	3340 mV
5.0 V bias	4980 mV
8.0 V bias	7764 mV

**show chassis
environment sib sfc
(TX Matrix Plus
Router)**

```

          9.0 V                8784 mV
Power (B)
          1.2 V                1202 mV
          2.5 V                2504 mV
          3.3 V                3308 mV
          9.0 V                8820 mV
lcc1-re0:
-----
SIB 0 status:
State                Online - Standby
Temperature           49 degrees C / 120 degrees F
Temperature (B)       43 degrees C / 109 degrees F
Power
  1.2 V              1206 mV
  1.5 V              1506 mV
  2.5 V              2496 mV
  3.3 V              3308 mV
  3.3 V bias         3296 mV
  5.0 V bias         4974 mV
  8.0 V bias         7884 mV
  9.0 V              8820 mV
Power (B)
  1.2 V              1200 mV
  2.5 V              2508 mV
  3.3 V              3292 mV
  9.0 V              8892 mV
...

```

```

user@host> show chassis environment sib sfc
sfc0-re0:
-----
SIB F13 0 status:
State                Online - Standby
Temperature           54 degrees C / 129 degrees F
Temperature (B)       50 degrees C / 122 degrees F
Power
  1.2 V_0            1205 mV
  1.2 V_1            1205 mV
  1.2 V_2            1208 mV
  1.2 V_3            1208 mV
  1.5 V_0            1501 mV
  1.5 V_1            1508 mV
  1.8 V              1804 mV
  2.5 V              2504 mV
  3.3 V              3312 mV
  9.0 V              8991 mV
  9.0 V bias         0 mV
Power (B)
  2.5 V              2516 mV
  3.3 V              3318 mV
  9.0 V              9048 mV
SIB F13 1 status:
State                Online - Standby
Temperature           45 degrees C / 113 degrees F
Temperature (B)       42 degrees C / 107 degrees F
Power
  1.2 V_0            1202 mV
  1.2 V_1            1205 mV
  1.2 V_2            1198 mV
  1.2 V_3            1205 mV
  1.5 V_0            1498 mV

```

```

1.5 V_1          1495 mV
1.8 V            1801 mV
2.5 V            2507 mV
3.3 V            3306 mV
9.0 V            8970 mV
9.0 V bias      0 mV
Power (B)
2.5 V            2507 mV
3.3 V            3306 mV
9.0 V            8970 mV
SIB F13 3 status:
State            Online
Temperature       48 degrees C / 118 degrees F
Temperature (B)   43 degrees C / 109 degrees F
Power
1.2 V_0          1208 mV
1.2 V_1          1195 mV
1.2 V_2          1202 mV
1.2 V_3          1198 mV
1.5 V_0          1504 mV
1.5 V_1          1504 mV
1.8 V            1801 mV
2.5 V            2510 mV
3.3 V            3312 mV
9.0 V            8970 mV
9.0 V bias      0 mV
Power (B)
2.5 V            2500 mV
3.3 V            3332 mV
9.0 V            8970 mV
SIB F13 4 status:
State            Online
Temperature       44 degrees C / 111 degrees F
Temperature (B)   40 degrees C / 104 degrees F
Power
1.2 V_0          1205 mV
1.2 V_1          1202 mV
1.2 V_2          1205 mV
1.2 V_3          1202 mV
1.5 V_0          1508 mV
1.5 V_1          1511 mV
1.8 V            1811 mV
2.5 V            2510 mV
3.3 V            3312 mV
9.0 V            8952 mV
9.0 V bias      0 mV
Power (B)
2.5 V            2510 mV
3.3 V            3306 mV
9.0 V            9024 mV
SIB F13 6 status:
State            Online
Temperature       49 degrees C / 120 degrees F
Temperature (B)   46 degrees C / 114 degrees F
Power
1.2 V_0          1195 mV
1.2 V_1          1198 mV
1.2 V_2          1202 mV
1.2 V_3          1202 mV
1.5 V_0          1501 mV
1.5 V_1          1495 mV

```

1.8 V	1801 mV
2.5 V	2507 mV
3.3 V	3306 mV
9.0 V	8979 mV
9.0 V bias	0 mV
Power (B)	
2.5 V	2497 mV
3.3 V	3318 mV
9.0 V	9006 mV

SIB F13 7 status:

State	Online
Temperature	52 degrees C / 125 degrees F
Temperature (B)	48 degrees C / 118 degrees F
Power	
1.2 V_0	1198 mV
1.2 V_1	1198 mV
1.2 V_2	1202 mV
1.2 V_3	1189 mV
1.5 V_0	1498 mV
1.5 V_1	1498 mV
1.8 V	1804 mV
2.5 V	2491 mV
3.3 V	3292 mV
9.0 V	8904 mV
9.0 V bias	0 mV
Power (B)	
2.5 V	2500 mV
3.3 V	3306 mV
9.0 V	8952 mV

SIB F13 8 status:

State	Online
Temperature	54 degrees C / 129 degrees F
Temperature (B)	49 degrees C / 120 degrees F
Power	
1.2 V_0	1211 mV
1.2 V_1	1208 mV
1.2 V_2	1208 mV
1.2 V_3	1211 mV
1.5 V_0	1508 mV
1.5 V_1	1511 mV
1.8 V	1801 mV
2.5 V	2513 mV
3.3 V	3324 mV
9.0 V	9048 mV
9.0 V bias	0 mV
Power (B)	
2.5 V	2516 mV
3.3 V	3318 mV
9.0 V	9102 mV

SIB F13 9 status:

State	Online
Temperature	46 degrees C / 114 degrees F
Temperature (B)	41 degrees C / 105 degrees F
Power	
1.2 V_0	1205 mV
1.2 V_1	1202 mV
1.2 V_2	1205 mV
1.2 V_3	1198 mV
1.5 V_0	1504 mV
1.5 V_1	1504 mV
1.8 V	1817 mV

```

2.5 V          2507 mV
3.3 V          3306 mV
9.0 V          8991 mV
9.0 V bias     0 mV
Power (B)
2.5 V          2510 mV
3.3 V          3332 mV
9.0 V          9006 mV
SIB F13 11 status:
State          Online
Temperature     47 degrees C / 116 degrees F
Temperature (B) 42 degrees C / 107 degrees F
Power
1.2 V_0        1202 mV
1.2 V_1        1205 mV
1.2 V_2        1202 mV
1.2 V_3        1198 mV
1.5 V_0        1501 mV
1.5 V_1        1504 mV
1.8 V          1807 mV
2.5 V          2510 mV
3.3 V          3306 mV
9.0 V          8991 mV
9.0 V bias     0 mV
Power (B)
2.5 V          2249 mV
3.3 V          4994 mV
9.0 V          9936 mV
SIB F13 12 status:
State          Online
Temperature     44 degrees C / 111 degrees F
Temperature (B) 40 degrees C / 104 degrees F
Power
1.2 V_0        1208 mV
1.2 V_1        1202 mV
1.2 V_2        1208 mV
1.2 V_3        1205 mV
1.5 V_0        1511 mV
1.5 V_1        1508 mV
1.8 V          1814 mV
2.5 V          2507 mV
3.3 V          3318 mV
9.0 V          9039 mV
9.0 V bias     0 mV
Power (B)
2.5 V          2516 mV
3.3 V          3344 mV
9.0 V          9006 mV
SIB F2S 0/0 status:
State          Online - Standby
Temperature     40 degrees C / 104 degrees F
Power
1.2 V_1        0 mV
1.2 V_ASF      1198 mV
1.2 V_ASF_B    1198 mV
1.2 V_ASF_D    1202 mV
1.5 V          1498 mV
1.8 V          1814 mV
3.3 V          3300 mV
3.3 V bias     3300 mV
3.3 V ASF      3286 mV

```

9.0 V	8250 mV
SIB F2S 0/2 status:	
State	Online - Standby
Temperature	40 degrees C / 104 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1198 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1202 mV
1.5 V	1498 mV
1.8 V	1807 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3292 mV
9.0 V	8250 mV
SIB F2S 0/4 status:	
State	Online - Standby
Temperature	40 degrees C / 104 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1198 mV
1.2 V_ASF_B	1195 mV
1.2 V_ASF_D	1202 mV
1.5 V	1501 mV
1.8 V	1817 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3306 mV
9.0 V	8250 mV
SIB F2S 0/6 status:	
State	Online - Standby
Temperature	39 degrees C / 102 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1202 mV
1.2 V_ASF_B	1198 mV
1.2 V_ASF_D	1198 mV
1.5 V	1495 mV
1.8 V	1814 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3280 mV
9.0 V	8250 mV
SIB F2S 1/0 status:	
State	Online
Temperature	39 degrees C / 102 degrees F
Power	
1.2 V_1	0 mV
1.2 V_ASF	1195 mV
1.2 V_ASF_B	1192 mV
1.2 V_ASF_D	1195 mV
1.5 V	1492 mV
1.8 V	1798 mV
3.3 V	3300 mV
3.3 V bias	3300 mV
3.3 V ASF	3280 mV
9.0 V	8250 mV
SIB F2S 1/2 status:	
State	Online
Temperature	39 degrees C / 102 degrees F
Power	

```

1.2 V_1                0 mV
1.2 V_ASF              1205 mV
1.2 V_ASF_B            1202 mV
1.2 V_ASF_D            1205 mV
1.5 V                  1504 mV
1.8 V                  1820 mV
3.3 V                  3300 mV
3.3 V bias             3300 mV
3.3 V ASF              3306 mV
9.0 V                  8250 mV
SIB F2S 1/4 status:
State                  Online
Temperature            39 degrees C / 102 degrees F
Power
1.2 V_1                0 mV
1.2 V_ASF              1202 mV
1.2 V_ASF_B            1195 mV
1.2 V_ASF_D            1198 mV
1.5 V                  1498 mV
1.8 V                  1811 mV
3.3 V                  3300 mV
3.3 V bias             3300 mV
3.3 V ASF              3300 mV
9.0 V                  8250 mV
SIB F2S 1/6 status:
State                  Online
Temperature            39 degrees C / 102 degrees F
Power
1.2 V_1                0 mV
1.2 V_ASF              1195 mV
1.2 V_ASF_B            1192 mV
1.2 V_ASF_D            1198 mV
1.5 V                  1498 mV
1.8 V                  1807 mV
3.3 V                  3306 mV
3.3 V bias             3300 mV
3.3 V ASF              3292 mV
9.0 V                  8250 mV
SIB F2S 2/0 status:
State                  Online
Temperature            38 degrees C / 100 degrees F
Power
1.2 V_1                0 mV
1.2 V_ASF              1195 mV
1.2 V_ASF_B            1195 mV
1.2 V_ASF_D            1198 mV
1.5 V                  1498 mV
1.8 V                  1804 mV
3.3 V                  3300 mV
3.3 V bias             3300 mV
3.3 V ASF              3292 mV
9.0 V                  8250 mV
...

```

```

show chassis environment sib f13
(TX Matrix Plus Router)
user@host> show chassis environment sib f13 0
SIB F13 0 status:
State                  Online - Standby
Temperature            54 degrees C / 129 degrees F
Temperature (B)        50 degrees C / 122 degrees F
Power
1.2 V_0                1202 mV

```

1.2 V_1	1202 mV
1.2 V_2	1208 mV
1.2 V_3	1208 mV
1.5 V_0	1501 mV
1.5 V_1	1504 mV
1.8 V	1801 mV
2.5 V	2504 mV
3.3 V	3318 mV
9.0 V	8991 mV
9.0 V bias	0 mV
Power (B)	
2.5 V	2510 mV
3.3 V	3318 mV
9.0 V	9024 mV

**show chassis
environment sib f2s
(TX Matrix Plus
Router)**

```
user@host> show chassis environment sib f2s 0/2
SIB F2S 0/2 status:
State                               Online - Standby
Temperature                         40 degrees C / 104 degrees F
Power
  1.2 V_1                           0 mV
  1.2 V_ASF                         1198 mV
  1.2 V_ASF_B                       1195 mV
  1.2 V_ASF_D                       1202 mV
  1.5 V                             1501 mV
  1.8 V                             1807 mV
  3.3 V                             3300 mV
  3.3 V bias                        3300 mV
  3.3 V ASF                         3286 mV
  9.0 V                             8250 mV
```

**show chassis
environment sib
(PTX5000 Packet
Transport Switch)**

```
user@host> show chassis environment sib
SIB 0 status:
State                               Online
Intake Temperature                 39 degrees C / 102 degrees F
Exhaust Temperature                37 degrees C / 98 degrees F
Junction Temperature               43 degrees C / 109 degrees F
Power
  1.0 V                             1000 mV
  1.5 V                             1499 mV
  1.2 V                             1199 mV
  3.3 V                             3300 mV
  0.9 V                             900 mV
  2.5 V                             2500 mV
  3.3 V bias                        3298 mV
SIB 1 status:
State                               Online
Intake Temperature                 39 degrees C / 102 degrees F
Exhaust Temperature                36 degrees C / 96 degrees F
Junction Temperature               45 degrees C / 113 degrees F
Power
  1.0 V                             1000 mV
  1.5 V                             1500 mV
  1.2 V                             1200 mV
  3.3 V                             3300 mV
  0.9 V                             900 mV
  2.5 V                             2499 mV
  3.3 V bias                        3321 mV
SIB 2 status:
State                               Online
Intake Temperature                 37 degrees C / 98 degrees F
```

Exhaust Temperature	37 degrees C / 98 degrees F
Junction Temperature	41 degrees C / 105 degrees F
Power	
1.0 V	999 mV
1.5 V	1499 mV
1.2 V	1199 mV
3.3 V	3299 mV
0.9 V	900 mV
2.5 V	2500 mV
3.3 V bias	3339 mV
SIB 3 status:	
State	Online
Intake Temperature	40 degrees C / 104 degrees F
Exhaust Temperature	40 degrees C / 104 degrees F
Junction Temperature	45 degrees C / 113 degrees F
Power	
1.0 V	1000 mV
1.5 V	1500 mV
1.2 V	1199 mV
3.3 V	3299 mV
0.9 V	900 mV
2.5 V	2500 mV
3.3 V bias	3328 mV
SIB 4 status:	
State	Online
Intake Temperature	47 degrees C / 116 degrees F
Exhaust Temperature	45 degrees C / 113 degrees F
Junction Temperature	57 degrees C / 134 degrees F
Power	
1.0 V	1000 mV
1.5 V	1500 mV
1.2 V	1199 mV
3.3 V	3299 mV
0.9 V	900 mV
2.5 V	2499 mV
3.3 V bias	3333 mV
SIB 5 status:	
State	Online
Intake Temperature	57 degrees C / 134 degrees F
Exhaust Temperature	43 degrees C / 109 degrees F
Junction Temperature	71 degrees C / 159 degrees F
Power	
1.0 V	1000 mV
1.5 V	1499 mV
1.2 V	1199 mV
3.3 V	3300 mV
0.9 V	900 mV
2.5 V	2500 mV
3.3 V bias	3307 mV
SIB 6 status:	
State	Online
Intake Temperature	57 degrees C / 134 degrees F
Exhaust Temperature	42 degrees C / 107 degrees F
Junction Temperature	66 degrees C / 150 degrees F
Power	
1.0 V	1000 mV
1.5 V	1499 mV
1.2 V	1200 mV
3.3 V	3300 mV
0.9 V	899 mV
2.5 V	2500 mV

3.3 V bias	3311 mV
SIB 7 status:	
State	Online
Intake Temperature	58 degrees C / 136 degrees F
Exhaust Temperature	42 degrees C / 107 degrees F
Junction Temperature	67 degrees C / 152 degrees F
Power	
1.0 V	999 mV
1.5 V	1500 mV
1.2 V	1199 mV
3.3 V	3299 mV
0.9 V	900 mV
2.5 V	2499 mV
3.3 V bias	3307 mV
SIB 8 status:	
State	Online
Intake Temperature	57 degrees C / 134 degrees F
Exhaust Temperature	43 degrees C / 109 degrees F
Junction Temperature	71 degrees C / 159 degrees F
Power	
1.0 V	1000 mV
1.5 V	1500 mV
1.2 V	1199 mV
3.3 V	3299 mV
0.9 V	900 mV
2.5 V	2500 mV
3.3 V bias	3332 mV

show chassis ethernet-switch

Syntax	show chassis ethernet-switch <errors <port>>
Syntax (EX8200 Switch)	show chassis ethernet-switch <statistics <port> switch <number>
Syntax (T4000 Router)	show chassis ethernet-switch <errors <port> statistics <port>>
Syntax (TX Matrix Router)	show chassis ethernet-switch <errors <port> statistics <port>> <lcc <number> scc>
Syntax (TX Matrix Plus Router)	show chassis ethernet-switch <errors <port> switch <number> <lcc number sfc number> <statistics <port> switch <number>
Syntax (MX Series Router)	show chassis ethernet-switch <all-members> <errors <port>> <local> <member member-id>
Syntax (MX2010 3D Universal Edge Routers)	show chassis ethernet-switch <errors <port> statistics <port>>
Syntax (MX2020 3D Universal Edge Routers)	show chassis ethernet-switch <errors <port> statistics <port>>
Syntax (PTX Series Packet Transport Switches)	show chassis ethernet-switch <errors <port>> <statistics <port>> <port-state <port>>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.4 for EX Series switches. sfc option introduced in Junos OS Release 9.6 for the TX Matrix Plus router. Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.
Description	(M10i, M40e, M120, M160, M320, MX Series, and T Series routers and EX8200 and PTX Series switches only) Display information about the ports on the Control Board (CB) Ethernet switch.
Options	none —Display information about each connected port on the Ethernet switch. On a TX Matrix router, display information about each connected port on the Ethernet switch

on the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display information about each connected port on the Ethernet switch on the TX Matrix Plus router and its attached T1600 routers.

all-members—(MX Series routers only) (Optional) Display information about the ports on the CB Ethernet switch on all the members of the Virtual Chassis configuration.

errors—(Optional) Display the numbers and types of errors accumulated on all ports of the Ethernet switch.

errors *port*—(Optional) Display the numbers and types of errors accumulated on the specified port (0 through 15) of the Ethernet switch. On the TX Matrix router, replace ***port*** with a value from 0 through 15. On the TX Matrix Plus router and EX8200 switch, replace ***port*** with a value from 0 through 27. On the PTX Series Packet Transport Switches, replace ***port*** with a value from 0 through 25. On the T4000 routers, MX2020 routers, and MX2010 routers, replace ***port*** with a value from 0 through 27.

errors switch *number*—(TX Matrix Plus router only) (Optional) Display the numbers and types of errors accumulated on the specified switch. Replace ***number*** with a value from 0 through 2.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display information about the ports on the CB's Ethernet switch on a specified T640 router (or line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, display information about the ports on the CB's Ethernet switch on a specified T1600 router (or line-card chassis) that is connected to a TX Matrix Plus router. Replace ***number*** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display information about the ports on the CB Ethernet switch on the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Display information about the ports on the CB Ethernet switch on the specified member of the Virtual Chassis configuration. Replace ***member-id*** with a value of 0 or 1.

port-state—(PTX Series only) (Optional) Display information about current port operation (**Blocking**, **Listening**, or **Disabled**).

scc—(TX Matrix router only) (Optional) Display information about the ports on the CB's Ethernet switch on the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus router only) (Optional) Display information about the ports on the CB's Ethernet switch on the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

statistics—(Optional) Display traffic statistics for each connected port on the Ethernet switch.

statistics *port*—(Optional) Display traffic statistics for the specified port on the Ethernet switch. On the TX Matrix router, replace ***port*** with a value from 0 through 25. On the TX Matrix Plus router or EX8200 switch, replace ***port*** with a value from 0 through 27. On the PTX Series Packet Transport Switches, replace ***port*** with a value from 0

through **25**. On the T4000 routers, MX2020 routers, and MX2010 routers, replace **port** with a value from **0** through **27**.

statistics switch *number*—(TX Matrix Plus routers and EX8200 switch only) (Optional)
Display traffic statistics for the specified Ethernet switch number. On the TX Matrix Plus router and EX8216 switch, replace **number** with a value from **0** through **2**. On the EX8208 switch, replace **number** with a value from **0** through **1**.

Required Privilege Level view

List of Sample Output

- [show chassis ethernet-switch on page 317](#)
- [show chassis ethernet-switch \(MX2010 Router\) on page 318](#)
- [show chassis ethernet-switch statistics \(MX2010 Router\) on page 320](#)
- [show chassis ethernet-switch \(MX2020 Router\) on page 326](#)
- [show chassis ethernet-switch statistics \(MX2020 Router\) on page 329](#)
- [show chassis ethernet-switch \(TX Matrix Router\) on page 337](#)
- [show chassis ethernet-switch errors on page 338](#)
- [show chassis ethernet-switch statistics on page 338](#)
- [show chassis ethernet-switch errors \(TX Matrix Plus Router\) on page 339](#)
- [show chassis ethernet-switch sfc errors \(TX Matrix Plus Router\) on page 340](#)
- [show chassis ethernet-switch statistics \(TX Matrix Plus Router\) on page 341](#)
- [show chassis ethernet-switch \(T4000 Router\) on page 345](#)
- [show chassis ethernet-switch errors \(T4000 Router\) on page 346](#)
- [show chassis ethernet-switch \(PTX5000 Packet Transport Switch\) on page 347](#)
- [show chassis ethernet-switch statistics \(PTX5000 Packet Transport Switch\) on page 348](#)
- [show chassis ethernet-switch port-state \(PTX5000 Packet Transport Switch\) on page 351](#)

Output Fields [Table 17 on page 314](#) lists the output fields for the **show chassis ethernet-switch** command. Output fields are listed in the approximate order in which they appear.

Table 17: show chassis ethernet-switch Output Fields

Field Name	Field Description
Link is good on port <i>n</i> connected to device or Link is good on Fast Ethernet port <i>n</i> connected to device or Link is good on Gigabit Ethernet port <i>n</i> connected to device or Link is down on Gigabit Ethernet port connected to device	Information about the link between each port on the CB's Ethernet switch and one of the following devices: <ul style="list-style-type: none"> • FPC0 (Flexible PIC Concentrator 0) through FPC7 • Local controller • Routing Engine • Other Routing Engine (on a system with two Routing Engines) • SPMB (Switch Processor Mezzanine Board) • (TX Matrix router only) LCC0 (line-card chassis 0) through LCC3
Speed is	Speed at which the Ethernet link is running: 10 Mb or 100 Mb . When the device is RE or Other RE on the TX Matrix router, the speed is 1000 Mb . NOTE: Irrespective of the device, the speed is 1000 Mb on the MX2010 and MX2020 routers.
Duplex is	Duplex type of the Ethernet link: full or half .
Autonegotiate is Enabled (or Disabled)	By default, built-in Fast Ethernet ports on a PIC autonegotiate whether to operate at 10 Mbps or 100 Mbps. All other interfaces automatically choose the correct speed based on the PIC type and whether the PIC is configured to operate in multiplexed mode (using the no-concatenate statement at the [edit chassis] hierarchy level, as described in the <i>Junos OS System Basics Configuration Guide</i>).
Flow Control TX is Enabled (or Disabled)	(MX2010 routers, MX2020 routers, and PTX Series) Flow control in the transmit direction is enabled (or disabled). Flow control regulates the flow of packets from the switch to the remote side of the connection.
Flow Control RX is Enabled (or Disabled)	(MX2010 routers, MX2020 routers, and PTX Series) Flow control in the receive direction is enabled (or disabled). Flow control regulates the flow of packets from the remote side of the connection to the switch.
MLT3	Number of multilevel threshold-3 (MLT-3) Fast Ethernet errors detected.
Accumulated error counts for port <i>n</i> connected to device FPC <i>n</i> : (error output only)	
Lock	Number of lock errors detected.
Xmit	Number of transmission errors detected.
ESD	Number of electrostatic discharge (ESD) errors detected.
False Carrier	Number of false carrier errors detected.

Table 17: show chassis ethernet-switch Output Fields (*continued*)

Field Name	Field Description
Disconnects	Number of disconnect errors detected.
FX mode	Number of errors detected on an Ethernet link over optical fiber.
Statistics for port <i>n</i> connected to device <i>FPCn</i> (statistics output only)	
TX Packets 64 Octets	(MX2010 and MX2020 routers) Number of packets of size 64 octets transmitted.
TX Packets 65 - 127 Octets	(MX2010 and MX2020 routers) Number of packets of size 65 through 127 octets transmitted.
TX Packets 128 - 255 Octets	(MX2010 and MX2020 routers) Number of packets of size 128 through 255 octets transmitted.
TX Packets 256 - 511 Octets	(MX2010 and MX2020 routers) Number of packets of size 256 through 511 octets transmitted.
TX Packets 512 - 1023 Octets	(MX2010 and MX2020 routers) Number of packets of size 512 through 1023 octets transmitted.
TX Packets 1024 - 1518 Octets	(MX2010 and MX2020 routers) Number of packets of size 1024 through 1518 octets transmitted.
TX Packets 1519 - 2047 Octets	(MX2010 and MX2020 routers) Number of packets of size 1519 through 2047 octets transmitted.
TX Packets 2048 - 4095 Octets	(MX2010 and MX2020 routers) Number of packets of size 2048 through 4095 octets transmitted.
TX Packets 4096 - 9216 Octets	(MX2010 and MX2020 routers) Number of packets of size 4096 through 9216 octets transmitted.
TX 1519 - 1522 Good Vlan frms	(MX2010 and MX2020 routers) Number of transmitted frames of size 1519 through 1522 octets that are good VLAN frames.
TX Octets	Number of octets sent.
TX Unicast packets	Number of unicast packets sent.
TX Multicast packets	Number of multicast packets sent.
TX Broadcast packets	Number of broadcast packets sent.
TX Single Collision frames	(MX2010 and MX2020 routers) Number of packets sent after one collision.
TX Mult. Collision frames	(MX2010 and MX2020 routers) Number of packets sent after multiple collisions.

Table 17: show chassis ethernet-switch Output Fields (*continued*)

Field Name	Field Description
TX Late collisions	Number of packets aborted during sending because of collisions after 64 bytes.
TX Excessive collisions	Number of packets not sent because of too many collisions.
TX Dropped packets	Number of transmitted packets that were dropped.
TX PAUSEMAC Ctrl Frames	Number of Media Access Control (MAC) frames containing PAUSE commands that were sent.
TX Oversize Packets	Number of oversize packets that were sent.
TX FCS Error Counter	Number of packets discarded because of frame check sequence errors.
TX Fragment Counter	Number of fragmented packets sent.
TX Byte Counter	Number of bytes sent.
TX Packet OK Counter	Number of viable packets sent.
TX Pause Packet Counter	Number of PAUSE packets sent.
RX Packets 64 Octets	(MX2010 and MX2020 routers) Number of packets of size 64 octets received.
RX Packets 65 - 127 Octets	(MX2010 and MX2020 routers) Number of packets of size 65 through 127 octets received.
RX Packets 128 - 255 Octets	(MX2010 and MX2020 routers) Number of packets of size 128 through 255 octets received.
RX Packets 256 - 511 Octets	(MX2010 and MX2020 routers) Number of packets of size 256 through 511 octets received.
RX Packets 512 - 1023 Octets	(MX2010 and MX2020 routers) Number of packets of size 512 through 1023 octets received.
RX Packets 1024 - 1518 Octets	(MX2010 and MX2020 routers) Number of packets of size 1024 through 1518 octets received.
RX Packets 1519 - 2047 Octets	(MX2010 and MX2020 routers) Number of packets of size 1519 through 2047 octets received.
RX Packets 2048 - 4095 Octets	(MX2010 and MX2020 routers) Number of packets of size 2048 through 4095 octets received.
RX Packets 4096 - 9216 Octets	(MX2010 and MX2020 routers) Number of packets of size 4096 through 9216 octets received.

Table 17: show chassis ethernet-switch Output Fields (*continued*)

Field Name	Field Description
RX Octets	Number of octets received.
RX Unicast packets	Number of unicast packets received.
RX Multicast packets	Number of multicast packets received.
RX Broadcast packets	Number of broadcast packets received.
RX FCS Errors	Number of packets discarded because of frame check sequence errors.
RX Alignment Errors	Number of incomplete octets received.
RX Dropped Packets	Number of incoming packets that were dropped.
RX Fragments	Number of fragmented packets received.
RX Symbol Errors	Number of symbols received that the router did not correctly decode.
RX MAC Control	Number of Media Access Control (MAC) packets received.
RX Oversize Packets	Number of oversize packets received.
RX Undersize Packets	Number of undersize packets received.
RX Jabbers	Total number of frames received that exceed the maximum byte count and contain CRC errors .
RX Control Frame Counter	Number of control frames received.
RX Pause Frame Counter	Number of pause frames received.
RX FCS Errors	Number of packets discarded because of frame check sequence errors.
RX Fragments	Number of fragmented packets received.
RX Byte Counter	Number of bytes received.
RX Packet OK Counter	Number of viable packets received.

Sample Output

```

show chassis ethernet-switch user@host> show chassis ethernet-switch
Link is good on port 0 connected to device: FPC0
Speed is 100 MB
Duplex is full

```

```

Link is good on port 1 connected to device: FPC1
  Speed is 100 MB
  Duplex is full

Link is good on port 2 connected to device: FPC2
  Speed is 100 MB
  Duplex is full

Link is good on port 3 connected to device: FPC3
  Speed is 100 MBb
  Duplex is full

Link is good on port 7 connected to device: Local controller
  Speed is 100 MB
  Duplex is full

Link is good on port 9 connected to device: SPMB
  Speed is 100 MB
  Duplex is full

Link is good on port 13 connected to device: FPC5
  Speed is 100 MB
  Duplex is full

```

**show chassis
ethernet-switch
(MX2010 Router)**

```

user@host > show chassis ethernet-switch
Displaying summary for switch 0
Link is good on GE port 0 connected to device: FPC0
  Speed is 1000Mb
  Duplex is full
  Autonegotiate is Enabled
  Flow Control TX is Disabled
  Flow Control RX is Disabled

Link is good on GE port 1 connected to device: FPC1
  Speed is 1000Mb
  Duplex is full
  Autonegotiate is Enabled
  Flow Control TX is Disabled
  Flow Control RX is Disabled

Link is good on GE port 2 connected to device: FPC3
  Speed is 1000Mb
  Duplex is full
  Autonegotiate is Enabled
  Flow Control TX is Disabled
  Flow Control RX is Disabled

Link is good on GE port 3 connected to device: FPC2
  Speed is 1000Mb
  Duplex is full
  Autonegotiate is Enabled
  Flow Control TX is Disabled
  Flow Control RX is Disabled

Link is good on GE port 4 connected to device: FPC5
  Speed is 1000Mb
  Duplex is full
  Autonegotiate is Enabled
  Flow Control TX is Disabled
  Flow Control RX is Disabled

```

Link is good on GE port 5 connected to device: FPC4
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 6 connected to device: FPC6
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 7 connected to device: FPC7
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 8 connected to device: FPC8
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 9 connected to device: FPC9
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 20 connected to device: Other RE-GigE
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 21 connected to device: RE-GigE
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is down on GE port 22 connected to device: Debug-GigE

Link is good on GE port 23 connected to device: SPMB
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is down on XE port 24 connected to device: SFP+ 0

Link is down on XE port 25 connected to device: SFP+ 1

Link is down on XE port 26 connected to device: RE-10GigE

Link is down on XE port 27 connected to device: Other RE-10GigE

**show chassis
ethernet-switch
statistics (MX2010
Router)**

```
user@host > show chassis ethernet-switch statistics
Displaying port statistics for switch 0
Statistics for port 0 connected to device FPC0:
TX Packets 64 Octets          5088623
TX Packets 65-127 Octets     2637257
TX Packets 128-255 Octets    84829
TX Packets 256-511 Octets    120193
TX Packets 512-1023 Octets   252371
TX Packets 1024-1518 Octets  7189736
TX Packets 1519-2047 Octets  0
TX Packets 2048-4095 Octets  0
TX Packets 4096-9216 Octets  0
TX 1519-1522 Good Vlan frms 0
TX Octets                    15373009
TX Multicast Packets         14
TX Broadcast Packets         1679654
TX Single Collision frames   0
TX Mult. Collision frames    0
TX Late Collisions           0
TX Excessive Collisions      0
TX Collision frames          0
TX PAUSEMAC Ctrl Frames      0
TX MAC ctrl frames           0
TX Frame deferred Xmsns      0
TX Frame excessive deferl    0
TX Oversize Packets          0
TX Jabbers                    0
TX FCS Error Counter         0
TX Fragment Counter          0
TX Byte Counter              3041239292
RX Packets 64 Octets         874260
RX Packets 65-127 Octets     26066124
RX Packets 128-255 Octets    1386532
RX Packets 256-511 Octets    150539
RX Packets 512-1023 Octets   4636799
RX Packets 1024-1518 Octets  92601
RX Packets 1519-2047 Octets  0
RX Packets 2048-4095 Octets  0
RX Packets 4096-9216 Octets  0
RX Octets                    33206855
RX Multicast Packets         0
RX Broadcast Packets         279416
RX FCS Errors                0
RX Align Errors              0
RX Fragments                 0
RX Symbol errors             0
RX Unsupported opcodes       0
RX Out of Range Length       0
RX False Carrier Errors      0
RX Undersize Packets         0
RX Oversize Packets          0
RX Jabbers                    0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter        0
RX Control Frame Counter     0
```

```

RX Pause Frame Counter      0
RX Byte Counter             958929187
Statistics for port 1 connected to device FPC1:
TX Packets 64 Octets        5109146
TX Packets 65-127 Octets    2779473
TX Packets 128-255 Octets   2441286
TX Packets 256-511 Octets   173102
TX Packets 512-1023 Octets  1547504
TX Packets 1024-1518 Octets 7190581
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX 1519-1522 Good Vlan frms 0
TX Octets                   19241092
TX Multicast Packets        14
TX Broadcast Packets        1673369
TX Single Collision frames  0
TX Mult. Collision frames   0
TX Late Collisions          0
TX Excessive Collisions     0
TX Collision frames         0
TX PAUSEMAC Ctrl Frames    0
TX MAC ctrl frames         0
TX Frame deferred Xtns     0
TX Frame excessive deferl   0
TX Oversize Packets         0
TX Jabbers                  0
TX FCS Error Counter        0
TX Fragment Counter         0
TX Byte Counter             4213380187
RX Packets 64 Octets        865914
RX Packets 65-127 Octets    26612151
RX Packets 128-255 Octets   1090153
RX Packets 256-511 Octets   25126
RX Packets 512-1023 Octets  101158
RX Packets 1024-1518 Octets 78092
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets                   28772594
RX Multicast Packets        0
RX Broadcast Packets        285669
RX FCS Errors               0
RX Align Errors             0
RX Fragments                0
RX Symbol errors            0
RX Unsupported opcodes      0
RX Out of Range Length      0
RX False Carrier Errors     0
RX Undersize Packets        0
RX Oversize Packets         0
RX Jabbers                  0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter       0
RX Control Frame Counter    0
RX Pause Frame Counter      0
RX Byte Counter             2327283837

```

Link is down on GE port 2 connected to device: FPC3

Link is down on GE port 3 connected to device: FPC2

Link is down on GE port 4 connected to device: FPC5

Link is down on GE port 5 connected to device: FPC4

Link is down on GE port 6 connected to device: FPC6

Link is down on GE port 7 connected to device: FPC7

Statistics for port 8 connected to device FPC8:

TX Packets 64 Octets	5341094
TX Packets 65-127 Octets	2625310
TX Packets 128-255 Octets	3315158
TX Packets 256-511 Octets	174805
TX Packets 512-1023 Octets	976908
TX Packets 1024-1518 Octets	7181498
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX 1519-1522 Good Vlan frms	0
TX Octets	19614773
TX Multicast Packets	14
TX Broadcast Packets	1673831
TX Single Collision frames	0
TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0
TX PAUSEMAC Ctrl Frames	0
TX MAC ctrl frames	0
TX Frame deferred Xms	0
TX Frame excessive deferl	0
TX Oversize Packets	0
TX Jabbers	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	3946762991
RX Packets 64 Octets	955509
RX Packets 65-127 Octets	27568588
RX Packets 128-255 Octets	1460936
RX Packets 256-511 Octets	153248
RX Packets 512-1023 Octets	2856206
RX Packets 1024-1518 Octets	76419
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Octets	33070906
RX Multicast Packets	0
RX Broadcast Packets	285183
RX FCS Errors	0
RX Align Errors	0
RX Fragments	0
RX Symbol errors	0
RX Unsupported opcodes	0
RX Out of Range Length	0
RX False Carrier Errors	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX 1519-1522 Good Vlan frms	0
RX MTU Exceed Counter	0

```

RX Control Frame Counter    0
RX Pause Frame Counter     0
RX Byte Counter            4256093824

```

Statistics for port 9 connected to device FPC9:

```

TX Packets 64 Octets      5237213
TX Packets 65-127 Octets  3268775
TX Packets 128-255 Octets 2320476
TX Packets 256-511 Octets 1789844
TX Packets 512-1023 Octets 501022
TX Packets 1024-1518 Octets 7800455
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX 1519-1522 Good Vlan frms 0
TX Octets                20917785
TX Multicast Packets      14
TX Broadcast Packets      1673368
TX Single Collision frames 0
TX Mult. Collision frames 0
TX Late Collisions        0
TX Excessive Collisions   0
TX Collision frames        0
TX PAUSEMAC Ctrl Frames   0
TX MAC ctrl frames        0
TX Frame deferred Xmsns    0
TX Frame excessive deferl  0
TX Oversize Packets        0
TX Jabbers                0
TX FCS Error Counter      0
TX Fragment Counter        0
TX Byte Counter           747012161
RX Packets 64 Octets      1036527
RX Packets 65-127 Octets  27590367
RX Packets 128-255 Octets  1590059
RX Packets 256-511 Octets  328257
RX Packets 512-1023 Octets 75975
RX Packets 1024-1518 Octets 73556
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets                30694741
RX Multicast Packets      0
RX Broadcast Packets      285586
RX FCS Errors             0
RX Align Errors           0
RX Fragments              0
RX Symbol errors          0
RX Unsupported opcodes    0
RX Out of Range Length    0
RX False Carrier Errors   0
RX Undersize Packets      0
RX Oversize Packets       0
RX Jabbers                0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter     0
RX Control Frame Counter  0
RX Pause Frame Counter    0
RX Byte Counter           2727836941

```

Statistics for port 20 connected to device Other RE-GigE:

TX Packets 64 Octets	1682540
TX Packets 65-127 Octets	3454
TX Packets 128-255 Octets	659
TX Packets 256-511 Octets	0
TX Packets 512-1023 Octets	1
TX Packets 1024-1518 Octets	0
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX 1519-1522 Good Vlan frms	0
TX Octets	1686654
TX Multicast Packets	6
TX Broadcast Packets	1673798
TX Single Collision frames	0
TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0
TX PAUSEMAC Ctrl Frames	0
TX MAC ctrl frames	0
TX Frame deferred Xms	0
TX Frame excessive deferl	0
TX Oversize Packets	0
TX Jabbers	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	108042476
RX Packets 64 Octets	710214
RX Packets 65-127 Octets	35785510
RX Packets 128-255 Octets	4616
RX Packets 256-511 Octets	232
RX Packets 512-1023 Octets	565
RX Packets 1024-1518 Octets	28798
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Octets	36529935
RX Multicast Packets	8
RX Broadcast Packets	285546
RX FCS Errors	0
RX Align Errors	0
RX Fragments	0
RX Symbol errors	0
RX Unsupported opcodes	0
RX Out of Range Length	0
RX False Carrier Errors	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX 1519-1522 Good Vlan frms	0
RX MTU Exceed Counter	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	2676440958

Statistics for port 21 connected to device RE-GigE:

TX Packets 64 Octets	4805310
TX Packets 65-127 Octets	143798628
TX Packets 128-255 Octets	5532385
TX Packets 256-511 Octets	671059
TX Packets 512-1023 Octets	7684123

```

TX Packets 1024-1518 Octets 344021
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX 1519-1522 Good Vlan frms 0
TX Octets 162835526
TX Multicast Packets 8
TX Broadcast Packets 1673409
TX Single Collision frames 0
TX Mult. Collision frames 0
TX Late Collisions 0
TX Excessive Collisions 0
TX Collision frames 0
TX PAUSEMAC Ctrl Frames 0
TX MAC ctrl frames 0
TX Frame deferred Xms 0
TX Frame excessive deferl 0
TX Oversize Packets 0
TX Jabbers 0
TX FCS Error Counter 0
TX Fragment Counter 0
TX Byte Counter 105857355
RX Packets 64 Octets 14537137
RX Packets 65-127 Octets 11445505
RX Packets 128-255 Octets 8161767
RX Packets 256-511 Octets 2257944
RX Packets 512-1023 Octets 3277807
RX Packets 1024-1518 Octets 29373209
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets 69053369
RX Multicast Packets 6
RX Broadcast Packets 285935
RX FCS Errors 0
RX Align Errors 0
RX Fragments 0
RX Symbol errors 0
RX Unsupported opcodes 0
RX Out of Range Length 0
RX False Carrier Errors 0
RX Undersize Packets 0
RX Oversize Packets 0
RX Jabbers 0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter 0
RX Control Frame Counter 0
RX Pause Frame Counter 0
RX Byte Counter 2980410755

```

Link is down on GE port 22 connected to device: Debug-GigE
 Statistics for port 23 connected to device SPMB:

```

TX Packets 64 Octets 1885878
TX Packets 65-127 Octets 138845
TX Packets 128-255 Octets 18
TX Packets 256-511 Octets 1
TX Packets 512-1023 Octets 2
TX Packets 1024-1518 Octets 16391
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0

```

```

TX 1519-1522 Good Vlan frms 0
TX Octets 2041135
TX Multicast Packets 14
TX Broadcast Packets 1707267
TX Single Collision frames 0
TX Mult. Collision frames 0
TX Late Collisions 0
TX Excessive Collisions 0
TX Collision frames 0
TX PAUSEMAC Ctrl Frames 0
TX MAC ctrl frames 0
TX Frame deferred Xmsns 0
TX Frame excessive deferl 0
TX Oversize Packets 0
TX Jabbers 0
TX FCS Error Counter 0
TX Fragment Counter 0
TX Byte Counter 148066476
RX Packets 64 Octets 374994
RX Packets 65-127 Octets 183398
RX Packets 128-255 Octets 749
RX Packets 256-511 Octets 13658
RX Packets 512-1023 Octets 13421
RX Packets 1024-1518 Octets 9
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets 586229
RX Multicast Packets 0
RX Broadcast Packets 252034
RX FCS Errors 0
RX Align Errors 0
RX Fragments 0
RX Symbol errors 0
RX Unsupported opcodes 0
RX Out of Range Length 0
RX False Carrier Errors 0
RX Undersize Packets 0
RX Oversize Packets 0
RX Jabbers 0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter 0
RX Control Frame Counter 0
RX Pause Frame Counter 0
RX Byte Counter 51431942

```

Link is down on XE port 24 connected to device: SFP+ 0

Link is down on XE port 25 connected to device: SFP+ 1

Link is down on XE port 26 connected to device: RE-10GigE

Link is down on XE port 27 connected to device: Other RE-10GigE

**show chassis
ethernet-switch
(MX2020 Router)**

```

user@host > show chassis ethernet-switch
Displaying summary for switch 0
Link is good on GE port 0 connected to device: FPC0
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled

```

Flow Control RX is Disabled

Link is good on GE port 1 connected to device: FPC1
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 2 connected to device: FPC3
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 3 connected to device: FPC2
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 4 connected to device: FPC5
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 5 connected to device: FPC4
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 6 connected to device: FPC6
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 7 connected to device: FPC7
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 8 connected to device: FPC8
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 9 connected to device: FPC9
Speed is 1000Mb
Duplex is full

Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 10 connected to device: FPC10
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 11 connected to device: FPC11
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 12 connected to device: FPC13
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 13 connected to device: FPC12
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 14 connected to device: FPC14
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 15 connected to device: FPC15
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 16 connected to device: FPC17
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 17 connected to device: FPC16
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

Link is good on GE port 18 connected to device: FPC18

```

Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

```

```

Link is good on GE port 19 connected to device: FPC19
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

```

```

Link is good on GE port 20 connected to device: Other RE-GigE
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

```

```

Link is good on GE port 21 connected to device: RE-GigE
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

```

```

Link is down on GE port 22 connected to device: Debug-GigE

```

```

Link is good on GE port 23 connected to device: SPMB
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
Flow Control TX is Disabled
Flow Control RX is Disabled

```

```

Link is down on XE port 24 connected to device: SFP+ 0

```

```

Link is down on XE port 25 connected to device: SFP+ 1

```

```

Link is down on XE port 26 connected to device: RE-10GigE

```

```

Link is down on XE port 27 connected to device: Other RE-10GigE

```

**show chassis
ethernet-switch
statistics (MX2020
Router)**

```

user@host > show chassis ethernet-switch statistics
Displaying port statistics for switch 0
Statistics for port 0 connected to device FPC0:
TX Packets 64 Octets          1468564
TX Packets 65-127 Octets     153896
TX Packets 128-255 Octets    237
TX Packets 256-511 Octets    286
TX Packets 512-1023 Octets   599
TX Packets 1024-1518 Octets  22803
TX Packets 1519-2047 Octets  0
TX Packets 2048-4095 Octets  0
TX Packets 4096-9216 Octets  0
TX 1519-1522 Good Vlan frms  0
TX Octets                    1646385
TX Multicast Packets         6
TX Broadcast Packets         970939
TX Single Collision frames   0

```

TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0
TX PAUSEMAC Ctrl Frames	0
TX MAC ctrl frames	0
TX Frame deferred Xms	0
TX Frame excessive deferl	0
TX Oversize Packets	0
TX Jabbers	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	130470290
RX Packets 64 Octets	180266
RX Packets 65-127 Octets	519030
RX Packets 128-255 Octets	1390
RX Packets 256-511 Octets	42857
RX Packets 512-1023 Octets	3482
RX Packets 1024-1518 Octets	8147
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Octets	755172
RX Multicast Packets	0
RX Broadcast Packets	42822
RX FCS Errors	0
RX Align Errors	0
RX Fragments	0
RX Symbol errors	0
RX Unsupported opcodes	0
RX Out of Range Length	0
RX False Carrier Errors	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX 1519-1522 Good Vlan frms	0
RX MTU Exceed Counter	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	75374021

Statistics for port 1 connected to device FPC1:

TX Packets 64 Octets	1493739
TX Packets 65-127 Octets	126996
TX Packets 128-255 Octets	241
TX Packets 256-511 Octets	283
TX Packets 512-1023 Octets	604
TX Packets 1024-1518 Octets	33687
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX 1519-1522 Good Vlan frms	0
TX Octets	1655550
TX Multicast Packets	6
TX Broadcast Packets	969032
TX Single Collision frames	0
TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0
TX PAUSEMAC Ctrl Frames	0
TX MAC ctrl frames	0

```

TX Frame deferred Xmsns      0
TX Frame excessive deferl     0
TX Oversize Packets          0
TX Jabbers                   0
TX FCS Error Counter         0
TX Fragment Counter          0
TX Byte Counter              141832690
RX Packets 64 Octets         155655
RX Packets 65-127 Octets     545561
RX Packets 128-255 Octets    1394
RX Packets 256-511 Octets    42811
RX Packets 512-1023 Octets   3514
RX Packets 1024-1518 Octets  8171
RX Packets 1519-2047 Octets  0
RX Packets 2048-4095 Octets  0
RX Packets 4096-9216 Octets  0
RX Octets                    757106
RX Multicast Packets         0
RX Broadcast Packets         44509
RX FCS Errors                0
RX Align Errors              0
RX Fragments                 0
RX Symbol errors             0
RX Unsupported opcodes       0
RX Out of Range Length       0
RX False Carrier Errors      0
RX Undersize Packets         0
RX Oversize Packets          0
RX Jabbers                   0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter        0
RX Control Frame Counter     0
RX Pause Frame Counter       0
RX Byte Counter              75691392
Statistics for port 2 connected to device FPC3:
TX Packets 64 Octets         1465749
TX Packets 65-127 Octets     152849
TX Packets 128-255 Octets    238
TX Packets 256-511 Octets    289
TX Packets 512-1023 Octets   602
TX Packets 1024-1518 Octets  38903
TX Packets 1519-2047 Octets  0
TX Packets 2048-4095 Octets  0
TX Packets 4096-9216 Octets  0
TX 1519-1522 Good Vlan frms 0
TX Octets                    1658630
TX Multicast Packets         6
TX Broadcast Packets         968873
TX Single Collision frames   0
TX Mult. Collision frames    0
TX Late Collisions           0
TX Excessive Collisions      0
TX Collision frames          0
TX PAUSEMAC Ctrl Frames     0
TX MAC ctrl frames           0
TX Frame deferred Xmsns      0
TX Frame excessive deferl     0
TX Oversize Packets          0
TX Jabbers                   0
TX FCS Error Counter         0
TX Fragment Counter          0

```

TX Byte Counter	147427010
RX Packets 64 Octets	181636
RX Packets 65-127 Octets	517526
RX Packets 128-255 Octets	1405
RX Packets 256-511 Octets	42806
RX Packets 512-1023 Octets	3515
RX Packets 1024-1518 Octets	8168
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Octets	755056
RX Multicast Packets	0
RX Broadcast Packets	44490
RX FCS Errors	0
RX Align Errors	0
RX Fragments	0
RX Symbol errors	0
RX Unsupported opcodes	0
RX Out of Range Length	0
RX False Carrier Errors	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX 1519-1522 Good Vlan frms	0
RX MTU Exceed Counter	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	75381869

Statistics for port 3 connected to device FPC2:

TX Packets 64 Octets	1473828
TX Packets 65-127 Octets	145643
TX Packets 128-255 Octets	253
TX Packets 256-511 Octets	285
TX Packets 512-1023 Octets	612
TX Packets 1024-1518 Octets	26603
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX 1519-1522 Good Vlan frms	0
TX Octets	1647224
TX Multicast Packets	6
TX Broadcast Packets	968925
TX Single Collision frames	0
TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0
TX PAUSEMAC Ctrl Frames	0
TX MAC ctrl frames	0
TX Frame deferred Xms	0
TX Frame excessive deferl	0
TX Oversize Packets	0
TX Jabbers	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	134293832
RX Packets 64 Octets	174230
RX Packets 65-127 Octets	525756
RX Packets 128-255 Octets	1404
RX Packets 256-511 Octets	42815
RX Packets 512-1023 Octets	3530

```

RX Packets 1024-1518 Octets 8176
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets 755911
RX Multicast Packets 0
RX Broadcast Packets 44499
RX FCS Errors 0
RX Align Errors 0
RX Fragments 0
RX Symbol errors 0
RX Unsupported opcodes 0
RX Out of Range Length 0
RX False Carrier Errors 0
RX Undersize Packets 0
RX Oversize Packets 0
RX Jabbers 0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter 0
RX Control Frame Counter 0
RX Pause Frame Counter 0
RX Byte Counter 75517355
Statistics for port 4 connected to device FPC5:
TX Packets 64 Octets 1466664
TX Packets 65-127 Octets 151155
TX Packets 128-255 Octets 238
TX Packets 256-511 Octets 277
TX Packets 512-1023 Octets 615
TX Packets 1024-1518 Octets 54674
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX 1519-1522 Good Vlan frms 0
TX Octets 1673623
TX Multicast Packets 6
TX Broadcast Packets 968610
TX Single Collision frames 0
TX Mult. Collision frames 0
TX Late Collisions 0
TX Excessive Collisions 0
TX Collision frames 0
TX PAUSEMAC Ctrl Frames 0
TX MAC ctrl frames 0
TX Frame deferred Xmsns 0
TX Frame excessive deferl 0
TX Oversize Packets 0
TX Jabbers 0
TX FCS Error Counter 0
TX Fragment Counter 0
TX Byte Counter 164247790
RX Packets 64 Octets 180006
RX Packets 65-127 Octets 518217
RX Packets 128-255 Octets 1406
RX Packets 256-511 Octets 42787
RX Packets 512-1023 Octets 3515
RX Packets 1024-1518 Octets 8164
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets 754095
RX Multicast Packets 0

```

RX Broadcast Packets	44457
RX FCS Errors	0
RX Align Errors	0
RX Fragments	0
RX Symbol errors	0
RX Unsupported opcodes	0
RX Out of Range Length	0
RX False Carrier Errors	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX 1519-1522 Good Vlan frms	0
RX MTU Exceed Counter	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	75311970

Statistics for port 5 connected to device FPC4:

TX Packets 64 Octets	1464770
TX Packets 65-127 Octets	154498
TX Packets 128-255 Octets	225
TX Packets 256-511 Octets	280
TX Packets 512-1023 Octets	637
TX Packets 1024-1518 Octets	26355
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX 1519-1522 Good Vlan frms	0
TX Octets	1646765
TX Multicast Packets	6
TX Broadcast Packets	968730
TX Single Collision frames	0
TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0
TX PAUSEMAC Ctrl Frames	0
TX MAC ctrl frames	0
TX Frame deferred Xms	0
TX Frame excessive deferl	0
TX Oversize Packets	0
TX Jabbers	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	134058606
RX Packets 64 Octets	169269
RX Packets 65-127 Octets	515285
RX Packets 128-255 Octets	1527
RX Packets 256-511 Octets	42804
RX Packets 512-1023 Octets	3521
RX Packets 1024-1518 Octets	9142
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Octets	741548
RX Multicast Packets	0
RX Broadcast Packets	44470
RX FCS Errors	0
RX Align Errors	0
RX Fragments	0
RX Symbol errors	0
RX Unsupported opcodes	0

```

RX Out of Range Length      0
RX False Carrier Errors     0
RX Undersize Packets        0
RX Oversize Packets         0
RX Jabbers                  0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter       0
RX Control Frame Counter    0
RX Pause Frame Counter      0
RX Byte Counter             75498393
Statistics for port 6 connected to device FPC6:
TX Packets 64 Octets        1475260
TX Packets 65-127 Octets    143324
TX Packets 128-255 Octets   260
TX Packets 256-511 Octets   274
TX Packets 512-1023 Octets  603
TX Packets 1024-1518 Octets 40631
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX 1519-1522 Good Vlan frms 0
TX Octets                   1660352
TX Multicast Packets        6
TX Broadcast Packets        968466
TX Single Collision frames  0
TX Mult. Collision frames   0
TX Late Collisions          0
TX Excessive Collisions     0
TX Collision frames         0
TX PAUSEMAC Ctrl Frames    0
TX MAC ctrl frames         0
TX Frame deferred Xtns      0
TX Frame excessive deferl   0
TX Oversize Packets         0
TX Jabbers                  0
TX FCS Error Counter        0
TX Fragment Counter         0
TX Byte Counter             149212764
RX Packets 64 Octets        172275
RX Packets 65-127 Octets    526519
RX Packets 128-255 Octets   1394
RX Packets 256-511 Octets   42777
RX Packets 512-1023 Octets  3514
RX Packets 1024-1518 Octets 8161
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets                   754640
RX Multicast Packets        0
RX Broadcast Packets        44443
RX FCS Errors               0
RX Align Errors             0
RX Fragments                0
RX Symbol errors            0
RX Unsupported opcodes      0
RX Out of Range Length      0
RX False Carrier Errors     0
RX Undersize Packets        0
RX Oversize Packets         0
RX Jabbers                  0
RX 1519-1522 Good Vlan frms 0

```

```
RX MTU Exceed Counter      0
RX Control Frame Counter   0
RX Pause Frame Counter     0
RX Byte Counter            75386517
Statistics for port 7 connected to device FPC7:
TX Packets 64 Octets      1472361
TX Packets 65-127 Octets  145646
TX Packets 128-255 Octets 251
TX Packets 256-511 Octets 250
TX Packets 512-1023 Octets 580
TX Packets 1024-1518 Octets 49530
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX 1519-1522 Good Vlan frms 0
TX Octets                  1668618
TX Multicast Packets       6
TX Broadcast Packets      968317
TX Single Collision frames 0
TX Mult. Collision frames  0
TX Late Collisions         0
TX Excessive Collisions    0
TX Collision frames        0
TX PAUSEMAC Ctrl Frames    0
TX MAC ctrl frames         0
TX Frame deferred Xmsns    0
TX Frame excessive deferl  0
TX Oversize Packets        0
TX Jabbers                 0
TX FCS Error Counter       0
TX Fragment Counter        0
TX Byte Counter            158689814
RX Packets 64 Octets      174618
RX Packets 65-127 Octets  523421
RX Packets 128-255 Octets 1393
RX Packets 256-511 Octets 42764
RX Packets 512-1023 Octets 3514
RX Packets 1024-1518 Octets 8158
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Octets                  753868
RX Multicast Packets       0
RX Broadcast Packets      44429
RX FCS Errors              0
RX Align Errors            0
RX Fragments               0
RX Symbol errors           0
RX Unsupported opcodes     0
RX Out of Range Length     0
RX False Carrier Errors    0
RX Undersize Packets       0
RX Oversize Packets        0
RX Jabbers                 0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter      0
RX Control Frame Counter   0
RX Pause Frame Counter     0
RX Byte Counter            75309863
Statistics for port 8 connected to device FPC8:
...
```

```

show chassis ethernet-switch (TX Matrix Router) user@host> show chassis ethernet-switch
scc-re0:
-----
Link is good on FE port 4 connected to device: LCC0
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 6 connected to device: LCC2
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 8 connected to device: SPMB
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

lcc0-re0:
-----
Link is good on FE port 1 connected to device: FPC1
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 2 connected to device: FPC2
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 8 connected to device: SPMB
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 10 connected to device: SCC
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

lcc2-re0:
-----
Link is good on FE port 0 connected to device: FPC0
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 1 connected to device: FPC1
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 2 connected to device: FPC2
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

Link is good on FE port 8 connected to device: SPMB
  Speed is 100 MB
  Duplex is full
  Autonegotiate is Enabled

```

```

Link is good on FE port 10 connected to device: SCC
Speed is 100 MB
Duplex is full
Autonegotiate is Enabled

```

```

show chassis ethernet-switch errors user@host> show chassis ethernet-switch errors
ethernet-switch errors Accumulated error counts for port 0 connected to device FPC0:
                        MLT3          2
                        Lock          0
                        Xmit          0
                        ESD           0
                        False carrier 2
                        Disconnects   0
                        FX mode       0
Accumulated error counts for port 1 connected to device FPC1:
                        MLT3          2
                        Lock          0
                        Xmit          0
                        ESD           0
                        False carrier 2
                        Disconnects   0
                        FX mode       0
Accumulated error counts for port 2 connected to device FPC2:
                        MLT3          2
                        Lock          0
                        Xmit          0
                        ESD           0
                        False carrier 3
                        Disconnects   0
                        FX mode       0
Accumulated error counts for port 3 connected to device FPC3:
                        MLT3          0
                        Lock          0
                        Xmit          0
                        ESD           0
                        False carrier 0
                        Disconnects   0
Accumulated error counts for port 4 connected to device Nothing:
                        MLT3          0
                        Lock          0
                        Xmit          0
                        ESD           0
                        False carrier 0
                        Disconnects   0
                        FX mode       0
...

```

```

show chassis ethernet-switch statistics user@host> show chassis ethernet-switch statistics
ethernet-switch statistics Statistics for port 0 connected to device FPC0:
                        TX Unicast packets      68113
                        TX Multicast packets     0
                        TX Broadcast packets     20851
                        TX Late collisions       0
                        TX Excessive collisions  0
                        TX Dropped packets       0

                        RX Unicast packets      67410
                        RX Multicast packets     0
                        RX Broadcast packets     20852
                        RX FCS Errors            0

```

```

RX Alignment Errors      0
RX Dropped Packets      0
RX Fragments             0
RX Symbol Errors        0

```

Statistics for port 1 connected to device FPC1:

```

TX Unicast packets      66496
TX Multicast packets    0
TX Broadcast packets    20080
TX Late collisions      0
TX Excessive collisions 0
TX Dropped packets      0

```

```

RX Unicast packets      66037
RX Multicast packets    0
RX Broadcast packets    20080
RX FCS Errors           0
RX Alignment Errors     0
RX Dropped Packets      0
RX Fragments            0
RX Symbol Errors        0

```

Statistics for port 2 connected to device FPC2:

```

TX Unicast packets      64206
TX Multicast packets    0
TX Broadcast packets    21183
TX Late collisions      0
TX Excessive collisions 0
TX Dropped packets      0

```

```

RX Unicast packets      63671
RX Multicast packets    0
RX Broadcast packets    21183
RX FCS Errors           0
RX Alignment Errors     0
RX Dropped Packets      0
RX Fragments            0
RX Symbol Errors        0

```

Statistics for port 3 connected to device FPC3:

...

**show chassis
ethernet-switch errors
(TX Matrix Plus
Router)**

```

user@host> show chassis ethernet-switch errors
sfc0-re0:

```

Displaying error for switch 0

Displaying error for switch 1

Accumulated error counts for port 0 connected to device LCC0:

```

MLT3      0
Lock      0
Xmit      0
ESD       0
False carrier 0
Disconnects 0
FX mode   0

```

lcc0-re0:

Displaying error for switch 0

Accumulated error counts for port 6 connected to device FPC0:

```

MLT3      0

```

```

Lock          0
Xmit          0
ESD           0
False carrier 5
Disconnects   0
FX mode       0
Accumulated error counts for port 7 connected to device FPC1:
MLT3          0
Lock          0
Xmit          0
ESD           0
False carrier 7
Disconnects   0
FX mode       0
Accumulated error counts for port 19 connected to device Other RE:
MLT3          0
Lock          0
Xmit          0
ESD           0
False carrier 0
Disconnects   0
FX mode       0
Accumulated error counts for port 20 connected to device SFC0:
MLT3          0
Lock          0
Xmit          0
ESD           0
False carrier 0
Disconnects   0
FX mode       0

```

**show chassis
ethernet-switch sfc
errors (TX Matrix Plus
Router)**

```

user@host> show chassis ethernet-switch errors switch sfc
sfc0-re0:

```

```

-----
Displaying error for switch 1
Accumulated error counts for port 0 connected to device LCC0:
MLT3          0
Lock          0
Xmit          0
ESD           0
False carrier 0
Disconnects   0
FX mode       0
Accumulated error counts for port 2 connected to device LCC1:
MLT3          0
Lock          0
Xmit          0
ESD           0
False carrier 0
Disconnects   0
FX mode       0
Accumulated error counts for port 4 connected to device LCC2:
MLT3          0
Lock          0
Xmit          0
ESD           0
False carrier 0
Disconnects   0
FX mode       0
Accumulated error counts for port 6 connected to device LCC3:
MLT3          0

```

```

Lock          0
Xmit          0
ESD           0
False carrier 0
Disconnects   0
FX mode       0

```

```
lcc0-re0:
```

```
-----
error: command is not valid on the t1600
```

```
lcc1-re0:
```

```
-----
error: command is not valid on the t1600
```

```
lcc2-re0:
```

```
-----
error: command is not valid on the t1600
```

```
lcc3-re0:
```

```
-----
error: command is not valid on the t1600
```

**show chassis
ethernet-switch
statistics (TX Matrix
Plus Router)**

```
user@host> show chassis ethernet-switch statistics
```

```
sfc0-re0:
```

```
-----
Displaying port statistics for switch 0
Statistics for port 1 connected to device 1GSW:
```

```

TX Packets 64 Octets      5183577
TX Packets 65-127 Octets  67820
TX Packets 128-255 Octets 772
TX Packets 256-511 Octets 136
TX Packets 512-1023 Octets 68
TX Packets 1024-1518 Octets 10881
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX Packets 9217-16383 Octets 0
TX Octets                  5263254
TX Multicast Packets       16
TX Broadcast Packets       723403
TX PAUSEMAC Ctrl Frames    0
TX Oversize Packets        0
TX FCS Error Counter       0
TX Fragment Counter        0
TX Byte Counter            349922253
TX Packet OK Counter       5263254
TX Pause Packet Counter    0
TX Unicast Counter         4539835
RX Packets 64 Octets       6513629
RX Packets 65-127 Octets   88761
RX Packets 128-255 Octets  6382
RX Packets 256-511 Octets  22027
RX Packets 512-1023 Octets 4319
RX Packets 1024-1518 Octets 49922
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Packets 9217-16383 Octets 0
RX Octets                  6685040
RX Multicast Packets       4

```

RX Broadcast Packets	2137376
RX FCS Errors	0
RX Fragments	0
RX MAC Control Packets	0
RX Out of Range Length	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	509224602
RX Unicast Frame Count	4547660
RX Packet OK Count	6685040

Statistics for port 9 connected to device RE1:

TX Packets 64 Octets	2500318
TX Packets 65-127 Octets	443
TX Packets 128-255 Octets	0
TX Packets 256-511 Octets	0
TX Packets 512-1023 Octets	0
TX Packets 1024-1518 Octets	0
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX Packets 9217-16383 Octets	0
TX Octets	2500761
TX Multicast Packets	4
TX Broadcast Packets	2500757
TX PAUSEMAC Ctrl Frames	0
TX Oversize Packets	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	160049670
TX Packet OK Counter	0
TX Pause Packet Counter	0
TX Unicast Counter	0
RX Packets 64 Octets	701191
RX Packets 65-127 Octets	5882
RX Packets 128-255 Octets	2
RX Packets 256-511 Octets	0
RX Packets 512-1023 Octets	17965
RX Packets 1024-1518 Octets	7
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Packets 9217-16383 Octets	0
RX Octets	725047
RX Multicast Packets	8
RX Broadcast Packets	2500757
RX FCS Errors	0
RX Fragments	0
RX MAC Control Packets	0
RX Out of Range Length	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	62402656
RX Unicast Frame Count	0
RX Packet OK Count	0

Statistics for port 17 connected to device RE0:

```

TX Packets 64 Octets      7214818
TX Packets 65-127 Octets  94640
TX Packets 128-255 Octets 6384
TX Packets 256-511 Octets 22027
TX Packets 512-1023 Octets 22284
TX Packets 1024-1518 Octets 49929
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX Packets 9217-16383 Octets 0
TX Octets                  7410082
TX Multicast Packets       12
TX Broadcast Packets       2497247
TX PAUSEMAC Ctrl Frames    0
TX Oversize Packets        0
TX FCS Error Counter       0
TX Fragment Counter        0
TX Byte Counter            571626932
TX Packet OK Counter       0
TX Pause Packet Counter    0
TX Unicast Counter         0
RX Packets 64 Octets      4823701
RX Packets 65-127 Octets  67812
RX Packets 128-255 Octets  772
RX Packets 256-511 Octets  136
RX Packets 512-1023 Octets 68
RX Packets 1024-1518 Octets 10881
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Packets 9217-16383 Octets 0
RX Octets                  4903370
RX Multicast Packets       8
RX Broadcast Packets       2497247
RX FCS Errors              0
RX Fragments               0
RX MAC Control Packets     0
RX Out of Range Length     0
RX Undersize Packets       0
RX Oversize Packets        0
RX Jabbers                 0
RX Control Frame Counter   0
RX Pause Frame Counter     0
RX Byte Counter            326889517
RX Unicast Frame Count     0
RX Packet OK Count        0

```

Displaying port statistics for switch 1
 Statistics for port 0 connected to device LCC0:

```

TX Packets 64 Octets      5053443
TX Packets 65-127 Octets  59737
TX Packets 128-255 Octets  768
TX Packets 256-511 Octets  87
TX Packets 512-1023 Octets 68
TX Packets 1024-1518 Octets 85
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX 1519-1522 Good Vlan frms 0
TX Octets                  5114188
TX Multicast Packets       16

```

TX Broadcast Packets	1125742
TX Single Collision frames	0
TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0
TX PAUSEMAC Ctrl Frames	0
TX MAC ctrl frames	0
TX Frame deferred Xms	0
TX Frame excessive deferl	0
TX Oversize Packets	0
TX Jabbers	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	329291449
RX Packets 64 Octets	5640175
RX Packets 65-127 Octets	79875
RX Packets 128-255 Octets	6338
RX Packets 256-511 Octets	165
RX Packets 512-1023 Octets	4317
RX Packets 1024-1518 Octets	10
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Octets	5730880
RX Multicast Packets	4
RX Broadcast Packets	1735007
RX FCS Errors	0
RX Align Errors	0
RX Fragments	0
RX Symbol errors	0
RX Unsupported opcodes	0
RX Out of Range Length	0
RX False Carrier Errors	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX 1519-1522 Good Vlan frms	0
RX MTU Exceed Counter	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	371282850
Statistics for port 18 connected to device SPMB:	
TX Packets 64 Octets	2990326
TX Packets 65-127 Octets	8572
TX Packets 128-255 Octets	4
TX Packets 256-511 Octets	49
TX Packets 512-1023 Octets	0
TX Packets 1024-1518 Octets	10793
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX 1519-1522 Good Vlan frms	0
TX Octets	3009744
TX Multicast Packets	20
TX Broadcast Packets	2458322
TX Single Collision frames	0
TX Mult. Collision frames	0
TX Late Collisions	0
TX Excessive Collisions	0
TX Collision frames	0

```

TX PAUSEMAC Ctrl Frames      0
TX MAC ctrl frames           0
TX Frame deferred Xtns       0
TX Frame excessive deferl    0
TX Oversize Packets          0
TX Jabbers                   0
TX FCS Error Counter         0
TX Fragment Counter          0
TX Byte Counter               203712524
RX Packets 64 Octets         873454
RX Packets 65-127 Octets     8886
RX Packets 128-255 Octets    44
RX Packets 256-511 Octets    21862
RX Packets 512-1023 Octets   2
RX Packets 1024-1518 Octets  49912
RX Packets 1519-2047 Octets  0
RX Packets 2048-4095 Octets  0
RX Packets 4096-9216 Octets  0
RX Octets                    954160
RX Multicast Packets         0
RX Broadcast Packets         402369
RX FCS Errors                0
RX Align Errors              0
RX Fragments                 0
RX Symbol errors             0
RX Unsupported opcodes       0
RX Out of Range Length       0
RX False Carrier Errors      0
RX Undersize Packets         0
RX Oversize Packets          0
RX Jabbers                   0
RX 1519-1522 Good Vlan frms 0
RX MTU Exceed Counter        0
RX Control Frame Counter     0
RX Pause Frame Counter       0
RX Byte Counter              137941752
...

```

```

show chassis ethernet-switch
(T4000 Router) user@host> show chassis ethernet-switch
Displaying summary for switch 0
Link is good on GE port 6 connected to device: FPC0
  Speed is 100Mb
  Duplex is full
  Autonegotiate is Enabled
  False carrier sense count = 04

Link is good on GE port 9 connected to device: FPC3
  Speed is 100Mb
  Duplex is full
  Autonegotiate is Enabled
  False carrier sense count = 03

Link is good on GE port 11 connected to device: FPC5
  Speed is 100Mb
  Duplex is full
  Autonegotiate is Enabled
  False carrier sense count = 03

Link is good on GE port 12 connected to device: FPC6
  Speed is 100Mb
  Duplex is full

```

```
Autonegotiate is Enabled
False carrier sense count = 03
```

```
Link is good on GE port 14 connected to device: SPMB
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
```

```
Link is good on GE port 18 connected to device: RE
Speed is 1000Mb
Duplex is full
Autonegotiate is Disabled
```

```
Link is good on GE port 19 connected to device: Other RE
Speed is 1000Mb
Duplex is full
Autonegotiate is Enabled
```

**show chassis
ethernet-switch errors
(T4000 Router)**

```
user@host> show chassis ethernet-switch errors
```

```
Displaying error for switch 0
```

```
Accumulated error counts for port 6 connected to device FPC0:
```

```
MLT3      0
Lock      0
Xmit      0
ESD       0
False carrier 4
Disconnects 0
FX mode   0
```

```
Accumulated error counts for port 9 connected to device FPC3:
```

```
MLT3      0
Lock      0
Xmit      0
ESD       0
False carrier 3
Disconnects 0
FX mode   0
```

```
Accumulated error counts for port 11 connected to device FPC5:
```

```
MLT3      0
Lock      0
Xmit      0
ESD       0
False carrier 3
Disconnects 0
FX mode   0
```

```
Accumulated error counts for port 12 connected to device FPC6:
```

```
MLT3      0
Lock      0
Xmit      0
ESD       0
False carrier 3
Disconnects 0
FX mode   0
```

```
Accumulated error counts for port 19 connected to device Other RE:
```

```
MLT3      0
Lock      0
Xmit      0
ESD       0
False carrier 0
Disconnects 0
FX mode   0
```

```
show chassis ethernet-switch
(PTX5000 Packet Transport Switch)
```

user@host> show chassis ethernet-switch

Displaying summary for switch 0

Link is good on XE port 2 connected to device: SPMB

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 11 connected to device: FPC7

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 12 connected to device: FPC6

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 13 connected to device: FPC5

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 15 connected to device: FPC3

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 16 connected to device: FPC2

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 18 connected to device: FPC0

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 19 connected to device: OTHER RE

Speed is 1000Mb

Duplex is full

Autonegotiate is Disabled

Flow Control TX is Disabled

Flow Control RX is Disabled

Link is good on XE port 20 connected to device: RE

Speed is 1000Mb

Duplex is full

```

Autonegotiate is Disabled
Flow Control TX is Disabled
Flow Control RX is Disabled

```

```

show chassis ethernet-switch statistics (PTX5000 Packet Transport Switch)
user@host> show chassis ethernet-switch statistics
Displaying port statistics for switch 0
Statistics for port 2 connected to device SPMB:
TX Packets 64 Octets      10942
TX Packets 65-127 Octets  843
TX Packets 128-255 Octets 2
TX Packets 256-511 Octets 2
TX Packets 512-1023 Octets 0
TX Packets 1024-1518 Octets 6862
TX Packets 1519-2047 Octets 0
TX Packets 2048-4095 Octets 0
TX Packets 4096-9216 Octets 0
TX Packets 9217-16383 Octets 0
TX Octets      18651
TX Multicast Packets 6
TX Broadcast Packets 10331
TX PAUSEMAC Ctrl Frames 0
TX Oversize Packets 0
TX FCS Error Counter 0
TX Fragment Counter 0
TX Byte Counter 8105166
TX Packet OK Counter 0
TX Pause Packet Counter 0
TX Unicast Counter 0
RX Packets 64 Octets      8679
RX Packets 65-127 Octets  2364
RX Packets 128-255 Octets 531
RX Packets 256-511 Octets 112
RX Packets 512-1023 Octets 26
RX Packets 1024-1518 Octets 8
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Packets 9217-16383 Octets 0
RX Octets      11720
RX Multicast Packets 0
RX Broadcast Packets 10331
RX FCS Errors 0
RX Fragments 0
RX MAC Control Packets 0
RX Out of Range Length 0
RX Undersize Packets 0
RX Oversize Packets 0
RX Jabbers 0
RX Control Frame Counter 0
RX Pause Frame Counter 0
RX Byte Counter 938105
RX Unicast Frame Count 0
RX Packet OK Count 0
Statistics for port 11 connected to device FPC7:
TX Packets 64 Octets      14492
TX Packets 65-127 Octets  3542
TX Packets 128-255 Octets 6
TX Packets 256-511 Octets 45
TX Packets 512-1023 Octets 60

```

Continued...

Statistics for port 18 connected to device FPC0:

TX Packets 64 Octets	15212
TX Packets 65-127 Octets	3810
TX Packets 128-255 Octets	6
TX Packets 256-511 Octets	43
TX Packets 512-1023 Octets	66
TX Packets 1024-1518 Octets	169
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX Packets 9217-16383 Octets	0
TX Octets	19306
TX Multicast Packets	0
TX Broadcast Packets	10886
TX PAUSEMAC Ctrl Frames	0
TX Oversize Packets	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	1569412
TX Packet OK Counter	0
TX Pause Packet Counter	0
TX Unicast Counter	0
RX Packets 64 Octets	17994
RX Packets 65-127 Octets	8006
RX Packets 128-255 Octets	230
RX Packets 256-511 Octets	19
RX Packets 512-1023 Octets	53
RX Packets 1024-1518 Octets	11
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Packets 9217-16383 Octets	0
RX Octets	26313
RX Multicast Packets	0
RX Broadcast Packets	10886
RX FCS Errors	0
RX Fragments	0
RX MAC Control Packets	0
RX Out of Range Length	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX Control Frame Counter	2
RX Pause Frame Counter	2
RX Byte Counter	1836287
RX Unicast Frame Count	0
RX Packet OK Count	0

Statistics for port 19 connected to device OTHER RE:

TX Packets 64 Octets	10234
TX Packets 65-127 Octets	162
TX Packets 128-255 Octets	0
TX Packets 256-511 Octets	0
TX Packets 512-1023 Octets	0
TX Packets 1024-1518 Octets	0
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX Packets 9217-16383 Octets	0
TX Octets	10396
TX Multicast Packets	8

TX Broadcast Packets	10317
TX PAUSEMAC Ctrl Frames	0
TX Oversize Packets	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	666260
TX Packet OK Counter	0
TX Pause Packet Counter	0
TX Unicast Counter	0
RX Packets 64 Octets	4073
RX Packets 65-127 Octets	325
RX Packets 128-255 Octets	1
RX Packets 256-511 Octets	0
RX Packets 512-1023 Octets	0
RX Packets 1024-1518 Octets	72
RX Packets 1519-2047 Octets	0
RX Packets 2048-4095 Octets	0
RX Packets 4096-9216 Octets	0
RX Packets 9217-16383 Octets	0
RX Octets	4471
RX Multicast Packets	0
RX Broadcast Packets	10317
RX FCS Errors	0
RX Fragments	0
RX MAC Control Packets	0
RX Out of Range Length	0
RX Undersize Packets	0
RX Oversize Packets	0
RX Jabbers	0
RX Control Frame Counter	0
RX Pause Frame Counter	0
RX Byte Counter	387333
RX Unicast Frame Count	0
RX Packet OK Count	0

Statistics for port 20 connected to device RE:

TX Packets 64 Octets	658856
TX Packets 65-127 Octets	45535
TX Packets 128-255 Octets	1900
TX Packets 256-511 Octets	532
TX Packets 512-1023 Octets	372
TX Packets 1024-1518 Octets	191
TX Packets 1519-2047 Octets	0
TX Packets 2048-4095 Octets	0
TX Packets 4096-9216 Octets	0
TX Packets 9217-16383 Octets	0
TX Octets	707386
TX Multicast Packets	0
TX Broadcast Packets	10421
TX PAUSEMAC Ctrl Frames	0
TX Oversize Packets	0
TX FCS Error Counter	0
TX Fragment Counter	0
TX Byte Counter	46608676
TX Packet OK Counter	0
TX Pause Packet Counter	0
TX Unicast Counter	0
RX Packets 64 Octets	27394
RX Packets 65-127 Octets	20271
RX Packets 128-255 Octets	78
RX Packets 256-511 Octets	215
RX Packets 512-1023 Octets	269

```

RX Packets 1024-1518 Octets 253370
RX Packets 1519-2047 Octets 0
RX Packets 2048-4095 Octets 0
RX Packets 4096-9216 Octets 0
RX Packets 9217-16383 Octets 0
RX Octets 301597
RX Multicast Packets 8
RX Broadcast Packets 10421
RX FCS Errors 0
RX Fragments 0
RX MAC Control Packets 0
RX Out of Range Length 0
RX Undersize Packets 0
RX Oversize Packets 0
RX Jabbers 0
RX Control Frame Counter 0
RX Pause Frame Counter 0
RX Byte Counter 275043436
RX Unicast Frame Count 0
RX Packet OK Count 0

```

Continued ...

```

show chassis user@host> show chassis ethernet-switch port-state
ethernet-switch Displaying port state for switch 0
port-state (PTX5000 Port : 02
Packet Transport Target : SPMB
Switch) Error reading port 2 connected to device: SPMB

```

show chassis fabric fpcs

Syntax	show chassis fabric fpcs <fcc <i>number</i> >
Syntax (MX Series Routers)	show chassis fabric fpcs <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis fabric fpcs
Syntax (MX2020 3D Universal Edge Routers)	show chassis fabric fpcs
Syntax (T4000 Core Router)	show chassis fabric fpcs
Syntax (PTX Series Packet Transport Switches)	show chassis fabric fpcs <slot <i>fpc-slot</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.4 for EX Series switches. Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.
Description	(M320, MX Series, and T Series routers, EX8200 switches, and PTX Series Packet Transport Switches only) Display the state of the electrical switch fabric links between the Flexible PIC Concentrators (FPCs) and the Switch Interface Boards (SIBs).
Options	<p>none—Display the switch fabric link state. On a TX Matrix router, display the switching fabric link states for the FPCs in all T640 routers connected to the TX Matrix router. On a TX Matrix Plus router, display the switching fabric link states for the FPCs in all T1600 routers connected to the TX Matrix Plus router.</p> <p>all-members—(MX Series routers only) (Optional) Display the switching fabric link states for the FPCs in all members of the Virtual Chassis configuration.</p> <p>fcc <i>number</i>—(TX Matrix and TX Matrix Plus router only) (Optional) On a TX Matrix router, display the switch fabric link state for the FPCs in the specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display the switch fabric link state for the FPCs in the specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>local—(MX Series routers only) (Optional) Display the switching fabric link states for the FPCs in the local Virtual Chassis member.</p>

member *member-id*—(MX Series routers only) (Optional) Display the switching fabric link states for the FPCs in the specified member of the Virtual Chassis configuration. Replace *member-id* with a value of 0 or 1.

slot *fpc-slot*—(PTX Series Packet Transport Switches only) (Optional) Display the fabric state of the specified FPC slot. If no value is provided, display the status of all FPCs.

Required Privilege Level

view

List of Sample Output

[show chassis fabric fpcs \(M320 Router\) on page 354](#)
[show chassis fabric fpcs \(MX240 Router\) on page 355](#)
[show chassis fabric fpcs \(MX480 Router\) on page 355](#)
[show chassis fabric fpcs \(MX960 Router\) on page 356](#)
[show chassis fabric fpcs \(MX240 with AS MLC Modular Carrier Card\) on page 357](#)
[show chassis fabric fpcs \(MX480 with AS MLC Modular Carrier Card\) on page 358](#)
[show chassis fabric fpcs \(MX960 with AS MLC Modular Carrier Card\) on page 358](#)
[show chassis fabric fpcs \(MX2010 Router\) on page 360](#)
[show chassis fabric fpcs \(MX2020 Router\) on page 363](#)
[show chassis fabric fpcs \(T320 Router\) on page 366](#)
[show chassis fabric fpcs \(T640 Router\) on page 366](#)
[show chassis fabric fpcs \(TX Matrix Router\) on page 367](#)
[show chassis fabric fpcs \(T1600 Router\) on page 368](#)
[show chassis fabric fpcs \(T4000 Core Router\) on page 369](#)
[show chassis fabric fpcs \(TX Matrix Plus Router\) on page 371](#)
[show chassis fabric fpcs lcc \(TX Matrix Plus Router\) on page 378](#)
[show chassis fabric fpcs \(EX8200 Switch\) on page 379](#)
[show chassis fabric fpcs \(PTX Series Packet Transport Switches\) on page 380](#)

Output Fields

[Table 18 on page 354](#) lists the output fields for the **show chassis fabric fpcs** command. Output fields are listed in the approximate order in which they appear.

Table 18: show chassis fabric fpcs Output Fields

Field Name	Field Description
Fabric management FPC state	<p>Switching fabric link (link from SIB to FPC) state for each FPC:</p> <ul style="list-style-type: none"> • Unused—FPC is not present. (On MX240 and MX480 routers with AS- MLC modular carrier card only) the fabric plane from the pair that share physical links (1 and 5, and 3 and 7) is inactive. • Destination error on PFEs <i>list of PFE numbers</i>—Destination errors to the listed Packet Forwarding Engines. Indicates that the link is not carrying traffic to the listed Packet Forwarding Engines. <p>NOTE: In Junos OS Release 9.6 and later, the list of Packet Forwarding Engines with destination errors is displayed in the output.</p> <p>In Junos OS Releases before 9.6, the output only indicates that there are destination errors. However, the list of Packet Forwarding Engines with destination errors is not displayed.</p> <ul style="list-style-type: none"> • Links ok—Link between the spare SIB and FPC is eligible to carry traffic. • Link error—Link between the SIB and FPC has CRC errors. However, the link is still eligible to carry traffic. • Plane disabled—Fabric plane has been disabled for the following reasons: <ul style="list-style-type: none"> • Destination errors have exceeded the thresholds. • Run-time link errors have exceeded the thresholds. • Initialization time link errors detected, and link training was unsuccessful. • Plane Disabled, Links Error (PTX Series Packet Transport Switches only)—The plane is disabled because of link errors detected at the FPC RX. • Plane Disabled, Links Down (PTX Series Packet Transport Switches only)—The plane is disabled because of link errors detected at the SIB RX. • Plane enabled—Link between the active SIB and FPC is eligible to carry traffic. <p>NOTE: On the Enhanced MX SCB with MPC, a maximum of 4 planes are operational and running. On all the other SCBs with MPC, all the planes are operational and running.</p> <ul style="list-style-type: none"> • Plane Enabled, Links OK (PTX Series Packet Transport Switches only)—The FPC CCL RX link is eligible to carry traffic.

Sample Output

show chassis fabric
fpcs (M320 Router)

```

user@host> show chassis fabric fpcs
Fabric management FPC state:
FPC #2
  PFE #1
    SIB #0      Plane enabled
    SIB #1      Plane enabled

```

```

SIB #2
    Plane enabled
SIB #3
    Plane enabled

```

show chassis fabric fpcs (MX240 Router) user@host> **show chassis fabric fpcs**
Fabric management FPC state:

```

FPC 2
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
    Plane 6: Links ok
    Plane 7: Links ok
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
    Plane 6: Links ok
    Plane 7: Links ok
  PFE #2
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
    Plane 6: Links ok
    Plane 7: Links ok
  PFE #3
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
    Plane 6: Links ok
    Plane 7: Links ok

```

show chassis fabric fpcs (MX480 Router) user@host> **show chassis fabric fpcs**

```

FPC 0
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
    Plane 6: Links ok
    Plane 7: Links ok
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled

```

```

        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
        Plane 6: Links ok
        Plane 7: Links ok
    PFE #2
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
        Plane 6: Links ok
        Plane 7: Links ok
    PFE #3
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
        Plane 6: Links ok
        Plane 7: Links ok
    FPC 1
        PFE #0
            Plane 0: Plane enabled
            Plane 1: Plane enabled
            Plane 2: Plane enabled
            Plane 3: Plane enabled
            Plane 4: Plane enabled
            Plane 5: Plane enabled
            Plane 6: Plane enabled
            Plane 7: Plane enabled
        PFE #1
            Plane 0: Plane enabled
            Plane 1: Plane enabled
            Plane 2: Plane enabled
            Plane 3: Plane enabled
            Plane 4: Plane enabled
            Plane 5: Plane enabled
            Plane 6: Plane enabled
            Plane 7: Plane enabled

```

show chassis fabric fpcs (MX960 Router) user@host> show chassis fabric fpcs

```

FPC 0
    PFE #0
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
    PFE #1
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
    PFE #2
        Plane 0: Plane enabled

```

```

        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
    PFE #3
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
FPC 1
    PFE #0
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Plane enabled
        Plane 5: Plane enabled
    PFE #1
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Plane enabled
        Plane 5: Plane enabled
FPC 2
    PFE #0
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
    PFE #1
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
        Plane 5: Links ok
    PFE #2
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Links ok
    ...

```

**show chassis fabric
fpcs (MX240 with AS
MLC Modular Carrier
Card)**

In the following output, FPC 1 is the AS MLC modular carrier card (AS MCC).

```

user@host>show chassis fabric fpcs
FPC 1
    PFE #0
        Plane 0: Plane enabled
        Plane 1: Plane enabled
        Plane 2: Plane enabled
        Plane 3: Plane enabled
        Plane 4: Plane enabled
        Plane 5: Unused

```

```
Plane 6: Plane enabled
Plane 7: Unused
FPC 2
PFE #0
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Plane enabled
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
```

**show chassis fabric
fpcs (MX480 with AS
MLC Modular Carrier
Card)**

In the following output, FPC 5 is the AS MLC modular carrier card (AS MCC).

```
user@host>show chassis fabric fpcs
FPC 2
PFE #0
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Plane enabled
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
FPC 4
PFE #0
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
Plane 6: Links ok
Plane 7: Links ok
PFE #2
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
Plane 6: Links ok
Plane 7: Links ok
FPC 5
PFE #0
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Plane enabled
Plane 5: Unused
Plane 6: Plane enabled
Plane 7: Unused
```

**show chassis fabric
fpcs (MX960 with AS
MLC Modular Carrier
Card)**

In the following output, FPC 5 is the AS MLC modular carrier card (AS MCC).

```
user@host>show chassis fabric fpcs
```

```
Fabric management FPC state:
FPC 0
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
FPC 1
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
FPC 4
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
  PFE #2
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
  PFE #3
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
FPC 5
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Links ok
    Plane 5: Links ok
```

```
FPC 8
PFE #0
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
PFE #1
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
PFE #2
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
PFE #3
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
```

show chassis fabric user@host> **show chassis fabric fpcs**
fpcs (MX2010 Router) Fabric management FPC state:

```
FPC 0
PFE #0
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane disabled
Plane 4: Plane enabled
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
PFE #1
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane disabled
Plane 4: Plane enabled
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
FPC 1
PFE #0
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane disabled
Plane 4: Plane enabled
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
```

```
FPC 2
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
FPC 3
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #2
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #3
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
FPC 4
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
```

```

        Plane 3: Plane disabled
        Plane 4: Plane enabled
        Plane 5: Plane enabled
        Plane 6: Plane enabled
        Plane 7: Plane enabled
FPC 5
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
FPC 6
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #2
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #3
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled

```

```

FPC 7
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
FPC 8
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
FPC 9
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane disabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled

```

```

show chassis fabric user@host> show chassis fabric fpcs
fpcs (MX2020 Router) Fabric management FPC state:

```

```

FPC 0
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled

```

PFE #1
 Plane 0: Plane enabled
 Plane 1: Plane enabled
 Plane 2: Plane enabled
 Plane 3: Plane enabled
 Plane 4: Plane enabled
 Plane 5: Plane enabled
 Plane 6: Plane enabled
 Plane 7: Plane enabled

PFE #2
 Plane 0: Plane enabled
 Plane 1: Plane enabled
 Plane 2: Plane enabled
 Plane 3: Plane enabled
 Plane 4: Plane enabled
 Plane 5: Plane enabled
 Plane 6: Plane enabled
 Plane 7: Plane enabled

PFE #3
 Plane 0: Plane enabled
 Plane 1: Plane enabled
 Plane 2: Plane enabled
 Plane 3: Plane enabled
 Plane 4: Plane enabled
 Plane 5: Plane enabled
 Plane 6: Plane enabled
 Plane 7: Plane enabled

FPC 1

PFE #0
 Plane 0: Plane enabled
 Plane 1: Plane enabled
 Plane 2: Plane enabled
 Plane 3: Plane enabled
 Plane 4: Plane enabled
 Plane 5: Plane enabled
 Plane 6: Plane enabled
 Plane 7: Plane enabled

PFE #1
 Plane 0: Plane enabled
 Plane 1: Plane enabled
 Plane 2: Plane enabled
 Plane 3: Plane enabled
 Plane 4: Plane enabled
 Plane 5: Plane enabled
 Plane 6: Plane enabled
 Plane 7: Plane enabled

PFE #2
 Plane 0: Plane enabled
 Plane 1: Plane enabled
 Plane 2: Plane enabled
 Plane 3: Plane enabled
 Plane 4: Plane enabled
 Plane 5: Plane enabled
 Plane 6: Plane enabled
 Plane 7: Plane enabled

PFE #3
 Plane 0: Plane enabled
 Plane 1: Plane enabled
 Plane 2: Plane enabled
 Plane 3: Plane enabled
 Plane 4: Plane enabled

```
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
FPC 2
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #2
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #3
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
FPC 3
  PFE #0
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #1
    Plane 0: Plane enabled
    Plane 1: Plane enabled
    Plane 2: Plane enabled
    Plane 3: Plane enabled
    Plane 4: Plane enabled
    Plane 5: Plane enabled
    Plane 6: Plane enabled
    Plane 7: Plane enabled
  PFE #2
    Plane 0: Plane enabled
```

```
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Plane enabled
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
PFE #3
Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Plane enabled
Plane 5: Plane enabled
Plane 6: Plane enabled
Plane 7: Plane enabled
FPC 4
...
```

show chassis fabric fpcs (T320 Router) user@host> show chassis fabric fpcs

```
FPC #3
PFE #1
SIB #0
Links ok
SIB #1
Plane enabled
SIB #2
Plane enabled
FPC #5
PFE #1
SIB #0
Links ok
SIB #1
Plane enabled
SIB #2
Plane enabled
FPC #7
PFE #1
SIB #0
Links ok
SIB #1
Plane enabled
SIB #2
Plane enabled
```

show chassis fabric fpcs (T640 Router) user@host> show chassis fabric fpcs

```
Fabric management FPC state:
FPC #2
PFE #1
SIB #0
Links ok
SIB #1
Plane enabled
SIB #2
Plane enabled
SIB #3
Plane enabled
SIB #4
Plane enabled
FPC #3
```

```

PFE #1
SIB #2
    Plane enabled
SIB #3
    Link error
    Destination error on PFes      0   1   2   3   4   5   6   7
      8   9  10  11  12  13  14  15  16  17  18  19  20  21
SIB #4
    Destination error on PFes      0   1   2   3   4   5   6   7
      8   9  10  11  12  13  14  15  16  17  18  19  20  21
...

```

show chassis fabric
fpcs (TX Matrix
Router)

```

user@host> show chassis fabric fpcs
lcc0-re0:
-----
Fabric management FPC state:
FPC #0
  PFE #1
    SIB #0
      Links ok
    SIB #2
      Links ok
    SIB #3
      Links ok
    SIB #4
      Links ok
FPC #2
  PFE #1
    SIB #0
      Links ok
    SIB #2
      Links ok
    SIB #3
      Links ok
    SIB #4
      Links ok
FPC #3
  PFE #1
    SIB #2
      Plane enabled
    SIB #3
      Link error
      Destination error on PFes      0   1   2   3   4   5   6   7
        8   9  10  11  12  13  14  15  16  17  18  19  20  21
    SIB #4
      Destination error on PFes      0   1   2   3   4   5   6   7
        8   9  10  11  12  13  14  15  16  17  18  19  20  21
...
FPC #4
  PFE #0
    SIB #4 Links ok
  PFE #1
    SIB #4 Links ok
FPC #5
  PFE #1
    SIB #4 Links ok
FPC #6
  PFE #1
    SIB #4 Links ok
lcc2-re0:
-----

```

```
Fabric management FPC state:
FPC #0
  PFE #1
    SIB #4 Links ok
FPC #1
  PFE #1
    SIB #4 Links ok
FPC #2
  PFE #0
    SIB #4 Links ok
  PFE #1
    SIB #4 Links ok
FPC #4
  PFE #0
    SIB #4 Links ok
  PFE #1
    SIB #4 Links ok
FPC #5
  PFE #1
    SIB #4 Links ok
```

**show chassis fabric
fpcs (T1600 Router)**

```
user@host> show chassis fabric fpcs
Fabric management FPC state:
FPC #0
  PFE #0
    SIB #0
      Links ok
    SIB #1
      Plane enabled
    SIB #2
      Plane enabled
    SIB #3
      Plane enabled
    SIB #4
      Plane enabled
  PFE #1
    SIB #0
      Links ok
    SIB #1
      Plane enabled
    SIB #2
      Plane enabled
    SIB #3
      Plane enabled
    SIB #4
      Plane enabled
FPC #1
  PFE #0
    SIB #0
      Links ok
    SIB #1
      Plane enabled
    SIB #2
      Plane enabled
    SIB #3
      Plane enabled
    SIB #4
      Plane enabled
  PFE #1
    SIB #0
      Links ok
```

```

SIB #1
    Plane enabled
SIB #2
    Plane enabled
SIB #3
    Plane enabled
SIB #4
    Plane enabled
FPC #2
  PFE #0
    SIB #0
      Links ok
    SIB #1
      Plane enabled
    SIB #2
      Plane enabled
    SIB #3
      Plane enabled
    SIB #4
      Plane enabled
FPC #4
  PFE #0
    SIB #0
      Links ok
    SIB #1
      Plane enabled
    SIB #2
      Plane enabled
    SIB #3
      Plane enabled
    SIB #4
      Plane enabled
  PFE #1
    SIB #0
      Links ok
    SIB #1
      Plane enabled
    SIB #2
      Plane enabled
    SIB #3
      Plane enabled
    SIB #4
      Plane enabled
FPC #3
  PFE #1
    SIB #2
      Plane enabled
    SIB #3
      Link error
      Destination error on PFES
      8   9   10  11  12  13  14  15  16  17  18  19  20  21
SIB #4
      Destination error on PFES
      8   9   10  11  12  13  14  15  16  17  18  19  20  21

```

```

show chassis fabric Fabric management FPC state:
fpcs (T4000 Core    FPC #2
Router)           PFE #0
                  SIB #0
                    Links ok
                  SIB #1

```

```

        Plane enabled
    SIB #2
        Plane enabled
    SIB #3
        Plane enabled
    SIB #4
        Plane enabled
FPC #3
  PFE #0
    SIB #0
        Links ok
    SIB #1
        Plane enabled
    SIB #2
        Plane enabled
    SIB #3
        Plane enabled
    SIB #4
        Plane enabled
FPC #5
  PFE #0
    SIB #0
        Links ok
    SIB #1
        Plane enabled
    SIB #2
        Plane enabled
    SIB #3
        Plane enabled
    SIB #4
        Plane enabled
  PFE #1
    SIB #0
        Links ok
    SIB #1
        Plane enabled
    SIB #2
        Plane enabled
    SIB #3
        Plane enabled
    SIB #4
        Plane enabled
FPC #6
  PFE #0
    SIB #0
        Links ok
    SIB #1
        Plane enabled
    SIB #2
        Plane enabled
    SIB #3
        Plane enabled
    SIB #4
        Plane enabled
  PFE #1
    SIB #0
        Links ok
    SIB #1
        Plane enabled
    SIB #2
        Plane enabled

```

```

SIB #3
    Plane enabled
SIB #4
    Plane enabled

show chassis fabric fpcs (TX Matrix Plus Router)
user@host> show chassis fabric fpcs
lcc0-re0:
-----
Fabric management FPC state:
FPC #0
  PFE #1
    SIB #0
      Unused
    SIB #1
      Links ok
    SIB #2
      Links ok
    SIB #3
      Links ok
    SIB #4
      Links ok
  FPC #2
    PFE #0
      SIB #0
        Unused
      SIB #1
        Links ok
      SIB #2
        Links ok
      SIB #3
        Links ok
      SIB #4
        Links ok
    PFE #1
      SIB #0
        Unused
      SIB #1
        Links ok
      SIB #2
        Links ok
      SIB #3
        Links ok
      SIB #4
        Links ok
  FPC #3
    PFE #1
      SIB #2
        Plane enabled
      SIB #3
        Link error
        Destination error on PFEs
        0  1  2  3  4  5  6  7
        8  9 10 11 12 13 14 15 16 17 18 19 20 21
      SIB #4
        Destination error on PFEs
        0  1  2  3  4  5  6  7
        8  9 10 11 12 13 14 15 16 17 18 19 20 21
  FPC #4
    PFE #0
      SIB #0
        Unused
      SIB #1
        Links ok

```

```

SIB #2
    Links ok
SIB #3
    Links ok
SIB #4
    Links ok
PFE #1
    SIB #0
        Unused
    SIB #1
        Links ok
    SIB #2
        Links ok
    SIB #3
        Links ok
    SIB #4
        Links ok
FPC #6
    PFE #0
        SIB #0
            Unused
        SIB #1
            Links ok
        SIB #2
            Links ok
        SIB #3
            Links ok
        SIB #4
            Links ok
    PFE #1
        SIB #0
            Unused
        SIB #1
            Links ok
        SIB #2
            Links ok
        SIB #3
            Links ok
        SIB #4
            Links ok
FPC #7
    PFE #0
        SIB #0
            Unused
        SIB #1
            Links ok
        SIB #2
            Links ok
        SIB #3
            Links ok
        SIB #4
            Links ok

```

lcc1-re0:

Fabric management FPC state:

```

FPC #2
    PFE #0
        SIB #0
            Links ok
        SIB #1

```

```

        Links ok
    SIB #2
        Links ok
    SIB #3
        Links ok
    SIB #4
        Links ok
PFE #1
    SIB #0
        Links ok
    SIB #1
        Links ok
    SIB #2
        Links ok
    SIB #3
        Links ok
    SIB #4
        Links ok
FPC #4
    PFE #0
        SIB #0
            Links ok
        SIB #1
            Links ok
        SIB #2
            Links ok
        SIB #3
            Links ok
        SIB #4
            Links ok
    PFE #1
        SIB #0
            Links ok
        SIB #1
            Links ok
        SIB #2
            Links ok
        SIB #3
            Destination error on PFES      1      8      9      29      40      65      72      73
            93 104
        SIB #4
            Links ok
FPC #6
    PFE #0
        SIB #0
            Links ok
        SIB #1
            Links ok
        SIB #2
            Links ok
        SIB #3
            Links ok
        SIB #4
            Links ok
    PFE #1
        SIB #0
            Links ok
        SIB #1
            Links ok
        SIB #2

```

```

SIB #3 Links ok
SIB #4 Links ok
FPC #7
PFE #0
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok

```

lcc2-re0:

Fabric management FPC state:

```

FPC #0
PFE #0
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok
PFE #1
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok
FPC #2
PFE #0
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok
PFE #1
SIB #0 Links ok
SIB #1 Links ok

```

```
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
FPC #4
PFE #0
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
FPC #5
PFE #0
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
PFE #1
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
FPC #6
PFE #0
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
PFE #1
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
```

```

SIB #4 Links ok
SIB #4 Links ok
FPC #7
PFE #0
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok
SIB #4 Links ok

```

lcc3-re0:

Fabric management FPC state:

```

FPC #0
PFE #0
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok
PFE #1
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok
FPC #2
PFE #0
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok
PFE #1
SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok

```

```
SIB #3
Links ok
SIB #4
Links ok
FPC #4
PFE #0
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
PFE #1
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
FPC #5
PFE #0
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
PFE #1
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
Links ok
FPC #6
PFE #0
SIB #0
Links ok
SIB #1
Links ok
SIB #2
Links ok
SIB #3
Links ok
SIB #4
```

```

        Links ok
PFE #1
  SIB #0
    Links ok
  SIB #1
    Links ok
  SIB #2
    Links ok
  SIB #3
    Links ok
  SIB #4
    Links ok
FPC #7
PFE #0
  SIB #0
    Links ok
  SIB #1
    Links ok
  SIB #2
    Links ok
  SIB #3
    Links ok
  SIB #4
    Links ok

```

**show chassis fabric
fpcs lcc (TX Matrix
Plus Router)**

```

user@host> show chassis fabric fpcs lcc 0
lcc0-re1:
-----
Fabric management FPC state:
FPC #3
  PFE #1
    SIB #2
      Plane enabled
    SIB #3
      Link error
      Destination error on PFEs
        0  1  2  3  4  5  6  7
        8  9 10 11 12 13 14 15 16 17 18 19 20 21
    SIB #4
      Destination error on PFEs
        0  1  2  3  4  5  6  7
        8  9 10 11 12 13 14 15 16 17 18 19 20 21
FPC #4
  PFE #0
    SIB #0 Links ok
    SIB #1 Links ok
    SIB #2 Links ok
    SIB #3 Links ok
    SIB #4 Links ok
  PFE #1
    SIB #0 Links ok
    SIB #1 Links ok
    SIB #2 Links ok
    SIB #3 Links ok
    SIB #4 Links ok
FPC #6
  PFE #0
    SIB #0 Links ok
    SIB #1 Links ok
    SIB #2 Links ok
    SIB #3 Links ok
    SIB #4 Links ok
  PFE #1

```

```

SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok

```

```
FPC #7
```

```
PFE #0
```

```

SIB #0 Links ok
SIB #1 Links ok
SIB #2 Links ok
SIB #3 Links ok
SIB #4 Links ok

```

show chassis fabric fpcs (EX8200 Switch) user@host> **show chassis fabric fpcs**
Fabric management FPC state

```
FPC 6
```

```
PFE #0
```

```

Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
Plane 6: Links ok
Plane 7: Links ok
Plane 8: Plane enabled
Plane 9: Plane enabled
Plane 10: Plane enabled
Plane 11: Plane enabled

```

```
PFE #1
```

```

Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
Plane 6: Links ok
Plane 7: Links ok
Plane 8: Plane enabled
Plane 9: Plane enabled
Plane 10: Plane enabled
Plane 11: Plane enabled

```

```
FPC 7
```

```
PFE #0
```

```

Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled
Plane 4: Links ok
Plane 5: Links ok
Plane 6: Links ok
Plane 7: Links ok
Plane 8: Plane enabled
Plane 9: Plane enabled
Plane 10: Plane enabled
Plane 11: Plane enabled

```

```
PFE #1
```

```

Plane 0: Plane enabled
Plane 1: Plane enabled
Plane 2: Plane enabled
Plane 3: Plane enabled

```

```

Plane 4: Links ok
Plane 5: Links ok
Plane 6: Links ok
Plane 7: Links ok
Plane 8: Plane enabled
Plane 9: Plane enabled
Plane 10: Plane enabled
Plane 11: Plane enabled

```

**show chassis fabric
fpcs (PTX Series
Packet Transport
Switches)**

```
user@host> show chassis fabric fpcs slot 0
```

```
Fabric management FPC state:
```

```
FPC #0
```

```
PFE #0
```

```

SIB0_Fcore0 (plane 0)  Plane Enabled, Links OK
SIB0_Fcore1 (plane 1)  Plane Enabled, Links OK
SIB1_Fcore0 (plane 2)  Plane Disabled, Links Down
SIB1_Fcore1 (plane 3)  Plane Enabled, Links OK
SIB2_Fcore0 (plane 4)  Plane Enabled, Links OK
SIB2_Fcore1 (plane 5)  Plane Enabled, Links OK
SIB3_Fcore0 (plane 6)  Plane Enabled, Links OK
SIB3_Fcore1 (plane 7)  Plane Enabled, Links OK
SIB5_Fcore0 (plane 10) Plane Enabled, Links OK
SIB5_Fcore1 (plane 11) Plane Enabled, Links OK
SIB6_Fcore0 (plane 12) Plane Enabled, Links OK
SIB6_Fcore1 (plane 13) Plane Enabled, Links OK
SIB7_Fcore0 (plane 14) Plane Enabled, Links OK
SIB7_Fcore1 (plane 15) Plane Enabled, Links OK
SIB8_Fcore0 (plane 16) Plane Enabled, Links OK
SIB8_Fcore1 (plane 17) Plane Enabled, Links OK

```

show chassis fabric plane

Syntax	show chassis fabric plane
Syntax (TX Matrix Plus Routers)	show chassis fabric plane <detail extensive terse> <lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Routers)	show chassis fabric plane <detail extensive terse> <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis fabric plane
Syntax (MX2020 3D Universal Edge Routers)	show chassis fabric plane
Release Information	<p>Command introduced in Junos OS Release 8.0.</p> <p>Command introduced in Junos OS Release 9.4 for EX Series switches.</p> <p>detail, extensive, lcc, sfc, and terse options introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	<p>(TX Matrix Plus, T1600, M120, and MX Series routers and EX8200 switches only) On the M120 router, display the state of all fabric plane connections to the Forwarding Engine Boards (FEBs). On MX Series routers, display the state of all fabric plane connections to the Dense Port Concentrators (DPCs) and Packet Forwarding Engines (PFEs) on the Flexible PIC Concentrators (FPCs). On the TX Matrix Plus router and T1600 routers in a routing matrix, display the state of the fabric management plane and the logical planes on the switch-fabric chassis (SFC) and line-card chassis (LCC). On EX8200 switches, display the state of all fabric planes. This command can be used on the master Routing Engine only.</p>
Options	<p>none—(MX2010 and MX2020 Routers only) (Optional) Display the state of the fabric management plane.</p> <p>detail—(TX Matrix Plus and T1600 routers in a routing matrix, and MX Series routers only) (Optional) Display detailed output for the fabric management plane. Show Switch Interface Board (SIB) states for the TXP-F13 SIB and TXP-F2S SIB.</p> <p>extensive—(TX Matrix Plus and T1600 routers in a routing matrix, and MX Series routers only) (Optional) Display extensive output for the fabric management plane, including the state of the optical links between the F13 SIB on the TX Matrix Plus router and the TXP-T1600 SIB (ST-SIB-L) on the T1600 router.</p>

terse—(TX Matrix Plus router and MX Series routers only) (Optional) Display terse output for the fabric management plane.

all-members—(MX Series routers only) (Optional) Display the state of all fabric plane connections on all members of the Virtual Chassis configuration.

lcc *number*—(TX Matrix Plus router only) (Optional) T1600 router (LCC) that is connected to a TX Matrix Plus router. Replace *number* with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display the state of all fabric plane connections on the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Display the state of all fabric plane connections on the specified member of the Virtual Chassis configuration. Replace *member-id* with a value of 0 or 1.

sfc *number*—(TX Matrix Plus router only) (Optional) Show information about the TX Matrix Plus router (SFC). Replace *number* with 0.

Required Privilege Level

view

Related Documentation

- request chassis fabric plane
- [show chassis fabric plane-location on page 418](#)

List of Sample Output

[show chassis fabric plane \(M120 Router\) on page 389](#)
[show chassis fabric plane \(MX240 Router\) on page 390](#)
[show chassis fabric plane \(MX480 Router\) on page 391](#)
[show chassis fabric plane \(MX960 Router\) on page 392](#)
[show chassis fabric plane \(MX240 with AS MLC Modular Carrier Card\) on page 393](#)
[show chassis fabric plane \(MX480 with AS MLC Modular Carrier Card\) on page 394](#)
[show chassis fabric plane \(MX960 with AS-MLC Modular Carrier Card\) on page 395](#)
[show chassis fabric plane \(MX2010 Router\) on page 397](#)
[show chassis fabric plane \(MX2020 Router\) on page 401](#)
[show chassis fabric plane \(TX Matrix Plus Router\) on page 406](#)
[show chassis fabric plane detail \(TX Matrix Plus Router\) on page 406](#)
[show chassis fabric plane extensive \(TX Matrix Plus Router\) on page 407](#)
[show chassis fabric plane extensive \(TX Matrix Plus Router\) on page 409](#)
[show chassis fabric plane terse \(TX Matrix Plus Router\) on page 410](#)
[show chassis fabric plane lcc \(TX Matrix Plus Router\) on page 410](#)
[show chassis fabric plane sfc \(TX Matrix Plus Router\) on page 410](#)
[show chassis fabric plane \(T1600 Router\) on page 411](#)
[show chassis fabric plane extensive \(T1600 Router\) on page 411](#)
[show chassis fabric plane detail \(T1600 Router\) on page 413](#)
[show chassis fabric plane extensive \(TX Matrix Plus Router\) on page 414](#)
[show chassis fabric plane \(EX8200 Switch\) on page 417](#)

Output Fields

[Table 19 on page 383](#) lists the output fields for the **show chassis fabric plane** command. Output fields are listed in the approximate order in which they appear.

Table 19: show chassis fabric plane Output Fields

Field Name	Field Description	Level of output
Plane	(TX Matrix Plus, MX Series, and M120 routers and EX8200 switches only) Number of the plane.	none
Plane state	<p>(MX Series and M120 routers and EX8200 switches only) State of each plane:</p> <ul style="list-style-type: none"> • ACTIVE—SIB is operational and running. <p>NOTE: On the Enhanced MX SCB with Trio MPC, a maximum of 4 planes are operational and running. On all the other SCBs with Trio MPC, all the planes are operational and running.</p> <ul style="list-style-type: none"> • FAULTY— SIB is in alarmed state where the SIB's plane is not operational for the following reasons: <ul style="list-style-type: none"> • On-board fabric ASIC is not operational. • Fiber optic connector faults. • FPC connector faults. • SIB midplane connector faults. <p>(MX2010 and MX2020 Routers only) State of each plane:</p> <ul style="list-style-type: none"> • ACTIVE—SFB is operational and running. • OFFLINE— SFB is in offline. 	none
FEB	<p>(M120 routers only) FEB number and state of links to each FEB:</p> <ul style="list-style-type: none"> • Link error—Link between SIB and FPC is not operational. • Links ok—Link between SIB and FPC is active. • Unused—No FPC is present. 	none
FPC	(MX Series routers only) Slot number of each Dense Port Concentrator (DPC) or Flexible PIC Concentrator (FPC). An FPC occupies two DPC slots on an MX Series router. The interface corresponds to the lowest numbered DPC slot for which the FPC is installed.	none

Table 19: show chassis fabric plane Output Fields (*continued*)

Field Name	Field Description	Level of output
PFE	<p>(MX Series and M120 routers only) Slot number of each Packet Forwarding Engine and the state of the links to the DCP: Links ok, Link error, or Unused. Each DPC includes four Packet Forwarding Engines.</p> <ul style="list-style-type: none"> • Links ok: Link between SIB and FPC is active. • Link error: Link between SIB and FPC is not operational. • Unused: No FPC is present. <p>(On MX240 and MX480 routers with AS MLC modular carrier card) Indicates that the link between the fabric plane and the hardware link on the modular carrier card is not operational.</p> <p>(MX2010 and MX2020 Routers only) Slot number of each Packet Forwarding Engine and the state of the links to the DPC: Links ok, Link error, or Unused. Each DPC includes four Packet Forwarding Engines.</p> <ul style="list-style-type: none"> • Links ok: Link between SFB and FPC is active. • Link error: Link between SFB and FPC is not operational. • Unused: No FPC is present. 	none
State	<p>(TX Matrix Plus and T1600 routers in a routing matrix only)—State of the fabric plane:</p> <ul style="list-style-type: none"> • Online: Fabric plane is operational and running and links on the SIB are operational. • Offline: Fabric plane state is Offline because the plane does not have four or more F2S and one F13 online. • Empty: Fabric plane state is Empty if all SIBs in the plane are absent. • Spare: Fabric plane is redundant and can be operational if the operational fabric plane encounters an error. • Check: Fabric plane is in alarmed state due to the following reason and the cause of the error must be resolved: <ul style="list-style-type: none"> • One or more SIBs (belonging to the fabric plane) in the Online or Spare states has transitioned to the Check state. Check state of the SIB can be caused by link errors or destination errors. • Fault: Fabric plane is in alarmed state if one or more SIBs belonging to the plane are in the Fault state. A SIB can be in the Fault state because of the following reasons: <ul style="list-style-type: none"> • On-board fabric ASIC is not operational. • Fiber optic connector faults. • FPC connector faults. • SIB midplane connector faults. • Link errors have exceeded the threshold. 	none
Uptime	<p>(TX Matrix Plus and T1600 routers in a routing matrix only)—Time the fabric plane has been up and running.</p>	none

Table 19: show chassis fabric plane Output Fields (*continued*)

Field Name	Field Description	Level of output
Fabric Management Plane State Output Fields for the show chassis fabric plane extensive Command on a TX Matrix Plus Router		
PLANE <i>number</i>	State of the fabric plane: <ul style="list-style-type: none"> • Online: Fabric plane is operational and running and links on the SIB are operational. • Offline: Fabric plane state is Offline because the plane does not have 4 or more F2S and 1 F13 online. • Empty: Fabric plane state is Empty if all SIBs in the plane are absent. • Spare: Fabric plane is redundant and can be operational if the operational fabric plane encounters an error. • Check: Fabric plane is in alarmed state due to the following reasons and the cause of the error must be resolved: <ul style="list-style-type: none"> • One or more SIBs (belonging to the fabric plane) in the Online or Spare states has transitioned to the Check state. Check state of the SIB can be caused because of link errors or destination errors. • Fault: Fabric plane is in alarmed state if one or more SIBs belonging to the plane are in the Fault state. A SIB can be in the Fault state because of the following reasons: <ul style="list-style-type: none"> • On-board fabric ASIC is not operational. • Fiber optic connector faults. • FPC connector faults. • SIB midplane connector faults. • Link errors have exceeded the threshold. 	extensive

Table 19: show chassis fabric plane Output Fields (*continued*)

Field Name	Field Description	Level of output
SIB F13/F2S slot-number	<p>State of the TXP-F13 SIB or TXP-F2S SIB:</p> <ul style="list-style-type: none"> • Activating—Transitional state when the SIB is transitioning to the Online or Spare state. • Deactivating—Transitional state when the SIB is going offline. • Online—SIB is operational and running. • Offline—SIB is powered down. • Spare—SIB is redundant and will move to active state if one of the working SIBs fails to pass traffic. • Empty—No SIB is present. • Fault—SIB is in alarmed state because of the following reasons and the cause of the error must be resolved: <ul style="list-style-type: none"> • On-board fabric ASIC is not operational. • Fiber optic connector faults. • FPC connector faults. • SIB midplane connector faults. • Link errors have exceeded the threshold • Check—SIB is in alarmed state where the SIB is partially operational because of link or destination errors. Only a SIB that is Online or Spare can transition to the Check state. <p>NOTE: If a SIB is not inserted properly, the SIB cannot transition to the Online or Spare state, and therefore cannot transition to the Check state.</p>	extensive
SIB F13 slot-number Odd/Even	<p>State of the TXP-F13 SIB even and odd port connection optical links from the TX Matrix Plus router (SFC) to the T1600 router (LCC) in the routing matrix . The left four ports on the SFC are labeled Even and provide connections to one even-numbered LCC—LCC0 or LCC2. The right four ports on the SFC are labeled Odd and provide connections to one odd-numbered LCC—LCC1 or LCC3.</p>	extensive
LCC number, SIB slot-number	<p>State of the SIB on the LCC that is connected to the Even or Odd port on the TXP-F13 SIB faceplate:</p> <ul style="list-style-type: none"> • Links ok—Links between the TXP-F13 SIB on the SFC and the LCC are active. • Links error—One or more links between the TXP-F13 SIB on the SFC and the LCC, have experienced an error, but the affected links remain operational. • Unused—No SIB is present. 	extensive

Table 19: show chassis fabric plane Output Fields (*continued*)

Field Name	Field Description	Level of output
SG number Port number	State of the SG chip ports on the LCC: <ul style="list-style-type: none"> • Links ok—Link is active. • Link error—Link is operational with errors. • Link error crc saturated—CRC has exceeded the rate threshold and reached saturation without optical issues—that is, a cable has not been cut, removed, or otherwise experienced an error. • Link error crc saturated with optical errors—CRC has exceeded the rate threshold and reached saturation with optical issues—that is, a cable has been cut, removed, or otherwise experienced an error. • Unused—Port is not in use. 	extensive
SIB F2S slot-number	State of the intra-chassis links between the TXP-F2S and TXP-F13 SIB.	extensive

Fabric Management SIB State Output Fields for the show chassis fabric plane extensive Command on a TX Matrix Plus Router

Table 19: show chassis fabric plane Output Fields (*continued*)

Field Name	Field Description	Level of output
SIB slot-number	<p>State of the SIBs on the T1600 router (LCC) in the routing matrix:</p> <ul style="list-style-type: none"> • Activating—Transitional state when the SIB is coming online. • Deactivating—Transitional state when the SIB is going offline. • Connected—SIBs on an LCC are connected and trained, but are either not online or are spare, because the plane on the TX Matrix Plus router (SFC) is still offline. The LCC SIB transitions to the Connected state when the F13 SIB to which it connects is online but the SFC plane (to which the LCC SIB connects) is offline for some reason; for instance, when there are insufficient number of F2 SIBs in the plane. • Disconnected—If an F13 SIB on the TX Matrix Plus router (SFC) goes offline, then the SIBs on the LCCs connected to the F13 SIB get disconnected. The Disconnected state is valid only for SIBs on an LCC. An LCC SIB transitions to the Disconnected state when the F13 SIB to which it connects goes Offline, irrespective of the state of the SFC plane. • SFC Error—If an F13 SIB on the TX Matrix Plus router (SFC) transitions to the Fault state (because of link errors, for instance), and if an LCC SIB connected to the F13 SIB comes online, the LCC SIB transitions to the SFC Error state. This state indicates that the F13 SIB to which the LCC SIB is connected has errors <p>NOTE: The Connected, Disconnected, and SFC Error states are only applicable to the SIBs on an LCC.</p> <ul style="list-style-type: none"> • Online—SIB is operational and running. • Offline—SIB is powered down. • Spare—SIB is redundant and will move to active state if one of the working SIBs fails to pass traffic. • Empty—No SIB is present. • Fault—SIB is in alarmed state where the SIB's plane is not operational for the following reasons: <ul style="list-style-type: none"> • On-board fabric ASIC is not operational. • Fiber optic connector faults. • FPC connector faults. • SIB midplane connector faults. • Link errors have exceeded the threshold • Check—SIB is in alarmed state where the SIB is partially operational because of link or destination errors. Only a SIB that is Online or Spare can transition to the Check state. <p>NOTE: If a SIB is not inserted properly, the SIB cannot transition to the Online or Spare state, and therefore cannot transition to the Check state.</p>	extensive

Table 19: show chassis fabric plane Output Fields (*continued*)

Field Name	Field Description	Level of output
LCC SIB Link State	State of the LCC SIB link: <ul style="list-style-type: none"> • Links ok—Link is active. • Links error—A link error has occurred, but the link remains operational. • Unused—SIB is not in use. 	extensive
SG number Port number	State of the SG chip ports on the LCC: <ul style="list-style-type: none"> • Links ok—Link is active. • Link error—Link is operational with errors. • Link error crc saturated—CRC has exceeded the rate threshold and reached saturation without optical issues—that is, a cable has not been cut, removed, or otherwise experienced an error. • Link error crc saturated with optical errors—CRC has exceeded the rate threshold and reached saturation with optical issues—that is, a cable has been cut, removed, or otherwise experienced an error. • Unused—Port is not in use. 	extensive

Sample Output

show chassis fabric plane (M120 Router)

```

user@host> show chassis fabric plane
Fabric management PLANE state
Plane 0
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
Plane 1
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
Plane 2
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
Plane 3
Plane state: ACTIVE
FEB 0: Links ok
FEB 1: Links ok
FEB 2: Links ok

```

```
FEB 3: Links ok
FEB 4: Links ok
FEB 5: Links ok
```

```
show chassis fabric plane (MX240 Router) user@host> show chassis fabric plane
Plane 0
```

```
Plane state: ACTIVE
FPC 1
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 2
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
```

```
Plane 1
Plane state: ACTIVE
FPC 1
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 2
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
```

```
Plane 2
Plane state: ACTIVE
FPC 1
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 2
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
```

```
Plane 3
Plane state: ACTIVE
FPC 1
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 2
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
```

```
Plane 4
Plane state: SPARE
FPC 1
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 2
```

```

        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
Plane 5
  Plane state: SPARE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 6
  Plane state: SPARE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 7
  Plane state: SPARE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok

```

show chassis fabric plane (MX480 Router) user@host> **show chassis fabric plane**
 Fabric management PLANE state

```

Plane 0
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 1
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 2
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok

```

```

        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
Plane 3
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 4
  Plane state: SPARE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 5
  Plane state: SPARE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 6
  Plane state: SPARE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
Plane 7
  Plane state: SPARE
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
```

show chassis fabric plane (MX960 Router) user@host> show chassis fabric plane

```

Plane 0
  Plane state: ACTIVE
    FPC 0
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
Plane 1
  Plane state: ACTIVE
    FPC 0
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
Plane 2
  Plane state: ACTIVE
    FPC 0
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
```

```

Plane 3
  Plane state: ACTIVE
    FPC 0
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok

```

**show chassis fabric
plane (MX240 with AS
MLC Modular Carrier
Card)**

In the following output, FPC 1 is the AS MLC modular carrier card (AS MCC).

```

user@host>show chassis fabric plane
Fabric management PLANE state

```

```

Plane 0
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
Plane 1
  Plane state: ACTIVE
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
Plane 2
  Plane state: ACTIVE
    FPC 2
      PFE 0 :Links ok
    FPC 4
      PFE 0 :Links ok
      PFE 2 :Links ok
    FPC 5
      PFE 0 :Links ok
Plane 3
  Plane state: ACTIVE
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
Plane 4
  Plane state: ACTIVE
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
Plane 5
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Unused
    FPC 2
      PFE 0 :Links ok
Plane 6
  Plane state: ACTIVE
    FPC 1
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
Plane 7

```

```
Plane state: ACTIVE
  FPC 1
    PFE 0 :Unused
  FPC 2
    PFE 0 :Links ok
```

**show chassis fabric
plane (MX480 with AS
MLC Modular Carrier
Card)**

In the following output, FPC 5 is the AS MLC modular carrier card (AS MCC).

```
user@host>show chassis fabric plane
Fabric management PLANE state
Plane 0
```

```
Plane state: ACTIVE
  FPC 2
    PFE 0 :Links ok
  FPC 4
    PFE 0 :Links ok
    PFE 2 :Links ok
  FPC 5
    PFE 0 :Links ok
```

```
Plane 1
```

```
Plane state: ACTIVE
  FPC 2
    PFE 0 :Links ok
  FPC 4
    PFE 0 :Links ok
    PFE 2 :Links ok
  FPC 5
    PFE 0 :Links ok
```

```
Plane 2
```

```
Plane state: ACTIVE
  FPC 2
    PFE 0 :Links ok
  FPC 4
    PFE 0 :Links ok
    PFE 2 :Links ok
  FPC 5
    PFE 0 :Links ok
```

```
Plane 3
```

```
Plane state: ACTIVE
  FPC 2
    PFE 0 :Links ok
  FPC 4
    PFE 0 :Links ok
    PFE 2 :Links ok
  FPC 5
    PFE 0 :Links ok
```

```
Plane 4
```

```
Plane state: ACTIVE
  FPC 2
    PFE 0 :Links ok
  FPC 4
    PFE 0 :Links ok
    PFE 2 :Links ok
  FPC 5
    PFE 0 :Links ok
```

```
Plane 5
```

```
Plane state: ACTIVE
  FPC 2
    PFE 0 :Links ok
  FPC 4
```

```

        PFE 0 :Links ok
        PFE 2 :Links ok
    FPC 5
        PFE 0 :Unused
Plane 6
    Plane state: ACTIVE
        FPC 2
            PFE 0 :Links ok
        FPC 4
            PFE 0 :Links ok
            PFE 2 :Links ok
        FPC 5
            PFE 0 :Links ok
Plane 7
    Plane state: ACTIVE
        FPC 2
            PFE 0 :Links ok
        FPC 4
            PFE 0 :Links ok
            PFE 2 :Links ok
        FPC 5
            PFE 0 :Unused

```

**show chassis fabric
plane (MX960 with
AS-MLC Modular
Carrier Card)**

In the following output, FPC 1 is a modular carrier card.

```

user@host>show chassis fabric plane
Fabric management PLANE state
Plane 0
    Plane state: ACTIVE
        FPC 0
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 1
            PFE 0 :Links ok
        FPC 4
            PFE 0 :Links ok
            PFE 1 :Links ok
            PFE 2 :Links ok
            PFE 3 :Links ok
        FPC 5
            PFE 0 :Links ok
        FPC 8
            PFE 0 :Links ok
            PFE 1 :Links ok
            PFE 2 :Links ok
            PFE 3 :Links ok
Plane 1
    Plane state: ACTIVE
        FPC 0
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 1
            PFE 0 :Links ok
        FPC 4
            PFE 0 :Links ok
            PFE 1 :Links ok
            PFE 2 :Links ok
            PFE 3 :Links ok
        FPC 5
            PFE 0 :Links ok
        FPC 8

```

```

        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
Plane 2
Plane state: ACTIVE
    FPC 0
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 1
        PFE 0 :Links ok
    FPC 4
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
    FPC 5
        PFE 0 :Links ok
    FPC 8
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
Plane 3
Plane state: ACTIVE
    FPC 0
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 1
        PFE 0 :Links ok
    FPC 4
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
    FPC 5
        PFE 0 :Links ok
    FPC 8
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
Plane 4
Plane state: SPARE
    FPC 0
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 1
        PFE 0 :Links ok
    FPC 4
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
    FPC 5
        PFE 0 :Links ok
    FPC 8
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok

```

```

Plane 5
Plane state: SPARE
  FPC 0
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 1
    PFE 0 :Links ok
  FPC 4
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
  FPC 5
    PFE 0 :Links ok
  FPC 8
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok

```

```

show chassis fabric plane (MX2010 Router)
user@host>show chassis fabric plane
Fabric management PLANE state
Plane 0

```

```

  Plane state: ACTIVE
    FPC 0
      PFE 0 :Links ok
      PFE 1 :Links ok
    FPC 1
      PFE 0 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
    FPC 3
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 4
      PFE 0 :Links ok
    FPC 5
      PFE 0 :Links ok
      PFE 1 :Links ok
    FPC 6
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 7
      PFE 0 :Links ok
      PFE 1 :Links ok
    FPC 8
      PFE 0 :Links ok
    FPC 9
      PFE 0 :Links ok
      PFE 1 :Links ok

```

```

Plane 1
Plane state: ACTIVE
  FPC 0
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 1

```

```

        PFE 0 :Links ok
    FPC 2
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 3
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
    FPC 4
        PFE 0 :Links ok
    FPC 5
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 6
    PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
    FPC 7
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 8
        PFE 0 :Links ok
    FPC 9
        PFE 0 :Links ok
        PFE 1 :Links ok
Plane 2
    Plane state: ACTIVE
    FPC 0
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 1
        PFE 0 :Links ok
    FPC 2
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 3
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
    FPC 4
        PFE 0 :Links ok
    FPC 5
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 6
        PFE 0 :Links ok
        PFE 1 :Links ok
        PFE 2 :Links ok
        PFE 3 :Links ok
    FPC 7
        PFE 0 :Links ok
        PFE 1 :Links ok
    FPC 8
        PFE 0 :Links ok
    FPC 9
        PFE 0 :Links ok
        PFE 1 :Links ok
Plane 3

```

```
Plane state: OFFLINE
Plane 4
Plane state: ACTIVE
  FPC 0
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 1
    PFE 0 :Links ok
  FPC 2
    PFE 0 :Links ok
PFE 1 :Links ok
  FPC 3
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
  FPC 4
    PFE 0 :Links ok
  FPC 5
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 6
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
  FPC 7
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 8
    PFE 0 :Links ok
  FPC 9
    PFE 0 :Links ok
    PFE 1 :Links ok
Plane 5
Plane state: ACTIVE
  FPC 0
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 1
    PFE 0 :Links ok
  FPC 2
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 3
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
  FPC 4
    PFE 0 :Links ok
  FPC 5
    PFE 0 :Links ok
    PFE 1 :Links ok
  FPC 6
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
  FPC 7
    PFE 0 :Links ok
```

```

        PFE 1 :Links ok
    FPC 8
        PFE 0 :Links ok
    FPC 9
        PFE 0 :Links ok
    PFE 1 :Links ok
Plane 6
    Plane state: ACTIVE
        FPC 0
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 1
            PFE 0 :Links ok
        FPC 2
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 3
            PFE 0 :Links ok
            PFE 1 :Links ok
            PFE 2 :Links ok
            PFE 3 :Links ok
        FPC 4
            PFE 0 :Links ok
        FPC 5
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 6
            PFE 0 :Links ok
            PFE 1 :Links ok
            PFE 2 :Links ok
            PFE 3 :Links ok
        FPC 7
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 8
            PFE 0 :Links ok
        FPC 9
            PFE 0 :Links ok
            PFE 1 :Links ok
Plane 7
    Plane state: ACTIVE
        FPC 0
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 1
            PFE 0 :Links ok
        FPC 2
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 3
            PFE 0 :Links ok
            PFE 1 :Links ok
            PFE 2 :Links ok
            PFE 3 :Links ok
        FPC 4
            PFE 0 :Links ok
        FPC 5
            PFE 0 :Links ok
            PFE 1 :Links ok
        FPC 6
            PFE 0 :Links ok
    
```

```

PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 7
    PFE 0 :Links ok
    PFE 1 :Links ok
FPC 8
    PFE 0 :Links ok
FPC 9
    PFE 0 :Links ok
    PFE 1 :Links ok

```

```

show chassis fabric plane (MX2020
Router)

```

```

user@host>show chassis fabric plane
Fabric management PLANE state
Plane 0
Plane state: ACTIVE
FPC 0
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 1
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 2
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 3
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 4
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 5
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 6
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 7
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok
FPC 8
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok
    PFE 3 :Links ok

```

```

FPC 9
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 10
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 11
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 12
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 13
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 14
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 15
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 16
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 17
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 18
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 19
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
Plane 1
  Plane state: ACTIVE
  FPC 0
    PFE 0 :Links ok
    PFE 1 :Links ok
    PFE 2 :Links ok

```

```
PFE 3 :Links ok
FPC 1
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 2
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 3
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 4
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 5
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 6
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 7
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 8
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 9
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 10
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 11
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 12
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
```

```

FPC 13
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 14
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 15
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 16
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 17
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 18
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 19
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
Plane 2
  Plane state: ACTIVE
    FPC 0
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 1
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 2
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 3
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok
      PFE 3 :Links ok
    FPC 4
      PFE 0 :Links ok
      PFE 1 :Links ok
      PFE 2 :Links ok

```

```
PFE 3 :Links ok
FPC 5
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 6
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 7
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 8
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 9
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 10
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 11
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 12
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 13
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 14
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 15
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
FPC 16
PFE 0 :Links ok
PFE 1 :Links ok
PFE 2 :Links ok
PFE 3 :Links ok
```

```

FPC 17
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 18
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
FPC 19
  PFE 0 :Links ok
  PFE 1 :Links ok
  PFE 2 :Links ok
  PFE 3 :Links ok
Plane 3
...
```

**show chassis fabric
plane (TX Matrix Plus
Router)**

```

user@host> show chassis fabric plane
sfc0-re0:
```

Plane	State	Uptime
0	Spare	
1	Online	1 hour, 11 minutes, 26 seconds
2	Online	1 hour, 11 minutes, 25 seconds
3	Online	1 hour, 11 minutes, 20 seconds
4	Online	1 hour, 11 minutes, 12 seconds

```
lcc0-re0:
```

SIB	State	Uptime
0	Spare	
1	Online	5 hours, 11 minutes, 39 seconds
2	Online	5 hours, 11 minutes, 39 seconds
3	Online	5 hours, 11 minutes, 39 seconds
4	Online	5 hours, 11 minutes, 39 seconds

```
lcc1-re0:
```

SIB	State	Uptime
0	Spare	
1	Online	5 hours, 11 minutes, 40 seconds
2	Online	5 hours, 11 minutes, 40 seconds
3	Online	5 hours, 11 minutes, 40 seconds
4	Online	5 hours, 11 minutes, 40 seconds

**show chassis fabric
plane detail (TX Matrix
Plus Router)**

```

user@host> show chassis fabric plane detail
sfc0-re0:
```

```
-----
Fabric Management PLANE State:
```

```

PLANE 0:  Spare
  SIB F13 0 :  Spare
  SIB F13 1 :  Empty
  SIB F2S 0/0 :  Spare
  SIB F2S 0/2 :  Spare
  SIB F2S 0/4 :  Spare
  SIB F2S 0/6 :  Spare
PLANE 1:  Online
  SIB F13 3 :  Online
  SIB F13 4 :  Empty
  SIB F2S 1/0 :  Online
```

```

SIB F2S 1/2 : Online
SIB F2S 1/4 : Online
SIB F2S 1/6 : Online
PLANE 2: Online
SIB F13 6 : Online
SIB F13 7 : Empty
SIB F2S 2/0 : Online
SIB F2S 2/2 : Online
SIB F2S 2/4 : Online
SIB F2S 2/6 : Online
PLANE 3: Online
SIB F13 8 : Online
SIB F13 9 : Online
SIB F2S 3/0 : Online
SIB F2S 3/2 : Online
SIB F2S 3/4 : Online
SIB F2S 3/6 : Online
PLANE 4: Online
SIB F13 11 : Online
SIB F13 12 : Online
SIB F2S 4/0 : Online
SIB F2S 4/2 : Online
SIB F2S 4/4 : Online
SIB F2S 4/6 : Online

```

lcc0-re0:

Fabric Management SIB State:

```

SIB 0 : Spare
SIB 1 : Online
SIB 2 : Online
SIB 3 : Online
SIB 4 : Online

```

lcc1-re0:

Fabric Management SIB State:

```

SIB 0 : Spare
SIB 1 : Online
SIB 2 : Online
SIB 3 : Online
SIB 4 : Online

```

**show chassis fabric
plane extensive (TX
Matrix Plus Router)**

user@host> show chassis fabric plane extensive

sfc0-re0:

Fabric Management PLANE State:

PLANE 0: Spare

```

SIB F13 0 : Spare
SIB F13 1 : Empty
SIB F2S 0/0 : Spare
SIB F2S 0/2 : Spare
SIB F2S 0/4 : Spare
SIB F2S 0/6 : Spare

```

SIB F13 0 Even:

LCC 0, SIB 0 : Links ok

SG 0

```

Port 0 : Links ok
Port 1 : Links ok
Port 2 : Links ok
Port 3 : Links ok

```

```

SG 1
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 2
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 3
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SIB F13 0 Odd:
  LCC 1, SIB 0 : Links ok
    SG 0
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
    SG 1
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
    SG 2
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
    SG 3
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
  SIB F2S 0/0: Links ok
  SIB F2S 0/2: Links ok
  SIB F2S 0/4: Links ok
  SIB F2S 0/6: Links ok
SIB F13 1 Even:
  LCC 2, SIB 0 : Unused
    SG 0
      Port 0 : Unused
      Port 1 : Unused
      Port 2 : Unused
      Port 3 : Unused
    SG 1
      Port 0 : Unused
      Port 1 : Unused
      Port 2 : Unused
      Port 3 : Unused
    SG 2
      Port 0 : Unused
      Port 1 : Unused
      Port 2 : Unused
      Port 3 : Unused
    SG 3
      Port 0 : Unused
      Port 1 : Unused

```

```

        Port 2      : Unused
        Port 3      : Unused
SIB F13 1 Odd:
  LCC 3, SIB 0 : Unused
  SG 0
    Port 0      : Unused
    Port 1      : Unused
    Port 2      : Unused
    Port 3      : Unused
  SG 1
    Port 0      : Unused
    Port 1      : Unused
    Port 2      : Unused
    Port 3      : Unused
  SG 2
    Port 0      : Unused
    Port 1      : Unused
    Port 2      : Unused
    Port 3      : Unused
  SG 3
    Port 0      : Unused
    Port 1      : Unused
    Port 2      : Unused
    Port 3      : Unused
SIB F2S 0/0: Unused
SIB F2S 0/2: Unused
SIB F2S 0/4: Unused
SIB F2S 0/6: Unused
PLANE 1:  Online
  SIB F13 3      :  Online
  SIB F13 4      :  Empty
  SIB F2S 1/0     :  Online
  SIB F2S 1/2     :  Online
  SIB F2S 1/4     :  Online
  SIB F2S 1/6     :  Online
  SIB F13 3 Even:
...

```

**show chassis fabric
plane extensive (TX
Matrix Plus Router)**

```

user@host > show chassis fabric plane extensive
sfc0-re0:
-----
Fabric Management PLANE State:
PLANE 0:  Online
  SIB F13 0      :  Online
  SIB F13 1      :  Empty
  SIB F2S 0/0     :  Online
  SIB F2S 0/2     :  Online
  SIB F2S 0/4     :  Online
  SIB F2S 0/6     :  Online
  SIB F13 0 Even:
    LCC 0, SIB 0 : Links error
    SG 0
      Port 0      : Links ok
      Port 1      : Link error
      Port 2      : Link error crc saturated
      Port 3      : Link error crc saturated with optical errors
:

```

**show chassis fabric
plane terse (TX Matrix
Plus Router)**

```
user@host> show chassis fabric plane terse
sfc0-re0:
```

Plane	State	Uptime
0	Spare	
1	Online	1 hour, 16 minutes, 14 seconds
2	Online	1 hour, 16 minutes, 13 seconds
3	Online	1 hour, 16 minutes, 8 seconds
4	Online	1 hour, 16 minutes

```
lcc0-re0:
```

SIB	State	Uptime
0	Spare	
1	Online	5 hours, 16 minutes, 27 seconds
2	Online	5 hours, 16 minutes, 27 seconds
3	Online	5 hours, 16 minutes, 27 seconds
4	Online	5 hours, 16 minutes, 27 seconds

```
lcc1-re0:
```

SIB	State	Uptime
0	Spare	
1	Online	5 hours, 16 minutes, 28 seconds
2	Online	5 hours, 16 minutes, 28 seconds
3	Online	5 hours, 16 minutes, 28 seconds
4	Online	5 hours, 16 minutes, 28 seconds

**show chassis fabric
plane lcc (TX Matrix
Plus Router)**

```
user@host> show chassis fabric plane lcc 1
lcc1-re0:
```

SIB	State	Uptime
0	Spare	
1	Online	5 hours, 17 minutes, 52 seconds
2	Online	5 hours, 17 minutes, 52 seconds
3	Online	5 hours, 17 minutes, 52 seconds
4	Online	5 hours, 17 minutes, 52 seconds

**show chassis fabric
plane sfc (TX Matrix
Plus Router)**

```
user@host> show chassis fabric plane sfc 0
sfc0-re0:
```

Plane	State	Uptime
0	Spare	
1	Online	1 hour, 4 minutes, 43 seconds
2	Online	1 hour, 4 minutes, 38 seconds
3	Online	1 hour, 4 minutes, 35 seconds
4	Online	1 hour, 4 minutes, 33 seconds

```
lcc0-re0:
```

SIB	State	Uptime
0	Spare	
1	Online	1 hour, 7 minutes, 24 seconds
2	Online	1 hour, 7 minutes, 24 seconds
3	Online	1 hour, 7 minutes, 24 seconds
4	Online	1 hour, 7 minutes, 24 seconds

```
lcc1-re0:
```

SIB	State	Uptime
-----	-------	--------

```

0    Offline
1    Online          1 hour, 7 minutes, 22 seconds
2    Online          1 hour, 7 minutes, 22 seconds
3    Online          1 hour, 7 minutes, 22 seconds
4    Online          1 hour, 7 minutes, 22 seconds

```

**show chassis fabric
plane (T1600 Router)**

```
user@host> show chassis fabric plane
```

```

Plane State      Uptime
0    Online      15 hours, 42 minutes, 9 seconds
1    Online      15 hours, 42 minutes, 9 seconds
2    Fault
3    Online      15 hours, 42 minutes, 9 seconds
4    Online      15 hours, 42 minutes, 9 seconds

```

**show chassis fabric
plane extensive
(T1600 Router)**

```
user@host> show chassis fabric plane extensive
```

```
Fabric Management PLANE State:
```

```

PLANE 0:    Online
  ST-SIB-L 0: Links ok
    SG 0
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
    SG 1
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
    SG 2
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
    SG 3
      Port 0 : Links ok
      Port 1 : Links ok
      Port 2 : Links ok
      Port 3 : Links ok
  ST-SIB-L 0
    FPC 4
      PFE 0: Links ok
      PFE 1: Links ok
    FPC 6
      PFE 0: Links ok
      PFE 1: Links ok
    FPC 7
      PFE 0: Links ok
  PLANE 1:    Online
    ST-SIB-L 1: Links ok
      SG 0
        Port 0 : Links ok
        Port 1 : Links ok
        Port 2 : Links ok
        Port 3 : Links ok
      SG 1
        Port 0 : Links ok
        Port 1 : Links ok
        Port 2 : Links ok
        Port 3 : Links ok
      SG 2
        Port 0 : Links ok

```

```

    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
SG 3
    Port 0    : Links ok
    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
ST-SIB-L 1
    FPC 4
        PFE 0: Links ok
        PFE 1: Links ok
    FPC 6
        PFE 0: Links ok
        PFE 1: Links ok
    FPC 7
        PFE 0: Links ok
PLANE 2:      Online
ST-SIB-L 2: Links ok
SG 0
    Port 0    : Links ok
    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
SG 1
    Port 0    : Links ok
    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
SG 2
    Port 0    : Links ok
    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
SG 3
    Port 0    : Links ok
    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
ST-SIB-L 2
    FPC 4
        PFE 0: Links ok
        PFE 1: Links ok
    FPC 6
        PFE 0: Links ok
        PFE 1: Links ok
    FPC 7
        PFE 0: Links ok
PLANE 3:      Spare
ST-SIB-L 3: Links ok
SG 0
    Port 0    : Links ok
    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
SG 1
    Port 0    : Links ok
    Port 1    : Links ok
    Port 2    : Links ok
    Port 3    : Links ok
SG 2
```

```

        Port 0    : Links ok
        Port 1    : Links ok
        Port 2    : Links ok
        Port 3    : Links ok
    SG 3
        Port 0    : Links ok
        Port 1    : Links ok
        Port 2    : Links ok
        Port 3    : Links ok
    ST-SIB-L 3
        FPC 4
            PFE 0: Links ok
            PFE 1: Links ok
        FPC 6
            PFE 0: Links ok
            PFE 1: Links ok
        FPC 7
            PFE 0: Links ok
    PLANE 4:    Online
    ST-SIB-L 4: Links ok
    SG 0
        Port 0    : Links ok
        Port 1    : Links ok
        Port 2    : Links ok
        Port 3    : Links ok
    SG 1
        Port 0    : Links ok
        Port 1    : Links ok
        Port 2    : Links ok
        Port 3    : Links ok
    SG 2
        Port 0    : Links ok
        Port 1    : Links ok
        Port 2    : Links ok
        Port 3    : Links ok
    SG 3
        Port 0    : Links ok
        Port 1    : Links ok
        Port 2    : Links ok
        Port 3    : Links ok
    ST-SIB-L 4
        FPC 4
            PFE 0: Links ok
            PFE 1: Links ok
        FPC 6
            PFE 0: Links ok
            PFE 1: Links ok
        FPC 7
            PFE 0: Links ok

```

```

show chassis fabric plane detail (T1600 Router)
user@host> show chassis fabric plane detail
Fabric Management PLANE State:
PLANE 0:    Online
PLANE 1:    Online
PLANE 2:    Online
PLANE 3:    Spare
PLANE 4:    Online

```

**show chassis fabric
plane extensive (TX
Matrix Plus Router)**

user@host> show chassis fabric plane extensive
sfc0-re0:

Fabric Management PLANE State:

PLANE 0: Online

 SIB F13 0 : Online

 SIB F13 1 : Empty

 SIB F2S 0/0 : Online

 SIB F2S 0/2 : Online

 SIB F2S 0/4 : Online

 SIB F2S 0/6 : Online

 SIB F13 0 Even:

 LCC 0, SIB 0 : Unused

 SG 0

 Port 0 : Unused

 Port 1 : Unused

 Port 2 : Unused

 Port 3 : Unused

 SG 1

 Port 0 : Unused

 Port 1 : Unused

 Port 2 : Unused

 Port 3 : Unused

 SG 2

 Port 0 : Unused

 Port 1 : Unused

 Port 2 : Unused

 Port 3 : Unused

 SG 3

 Port 0 : Unused

 Port 1 : Unused

 Port 2 : Unused

 Port 3 : Unused

 SIB F13 0 Odd:

 LCC 1, SIB 0 : Links ok

 SG 0

 Port 0 : Links ok

 Port 1 : Links ok

 Port 2 : Links ok

 Port 3 : Links ok

 SG 1

 Port 0 : Links ok

 Port 1 : Links ok

 Port 2 : Links ok

 Port 3 : Links ok

 SG 2

 Port 0 : Links ok

 Port 1 : Links ok

 Port 2 : Links ok

 Port 3 : Links ok

 SG 3

 Port 0 : Links ok

 Port 1 : Links ok

 Port 2 : Links ok

 Port 3 : Links ok

 SIB F2S 0/0: Links ok

 SIB F2S 0/2: Links ok

 SIB F2S 0/4: Links ok

 SIB F2S 0/6: Links ok

 SIB F13 1 Even:

 LCC 2, SIB 0 : Unused

```

SG 0
  Port 0 : Unused
  Port 1 : Unused
  Port 2 : Unused
  Port 3 : Unused
SG 1
...
  Port 0 : Unused
  Port 1 : Unused
  Port 2 : Unused
  Port 3 : Unused
SG 2
  Port 0 : Unused
  Port 1 : Unused
  Port 2 : Unused
  Port 3 : Unused
SG 3
  Port 0 : Unused
  Port 1 : Unused
  Port 2 : Unused
  Port 3 : Unused
SIB F13 1 Odd:
  LCC 3, SIB 0 : Unused
  SG 0
    Port 0 : Unused
    Port 1 : Unused
    Port 2 : Unused
    Port 3 : Unused
  SG 1
    Port 0 : Unused
    Port 1 : Unused
    Port 2 : Unused
    Port 3 : Unused
  SG 2
    Port 0 : Unused
    Port 1 : Unused
    Port 2 : Unused
    Port 3 : Unused
  SG 3
    Port 0 : Unused
    Port 1 : Unused
    Port 2 : Unused
    Port 3 : Unused
  SIB F2S 0/0: Unused
  SIB F2S 0/2: Unused
  SIB F2S 0/4: Unused
  SIB F2S 0/6: Unused
PLANE 1: Fault
  SIB F13 3 : Fault
  SIB F13 4 : Empty
  SIB F2S 1/0 : Fault
  SIB F2S 1/2 : Fault
  SIB F2S 1/4 : Online
  SIB F2S 1/6 : Online
  SIB F13 3 Even:
    LCC 0, SIB 1 : Unused
    SG 0
      Port 0 : Unused
      Port 1 : Unused
      Port 2 : Unused
      Port 3 : Unused

```

```

SG 1
  Port 0 : Unused
  Port 1 : Unused
  Port 2 : Unused
  Port 3 : Unused
SG 2
  Port 0 : Unused
  Port 1 : Unused
  Port 2 : Unused
  Port 3 : Unused
SG 3
  Port 0 : Unused

```

```
...
```

```
lcc1-re1:
```

```
-----
Fabric Management SIB State:
```

```

SIB    0 : Online
LCC SIB Link State : Links ok
SG 0
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 1
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 2
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 3
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SIB    1 : Fault
LCC SIB Link State : Link error
SG 0
  Port 0 : Link error
  Port 1 : Link error
  Port 2 : Link error
  Port 3 : Link error
SG 1
  Port 0 : Link error
  Port 1 : Link error
  Port 2 : Link error
  Port 3 : Link error
SG 2
  Port 0 : Link error
  Port 1 : Link error
  Port 2 : Link error
  Port 3 : Link error
SG 3
  Port 0 : Link error
  Port 1 : Link error
  Port 2 : Link error
  Port 3 : Link error
SIB    2 : Online

```

```

LCC SIB Link State : Links ok
SG 0
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 1
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 2
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SG 3
  Port 0 : Links ok
  Port 1 : Links ok
  Port 2 : Links ok
  Port 3 : Links ok
SIB 3 : Check
LCC SIB Link State : Link error
SG 0
  Port 0 : Link error
  Port 1 : Link error
  Port 2 : Link error

```

```

show chassis fabric plane (EX8200 Switch)
user@host> show chassis fabric plane
Fabric management PLANE state
Plane 0
  Plane state: ACTIVE
Plane 1
  Plane state: ACTIVE
Plane 2
  Plane state: ACTIVE
Plane 3
  Plane state: ACTIVE
Plane 4
  Plane state: SPARE
Plane 5
  Plane state: SPARE
Plane 6
  Plane state: SPARE
Plane 7
  Plane state: SPARE
Plane 8
  Plane state: ACTIVE
Plane 9
  Plane state: ACTIVE
Plane 10
  Plane state: ACTIVE
Plane 11
  Plane state: ACTIVE

```

show chassis fabric plane-location

Syntax	show chassis fabric plane-location
Syntax (MX Series Routers)	show chassis fabric plane-location <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis fabric plane-location
Syntax (MX2020 3D Universal Edge Routers)	show chassis fabric plane-location
Release Information	Command introduced in Junos OS Release 8.0. Command introduced in Junos OS Release 9.4 for EX Series switches. Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.
Description	<p>(M120, MX Series routers, and EX8200 switches only) Display the Control Board (CB) location of each plane. This command can be used on the master Routing Engine or the backup Routing Engine. For information about the meaning of “CBs” and “fabric plane” on the switches, see EX Series Switches Hardware and CLI Terminology Mapping.</p> <p>(TX Matrix Plus routers only) Display the SIB location of each fabric plane.</p> <p>(PTX Series Packet Transport Switches only) Display the fabric plane location of each SIB.</p> <p>(MX2010 and MX2020 Routers only) Display the fabric plane location of each Switch Fabric Board (SFB).</p>
Options	<p>all-members—(MX Series routers only) (Optional) Display the CB location of each fabric plane on the Routing Engines in all member routers in the Virtual Chassis configuration.</p> <p>local—(MX Series routers only) (Optional) Display the CB location of each fabric plane on the Routing Engines in the local Virtual Chassis member.</p> <p>member <i>member-id</i>—(MX Series routers only) (Optional) Display the CB location of each fabric plane on the Routing Engines in the specified member in the Virtual Chassis configuration. Replace <i>member-id</i> with a value of 0 or 1.</p>
Required Privilege Level	view
List of Sample Output	show chassis fabric plane-location (M120 Router) on page 419 show chassis fabric plane-location (MX240 and MX480 Routers) on page 419

[show chassis fabric plane-location \(MX960 Router\) on page 420](#)
[show chassis fabric plane-location \(MX2010 Router\) on page 420](#)
[show chassis fabric plane-location \(MX2020 Router\) on page 420](#)
[show chassis fabric plane-location \(TX Matrix Plus Router\) on page 420](#)
[show chassis fabric plane-location \(EX8200 Switch\) on page 420](#)
[show chassis fabric plane-location \(PTX Series Packet Transport Switches\) on page 421](#)

Output Fields Table 20 on page 419 lists the output fields for the **show chassis fabric plane-location** command. Output fields are listed in the approximate order in which they appear.

Table 20: show chassis fabric plane-location Output Fields

Field Name	Field Description
Plane <i>n</i>	Plane number. (PTX Series Packet Transport Switches only) Plane numbers associated with the SIB. (MX2010 and MX2020 Routers only) Plane numbers associated with the SFB.
Control Board <i>n</i>	Control board number.
SFC ABS-SIB-F13	(TX Matrix Plus routers only) Switch Interface Board (SIB) slot number on the F13 SIB.
SFC ABS-SIB-F2S	(TX Matrix Plus routers only) SIB slot number on the F2S.
LCC ST-SIB-L	(TX Matrix Plus routers only) Line-card chassis (LCC) SIB slot number.
SIB	(PTX Series Packet Transport Switches only) SIB number.
Switch Fabric Board <i>n</i>	(MX2010 and MX2020 Routers only) SFB number.

Sample Output

```

show chassis fabric plane-location (M120 Router)
user@host> show chassis fabric plane-location
-----Fabric Plane Locations-----
Plane 0           Control Board 0
Plane 1           Control Board 0
Plane 2           Control Board 1
Plane 3           Control Board 1

```

```

show chassis fabric plane-location (MX240 and MX480 Routers)
user@host> show chassis fabric plane-location
-----Fabric Plane Locations-----
Plane 0           Control Board 0
Plane 1           Control Board 0
Plane 2           Control Board 0
Plane 3           Control Board 0
Plane 4           Control Board 1
Plane 5           Control Board 1

```

```

Plane 6                               Control Board 1
Plane 7                               Control Board 1

show chassis fabric plane-location user@host> show chassis fabric plane-location
(MX960 Router)                    -----Fabric Plane Locations-----
Plane 0                             Control Board 0
Plane 1                             Control Board 0
Plane 2                             Control Board 1
Plane 3                             Control Board 1
Plane 4                             Control Board 2
Plane 5                             Control Board 2

show chassis fabric plane-location user@host> show chassis fabric plane-location
(MX2010 Router)                  -----Fabric Plane Locations-----
Plane 0                             Switch Fabric Board 0
Plane 1                             Switch Fabric Board 1
Plane 2                             Switch Fabric Board 2
Plane 3                             Switch Fabric Board 3
Plane 4                             Switch Fabric Board 4
Plane 5                             Switch Fabric Board 5
Plane 6                             Switch Fabric Board 6
Plane 7                             Switch Fabric Board 7

show chassis fabric plane-location user@host> show chassis fabric plane-location
(MX2020 Router)                  -----Fabric Plane Locations-----
Plane 0                             Switch Fabric Board 0
Plane 1                             Switch Fabric Board 1
Plane 2                             Switch Fabric Board 2
Plane 3                             Switch Fabric Board 3
Plane 4                             Switch Fabric Board 4
Plane 5                             Switch Fabric Board 5
Plane 6                             Switch Fabric Board 6
Plane 7                             Switch Fabric Board 7

show chassis fabric plane-location user@host> show chassis fabric plane-location
(TX Matrix Plus Router)          Fabric Plane Locations :
Plane      SFC ABS-SIB-F13      SFC ABS-SIB-F2      LCC ST-SIB-L
0           0, 1                 0/0, 0/2, 0/4, 0/6      0
1           3, 4                 1/0, 1/2, 1/4, 1/6      1
2           6, 7                 2/0, 2/2, 2/4, 2/6      2
3           8, 9                 3/0, 3/2, 3/4, 3/6      3
4          11, 12                4/0, 4/2, 4/4, 4/6      4

show chassis fabric plane-location user@host> show chassis fabric plane-location
(EX8200 Switch)                  -----Fabric Plane Locations-----
Plane 0                             Control Board 0
Plane 1                             Control Board 0
Plane 2                             Control Board 0
Plane 3                             Control Board 0
Plane 4                             Control Board 1
Plane 5                             Control Board 1
Plane 6                             Control Board 1
Plane 7                             Control Board 1
Plane 8                             Control Board 2
Plane 9                             Control Board 2
Plane 10                            Control Board 2
Plane 11                            Control Board 2

```

```
show chassis fabric plane-location (PTX
Series Packet Transport Switches) user@host> show chassis fabric plane-location
-----Fabric Plane Locations-----
SIB          Planes
0            0    1
1            2    3
2            4    5
3            6    7
4            8    9
5           10   11
6           12   13
7           14   15
8           16   17
```

show chassis fabric topology

Syntax	show chassis fabric topology <fcc <i>number</i> scc> <sib-slot>
Syntax (TX Matrix Router)	show chassis fabric topology <fcc <i>number</i> scc> <sib-slot>
Syntax (TX Matrix Plus Router)	show chassis fabric topology <fcc <i>number</i> sfc <i>number</i> > <sib-slot>
Syntax (T4000 Core Router)	show chassis fabric topology <sib-slot>
Syntax (PTX Series Packet Transport Switches)	show chassis fabric topology
Release Information	Command introduced before Junos OS Release 7.4. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6. Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches.
Description	<p>(TX Matrix routers only) Display the state of the switching fabric topology for the Switch Interface Board (SIB) connection between the TX Matrix router and the T640 routers.</p> <p>(TX Matrix Plus routers only) Display the state of the switching fabric topology for the SIB connection between the TX Matrix Plus router and the T1600 routers.</p> <p>(T320, T640, T1600, and T4000 routers only) Display the state of the switching fabric topology for the connection between the Switch Interface Board (SIB) and the FPCs.</p> <p>(PTX Series Packet Transport Switches only) Display the input-output link topology.</p>
Options	<p>none—(TX Matrix routers only) Display the state of the switching fabric topology for the Switch Interface Board (SIB) connection between the TX Matrix router and the T640 routers.</p> <p>(TX Matrix Plus routers only) Display the state of the switching fabric topology for the SIB connection between the TX Matrix Plus router and the T1600 routers.</p> <p>(T320, T640, T1600, and T4000 routers only) Display the state of the switching fabric topology for the connection between the Switch Interface Board (SIB) and the FPCs.</p> <p>fcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display the fabric topology state for a specified T640 router (or line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, display the fabric topology state for a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p>

scc—(TX Matrix routers only) (Optional) Display the fabric topology state for the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus routers only) (Optional) Display the fabric topology for the TX Matrix Plus router (or switch-fabric chassis). Replace *number* with **0**.

sib-slot—(Optional) Display the fabric topology state for a specified SIB slot. Replace *sib-slot* with a value from **0** through **4**. On a TX Matrix Plus router, replace *sib-slot* with a value from **0** through **15**.

Required Privilege Level view

Related Documentation

- Layer 2 Wholesale Network Topology Overview

List of Sample Output

[show chassis fabric topology scc \(TX Matrix Router\) on page 426](#)
[show chassis fabric topology lcc on page 428](#)
[show chassis fabric topology \(TX Matrix Plus Router\) on page 430](#)
[show chassis fabric topology sfc \(TX Matrix Plus Router\) on page 431](#)
[show chassis fabric topology lcc \(TX Matrix Plus Router\) on page 432](#)
[show chassis fabric topology \(T4000 Core Router\) on page 433](#)
[show chassis fabric topology \(PTX Series Packet Transport Switches\) on page 434](#)

Output Fields [Table 21 on page 423](#) lists the output fields for the **show chassis fabric topology** command. Output fields are listed in the approximate order in which they appear.

Table 21: show chassis fabric topology Output Fields

Field Name	Field Description
in-links	Fabric topology for receive side links.
out-links	Fabric topology for transmit side links.

Table 21: show chassis fabric topology Output Fields (*continued*)

Field Name	Field Description
state	<p>State of the fabric link:</p> <ul style="list-style-type: none">• RESET—Link between the SIB and the FPC/DPC is powered down on purpose. This is done in all non-dual Packet Forwarding Engine–based boards.• UP—Link between the SIB and the FPC/DCP is up and running.• DOWN—Link between the SIB and the FPC/DCP is powered down.• FAULT—The SIB is in the alarmed state, in which the SIB's plane is not operational for one or more of the following reasons:<ul style="list-style-type: none">• On-board F-chip is not operational.• Fiber-optic connector faults.• FPC connector faults.• SIB midplane connector faults. <p>NOTE: The following state descriptions are applicable only to PTX Series Packet Transport Switches.</p> <ul style="list-style-type: none">• OK—The link between the SIB and the FPC is operational.• Down—The link between the SIB and the FPC is powered down.• Error—The CCL link between the SIB and FPC is not operational for one or more of the following reasons:<ul style="list-style-type: none">• FPC midplane connector failure.• SIB midplane connector failure.• CCL link CRC error.

Table 21: show chassis fabric topology Output Fields (continued)

Out-Links: and In-Links (TX Matrix Plus router only)	<p>State of the links from the F13 SIB to the LCC or vice-versa. Out-Links indicate Tx links. In-Links indicate an Rx link. The following additional fields are displayed for each SIB:</p> <hr/> <ul style="list-style-type: none">• VCSEL Status—Optical (VCSEL channel) link status for the corresponding electrical (HSL2) link. The states include:<ul style="list-style-type: none">• OK—Optical signal power is good.• Error—Internal error.• LOS—Loss of Signal detected.• High Cur—The Tx Bias-current is higher than threshold on this channel. This is applicable only to Tx Channels.• Low Cur —The Tx Bias-current is lower than threshold on this channel. This is applicable only to Tx Channels.• HSL2 Channel—HSL2 is the electrical link used to connect ASICs to the in-link and out-link. The channel number corresponds to the link and varies based on the ASIC or configuration. <hr/> <ul style="list-style-type: none">• HSL2 Status —The status of the HSL2 Channel. Includes the following states:<ul style="list-style-type: none">• Up—Channel is up.• Down—Channel is down.• Reset—Channel has been reset.• Fault—Channel has faults. <p>The following is a sample output with description of the fields displayed in the output for Out-Links:</p> <p>Out-Links:</p> <p>=====</p> <p>SF_30_13_FB_A(21,09) -> FPC7_B_SG(3,3,6)_FB_A(18,09) OK</p> <p>203 Up</p> <hr/>
--	--

Table 21: show chassis fabric topology Output Fields (*continued*)

- **SF_30_13**—Name of the ASIC, with Fabric F1 or F3 mode. In this case, 3 is the F3 direction and is used in the Tx path and 0 identifies the serial link on the SF chip (in this case, link goes to sf-3 chip number 0). You can also have F1 mode and Rx path instead.
- **FB_A (21, 09)**—Fiber bundle A, with VCSEL unit number 21 within the SIB, and channel number 9 within the unit number.
- **FPC7_B_SG(3,3,6)**—FPC 7, with bottom Packet Forwarding Engine (T for top PFE and B for bottom PFE), SG ASIC, with number 3 and port number 3, with HSL2 link number with the SIB as 6.
- **FB_A(18, 09)**—Fiber Bundle, with VCSEL unit number 18 within the SIB, and VCSEL channel number 9 within the unit number.

The following is a sample output with description of the fields displayed in the output for In-Links:

In-Links:

=====

```
FPC0_T_SG(0,0,0)_FB_D(04,11)  -> SF_10_00_FB_D(01,11)      OK
0                               Up
```

- **FPC0**—FPC 0.
- **T**—Top Packet Forwarding Engine.
- **SG (0, 0, 0)**—SG ASIC with port number 0 and link 0.
- **FB_D (04,11)**—Fiber Bundle D with VCSEL 4, channel 11.
- **SF_10**—Indicates F1 mode chip number 0 and Rx path.
- **SF_10_00_FB_D(01,11)** —Indicates F1 mode chip number 0 and Rx path with port 0, fiber bundle D, with VCSEL 1, channel 11.

Sample Output

show chassis fabric
topology scc (TX
Matrix Router)

```
user@host> show chassis fabric topology scc
scc-rel:
```

```
-----
fchip (mode)
```

```
in-links      state    out-links      state
-----
```

Sib #0 :

SIB0_F0 (F2):

LCC0_SIB-L0_F0,03->SIB-S0_F0,00	UP	SIB-S0_F0,00->LCC0_SIB-L0_F1,00	UP
LCC1_SIB-L0_F0,03->SIB-S0_F0,01	UP	SIB-S0_F0,01->LCC1_SIB-L0_F1,08	UP
LCC2_SIB-L0_F0,03->SIB-S0_F0,02	RESET	SIB-S0_F0,02->LCC2_SIB-L0_F1,08	UP
LCC3_SIB-L0_F0,03->SIB-S0_F0,03	RESET	SIB-S0_F0,03->LCC3_SIB-L0_F1,00	UP
LCC0_SIB-L0_F0,02->SIB-S0_F0,04	UP	SIB-S0_F0,04->LCC0_SIB-L0_F1,01	UP
LCC1_SIB-L0_F0,02->SIB-S0_F0,05	UP	SIB-S0_F0,05->LCC1_SIB-L0_F1,09	UP
LCC2_SIB-L0_F0,02->SIB-S0_F0,06	RESET	SIB-S0_F0,06->LCC2_SIB-L0_F1,09	UP
LCC3_SIB-L0_F0,02->SIB-S0_F0,07	RESET	SIB-S0_F0,07->LCC3_SIB-L0_F1,01	UP
LCC0_SIB-L0_F0,07->SIB-S0_F0,08	UP	SIB-S0_F0,08->LCC0_SIB-L0_F1,04	UP
LCC1_SIB-L0_F0,07->SIB-S0_F0,09	UP	SIB-S0_F0,09->LCC1_SIB-L0_F1,12	UP
LCC2_SIB-L0_F0,07->SIB-S0_F0,10	RESET	SIB-S0_F0,10->LCC2_SIB-L0_F1,12	UP
LCC3_SIB-L0_F0,07->SIB-S0_F0,11	RESET	SIB-S0_F0,11->LCC3_SIB-L0_F1,04	UP
LCC0_SIB-L0_F0,06->SIB-S0_F0,12	UP	SIB-S0_F0,12->LCC0_SIB-L0_F1,05	UP
LCC1_SIB-L0_F0,06->SIB-S0_F0,13	UP	SIB-S0_F0,13->LCC1_SIB-L0_F1,13	UP
LCC2_SIB-L0_F0,06->SIB-S0_F0,14	RESET	SIB-S0_F0,14->LCC2_SIB-L0_F1,13	UP

```

LCC3_SIB-L0_F0,06->SIB-S0_F0,15  RESET      SIB-S0_F0,15->LCC3_SIB-L0_F1,05  UP
SIB0_F1 (F2 ):
LCC0_SIB-L0_F0,11->SIB-S0_F1,00  UP          SIB-S0_F1,00->LCC0_SIB-L0_F1,08  UP
LCC1_SIB-L0_F0,11->SIB-S0_F1,01  UP          SIB-S0_F1,01->LCC1_SIB-L0_F1,00  UP
LCC2_SIB-L0_F0,11->SIB-S0_F1,02  RESET       SIB-S0_F1,02->LCC2_SIB-L0_F1,00  UP
LCC3_SIB-L0_F0,11->SIB-S0_F1,03  RESET       SIB-S0_F1,03->LCC3_SIB-L0_F1,08  UP
LCC0_SIB-L0_F0,10->SIB-S0_F1,04  UP          SIB-S0_F1,04->LCC0_SIB-L0_F1,09  UP
LCC1_SIB-L0_F0,10->SIB-S0_F1,05  UP          SIB-S0_F1,05->LCC1_SIB-L0_F1,01  UP
LCC2_SIB-L0_F0,10->SIB-S0_F1,06  RESET       SIB-S0_F1,06->LCC2_SIB-L0_F1,01  UP
LCC3_SIB-L0_F0,10->SIB-S0_F1,07  RESET       SIB-S0_F1,07->LCC3_SIB-L0_F1,09  UP
LCC0_SIB-L0_F0,15->SIB-S0_F1,08  UP          SIB-S0_F1,08->LCC0_SIB-L0_F1,12  UP
LCC1_SIB-L0_F0,15->SIB-S0_F1,09  UP          SIB-S0_F1,09->LCC1_SIB-L0_F1,04  UP
LCC2_SIB-L0_F0,15->SIB-S0_F1,10  RESET       SIB-S0_F1,10->LCC2_SIB-L0_F1,04  UP
LCC3_SIB-L0_F0,15->SIB-S0_F1,11  RESET       SIB-S0_F1,11->LCC3_SIB-L0_F1,12  UP
LCC0_SIB-L0_F0,14->SIB-S0_F1,12  UP          SIB-S0_F1,12->LCC0_SIB-L0_F1,13  UP
LCC1_SIB-L0_F0,14->SIB-S0_F1,13  UP          SIB-S0_F1,13->LCC1_SIB-L0_F1,05  UP
LCC2_SIB-L0_F0,14->SIB-S0_F1,14  RESET       SIB-S0_F1,14->LCC2_SIB-L0_F1,05
UP
LCC3_SIB-L0_F0,14->SIB-S0_F1,15  RESET       SIB-S0_F1,15->LCC3_SIB-L0_F1,13
UP
SIB0_F2 (F2 ):
LCC3_SIB-L0_F0,13->SIB-S0_F2,00  RESET       SIB-S0_F2,00->LCC3_SIB-L0_F1,14  UP
LCC2_SIB-L0_F0,13->SIB-S0_F2,01  RESET       SIB-S0_F2,01->LCC2_SIB-L0_F1,06
UP
LCC1_SIB-L0_F0,13->SIB-S0_F2,02  UP          SIB-S0_F2,02->LCC1_SIB-L0_F1,06  UP
LCC0_SIB-L0_F0,13->SIB-S0_F2,03  UP          SIB-S0_F2,03->LCC0_SIB-L0_F1,14  UP
LCC3_SIB-L0_F0,12->SIB-S0_F2,04  RESET       SIB-S0_F2,04->LCC3_SIB-L0_F1,15
UP
LCC2_SIB-L0_F0,12->SIB-S0_F2,05  RESET       SIB-S0_F2,05->LCC2_SIB-L0_F1,07  UP
LCC1_SIB-L0_F0,12->SIB-S0_F2,06  UP          SIB-S0_F2,06->LCC1_SIB-L0_F1,07  UP
LCC0_SIB-L0_F0,12->SIB-S0_F2,07  UP          SIB-S0_F2,07->LCC0_SIB-L0_F1,15  UP
LCC3_SIB-L0_F0,09->SIB-S0_F2,08  RESET       SIB-S0_F2,08->LCC3_SIB-L0_F1,10
UP
LCC2_SIB-L0_F0,09->SIB-S0_F2,09  RESET       SIB-S0_F2,09->LCC2_SIB-L0_F1,02
UP
LCC1_SIB-L0_F0,09->SIB-S0_F2,10  UP          SIB-S0_F2,10->LCC1_SIB-L0_F1,02  UP
LCC0_SIB-L0_F0,09->SIB-S0_F2,11  UP          SIB-S0_F2,11->LCC0_SIB-L0_F1,10  UP
LCC3_SIB-L0_F0,08->SIB-S0_F2,12  RESET       SIB-S0_F2,12->LCC3_SIB-L0_F1,11
UP
LCC2_SIB-L0_F0,08->SIB-S0_F2,13  RESET       SIB-S0_F2,13->LCC2_SIB-L0_F1,03
UP
LCC1_SIB-L0_F0,08->SIB-S0_F2,14  UP          SIB-S0_F2,14->LCC1_SIB-L0_F1,03  UP
LCC0_SIB-L0_F0,08->SIB-S0_F2,15  UP          SIB-S0_F2,15->LCC0_SIB-L0_F1,11  UP
SIB0_F3 (F2 ):
LCC3_SIB-L0_F0,05->SIB-S0_F3,00  RESET       SIB-S0_F3,00->LCC3_SIB-L0_F1,06
UP
LCC2_SIB-L0_F0,05->SIB-S0_F3,01  RESET       SIB-S0_F3,01->LCC2_SIB-L0_F1,14
UP
LCC1_SIB-L0_F0,05->SIB-S0_F3,02  UP          SIB-S0_F3,02->LCC1_SIB-L0_F1,14  UP
LCC0_SIB-L0_F0,05->SIB-S0_F3,03  UP          SIB-S0_F3,03->LCC0_SIB-L0_F1,06  UP
LCC3_SIB-L0_F0,04->SIB-S0_F3,04  RESET       SIB-S0_F3,04->LCC3_SIB-L0_F1,07
UP
LCC2_SIB-L0_F0,04->SIB-S0_F3,05  RESET       SIB-S0_F3,05->LCC2_SIB-L0_F1,15
UP
LCC1_SIB-L0_F0,04->SIB-S0_F3,06  UP          SIB-S0_F3,06->LCC1_SIB-L0_F1,15  UP
LCC0_SIB-L0_F0,04->SIB-S0_F3,07  UP          SIB-S0_F3,07->LCC0_SIB-L0_F1,07  UP
LCC3_SIB-L0_F0,01->SIB-S0_F3,08  RESET       SIB-S0_F3,08->LCC3_SIB-L0_F1,02
UP
LCC2_SIB-L0_F0,01->SIB-S0_F3,09  RESET       SIB-S0_F3,09->LCC2_SIB-L0_F1,10
UP
LCC1_SIB-L0_F0,01->SIB-S0_F3,10  UP          SIB-S0_F3,10->LCC1_SIB-L0_F1,10  UP

```

```

LCC0_SIB-L0_F0,01->SIB-S0_F3,11  UP
LCC3_SIB-L0_F0,00->SIB-S0_F3,12  RESET
UP
LCC2_SIB-L0_F0,00->SIB-S0_F3,13  RESET
UP
LCC1_SIB-L0_F0,00->SIB-S0_F3,14  UP
LCC0_SIB-L0_F0,00->SIB-S0_F3,15  UP
Sib #1 :
-----
SIB1_F0 (F2 ):
LCC0_SIB-L1_F0,03->SIB-S1_F0,00  RESET
LCC1_SIB-L1_F0,03->SIB-S1_F0,01  RESET
LCC2_SIB-L1_F0,03->SIB-S1_F0,02  RESET
LCC3_SIB-L1_F0,03->SIB-S1_F0,03  RESET
LCC0_SIB-L1_F0,02->SIB-S1_F0,04  RESET
LCC1_SIB-L1_F0,02->SIB-S1_F0,05  RESET
LCC2_SIB-L1_F0,02->SIB-S1_F0,06  RESET
LCC3_SIB-L1_F0,02->SIB-S1_F0,07  RESET
LCC0_SIB-L1_F0,07->SIB-S1_F0,08  RESET
LCC1_SIB-L1_F0,07->SIB-S1_F0,09  RESET
LCC2_SIB-L1_F0,07->SIB-S1_F0,10  RESET
LCC3_SIB-L1_F0,07->SIB-S1_F0,11  RESET
LCC0_SIB-L1_F0,06->SIB-S1_F0,12  RESET
LCC1_SIB-L1_F0,06->SIB-S1_F0,13  RESET
LCC2_SIB-L1_F0,06->SIB-S1_F0,14  RESET
LCC3_SIB-L1_F0,06->SIB-S1_F0,15  RESET
SIB1_F1 (F2 ):
LCC0_SIB-L1_F0,11->SIB-S1_F1,00  RESET
LCC1_SIB-L1_F0,11->SIB-S1_F1,01  RESET
LCC2_SIB-L1_F0,11->SIB-S1_F1,02  RESET
LCC3_SIB-L1_F0,11->SIB-S1_F1,03  RESET
LCC0_SIB-L1_F0,10->SIB-S1_F1,04  RESET
LCC1_SIB-L1_F0,10->SIB-S1_F1,05  RESET
LCC2_SIB-L1_F0,10->SIB-S1_F1,06  RESET
LCC3_SIB-L1_F0,10->SIB-S1_F1,07  RESET
LCC0_SIB-L1_F0,15->SIB-S1_F1,08  RESET
LCC1_SIB-L1_F0,15->SIB-S1_F1,09  RESET
LCC2_SIB-L1_F0,15->SIB-S1_F1,10  RESET
LCC3_SIB-L1_F0,15->SIB-S1_F1,11  RESET
LCC0_SIB-L1_F0,14->SIB-S1_F1,12  RESET
LCC1_SIB-L1_F0,14->SIB-S1_F1,13  RESET
LCC2_SIB-L1_F0,14->SIB-S1_F1,14  RESET

SIB-S0_F3,11->LCC0_SIB-L0_F1,02  UP
SIB-S0_F3,12->LCC3_SIB-L0_F1,03
SIB-S0_F3,13->LCC2_SIB-L0_F1,11
SIB-S0_F3,14->LCC1_SIB-L0_F1,11  UP
SIB-S0_F3,15->LCC0_SIB-L0_F1,03  UP

SIB-S1_F0,00->LCC0_SIB-L1_F1,00  UP
SIB-S1_F0,01->LCC1_SIB-L1_F1,08  UP
SIB-S1_F0,02->LCC2_SIB-L1_F1,08  UP
SIB-S1_F0,03->LCC3_SIB-L1_F1,00  UP
SIB-S1_F0,04->LCC0_SIB-L1_F1,01  UP
SIB-S1_F0,05->LCC1_SIB-L1_F1,09  UP
SIB-S1_F0,06->LCC2_SIB-L1_F1,09  UP
SIB-S1_F0,07->LCC3_SIB-L1_F1,01  UP
SIB-S1_F0,08->LCC0_SIB-L1_F1,04  UP
SIB-S1_F0,09->LCC1_SIB-L1_F1,12  UP
SIB-S1_F0,10->LCC2_SIB-L1_F1,12  UP
SIB-S1_F0,11->LCC3_SIB-L1_F1,04  UP
SIB-S1_F0,12->LCC0_SIB-L1_F1,05  UP
SIB-S1_F0,13->LCC1_SIB-L1_F1,13  UP
SIB-S1_F0,14->LCC2_SIB-L1_F1,13  UP
SIB-S1_F0,15->LCC3_SIB-L1_F1,05  UP

SIB-S1_F1,00->LCC0_SIB-L1_F1,08  UP
SIB-S1_F1,01->LCC1_SIB-L1_F1,00  UP
SIB-S1_F1,02->LCC2_SIB-L1_F1,00  UP
SIB-S1_F1,03->LCC3_SIB-L1_F1,08  UP
SIB-S1_F1,04->LCC0_SIB-L1_F1,09  UP
SIB-S1_F1,05->LCC1_SIB-L1_F1,01  UP
SIB-S1_F1,06->LCC2_SIB-L1_F1,01  UP
SIB-S1_F1,07->LCC3_SIB-L1_F1,09  UP
SIB-S1_F1,08->LCC0_SIB-L1_F1,12  UP
SIB-S1_F1,09->LCC1_SIB-L1_F1,04  UP
SIB-S1_F1,10->LCC2_SIB-L1_F1,04  UP
SIB-S1_F1,11->LCC3_SIB-L1_F1,12,05  UP
SIB-S1_F1,12->LCC0_SIB-L1_F1,13  UP
SIB-S1_F1,13->LCC1_SIB-L1_F1,05  UP
SIB-S1_F1,14->LCC2_SIB-L1_F1,05  UP

```

show chassis fabric topology lcc
user@host> show chassis fabric topology lcc 0
lcc0-re0:

```

-----
fchip (mode)
in-links          state          out-links          state
-----
Sib #2 :
-----
SIB2_F0 (F1 ):
FPC0_T->SIB-L2_F0,00  DOWN      SIB-L2_F0,00->SIB-S2_F3,15  DOWN
FPC0_B->SIB-L2_F0,01  UP        SIB-L2_F0,01->SIB-S2_F3,11  DOWN
FPC1_T->SIB-L2_F0,02  DOWN      SIB-L2_F0,02->SIB-S2_F0,04  DOWN
FPC1_B->SIB-L2_F0,03  DOWN      SIB-L2_F0,03->SIB-S2_F0,00  DOWN
FPC2_T->SIB-L2_F0,04  DOWN      SIB-L2_F0,04->SIB-S2_F3,07  DOWN
FPC2_B->SIB-L2_F0,05  DOWN      SIB-L2_F0,05->SIB-S2_F3,03  DOWN
FPC3_T->SIB-L2_F0,06  DOWN      SIB-L2_F0,06->SIB-S2_F0,12  DOWN
FPC3_B->SIB-L2_F0,07  DOWN      SIB-L2_F0,07->SIB-S2_F0,08  DOWN
FPC4_T->SIB-L2_F0,08  DOWN      SIB-L2_F0,08->SIB-S2_F2,15  DOWN

```

```

FPC4_B->SIB-L2_F0,09    DOWN    SIB-L2_F0,09->SIB-S2_F2,11 DOWN
FPC5_T->SIB-L2_F0,10    DOWN    SIB-L2_F0,10->SIB-S2_F1,04 DOWN
FPC5_B->SIB-L2_F0,11    DOWN    SIB-L2_F0,11->SIB-S2_F1,00 DOWN
FPC6_T->SIB-L2_F0,12    DOWN    SIB-L2_F0,12->SIB-S2_F2,07 DOWN
FPC6_B->SIB-L2_F0,13    UP      SIB-L2_F0,13->SIB-S2_F2,03 DOWN
FPC7_T->SIB-L2_F0,14    DOWN    SIB-L2_F0,14->SIB-S2_F1,12 DOWN
FPC7_B->SIB-L2_F0,15    DOWN    SIB-L2_F0,15->SIB-S2_F1,08 DOWN

SIB2_F1 (F3 ):
SIB-S2_F0,00->SIB-L2_F1,00 UP    SIB-L2_F1,00->FPC7_B    DOWN
SIB-S2_F0,04->SIB-L2_F1,01 UP    SIB-L2_F1,01->FPC7_T    DOWN
SIB-S2_F3,11->SIB-L2_F1,02 UP    SIB-L2_F1,02->FPC6_B    DOWN
SIB-S2_F3,15->SIB-L2_F1,03 UP    SIB-L2_F1,03->FPC6_T    DOWN
SIB-S2_F0,08->SIB-L2_F1,04 UP    SIB-L2_F1,04->FPC5_B    DOWN
SIB-S2_F0,12->SIB-L2_F1,05 UP    SIB-L2_F1,05->FPC5_T    DOWN
SIB-S2_F3,03->SIB-L2_F1,06 UP    SIB-L2_F1,06->FPC4_B    DOWN
SIB-S2_F3,07->SIB-L2_F1,07 UP    SIB-L2_F1,07->FPC4_T    DOWN
SIB-S2_F1,00->SIB-L2_F1,08 UP    SIB-L2_F1,08->FPC3_B    DOWN
SIB-S2_F1,04->SIB-L2_F1,09 UP    SIB-L2_F1,09->FPC3_T    DOWN
SIB-S2_F2,11->SIB-L2_F1,10 UP    SIB-L2_F1,10->FPC2_B    DOWN
SIB-S2_F2,15->SIB-L2_F1,11 UP    SIB-L2_F1,11->FPC2_T    DOWN
SIB-S2_F1,08->SIB-L2_F1,12 UP    SIB-L2_F1,12->FPC1_B    DOWN
SIB-S2_F1,12->SIB-L2_F1,13 UP    SIB-L2_F1,13->FPC1_T    DOWN
SIB-S2_F2,03->SIB-L2_F1,14 UP    SIB-L2_F1,14->FPC0_B    DOWN
SIB-S2_F2,07->SIB-L2_F1,15 UP    SIB-L2_F1,15->FPC0_T    DOWN

Sib #4 :
-----
SIB4_F0 (F1 ):
FPC0_T->SIB-L4_F0,00    RESET   SIB-L4_F0,00->SIB-S4_F3,15 UP
FPC0_B->SIB-L4_F0,01    UP        SIB-L4_F0,01->SIB-S4_F3,11 UP
FPC1_T->SIB-L4_F0,02    RESET   SIB-L4_F0,02->SIB-S4_F0,04 UP
FPC1_B->SIB-L4_F0,03    RESET   SIB-L4_F0,03->SIB-S4_F0,00 UP
FPC2_T->SIB-L4_F0,04    RESET   SIB-L4_F0,04->SIB-S4_F3,07 UP
FPC2_B->SIB-L4_F0,05    RESET   SIB-L4_F0,05->SIB-S4_F3,03 UP
FPC3_T->SIB-L4_F0,06    RESET   SIB-L4_F0,06->SIB-S4_F0,12 UP
FPC3_B->SIB-L4_F0,07    RESET   SIB-L4_F0,07->SIB-S4_F0,08 UP
FPC4_T->SIB-L4_F0,08    RESET   SIB-L4_F0,08->SIB-S4_F2,15 UP
FPC4_B->SIB-L4_F0,09    RESET   SIB-L4_F0,09->SIB-S4_F2,11 UP
FPC5_T->SIB-L4_F0,10    RESET   SIB-L4_F0,10->SIB-S4_F1,04 UP
FPC5_B->SIB-L4_F0,11    RESET   SIB-L4_F0,11->SIB-S4_F1,00 UP
FPC6_T->SIB-L4_F0,12    RESET   SIB-L4_F0,12->SIB-S4_F2,07 UP
FPC6_B->SIB-L4_F0,13    UP      SIB-L4_F0,13->SIB-S4_F2,03 UP
FPC7_T->SIB-L4_F0,14    RESET   SIB-L4_F0,14->SIB-S4_F1,12 UP
FPC7_B->SIB-L4_F0,15    RESET   SIB-L4_F0,15->SIB-S4_F1,08 UP

SIB4_F1 (F3 ):
SIB-S4_F0,00->SIB-L4_F1,00 UP    SIB-L4_F1,00->FPC7_B    UP
SIB-S4_F0,04->SIB-L4_F1,01 UP    SIB-L4_F1,01->FPC7_T    UP
SIB-S4_F3,11->SIB-L4_F1,02 UP    SIB-L4_F1,02->FPC6_B    UP
SIB-S4_F3,15->SIB-L4_F1,03 UP    SIB-L4_F1,03->FPC6_T    UP
SIB-S4_F0,08->SIB-L4_F1,04 UP    SIB-L4_F1,04->FPC5_B    UP
SIB-S4_F0,12->SIB-L4_F1,05 UP    SIB-L4_F1,05->FPC5_T    UP
SIB-S4_F3,03->SIB-L4_F1,06 UP    SIB-L4_F1,06->FPC4_B    UP
SIB-S4_F3,07->SIB-L4_F1,07 UP    SIB-L4_F1,07->FPC4_T    UP
SIB-S4_F1,00->SIB-L4_F1,08 UP    SIB-L4_F1,08->FPC3_B    UP
SIB-S4_F1,04->SIB-L4_F1,09 UP    SIB-L4_F1,09->FPC3_T    UP
SIB-S4_F2,11->SIB-L4_F1,10 UP    SIB-L4_F1,10->FPC2_B    UP
SIB-S4_F2,15->SIB-L4_F1,11 UP    SIB-L4_F1,11->FPC2_T    UP
SIB-S4_F1,08->SIB-L4_F1,12 UP    SIB-L4_F1,12->FPC1_B    UP
SIB-S4_F1,12->SIB-L4_F1,13 UP    SIB-L4_F1,13->FPC1_T    UP

```

```
SIB-S4_F2,03->SIB-L4_F1,14 UP      SIB-L4_F1,14->FPC0_B    UP
SIB-S4_F2,07->SIB-L4_F1,15 UP      SIB-L4_F1,15->FPC0_T    UP
```

**show chassis fabric
topology (TX Matrix
Plus Router)**

```
user@host> show chassis fabric topology
sfc0-re0:
```

```
-----
F13_SIB0
```

```
=====
```

```
Out-Links:
```

```
=====
```

SFC0_F13_SIB_00	-> LCC00_ST_SIB_L00	VCSEL Status	HSL2 Channel	HSL2 Status
=====				
SF_30_00_FB_D(04,11)	-> FPC0_T_SG(0,0,0)_FB_D(01,11)	OK	112	Up
SF_30_00_FB_D(04,10)	-> FPC0_T_SG(0,0,1)_FB_D(01,10)	OK	112	Up
SF_30_00_FB_D(04,09)	-> FPC0_T_SG(0,0,2)_FB_D(01,09)	OK	112	Up
SF_30_00_FB_D(04,08)	-> FPC0_T_SG(0,0,3)_FB_D(01,08)	OK	112	Up
SF_30_00_FB_D(04,07)	-> FPC0_T_SG(0,0,4)_FB_D(01,07)	OK	112	Up
SF_30_00_FB_D(04,06)	-> FPC0_T_SG(0,0,5)_FB_D(01,06)	OK	112	Up
SF_30_00_FB_D(04,05)	-> FPC0_T_SG(0,0,6)_FB_D(01,05)	OK	112	Up
SF_30_00_FB_D(04,04)	-> FPC0_T_SG(0,0,7)_FB_D(01,04)	OK	112	Up
SF_30_01_FB_B(16,11)	-> FPC4_T_SG(2,0,0)_FB_B(13,11)	OK	119	Up
SF_30_01_FB_B(16,10)	-> FPC4_T_SG(2,0,1)_FB_B(13,10)	OK	119	Up
SF_30_01_FB_B(16,09)	-> FPC4_T_SG(2,0,2)_FB_B(13,09)	OK	119	Up
SF_30_01_FB_B(16,08)	-> FPC4_T_SG(2,0,3)_FB_B(13,08)	OK	119	Up
SF_30_01_FB_B(16,07)	-> FPC4_T_SG(2,0,4)_FB_B(13,07)	OK	119	Up
SF_30_01_FB_B(16,06)	-> FPC4_T_SG(2,0,5)_FB_B(13,06)	OK	119	Up
SF_30_01_FB_B(16,05)	-> FPC4_T_SG(2,0,6)_FB_B(13,05)	OK	119	Up
SF_30_01_FB_B(16,04)	-> FPC4_T_SG(2,0,7)_FB_B(13,04)	OK	119	Up
SF_30_02_FB_D(05,08)	-> FPC1_T_SG(0,2,0)_FB_D(02,08)	OK	126	Up
SF_30_02_FB_D(05,07)	-> FPC1_T_SG(0,2,1)_FB_D(02,07)	OK	126	Up
SF_30_02_FB_D(05,06)	-> FPC1_T_SG(0,2,2)_FB_D(02,06)	OK	126	Up
SF_30_02_FB_D(05,05)	-> FPC1_T_SG(0,2,3)_FB_D(02,05)	OK	126	Up
SF_30_02_FB_D(05,03)	-> FPC1_T_SG(0,2,4)_FB_D(02,03)	OK	126	Up
SF_30_02_FB_D(05,02)	-> FPC1_T_SG(0,2,5)_FB_D(02,02)	OK	126	Up
SF_30_02_FB_D(05,01)	-> FPC1_T_SG(0,2,6)_FB_D(02,01)	OK	126	Up
SF_30_02_FB_D(05,00)	-> FPC1_T_SG(0,2,7)_FB_D(02,00)	OK	126	Up
SF_30_03_FB_B(17,08)	-> FPC5_T_SG(2,2,0)_FB_B(14,08)	OK	133	Up
SF_30_03_FB_B(17,07)	-> FPC5_T_SG(2,2,1)_FB_B(14,07)	OK	133	Up
SF_30_03_FB_B(17,06)	-> FPC5_T_SG(2,2,2)_FB_B(14,06)	OK	133	Up
SF_30_03_FB_B(17,05)	-> FPC5_T_SG(2,2,3)_FB_B(14,05)	OK	133	Up
SF_30_03_FB_B(17,03)	-> FPC5_T_SG(2,2,4)_FB_B(14,03)	OK	133	Up
SF_30_03_FB_B(17,02)	-> FPC5_T_SG(2,2,5)_FB_B(14,02)	OK	133	Up
SF_30_03_FB_B(17,01)	-> FPC5_T_SG(2,2,6)_FB_B(14,01)	OK	133	Up
SF_30_03_FB_B(17,00)	-> FPC5_T_SG(2,2,7)_FB_B(14,00)	OK	133	Up
SF_30_04_FB_C(10,11)	-> FPC2_T_SG(1,0,0)_FB_C(07,11)	OK	140	Up
SF_30_04_FB_C(10,10)	-> FPC2_T_SG(1,0,1)_FB_C(07,10)	OK	140	Up
SF_30_04_FB_C(10,09)	-> FPC2_T_SG(1,0,2)_FB_C(07,09)	OK	140	Up
SF_30_04_FB_C(10,08)	-> FPC2_T_SG(1,0,3)_FB_C(07,08)	OK	140	Up
SF_30_04_FB_C(10,07)	-> FPC2_T_SG(1,0,4)_FB_C(07,07)	OK	140	Up
SF_30_04_FB_C(10,06)	-> FPC2_T_SG(1,0,5)_FB_C(07,06)	OK	140	Up
SF_30_04_FB_C(10,05)	-> FPC2_T_SG(1,0,6)_FB_C(07,05)	OK	140	Up
SF_30_04_FB_C(10,04)	-> FPC2_T_SG(1,0,7)_FB_C(07,04)	OK	140	Up
SF_30_05_FB_A(22,11)	-> FPC6_T_SG(3,0,0)_FB_A(19,11)	OK	147	Up
SF_30_05_FB_A(22,10)	-> FPC6_T_SG(3,0,1)_FB_A(19,10)	OK	147	Up
SF_30_05_FB_A(22,09)	-> FPC6_T_SG(3,0,2)_FB_A(19,09)	OK	147	Up
SF_30_05_FB_A(22,08)	-> FPC6_T_SG(3,0,3)_FB_A(19,08)	OK	147	Up
SF_30_05_FB_A(22,07)	-> FPC6_T_SG(3,0,4)_FB_A(19,07)	OK	147	Up
SF_30_05_FB_A(22,06)	-> FPC6_T_SG(3,0,5)_FB_A(19,06)	OK	147	Up

```

SF_30_05_FB_A(22,05) -> FPC6_T_SG(3,0,6)_FB_A(19,05)    OK      147    Up
SF_30_05_FB_A(22,04) -> FPC6_T_SG(3,0,7)_FB_A(19,04)    OK      147    Up
SF_30_06_FB_C(11,08) -> FPC3_T_SG(1,2,0)_FB_C(08,08)    OK      154    Up
SF_30_06_FB_C(11,07) -> FPC3_T_SG(1,2,1)_FB_C(08,07)    OK      154    Up
SF_30_06_FB_C(11,06) -> FPC3_T_SG(1,2,2)_FB_C(08,06)    OK      154    Up
SF_30_06_FB_C(11,05) -> FPC3_T_SG(1,2,3)_FB_C(08,05)    OK      154    Up
SF_30_06_FB_C(11,03) -> FPC3_T_SG(1,2,4)_FB_C(08,03)    OK      154    Up
SF_30_06_FB_C(11,02) -> FPC3_T_SG(1,2,5)_FB_C(08,02)    OK      154    Up
SF_30_06_FB_C(11,01) -> FPC3_T_SG(1,2,6)_FB_C(08,01)    OK      154    Up
SF_30_06_FB_C(11,00) -> FPC3_T_SG(1,2,7)_FB_C(08,00)    OK      154    Up

```

...

**show chassis fabric
topology sfc (TX
Matrix Plus Router)**

```

user@host> show chassis fabric topology sfc 0
sfc0-re0:

```

F13_SIB0

=====

Out-Links:

=====

SFC0_F13_SIB_00	-> LCC00_ST_SIB_L00	VCSEL Status	HSL2 Channel	HSL2 Status
SF_30_00_FB_D(04,11)	-> FPC0_T_SG(0,0,0)_FB_D(01,11)	OK	112	Up
SF_30_00_FB_D(04,10)	-> FPC0_T_SG(0,0,1)_FB_D(01,10)	OK	112	Up
SF_30_00_FB_D(04,09)	-> FPC0_T_SG(0,0,2)_FB_D(01,09)	OK	112	Up
SF_30_00_FB_D(04,08)	-> FPC0_T_SG(0,0,3)_FB_D(01,08)	OK	112	Up
SF_30_00_FB_D(04,07)	-> FPC0_T_SG(0,0,4)_FB_D(01,07)	OK	112	Up
SF_30_00_FB_D(04,06)	-> FPC0_T_SG(0,0,5)_FB_D(01,06)	OK	112	Up
SF_30_00_FB_D(04,05)	-> FPC0_T_SG(0,0,6)_FB_D(01,05)	OK	112	Up
SF_30_00_FB_D(04,04)	-> FPC0_T_SG(0,0,7)_FB_D(01,04)	OK	112	Up
SF_30_01_FB_B(16,11)	-> FPC4_T_SG(2,0,0)_FB_B(13,11)	OK	119	Up
SF_30_01_FB_B(16,10)	-> FPC4_T_SG(2,0,1)_FB_B(13,10)	OK	119	Up
SF_30_01_FB_B(16,09)	-> FPC4_T_SG(2,0,2)_FB_B(13,09)	OK	119	Up
SF_30_01_FB_B(16,08)	-> FPC4_T_SG(2,0,3)_FB_B(13,08)	OK	119	Up
SF_30_01_FB_B(16,07)	-> FPC4_T_SG(2,0,4)_FB_B(13,07)	OK	119	Up
SF_30_01_FB_B(16,06)	-> FPC4_T_SG(2,0,5)_FB_B(13,06)	OK	119	Up
SF_30_01_FB_B(16,05)	-> FPC4_T_SG(2,0,6)_FB_B(13,05)	OK	119	Up
SF_30_01_FB_B(16,04)	-> FPC4_T_SG(2,0,7)_FB_B(13,04)	OK	119	Up
SF_30_02_FB_D(05,08)	-> FPC1_T_SG(0,2,0)_FB_D(02,08)	OK	126	Up
SF_30_02_FB_D(05,07)	-> FPC1_T_SG(0,2,1)_FB_D(02,07)	OK	126	Up
SF_30_02_FB_D(05,06)	-> FPC1_T_SG(0,2,2)_FB_D(02,06)	OK	126	Up
SF_30_02_FB_D(05,05)	-> FPC1_T_SG(0,2,3)_FB_D(02,05)	OK	126	Up
SF_30_02_FB_D(05,03)	-> FPC1_T_SG(0,2,4)_FB_D(02,03)	OK	126	Up
SF_30_02_FB_D(05,02)	-> FPC1_T_SG(0,2,5)_FB_D(02,02)	OK	126	Up
SF_30_02_FB_D(05,01)	-> FPC1_T_SG(0,2,6)_FB_D(02,01)	OK	126	Up
SF_30_02_FB_D(05,00)	-> FPC1_T_SG(0,2,7)_FB_D(02,00)	OK	126	Up
SF_30_03_FB_B(17,08)	-> FPC5_T_SG(2,2,0)_FB_B(14,08)	OK	133	Up
SF_30_03_FB_B(17,07)	-> FPC5_T_SG(2,2,1)_FB_B(14,07)	OK	133	Up
SF_30_03_FB_B(17,06)	-> FPC5_T_SG(2,2,2)_FB_B(14,06)	OK	133	Up
SF_30_03_FB_B(17,05)	-> FPC5_T_SG(2,2,3)_FB_B(14,05)	OK	133	Up
SF_30_03_FB_B(17,03)	-> FPC5_T_SG(2,2,4)_FB_B(14,03)	OK	133	Up
SF_30_03_FB_B(17,02)	-> FPC5_T_SG(2,2,5)_FB_B(14,02)	OK	133	Up
SF_30_03_FB_B(17,01)	-> FPC5_T_SG(2,2,6)_FB_B(14,01)	OK	133	Up
SF_30_03_FB_B(17,00)	-> FPC5_T_SG(2,2,7)_FB_B(14,00)	OK	133	Up
SF_30_04_FB_C(10,11)	-> FPC2_T_SG(1,0,0)_FB_C(07,11)	OK	140	Up
SF_30_04_FB_C(10,10)	-> FPC2_T_SG(1,0,1)_FB_C(07,10)	OK	140	Up
SF_30_04_FB_C(10,09)	-> FPC2_T_SG(1,0,2)_FB_C(07,09)	OK	140	Up
SF_30_04_FB_C(10,08)	-> FPC2_T_SG(1,0,3)_FB_C(07,08)	OK	140	Up
SF_30_04_FB_C(10,07)	-> FPC2_T_SG(1,0,4)_FB_C(07,07)	OK	140	Up

```

SF_30_04_FB_C(10,06) -> FPC2_T_SG(1,0,5)_FB_C(07,06)    OK      140    Up
SF_30_04_FB_C(10,05) -> FPC2_T_SG(1,0,6)_FB_C(07,05)    OK      140    Up
SF_30_04_FB_C(10,04) -> FPC2_T_SG(1,0,7)_FB_C(07,04)    OK      140    Up
SF_30_05_FB_A(22,11) -> FPC6_T_SG(3,0,0)_FB_A(19,11)    OK      147    Up
SF_30_05_FB_A(22,10) -> FPC6_T_SG(3,0,1)_FB_A(19,10)    OK      147    Up
SF_30_05_FB_A(22,09) -> FPC6_T_SG(3,0,2)_FB_A(19,09)    OK      147    Up
SF_30_05_FB_A(22,08) -> FPC6_T_SG(3,0,3)_FB_A(19,08)    OK      147    Up
SF_30_05_FB_A(22,07) -> FPC6_T_SG(3,0,4)_FB_A(19,07)    OK      147    Up
SF_30_05_FB_A(22,06) -> FPC6_T_SG(3,0,5)_FB_A(19,06)    OK      147    Up
SF_30_05_FB_A(22,05) -> FPC6_T_SG(3,0,6)_FB_A(19,05)    OK      147    Up
SF_30_05_FB_A(22,04) -> FPC6_T_SG(3,0,7)_FB_A(19,04)    OK      147    Up
SF_30_06_FB_C(11,08) -> FPC3_T_SG(1,2,0)_FB_C(08,08)    OK      154    Up
SF_30_06_FB_C(11,07) -> FPC3_T_SG(1,2,1)_FB_C(08,07)    OK      154    Up
SF_30_06_FB_C(11,06) -> FPC3_T_SG(1,2,2)_FB_C(08,06)    OK      154    Up
SF_30_06_FB_C(11,05) -> FPC3_T_SG(1,2,3)_FB_C(08,05)    OK      154    Up
SF_30_06_FB_C(11,03) -> FPC3_T_SG(1,2,4)_FB_C(08,03)    OK      154    Up
SF_30_06_FB_C(11,02) -> FPC3_T_SG(1,2,5)_FB_C(08,02)    OK      154    Up
SF_30_06_FB_C(11,01) -> FPC3_T_SG(1,2,6)_FB_C(08,01)    OK      154    Up
SF_30_06_FB_C(11,00) -> FPC3_T_SG(1,2,7)_FB_C(08,00)    OK      154    Up
...

```

show chassis fabric topology lcc (TX Matrix Plus Router)

```

user@host> show chassis fabric topology lcc 0
lcc0-re0:
-----

```

SIB0

=====

Out-Links:

=====

LCC00_ST_SIB_L00	-> SFC0_F13_SIB_00	VCSEL Status	HSL2 Channel	HSL2 Status
FPC0_T_SG(0,0,0)_FB_D(04,11)	-> SF_10_00_FB_D(01,11)	OK	12	Up
FPC0_T_SG(0,0,1)_FB_D(04,10)	-> SF_10_00_FB_D(01,10)	OK	12	Up
FPC0_T_SG(0,0,2)_FB_D(04,09)	-> SF_10_00_FB_D(01,09)	OK	12	Up
FPC0_T_SG(0,0,3)_FB_D(04,08)	-> SF_10_00_FB_D(01,08)	OK	12	Up
FPC0_T_SG(0,0,4)_FB_D(04,07)	-> SF_10_00_FB_D(01,07)	OK	12	Up
FPC0_T_SG(0,0,5)_FB_D(04,06)	-> SF_10_00_FB_D(01,06)	OK	12	Up
FPC0_T_SG(0,0,6)_FB_D(04,05)	-> SF_10_00_FB_D(01,05)	OK	12	Up
FPC0_T_SG(0,0,7)_FB_D(04,04)	-> SF_10_00_FB_D(01,04)	OK	12	Up
FPC0_B_SG(0,1,0)_FB_D(03,07)	-> SF_10_10_FB_D(00,07)	OK	15	Up
FPC0_B_SG(0,1,1)_FB_D(03,06)	-> SF_10_10_FB_D(00,06)	OK	15	Up
FPC0_B_SG(0,1,2)_FB_D(03,05)	-> SF_10_10_FB_D(00,05)	OK	15	Up
FPC0_B_SG(0,1,3)_FB_D(03,04)	-> SF_10_10_FB_D(00,04)	OK	15	Up
FPC0_B_SG(0,1,4)_FB_D(03,03)	-> SF_10_10_FB_D(00,03)	OK	15	Up
FPC0_B_SG(0,1,5)_FB_D(03,02)	-> SF_10_10_FB_D(00,02)	OK	15	Up
FPC0_B_SG(0,1,6)_FB_D(03,01)	-> SF_10_10_FB_D(00,01)	OK	15	Up
FPC0_B_SG(0,1,7)_FB_D(03,00)	-> SF_10_10_FB_D(00,00)	OK	15	Up
FPC1_T_SG(0,2,0)_FB_D(05,08)	-> SF_10_02_FB_D(02,08)	OK	18	Up
FPC1_T_SG(0,2,1)_FB_D(05,07)	-> SF_10_02_FB_D(02,07)	OK	18	Up
FPC1_T_SG(0,2,2)_FB_D(05,06)	-> SF_10_02_FB_D(02,06)	OK	18	Up
FPC1_T_SG(0,2,3)_FB_D(05,05)	-> SF_10_02_FB_D(02,05)	OK	18	Up
FPC1_T_SG(0,2,4)_FB_D(05,03)	-> SF_10_02_FB_D(02,03)	OK	18	Up
FPC1_T_SG(0,2,5)_FB_D(05,02)	-> SF_10_02_FB_D(02,02)	OK	18	Up
FPC1_T_SG(0,2,6)_FB_D(05,01)	-> SF_10_02_FB_D(02,01)	OK	18	Up
FPC1_T_SG(0,2,7)_FB_D(05,00)	-> SF_10_02_FB_D(02,00)	OK	18	Up
FPC1_B_SG(0,3,0)_FB_D(04,03)	-> SF_10_11_FB_D(01,03)	OK	21	Up
FPC1_B_SG(0,3,1)_FB_D(04,02)	-> SF_10_11_FB_D(01,02)	OK	21	Up
FPC1_B_SG(0,3,2)_FB_D(04,01)	-> SF_10_11_FB_D(01,01)	OK	21	Up
FPC1_B_SG(0,3,3)_FB_D(04,00)	-> SF_10_11_FB_D(01,00)	OK	21	Up

```

FPC1_B_SG(0,3,4)_FB_D(03,11) -> SF_10_11_FB_D(00,11)    OK      21      Up
FPC1_B_SG(0,3,5)_FB_D(03,10) -> SF_10_11_FB_D(00,10)    OK      21      Up
FPC1_B_SG(0,3,6)_FB_D(03,09) -> SF_10_11_FB_D(00,09)    OK      21      Up
FPC1_B_SG(0,3,7)_FB_D(03,08) -> SF_10_11_FB_D(00,08)    OK      21      Up
FPC2_T_SG(1,0,0)_FB_C(10,11) -> SF_10_04_FB_C(07,11)    OK      12      Up
FPC2_T_SG(1,0,1)_FB_C(10,10) -> SF_10_04_FB_C(07,10)    OK      12      Up
FPC2_T_SG(1,0,2)_FB_C(10,09) -> SF_10_04_FB_C(07,09)    OK      12      Up
FPC2_T_SG(1,0,3)_FB_C(10,08) -> SF_10_04_FB_C(07,08)    OK      12      Up
FPC2_T_SG(1,0,4)_FB_C(10,07) -> SF_10_04_FB_C(07,07)    OK      12      Up
FPC2_T_SG(1,0,5)_FB_C(10,06) -> SF_10_04_FB_C(07,06)    OK      12      Up
FPC2_T_SG(1,0,6)_FB_C(10,05) -> SF_10_04_FB_C(07,05)    OK      12      Up
FPC2_T_SG(1,0,7)_FB_C(10,04) -> SF_10_04_FB_C(07,04)    OK      12      Up
FPC2_B_SG(1,1,0)_FB_C(09,07) -> SF_10_14_FB_C(06,07)    OK      15      Up
FPC2_B_SG(1,1,1)_FB_C(09,06) -> SF_10_14_FB_C(06,06)    OK      15      Up
FPC2_B_SG(1,1,2)_FB_C(09,05) -> SF_10_14_FB_C(06,05)    OK      15      Up
FPC2_B_SG(1,1,3)_FB_C(09,04) -> SF_10_14_FB_C(06,04)    OK      15      Up
FPC2_B_SG(1,1,4)_FB_C(09,03) -> SF_10_14_FB_C(06,03)    OK      15      Up
FPC2_B_SG(1,1,5)_FB_C(09,02) -> SF_10_14_FB_C(06,02)    OK      15      Up
FPC2_B_SG(1,1,6)_FB_C(09,01) -> SF_10_14_FB_C(06,01)    OK      15      Up
FPC2_B_SG(1,1,7)_FB_C(09,00) -> SF_10_14_FB_C(06,00)    OK      15      Up
FPC3_T_SG(1,2,0)_FB_C(11,08) -> SF_10_06_FB_C(08,08)    OK      18      Up
FPC3_T_SG(1,2,1)_FB_C(11,07) -> SF_10_06_FB_C(08,07)    OK      18      Up
FPC3_T_SG(1,2,2)_FB_C(11,06) -> SF_10_06_FB_C(08,06)    OK      18      Up
FPC3_T_SG(1,2,3)_FB_C(11,05) -> SF_10_06_FB_C(08,05)    OK      18      Up
FPC3_T_SG(1,2,4)_FB_C(11,03) -> SF_10_06_FB_C(08,03)    OK      18      Up
FPC3_T_SG(1,2,5)_FB_C(11,02) -> SF_10_06_FB_C(08,02)    OK      18      Up
FPC3_T_SG(1,2,6)_FB_C(11,01) -> SF_10_06_FB_C(08,01)    OK      18      Up
...

```

**show chassis fabric
topology (T4000 Core
Router)**

```

user@host> show chassis fabric topology 0
fchip (mode)

```

In-links	State	Out-links	State
----------	-------	-----------	-------

SIB0 :

Onboard Links

SIB0_XF1,14_0->SIB0_XF,00_0	Up	SIB0_XF,00_0->SIB0_XF1,14_0	Up
SIB0_XF,00_0->SIB0_XF1,14_0	Up	SIB0_XF1,14_0->SIB0_XF,00_0	Up
SIB0_XF1,13_0->SIB0_XF,01_0	Up	SIB0_XF,01_0->SIB0_XF1,13_0	Up
SIB0_XF,01_0->SIB0_XF1,13_0	Up	SIB0_XF1,13_0->SIB0_XF,01_0	Up
SIB0_XF1,12_0->SIB0_XF,02_0	Up	SIB0_XF,02_0->SIB0_XF1,12_0	Up
SIB0_XF,02_0->SIB0_XF1,12_0	Up	SIB0_XF1,12_0->SIB0_XF,02_0	Up
SIB0_XF1,11_0->SIB0_XF,03_0	Up	SIB0_XF,03_0->SIB0_XF1,11_0	Up
SIB0_XF,03_0->SIB0_XF1,11_0	Up	SIB0_XF1,11_0->SIB0_XF,03_0	Up
SIB0_XF1,10_0->SIB0_XF,04_0	Up	SIB0_XF,04_0->SIB0_XF1,10_0	Up
SIB0_XF,04_0->SIB0_XF1,10_0	Up	SIB0_XF1,10_0->SIB0_XF,04_0	Up
SIB0_XF1,09_0->SIB0_XF,05_0	Up	SIB0_XF,05_0->SIB0_XF1,09_0	Up
SIB0_XF,05_0->SIB0_XF1,09_0	Up	SIB0_XF1,09_0->SIB0_XF,05_0	Up
SIB0_XF2,14_0->SIB0_XF,06_0	Up	SIB0_XF,06_0->SIB0_XF2,14_0	Up
SIB0_XF,06_0->SIB0_XF2,14_0	Up	SIB0_XF2,14_0->SIB0_XF,06_0	Up
SIB0_XF2,13_0->SIB0_XF,07_0	Up	SIB0_XF,07_0->SIB0_XF2,13_0	Up
SIB0_XF,07_0->SIB0_XF2,13_0	Up	SIB0_XF2,13_0->SIB0_XF,07_0	Up
SIB0_XF2,12_0->SIB0_XF,08_0	Up	SIB0_XF,08_0->SIB0_XF2,12_0	Up
SIB0_XF,08_0->SIB0_XF2,12_0	Up	SIB0_XF2,12_0->SIB0_XF,08_0	Up
SIB0_XF2,11_0->SIB0_XF,09_0	Up	SIB0_XF,09_0->SIB0_XF2,11_0	Up
SIB0_XF,09_0->SIB0_XF2,11_0	Up	SIB0_XF2,11_0->SIB0_XF,09_0	Up
SIB0_XF2,10_0->SIB0_XF,10_0	Up	SIB0_XF,10_0->SIB0_XF2,10_0	Up

SIB0_XF,10_0->SIB0_XF2,10_0	Up	SIB0_XF2,10_0->SIB0_XF,10_0	Up
SIB0_XF2,09_0->SIB0_XF,11_0	Up	SIB0_XF,11_0->SIB0_XF2,09_0	Up
SIB0_XF,11_0->SIB0_XF2,09_0	Up	SIB0_XF2,09_0->SIB0_XF,11_0	Up
SIB0_XF3,13_0->SIB0_XF,12_0	Up	SIB0_XF,12_0->SIB0_XF3,13_0	Up
SIB0_XF,12_0->SIB0_XF3,13_0	Up	SIB0_XF3,13_0->SIB0_XF,12_0	Up
SIB0_XF3,12_0->SIB0_XF,13_0	Up	SIB0_XF,13_0->SIB0_XF3,12_0	Up
SIB0_XF,13_0->SIB0_XF3,12_0	Up	SIB0_XF3,12_0->SIB0_XF,13_0	Up
SIB0_XF3,11_0->SIB0_XF,14_0	Up	SIB0_XF,14_0->SIB0_XF3,11_0	Up
SIB0_XF,14_0->SIB0_XF3,11_0	Up	SIB0_XF3,11_0->SIB0_XF,14_0	Up
SIB0_XF3,10_0->SIB0_XF,15_0	Up	SIB0_XF,15_0->SIB0_XF3,10_0	Up
SIB0_XF,15_0->SIB0_XF3,10_0	Up	SIB0_XF3,10_0->SIB0_XF,15_0	Up

PFE Links

FPC2PFE0->SIB0_XF1,05_0	Up	SIB0_XF1,05_0->FPC2PFE0	Up
FPC3PFE0->SIB0_XF2,15_0	Up	SIB0_XF2,15_0->FPC3PFE0	Up
FPC5PFE0->SIB0_XF2,05_0	Up	SIB0_XF2,05_0->FPC5PFE0	Up
FPC5PFE1->SIB0_XF2,07_0	Up	SIB0_XF2,07_0->FPC5PFE1	Up
FPC6PFE0->SIB0_XF3,01_0	Up	SIB0_XF3,01_0->FPC6PFE0	Up
FPC6PFE0->SIB0_XF3,01_1	Up	SIB0_XF3,01_1->FPC6PFE0	Up
FPC6PFE0->SIB0_XF3,02_0	Up	SIB0_XF3,02_0->FPC6PFE0	Up
FPC6PFE1->SIB0_XF3,03_0	Up	SIB0_XF3,03_0->FPC6PFE1	Up
FPC6PFE1->SIB0_XF3,03_1	Up	SIB0_XF3,03_1->FPC6PFE1	Up
FPC6PFE1->SIB0_XF3,02_1	Up	SIB0_XF3,02_1->FPC6PFE1	Up

**show chassis fabric
topology (PTX Series
Packet Transport
Switches)**

user@host> show chassis fabric topology

In-link : FPC# FE# TQ# (TQ-TX sub-chnl #) ->

SIB# TF#_FCORE# (TF-RX port#, TF-RX sub-chn#, TF-RX inst#)

Out-link : SIB# TF#_FCORE# (TF-TX port#, TF-TX sub-chn#, TF-TX inst#) ->

FPC# FE# TQ# (TQ-RX sub-chnl #)

(6, 4, 06) in FPC02FE0TQ0(02)->S01F0_0(6,4,06) will be TF Rx Port 6, TF CCL Rx Sub-Channel 4, TF CCL Rx Instance 6.

(2, 7, 10) in S01F0_0(2,7,10)->FPC02FE0TQ0(02) will be TF-Tx Port 2, TF CCL Tx Sub-channel 7, TF CCL Tx Instance 10.

SIB 0 FCHIP 0 FCORE 0 :

In-links	State	Out-links	State
FPC00FE0TQ0(00)->S00F0_0(7,4,07)	OK	S00F0_0(3,7,11)->FPC00FE0TQ0(00)	OK
FPC00FE1TQ1(00)->S00F0_0(7,6,07)	OK	S00F0_0(3,5,11)->FPC00FE1TQ1(00)	OK
FPC00FE2TQ2(00)->S00F0_0(7,5,07)	OK	S00F0_0(3,6,11)->FPC00FE2TQ2(00)	OK
FPC00FE3TQ3(00)->S00F0_0(7,7,07)	OK	S00F0_0(3,4,11)->FPC00FE3TQ3(00)	OK
FPC01FE0TQ0(00)->S00F0_0(7,0,07)	OK	S00F0_0(3,3,11)->FPC01FE0TQ0(00)	OK
FPC01FE1TQ1(00)->S00F0_0(7,1,07)	OK	S00F0_0(3,1,11)->FPC01FE1TQ1(00)	OK
FPC01FE2TQ2(00)->S00F0_0(7,2,07)	OK	S00F0_0(3,2,11)->FPC01FE2TQ2(00)	Error
FPC01FE3TQ3(00)->S00F0_0(7,3,07)	OK	S00F0_0(3,0,11)->FPC01FE3TQ3(00)	OK
FPC02FE0TQ0(00)->S00F0_0(6,4,06)	OK	S00F0_0(2,7,10)->FPC02FE0TQ0(00)	OK
FPC02FE1TQ1(00)->S00F0_0(6,5,06)	OK	S00F0_0(2,5,10)->FPC02FE1TQ1(00)	OK
FPC02FE2TQ2(00)->S00F0_0(6,6,06)	OK	S00F0_0(2,6,10)->FPC02FE2TQ2(00)	OK
FPC02FE3TQ3(00)->S00F0_0(6,7,06)	OK	S00F0_0(2,4,10)->FPC02FE3TQ3(00)	OK
FPC03FE0TQ0(00)->S00F0_0(6,0,06)	Down	S00F0_0(2,3,10)->FPC03FE0TQ0(00)	Down
FPC03FE1TQ1(00)->S00F0_0(6,1,06)	Down	S00F0_0(2,0,10)->FPC03FE1TQ1(00)	Down
FPC03FE2TQ2(00)->S00F0_0(6,2,06)	Down	S00F0_0(2,2,10)->FPC03FE2TQ2(00)	Down
FPC03FE3TQ3(00)->S00F0_0(6,3,06)	Down	S00F0_0(2,1,10)->FPC03FE3TQ3(00)	Down
FPC04FE0TQ0(00)->S00F0_0(5,4,05)	OK	S00F0_0(1,7,09)->FPC04FE0TQ0(00)	OK
FPC04FE1TQ1(00)->S00F0_0(5,5,05)	OK	S00F0_0(1,6,09)->FPC04FE1TQ1(00)	OK
FPC04FE2TQ2(00)->S00F0_0(5,6,05)	OK	S00F0_0(1,4,09)->FPC04FE2TQ2(00)	OK
FPC04FE3TQ3(00)->S00F0_0(5,7,05)	OK	S00F0_0(1,5,09)->FPC04FE3TQ3(00)	OK
FPC05FE0TQ0(00)->S00F0_0(5,0,05)	OK	S00F0_0(1,3,09)->FPC05FE0TQ0(00)	OK
FPC05FE1TQ1(00)->S00F0_0(5,1,05)	OK	S00F0_0(1,0,09)->FPC05FE1TQ1(00)	OK

```

FPC05FE2TQ2(00)->S00F0_0(5,2,05) OK      S00F0_0(1,2,09)->FPC05FE2TQ2(00) OK
FPC05FE3TQ3(00)->S00F0_0(5,3,05) OK      S00F0_0(1,1,09)->FPC05FE3TQ3(00) OK
FPC06FE0TQ0(00)->S00F0_0(4,4,04) Down    S00F0_0(0,7,08)->FPC06FE0TQ0(00) Down
FPC06FE1TQ1(00)->S00F0_0(4,5,04) Down    S00F0_0(0,5,08)->FPC06FE1TQ1(00) Down
FPC06FE2TQ2(00)->S00F0_0(4,6,04) Down    S00F0_0(0,6,08)->FPC06FE2TQ2(00) Down
FPC06FE3TQ3(00)->S00F0_0(4,7,04) Down    S00F0_0(0,4,08)->FPC06FE3TQ3(00) Down
FPC07FE0TQ0(00)->S00F0_0(4,2,04) Down    S00F0_0(0,3,08)->FPC07FE0TQ0(00) Down
FPC07FE1TQ1(00)->S00F0_0(4,0,04) Down    S00F0_0(0,0,08)->FPC07FE1TQ1(00) Down
FPC07FE2TQ2(00)->S00F0_0(4,1,04) Down    S00F0_0(0,1,08)->FPC07FE2TQ2(00) Down
FPC07FE3TQ3(00)->S00F0_0(4,3,04) Down    S00F0_0(0,2,08)->FPC07FE3TQ3(00) Down

```

SIB 0 FCHIP 0 FCORE 1 :

In-links	State	Out-links	State
FPC00FE0TQ0(01)->S00F0_1(3,4,11)	OK	S00F0_1(7,6,07)->FPC00FE0TQ0(01)	OK
FPC00FE1TQ1(01)->S00F0_1(3,5,11)	OK	S00F0_1(7,4,07)->FPC00FE1TQ1(01)	OK
FPC00FE2TQ2(01)->S00F0_1(3,6,11)	OK	S00F0_1(7,7,07)->FPC00FE2TQ2(01)	OK
FPC00FE3TQ3(01)->S00F0_1(3,7,11)	OK	S00F0_1(7,5,07)->FPC00FE3TQ3(01)	OK
FPC01FE0TQ0(01)->S00F0_1(3,0,11)	OK	S00F0_1(7,2,07)->FPC01FE0TQ0(01)	OK
FPC01FE1TQ1(01)->S00F0_1(3,1,11)	OK	S00F0_1(7,0,07)->FPC01FE1TQ1(01)	OK
FPC01FE2TQ2(01)->S00F0_1(3,2,11)	OK	S00F0_1(7,3,07)->FPC01FE2TQ2(01)	OK
FPC01FE3TQ3(01)->S00F0_1(3,3,11)	OK	S00F0_1(7,1,07)->FPC01FE3TQ3(01)	OK
FPC02FE0TQ0(01)->S00F0_1(2,4,10)	OK	S00F0_1(6,5,06)->FPC02FE0TQ0(01)	OK
FPC02FE1TQ1(01)->S00F0_1(2,5,10)	OK	S00F0_1(6,4,06)->FPC02FE1TQ1(01)	OK
FPC02FE2TQ2(01)->S00F0_1(2,6,10)	OK	S00F0_1(6,7,06)->FPC02FE2TQ2(01)	OK
FPC02FE3TQ3(01)->S00F0_1(2,7,10)	OK	S00F0_1(6,6,06)->FPC02FE3TQ3(01)	OK
FPC03FE0TQ0(01)->S00F0_1(2,0,10)	Down	S00F0_1(6,1,06)->FPC03FE0TQ0(01)	Down
FPC03FE1TQ1(01)->S00F0_1(2,1,10)	Down	S00F0_1(6,0,06)->FPC03FE1TQ1(01)	Down
FPC03FE2TQ2(01)->S00F0_1(2,2,10)	Down	S00F0_1(6,3,06)->FPC03FE2TQ2(01)	Down
FPC03FE3TQ3(01)->S00F0_1(2,3,10)	Down	S00F0_1(6,2,06)->FPC03FE3TQ3(01)	Down
FPC04FE0TQ0(01)->S00F0_1(1,4,09)	OK	S00F0_1(5,5,05)->FPC04FE0TQ0(01)	OK
FPC04FE1TQ1(01)->S00F0_1(1,5,09)	OK	S00F0_1(5,4,05)->FPC04FE1TQ1(01)	OK
FPC04FE2TQ2(01)->S00F0_1(1,6,09)	OK	S00F0_1(5,7,05)->FPC04FE2TQ2(01)	OK
FPC04FE3TQ3(01)->S00F0_1(1,7,09)	OK	S00F0_1(5,6,05)->FPC04FE3TQ3(01)	OK
FPC05FE0TQ0(01)->S00F0_1(1,0,09)	OK	S00F0_1(5,1,05)->FPC05FE0TQ0(01)	OK
FPC05FE1TQ1(01)->S00F0_1(1,1,09)	OK	S00F0_1(5,0,05)->FPC05FE1TQ1(01)	OK
FPC05FE2TQ2(01)->S00F0_1(1,2,09)	OK	S00F0_1(5,3,05)->FPC05FE2TQ2(01)	OK
FPC05FE3TQ3(01)->S00F0_1(1,3,09)	OK	S00F0_1(5,2,05)->FPC05FE3TQ3(01)	OK
FPC06FE0TQ0(01)->S00F0_1(0,4,08)	Down	S00F0_1(4,7,04)->FPC06FE0TQ0(01)	Down
FPC06FE1TQ1(01)->S00F0_1(0,5,08)	Down	S00F0_1(4,0,04)->FPC06FE1TQ1(01)	Down
FPC06FE2TQ2(01)->S00F0_1(0,6,08)	Down	S00F0_1(4,6,04)->FPC06FE2TQ2(01)	Down
FPC06FE3TQ3(01)->S00F0_1(0,7,08)	Down	S00F0_1(4,1,04)->FPC06FE3TQ3(01)	Down
FPC07FE0TQ0(01)->S00F0_1(0,0,08)	Down	S00F0_1(4,3,04)->FPC07FE0TQ0(01)	Down
FPC07FE1TQ1(01)->S00F0_1(0,1,08)	Down	S00F0_1(4,4,04)->FPC07FE1TQ1(01)	Down
FPC07FE2TQ2(01)->S00F0_1(0,2,08)	Down	S00F0_1(4,2,04)->FPC07FE2TQ2(01)	Down
FPC07FE3TQ3(01)->S00F0_1(0,3,08)	Down	S00F0_1(4,5,04)->FPC07FE3TQ3(01)	Down

SIB 1 FCHIP 0 FCORE 0 :

In-links	State	Out-links	State
FPC00FE0TQ0(02)->S01F0_0(7,4,07)	Error	S01F0_0(3,7,11)->FPC00FE0TQ0(02)	Down
FPC00FE1TQ1(02)->S01F0_0(7,6,07)	OK	S01F0_0(3,5,11)->FPC00FE1TQ1(02)	OK
FPC00FE2TQ2(02)->S01F0_0(7,5,07)	OK	S01F0_0(3,6,11)->FPC00FE2TQ2(02)	OK
FPC00FE3TQ3(02)->S01F0_0(7,7,07)	OK	S01F0_0(3,4,11)->FPC00FE3TQ3(02)	OK
FPC01FE0TQ0(02)->S01F0_0(7,0,07)	OK	S01F0_0(3,3,11)->FPC01FE0TQ0(02)	OK
FPC01FE1TQ1(02)->S01F0_0(7,1,07)	OK	S01F0_0(3,1,11)->FPC01FE1TQ1(02)	OK
FPC01FE2TQ2(02)->S01F0_0(7,2,07)	OK	S01F0_0(3,2,11)->FPC01FE2TQ2(02)	OK
FPC01FE3TQ3(02)->S01F0_0(7,3,07)	OK	S01F0_0(3,0,11)->FPC01FE3TQ3(02)	OK
FPC02FE0TQ0(02)->S01F0_0(6,4,06)	OK	S01F0_0(2,7,10)->FPC02FE0TQ0(02)	OK

FPC02FE1TQ1(02)->S01F0_0(6,5,06)	OK	S01F0_0(2,5,10)->FPC02FE1TQ1(02)	OK
FPC02FE2TQ2(02)->S01F0_0(6,6,06)	OK	S01F0_0(2,6,10)->FPC02FE2TQ2(02)	OK
FPC02FE3TQ3(02)->S01F0_0(6,7,06)	OK	S01F0_0(2,4,10)->FPC02FE3TQ3(02)	OK
FPC03FE0TQ0(02)->S01F0_0(6,0,06)	Down	S01F0_0(2,3,10)->FPC03FE0TQ0(02)	Down
FPC03FE1TQ1(02)->S01F0_0(6,1,06)	Down	S01F0_0(2,0,10)->FPC03FE1TQ1(02)	Down
FPC03FE2TQ2(02)->S01F0_0(6,2,06)	Down	S01F0_0(2,2,10)->FPC03FE2TQ2(02)	Down
FPC03FE3TQ3(02)->S01F0_0(6,3,06)	Down	S01F0_0(2,1,10)->FPC03FE3TQ3(02)	Down
FPC04FE0TQ0(02)->S01F0_0(5,4,05)	OK	S01F0_0(1,7,09)->FPC04FE0TQ0(02)	OK
FPC04FE1TQ1(02)->S01F0_0(5,5,05)	OK	S01F0_0(1,6,09)->FPC04FE1TQ1(02)	OK
FPC04FE2TQ2(02)->S01F0_0(5,6,05)	OK	S01F0_0(1,4,09)->FPC04FE2TQ2(02)	OK
FPC04FE3TQ3(02)->S01F0_0(5,7,05)	OK	S01F0_0(1,5,09)->FPC04FE3TQ3(02)	OK
FPC05FE0TQ0(02)->S01F0_0(5,0,05)	OK	S01F0_0(1,3,09)->FPC05FE0TQ0(02)	OK
FPC05FE1TQ1(02)->S01F0_0(5,1,05)	OK	S01F0_0(1,0,09)->FPC05FE1TQ1(02)	OK
FPC05FE2TQ2(02)->S01F0_0(5,2,05)	OK	S01F0_0(1,2,09)->FPC05FE2TQ2(02)	OK
FPC05FE3TQ3(02)->S01F0_0(5,3,05)	OK	S01F0_0(1,1,09)->FPC05FE3TQ3(02)	OK
FPC06FE0TQ0(02)->S01F0_0(4,4,04)	Down	S01F0_0(0,7,08)->FPC06FE0TQ0(02)	Down
FPC06FE1TQ1(02)->S01F0_0(4,5,04)	Down	S01F0_0(0,5,08)->FPC06FE1TQ1(02)	Down
FPC06FE2TQ2(02)->S01F0_0(4,6,04)	Down	S01F0_0(0,6,08)->FPC06FE2TQ2(02)	Down
FPC06FE3TQ3(02)->S01F0_0(4,7,04)	Down	S01F0_0(0,4,08)->FPC06FE3TQ3(02)	Down
FPC07FE0TQ0(02)->S01F0_0(4,2,04)	Down	S01F0_0(0,3,08)->FPC07FE0TQ0(02)	Down
FPC07FE1TQ1(02)->S01F0_0(4,0,04)	Down	S01F0_0(0,0,08)->FPC07FE1TQ1(02)	Down
FPC07FE2TQ2(02)->S01F0_0(4,1,04)	Down	S01F0_0(0,1,08)->FPC07FE2TQ2(02)	Down
FPC07FE3TQ3(02)->S01F0_0(4,3,04)	Down	S01F0_0(0,2,08)->FPC07FE3TQ3(02)	Down

SIB 1 FCHIP 0 FCORE 1 :

In-links	State	Out-links	State
FPC00FE0TQ0(03)->S01F0_1(3,4,11)	OK	S01F0_1(7,6,07)->FPC00FE0TQ0(03)	OK
FPC00FE1TQ1(03)->S01F0_1(3,5,11)	OK	S01F0_1(7,4,07)->FPC00FE1TQ1(03)	OK
FPC00FE2TQ2(03)->S01F0_1(3,6,11)	OK	S01F0_1(7,7,07)->FPC00FE2TQ2(03)	OK
FPC00FE3TQ3(03)->S01F0_1(3,7,11)	OK	S01F0_1(7,5,07)->FPC00FE3TQ3(03)	OK
FPC01FE0TQ0(03)->S01F0_1(3,0,11)	OK	S01F0_1(7,2,07)->FPC01FE0TQ0(03)	OK
FPC01FE1TQ1(03)->S01F0_1(3,1,11)	OK	S01F0_1(7,0,07)->FPC01FE1TQ1(03)	OK
FPC01FE2TQ2(03)->S01F0_1(3,2,11)	OK	S01F0_1(7,3,07)->FPC01FE2TQ2(03)	OK
FPC01FE3TQ3(03)->S01F0_1(3,3,11)	OK	S01F0_1(7,1,07)->FPC01FE3TQ3(03)	OK
FPC02FE0TQ0(03)->S01F0_1(2,4,10)	OK	S01F0_1(6,5,06)->FPC02FE0TQ0(03)	OK
FPC02FE1TQ1(03)->S01F0_1(2,5,10)	OK	S01F0_1(6,4,06)->FPC02FE1TQ1(03)	OK
FPC02FE2TQ2(03)->S01F0_1(2,6,10)	OK	S01F0_1(6,7,06)->FPC02FE2TQ2(03)	OK
FPC02FE3TQ3(03)->S01F0_1(2,7,10)	OK	S01F0_1(6,6,06)->FPC02FE3TQ3(03)	OK
FPC03FE0TQ0(03)->S01F0_1(2,0,10)	Down	S01F0_1(6,1,06)->FPC03FE0TQ0(03)	Down
FPC03FE1TQ1(03)->S01F0_1(2,1,10)	Down	S01F0_1(6,0,06)->FPC03FE1TQ1(03)	Down
FPC03FE2TQ2(03)->S01F0_1(2,2,10)	Down	S01F0_1(6,3,06)->FPC03FE2TQ2(03)	Down
FPC03FE3TQ3(03)->S01F0_1(2,3,10)	Down	S01F0_1(6,2,06)->FPC03FE3TQ3(03)	Down
FPC04FE0TQ0(03)->S01F0_1(1,4,09)	OK	S01F0_1(5,5,05)->FPC04FE0TQ0(03)	OK
FPC04FE1TQ1(03)->S01F0_1(1,5,09)	OK	S01F0_1(5,4,05)->FPC04FE1TQ1(03)	OK
FPC04FE2TQ2(03)->S01F0_1(1,6,09)	OK	S01F0_1(5,7,05)->FPC04FE2TQ2(03)	OK
FPC04FE3TQ3(03)->S01F0_1(1,7,09)	OK	S01F0_1(5,6,05)->FPC04FE3TQ3(03)	OK
FPC05FE0TQ0(03)->S01F0_1(1,0,09)	OK	S01F0_1(5,1,05)->FPC05FE0TQ0(03)	OK
FPC05FE1TQ1(03)->S01F0_1(1,1,09)	OK	S01F0_1(5,0,05)->FPC05FE1TQ1(03)	OK
FPC05FE2TQ2(03)->S01F0_1(1,2,09)	OK	S01F0_1(5,3,05)->FPC05FE2TQ2(03)	OK
FPC05FE3TQ3(03)->S01F0_1(1,3,09)	OK	S01F0_1(5,2,05)->FPC05FE3TQ3(03)	OK
FPC06FE0TQ0(03)->S01F0_1(0,4,08)	Down	S01F0_1(4,7,04)->FPC06FE0TQ0(03)	Down
FPC06FE1TQ1(03)->S01F0_1(0,5,08)	Down	S01F0_1(4,0,04)->FPC06FE1TQ1(03)	Down
FPC06FE2TQ2(03)->S01F0_1(0,6,08)	Down	S01F0_1(4,6,04)->FPC06FE2TQ2(03)	Down
FPC06FE3TQ3(03)->S01F0_1(0,7,08)	Down	S01F0_1(4,1,04)->FPC06FE3TQ3(03)	Down
FPC07FE0TQ0(03)->S01F0_1(0,0,08)	Down	S01F0_1(4,3,04)->FPC07FE0TQ0(03)	Down
FPC07FE1TQ1(03)->S01F0_1(0,1,08)	Down	S01F0_1(4,4,04)->FPC07FE1TQ1(03)	Down

FPC07FE2TQ2(03)->S01F0_1(0,2,08) Down	S01F0_1(4,2,04)->FPC07FE2TQ2(03) Down
FPC07FE3TQ3(03)->S01F0_1(0,3,08) Down	S01F0_1(4,5,04)->FPC07FE3TQ3(03) Down

show chassis fpc

Syntax	show chassis fpc <detail <slot>> <pic-status <slot>>
Syntax (EX Series Switches)	show chassis fpc <detail <fpc-slot>> <pic-status <fpc-slot>> <fpc-slot>
Syntax (T4000 Routers)	show chassis fpc <detail <fpc-slot>> <pic-status <fpc-slot>>
Syntax (TX Matrix and TX Matrix Plus Routers)	show chassis fpc <detail <fpc-slot>> <pic-status <fpc-slot>> <slot>
Syntax (MX Series Routers)	show chassis fpc <detail <slot>> <pic-status <slot>> <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis fpc <slot> detail <detail <slot>> <pic-status <slot>> <fpc-slot>
Syntax (MX2020 3D Universal Edge Routers)	show chassis fpc < slot> detail <detail <slot>> <pic-status <slot>> <fpc-slot>
Syntax (QFX Series)	show chassis fpc <detail> <interconnect-device <i>name</i> <fpc-slot fpc-slot>> <node-device <i>name</i> >
Syntax (PTX Series Packet Transport Switches)	show chassis fpc <detail <fpc-slot>> <pic-status <fpc-slot>> <fpc-slot>
Syntax (ACX Series Universal Access Routers)	show chassis fpc <detail <fpc-slot>> <pic-status <fpc-slot>> <fpc-slot>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for QFX Series. Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches. Command introduced in Junos OS Release 12.2 for ACX Series Universal Access Routers. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.

Description Display status information about the installed Flexible PIC Concentrators (FPCs) and PICs.

Options **none**—Display status information for all FPCs. On a TX Matrix router, display status information for all FPCs on the attached T640 routers in the routing matrix. On a TX Matrix Plus router, display status information for all FPCs on the attached T1600 routers in the routing matrix.



NOTE: In EX8200 switches, line cards initialize Packet Forwarding Engine during startup. If an error occurs during hardware initialization, the FPCs with bad hardware parts power down after transferring the debug information to the Routing Engine. The Routing Engine marks the FPC offline, logs the error in system log messages (/var/log/messages), and generates an alarm to inform the user.

See the following sample output:

```
user@host> show chassis fpc
```

Utilization (%)	Temp	CPU	Utilization (%)	Memory
Slot State	(C)	Total	Interrupt	DRAM (MB) Heap
Buffer				
0 Empty				
1 Empty				
2 Empty				
3 Empty				
4 Empty				
5 Offline	---	Hard FPC error---		
6 Empty				
7 Online	26	4	0	1024 0
32				

The following sample output shows the alarm raised for the failed FPCs.

```
user@host > show chassis alarms
4 alarms currently active
```

Alarm time	Class	Description
2011-03-24 00:52:51 UTC	Major	FPC 5 Hard errors
2011-03-24 00:52:31 UTC	Major	Fan Tray Failure
2011-03-24 00:52:31 UTC	Major	Fan Tray Failure
2011-03-24 00:51:26 UTC	Minor	Loss of communication with Backup RE



NOTE: On T4000 routers, when you include the **enhanced-mode** statement at the **[edit chassis network-services]** hierarchy level and reboot the system, only the T4000 Type 5 FPCs present on the router become online while the remaining FPCs are offline, and FPC misconfiguration alarms are generated. The **show chassis alarm** command output displays FPC misconfiguration (**FPC *fpc-slot* misconfig**) as the reason for the generation the alarms.

The following sample output shows the FPC status after the **enhanced-mode** statement is configured on the T4000 router. The T4000 Type 5 FPC present in slot 5 becomes online while the remaining FPCs are offline.

```
user@host> show chassis fpc
```

	Temp	CPU Utilization (%)	Memory
Utilization (%)			
Slot State	(C)	Total	Interrupt
Buffer			
0 offline			---FPC misconfiguration---
1 offline			---FPC misconfiguration---
2 offline			---FPC misconfiguration---
3 Empty			
4 Empty			
5 Online	66	50	0
27			2816 29

The following sample output shows FPC misconfiguration alarms.

```
user@host > show chassis alarms
3 alarms currently active
Alarm time      Class  Description
2011-03-24 00:52:51 PST Major  FPC 1 misconfig
2011-03-24 00:52:31 PST Major  FPC 2 misconfig
2011-03-24 00:52:31 PST Major  FPC 3 misconfig
```

detail—(Optional) Display detailed status information for all FPCs or for the FPC in the specified slot (see ***fpc-slot*** or ***slot***).

all-members—(MX Series routers only) (Optional) Display status information for all FPCs on all members of the Virtual Chassis configuration.

interconnect-device *name*—(QFabric systems only) (Optional) Display status information for all FPCs on the Interconnect device.

fpc-slot—(Optional) FPC slot number:

- (TX Matrix and TX Matrix Plus router only)—On a TX Matrix router, if you specify the number of the T640 router (or line-card chassis) by using the ***lcc number*** option (the recommended method), replace ***fpc-slot*** with a value from 0 through 7. Otherwise, replace ***fpc-slot*** with a value from 0 through 31. Likewise, on a TX Matrix Plus router, if you specify the number of the T1600 router (or line-card chassis)

by using the **lcc number** option (the recommended method), replace **fpc-slot** with a value from 0 through 7. Otherwise, replace **fpc-slot** with a value from 0 through 31. For example, the following commands have the same result:

```
user@host> show chassis fpc detail 1 lcc 1
user@host> show chassis fpc detail 9
```

- M120 router—Replace **fpc-slot** with a value from 0 through 5.
- MX80 router—Replace **fpc-slot** with a value from 0 through 1.
- MX240 router—Replace **fpc-slot** with a value from 0 through 2.
- MX480 router—Replace **fpc-slot** with a value from 0 through 5.
- MX-960 router—Replace **fpc-slot** with a value from 0 through 11.
- MX2010 router—Replace **fpc-slot-number** with a value from 0 through 9.
- MX2020 router—Replace **fpc-slot-number** with a value from 0 through 19.
- Other routers—Replace **fpc-slot** with a value from 0 through 7.
- EX Series switches:
 - EX3200 switches and EX4200 standalone switches—Replace **fpc-slot** with 0.
 - EX4200 switches in a Virtual Chassis configuration—Replace **fpc-slot** with a value from 0 through 9.
 - EX6210 switches—Replace **fpc-slot** with a value from 0 through 9.
 - EX8208 switches—Replace **fpc-slot** with a value from 0 through 7.
 - EX8216 switches—Replace **fpc-slot** with a value from 0 through 15.
- QFX Series:
 - QFX3500 switches—Replace **fpc-slot** with 0.
 - QFabric systems—Replace **fpc-slot** with 0 through 31 on the Interconnect device.
- PTX Series Packet Transport Switches:
 - PTX5000 Packet Transport Switch—Replace **fpc-slot** with a value from 0 through 7.
- ACX Series Universal Access Routers:
 - ACX1000 and ACX2000 Universal Access Routers—Replace **fpc-slot** with 0.

local—(MX Series routers only) (Optional) Display status information for all FPCs on the local Virtual Chassis member.

member member-id—(MX Series routers only) (Optional) Display status information for all FPCs on the specified member of the Virtual Chassis configuration. Replace **member-id** with a value of 0 or 1.

node-device *name*—(QFabric systems only) (Optional) Display status information for each Node device. Each Node device is equivalent to an FPC.

pic-status—(Optional) Display status information for all PICs or for the PIC in the specified slot (see *fpc-slot*).



NOTE: On T1600 routers, Type 4 FPCs with ASICs based on the SL2.0 chipset do not support the 10-Gigabit Ethernet LAN/WAN PIC with SFP+ (10x10GE [LAN/WAN] SFPP). If you issue the `show chassis fpc` command with the `pic-status` option, the CLI displays the string “Not Supported” for 10x10GE (LAN/WAN) SFPP PICs installed on such FPCs. The following is a sample output:

```
user@host> show chassis fpc pic-status
Slot 0  Online      E2-FPC Type 1
  PIC 0  Online      1x G/E SFP, 1000 BASE
  PIC 1  Online      Adaptive Services-II
  PIC 2  Online      1x G/E IQ, 1000 BASE
  PIC 3  Online      1x G/E IQ, 1000 BASE
Slot 1  Online      FPC Type 3-ES
  PIC 0  Present     UNUSED- Not Supported
Slot 2  Online      FPC Type 4-ES
  PIC 0  Offline     4x OC-192 SONET XFP
  PIC 1  Present     10x10GE(LAN/WAN) SFPP- Not Supported
<<<<<<
Slot 4  Offline     FPC Type 1-ES
Slot 5  Offline     FPC Type 2-ES
Slot 6  Online      E2-FPC Type 3
  PIC 0  Online      1x OC-192 SONET XFP
  PIC 1  Online      4x OC-48 SONET
  PIC 2  Online      4x OC-48 SONET
  PIC 3  Online      MultiServices 500
Slot 7  Online      FPC Type 4-ES
  PIC 0  Online      4x 10GE (LAN/WAN) XFP
  PIC 1  Online      4x 10GE (LAN/WAN) XFP
```

In addition, an entry is logged in the system log messages (/var/log/messages) that the PIC is not supported. The following is a sample message logged in the system log:

```
Apr  5 08:47:36  router1 chassisd[2770]: CHASSISD_UNSUPPORTED_PIC:
  PIC 1 in FPC 2 (type 763, version 257) is not supported
```

lcc *number*—(TX Matrix and TX Matrix Plus router only) (Optional) On a TX Matrix router, display status information for a T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display status information for a T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace *number* with a value from 0 through 3.

Required Privilege Level view

- Related Documentation**
- [request chassis fpc on page 128](#)
 - [show chassis fpc-feb-connectivity](#)
 - [show chassis fabric fpcs on page 352](#)
 - [Configuring the Junos OS to Resynchronize FPC Sequence Numbers with Active FPCs when an FPC Comes Online](#)
 - [MX960 Flexible PIC Concentrator Description](#)
 - [ACX2000 Routers Hardware and CLI Terminology Mapping](#)
 - [enhanced-mode](#)

- List of Sample Output**
- [show chassis fpc \(EX6210 Switch\) on page 446](#)
 - [show chassis fpc \(M10 Router\) on page 446](#)
 - [show chassis fpc \(M20 Router\) on page 446](#)
 - [show chassis fpc detail \(M Series Routers\) on page 446](#)
 - [show chassis fpc detail \(MX80 Router\) on page 446](#)
 - [show chassis fpc \(MX240 Router\) on page 447](#)
 - [show chassis fpc \(MX480 Router\) on page 447](#)
 - [show chassis fpc \(MX480 Router with 100-Gigabit Ethernet CFP\) on page 447](#)
 - [show chassis fpc pic-status \(MX480 Router with 100-Gigabit Ethernet CFP\) on page 447](#)
 - [show chassis fpc \(MX960 Router\) on page 448](#)
 - [show chassis fpc \(MX240, MX480, MX960 Routers with Application Services Modular Line Card\) on page 448](#)
 - [show chassis fpc \(MX240, MX480, MX960 with Application Services Modular Line Card\) on page 448](#)
 - [show chassis fpc \(MX2010 Routers\) on page 448](#)
 - [show chassis fpc \(MX2020 Routers\) on page 448](#)
 - [show chassis fpc detail \(MX Series Routers\) on page 449](#)
 - [show chassis fpc \(Hardware Not Supported\) on page 449](#)
 - [show chassis fpc detail \(Hardware Not Supported\) on page 449](#)
 - [show chassis fpc pic-status on page 450](#)
 - [show chassis fpc pic-status \(M Series Routers\) on page 450](#)
 - [show chassis fpc pic-status \(M120 Router\) on page 450](#)
 - [show chassis fpc pic-status \(MX240, MX480, and MX960 Routers with Application Services Modular Line Card\) on page 450](#)
 - [show chassis fpc lcc \(TX Matrix Router\) on page 451](#)
 - [show chassis fpc pic-status \(TX Matrix Router\) on page 451](#)
 - [show chassis fpc pic-status lcc \(TX Matrix Router\) on page 451](#)
 - [show chassis fpc \(TX Matrix Plus Router\) on page 451](#)
 - [show chassis fpc lcc \(TX Matrix Plus Router\) on page 452](#)
 - [show chassis fpc detail \(TX Matrix Plus Router\) on page 452](#)
 - [show chassis fpc pic-status \(TX Matrix Plus Router\) on page 455](#)
 - [show chassis fpc \(T1600 Router\) on page 456](#)
 - [show chassis fpc detail \(T1600 Router\) on page 456](#)
 - [show chassis fpc slot \(T1600 Router\) on page 456](#)
 - [show chassis fpc pic-status \(T1600 Router\) on page 456](#)
 - [show chassis fpc \(T4000 Router\) on page 457](#)

[show chassis fpc detail \(T4000 Router\) on page 457](#)
[show chassis fpc pic-status \(T4000 Router\) on page 458](#)
[show chassis fpc \(QFX Series\) on page 458](#)
[show chassis fpc detail \(QFX3500 Switches\) on page 458](#)
[show chassis fpc pic-status \(QFX3500 Switches\) on page 458](#)
[show chassis fpc interconnect-device \(QFabric System\) on page 458](#)
[show chassis fpc interconnect-device \(QFabric System\) on page 458](#)
[show chassis fpc interconnect-device detail \(QFabric System\) on page 459](#)
[show chassis fpc pic-status interconnect-device \(QFabric System\) on page 459](#)
[show chassis fpc pic-status node-device \(QFabric System\) on page 459](#)
[show chassis fpc \(PTX5000 Packet Transport Switch\) on page 460](#)
[show chassis fpc detail \(PTX5000 Packet Transport Switch\) on page 460](#)
[show chassis fpc pic-status \(PTX5000 Packet Transport Switch\) on page 461](#)
[show chassis fpc \(ACX2000 Universal Access Router\) on page 461](#)
[show chassis fpc 0 \(ACX2000 Universal Access Router\) on page 461](#)
[show chassis fpc detail \(ACX2000 Universal Access Router\) on page 461](#)
[show chassis fpc pic-status \(ACX2000 Universal Access Router\) on page 461](#)
[show chassis FPC 1 \(MX Routers with Media Services Blade \[MSB\]\) on page 461](#)
[show chassis FPC 1 detail \(MX Routers with Media Services Blade \[MSB\]\) on page 461](#)

Output Fields Table 22 on page 444 lists the output fields for the **show chassis fpc** command. Output fields are listed in the approximate order in which they appear.

Table 22: show chassis fpc Output Fields

Field Name	Field Description	Level of Output
Slot or Slot State	Slot number and state. The state can be one of the following conditions: <ul style="list-style-type: none"> • Dead—Held in reset because of errors. • Diag—Slot is being ignored while the FPC is running diagnostics. • Dormant—Held in reset. • Empty—No FPC is present. • Offline—(PTX Series Packet Transport Switches only) One of the following two states is displayed: <ul style="list-style-type: none"> • FPC offlined due to unreachable destinations • FPC Offlined due to degraded FPC action • Online—FPC is online and running. • Present—FPC is detected by the chassis daemon but either is not supported by the current version of Junos OS or is inserted in the wrong slot. The output also states either Hardware Not Supported or Hardware Not In Right Slot. The FPC is coming up but not yet online. • Probed—Probe is complete; awaiting restart of the Packet Forwarding Engine. • Probe-wait—Waiting to be probed. 	all levels
Logical slot	Slot number.	all levels
Temp (C) or Temperature	Temperature of the air passing by the FPC, in degrees Celsius or in both Celsius and Fahrenheit.	all levels all levels

Table 22: show chassis fpc Output Fields (*continued*)

Field Name	Field Description	Level of Output
Temperature (PTX Series)	On PTX Series Packet Transport Switches, temperature details are provided in degrees Celsius and Fahrenheit. Output includes: <ul style="list-style-type: none"> • Temperature (PMB)—Temperature of the air passing by the Processor Mezzanine Board (PMB) at the bottom of the FPC. • Temperature (Intake)—Temperature of the air flowing into the chassis. • Temperature (Exhaust)—Exhaust temperatures for multiple zones (Exhaust A and Exhaust B). • Temperature (TLn)—Temperature of the specified Lookup ASIC (TL) of the packet forwarding engine on the FPC. • Temperature (TQn)—Temperature of the specified Queuing and Memory Interface ASIC (TQ) of the packet forwarding engine on the FPC. 	detail
Total CPU Utilization (%)	Total percentage of CPU being used by the FPC's processor.	all levels
Interrupt CPU Utilization (%)	Of the total CPU being used by the FPC's processor, the percentage being used for interrupts.	none specified
Memory DRAM (MB)	Total DRAM, in megabytes, available to the FPC's processor.	none specified
Heap Utilization (%)	Percentage of heap space (dynamic memory) being used by the FPC's processor. If this number exceeds 80 percent, there may be a software problem (memory leak). NOTE: On MX Series routers in a broadband edge environment, heap utilization levels higher than 70 percent can affect unified ISSU, router stability, or scaling capability.	none specified
Buffer Utilization (%)	Percentage of buffer space being used by the FPC's processor for buffering internal messages.	none specified
Total CPU DRAM	Amount of DRAM available to the FPC's CPU.	detail
Total RLDRAM	Amount of reduced latency dynamic random access memory (RLDRAM) available to the FPC CPU.	detail
Total DDR DRAM	Amount of double data rate dynamic random access memory (DDR DRAM) available to the FPC CPU.	detail
Total SRAM	Amount of static RAM (SRAM) used by the FPC's CPU.	detail
Total SDRAM	Total amount of memory used for storing packets and notifications.	detail
I/O Manager ASICs information	I/O Manager version number, manufacturer, and part number.	detail
Start time	Time when the Routing Engine detected that the FPC was running.	detail

Table 22: show chassis fpc Output Fields (*continued*)

Field Name	Field Description	Level of Output
Uptime	How long the Routing Engine has been connected to the FPC and, therefore, how long the FPC has been up and running.	detail
PIC type	(pic-status output only) Type of PIC.	none specified

Sample Output

```

show chassis fpc (EX6210 Switch) user@switch> show chassis fpc
Slot State Temp CPU Utilization (%) Memory Utilization (%)
(C) Total Interrupt DRAM (MB) Heap Buffer
0 Empty
1 Online 7 5 0 1024 0 32
2 Empty
3 Empty
4 Online 25 17 2 2048 0 30
5 Online 25 3 0 2048 0 24
6 Online 6 5 0 1024 0 32
7 Empty
8 Empty
9 Online 8 7 0 1024 0 32

show chassis fpc (M10 Router) user@host> show chassis fpc
FPC status:
Slot State Temp
(C)
0 Online 27
1 Online 28

show chassis fpc (M20 Router) user@host> show chassis fpc
FPC status:
Slot State Temp CPU Utilization (%) Memory Utilization (%)
(C) Total Interrupt DRAM (MB) Heap Buffer
0 Empty 0 0 0 0 0 0
1 Online 38 0 0 8 0 4
2 Online 35 0 0 8 0 3
3 Empty 0 0 0 0 0 0

show chassis fpc detail (M Series Routers) user@host> show chassis fpc detail 1
Slot 1 information:
State Online
Temperature 48 degrees C
Total CPU DRAM 32 MB
Total SRAM 4 MB
Total SDRAM 256 MB
I/O Manager ASICs information Version 2.0, Foundry IBM, Part number 0
I/O Manager ASICs information Version 2.0, Foundry IBM, Part number 0
Start time 2000-02-08 02:18:49 UTC
Uptime 14 hours, 41 minutes, 41 seconds

show chassis fpc detail (MX80 Router) user@host> show chassis fpc detail
Slot 0 information:
State Online
Temperature 47 degrees C / 116 degrees F

```

```

Total CPU DRAM          1024 MB
Total SRAM              331 MB
Total SDRAM            1280 MB
Start time              2010-02-08 12:25:33 PST
Uptime                 2 hours, 13 minutes, 19 seconds
Slot 1 information:
State                  Online
Temperature            47 degrees C / 116 degrees F
Total CPU DRAM        1024 MB
Total SRAM            331 MB
Total SDRAM           1280 MB
Start time            2010-02-08 12:25:33 PST
Uptime               2 hours, 13 minutes, 19 seconds

```

**show chassis fpc
(MX240 Router)**

```

user@host> show chassis fpc
Temp    CPU Utilization (%)    Memory    Utilization (%)
Slot State (C) Total Interrupt  DRAM (MB) Heap    Buffer
0 Empty
1 Online   34    6      0      1024    18     30
2 Online   33    9      0      1024    24     30

```

**show chassis fpc
(MX480 Router)**

```

user@host> show chassis fpc
Temp    CPU Utilization (%)    Memory    Utilization (%)
Slot State (C) Total Interrupt  DRAM (MB) Heap    Buffer
0 Empty
1 Online   36    9      0      1024    17     57
2 Empty
3 Empty
4 Empty
5 Empty

```

**show chassis fpc
(MX480 Router with
100-Gigabit Ethernet
CFP)**

```

user@host> show chassis fpc
Temp    CPU Utilization (%)    Memory    Utilization (%)
Slot State (C) Total Interrupt  DRAM (MB) Heap    Buffer
0 Online   33    4      0      2048    10     13
1 Online   36    7      0      2048    16     13
2 Online   29    6      0      1024    27     29
3 Online   33    0      0        0      0      0
4 Online   36    7      0      2048    19     13
5 Online   34   31     11      2048    14     13

```

**show chassis fpc
pic-status (MX480
Router with
100-Gigabit Ethernet
CFP)**

```

user@host> show chassis fpc pic-status
Slot 1 Online MPC Type 3
PIC 2 Online 1X100GE CFP
Slot 2 Online DPCE 40x 1GE R EQ
PIC 0 Online 10x 1GE(LAN) EQ
PIC 1 Online 10x 1GE(LAN) EQ
PIC 2 Online 10x 1GE(LAN) EQ
PIC 3 Online 10x 1GE(LAN) EQ
Slot 3 Online MPC Type 3
PIC 0 Online 1X100GE CFP
PIC 2 Online 1X100GE CFP
Slot 4 Online MPC Type 3
PIC 0 Online 1X100GE CFP
PIC 2 Online 1X100GE CFP
Slot 5 Online MPC Type 2 3D EQ
PIC 0 Online 2x 10GE XFP
PIC 1 Online 2x 10GE XFP

```

PIC 2 Online 10x 1GE(LAN) SFP
 PIC 3 Online 10x 1GE(LAN) SFP

**show chassis fpc
 (MX960 Router)**

```
user@host> show chassis fpc
Temp CPU Utilization (%) Memory Utilization (%)
Slot State (C) Total Interrupt DRAM (MB) Heap Buffer
0 Empty
1 Empty
2 Empty
3 Online 25 19 0 1024 15 57
4 Empty
5 Online 26 27 0 1024 15 57
6 Empty
7 Empty
8 Empty
9 Empty
10 Empty
11 Empty
```

**show chassis fpc
 (MX240, MX480,
 MX960 Routers with
 Application Services
 Modular Line Card)**

```
user@host> show chassis fpc 1
Temp CPU Utilization (%) Memory Utilization (%)
Slot State (C) Total Interrupt DRAM (MB) Heap Buffer
1 Online 34 5 0 3072 5 13
```

**show chassis fpc
 (MX240, MX480,
 MX960 with
 Application Services
 Modular Line Card)**

```
user@host> show chassis fpc 1 detail
Slot 1 information:
State Online
Temperature 34
Total CPU DRAM 3072 MB
Total RLDRAM 259 MB
Total DDR DRAM 4864 MB
Start time: 2012-06-19 10:51:43 PDT
Uptime: 16 minutes, 48 seconds
Max Power Consumption 550 Watts
```

**show chassis fpc
 (MX2010 Routers)**

```
user@host> show chassis fpc
Temp CPU Utilization (%) Memory Utilization (%)
Slot State (C) Total Interrupt DRAM (MB) Heap Buffer
0 Online 34 9 0 2048 18 13
1 Online 32 9 0 2048 15 13
2 Empty
3 Empty
4 Empty
5 Empty
6 Empty
7 Empty
8 Online 31 13 0 2048 11 13
9 Online 33 10 0 2048 18 13
```

**show chassis fpc
 (MX2020 Routers)**

```
user@host> show chassis fpc
Temp CPU Utilization (%) Memory Utilization (%)
Slot State (C) Total Interrupt DRAM (MB) Heap Buffer
0 Online 10 12 0 2048 18 13
1 Online 8 9 0 2048 18 13
2 Online 7 9 0 2048 18 13
3 Online 8 10 0 2048 18 13
4 Online 9 10 0 2048 18 13
5 Online 8 9 0 2048 18 13
```

6	Online	8	10	0	2048	18	13
7	Online	9	9	0	2048	18	13
8	Online	9	10	0	2048	18	13
9	Online	10	9	0	2048	18	13
10	Online	16	8	0	2048	18	13
11	Online	11	10	0	2048	18	13
12	Online	10	10	0	2048	18	13
13	Online	11	9	0	2048	18	13
14	Online	12	10	0	2048	18	13
15	Online	13	9	0	2048	18	13
16	Online	13	9	0	2048	18	13
17	Online	12	9	0	2048	18	13
18	Online	12	8	0	2048	18	13
19	Online	14	10	0	2048	18	13

```

show chassis fpc detail (MX Series Routers) user@host> show chassis fpc detail 2
Slot 0 information:
State Online
Temperature 36 degrees C / 96 degrees F
Total CPU DRAM 1024 MB
Total RLDRAM 256 MB
Total DDR DRAM 4096 MB
Start time: 2009-08-11 21:20:30 PDT
Uptime: 2 hours, 8 minutes, 50 seconds
Max Power Consumption 335 Watts

```

```

show chassis fpc (Hardware Not Supported) user@host> show chassis fpc
show chassis fpc
Temp CPU Utilization (%) Memory Utilization (%)
(C) Total Interrupt DRAM (MB) Heap Buffer
Slot State
0 Online ----- CPU less FPC -----
1 Present ----- Hardware Not In Right Slot -----
2 Online 0 0 0 0 0
3 Present ----- Hardware Not Supported -----
4 Empty
5 Empty
6 Online 0 0 0 0 0

```

```

show chassis fpc detail (Hardware Not Supported) user@host> show chassis fpc detail
Slot 0 information:
State Online
Total CPU DRAM ---- CPU less FPC ----
Start time 2006-07-07 03:21:00 UTC
Uptime 27 minutes, 51 seconds
Slot 1 information:
State Present
Reason --- Hardware Not In Right Slot ---
Slot 2 information:
State Online
Total CPU DRAM 32 MB
Start time 2006-07-07 03:20:59 UTC
Uptime 27 minutes, 52 seconds
Slot 3 information:
State Present
Reason --- Hardware Not Supported ---
Total CPU DRAM 0 MB
Slot 6 information:
State Online
Total CPU DRAM 32 MB
Start time 2006-07-07 03:21:01 UTC

```

Uptime

27 minutes, 50 seconds

```

show chassis fpc pic-status user@host> show chassis fpc pic-status
Slot 0 Online
  PIC 1 1x OC-12 ATM, MM
  PIC 2 1x OC-12 ATM, MM
  PIC 3 1x OC-12 ATM, MM
Slot 1 Online
  PIC 0 1x OC-48 SONET, SMIR
Slot 2 Online
  PIC 0 1x OC-192 SONET, SMSR

show chassis fpc pic-status (M Series Routers) user@host> show chassis fpc pic-status
Slot 1 Online FPC Type 1
  PIC 0 Present 2x OC-3 ATM, MM- Hardware Error
  PIC 1 Online 4x OC-3 SONET, SMIR
Slot 2 Online E-FPC Type 2
  PIC 0 Online 4x G/E, 1000 BASE-SX
  PIC 1 Online 2x G/E SFP, 1000 BASE
  PIC 3 Online 1x Tunnel
Slot 3 Online E-FPC Type 1
  PIC 0 Online 1x G/E IQ, 1000 BASE
  PIC 2 Online 1x G/E SFP, 1000 BASE
Slot 4 Online E-FPC Type 2
  PIC 0 Online 4x G/E SFP, 1000 BASE
  PIC 1 Online 4x G/E SFP, 1000 BASE
  PIC 2 Online 4x G/E SFP, 1000 BASE
  PIC 3 Online 4x G/E SFP, 1000 BASE
Slot 5 Online FPC Type 2
...

show chassis fpc pic-status (M120 Router) user@host> show chassis fpc pic-status
Slot 1 Online M120 CFPC 10GE
  PIC 0 Online 1x 10GE(LAN/WAN) XFP
Slot 3 Online M120 FPC Type 2 (proto)
  PIC 0 Online 2x G/E IQ, 1000 BASE
  PIC 1 Online 4x OC-3 SONET, SMIR
  PIC 2 Online 2x G/E IQ, 1000 BASE
  PIC 3 Online 8x 1GE(LAN), IQ2
Slot 4 Online M120 FPC Type 3 (proto)
  PIC 0 Online 10x 1GE(LAN), 1000 BASE
Slot 5 Online M120 FPC Type 1 (proto)
  PIC 0 Present 1x G/E, 1000 BASE-LX- Not Supported
  PIC 1 Online 1x CHOC3 IQ SONET, SMLR
  PIC 2 Online 4x CHDS3 IQ
  PIC 3 Online 1x G/E SFP, 1000 BASE

show chassis fpc pic-status (MX240, MX480, and MX960 Routers with Application Services Modular Line Card)
In the following output Slot 1 and Slot 5 are the Application Services Modular Carrier Cards (AS MCC), PIC 0 is the Application Services Modular Storage Card (AS MSC), and PIC 2 is the Application Services Modular Processing Card (AS MXC).

user@host>show chassis fpc pic-status
Slot 2 Online MPC Type 1 3D Q
Slot 1 Online AS-MCC
  PIC 0 Online AS-MSC
  PIC 2 Online AS-MXC

```

```
Slot 4  Offline      MPC 3D 16x 10GE
Slot 5  Offline      AS-MCC
```

show chassis fpc lcc
(TX Matrix Router)

```
user@host> show chassis fpc lcc 0
lcc0-re0:
```

```
-----
Slot State      Temp CPU      Utilization (%)  Memory  Utilization (%)
      (C) Total Interrupt    DRAM (MB)   Heap    Buffer
0 Empty
1 Online      27    2         0      256      8      44
2 Online      27    3         0      256     15     44
3 Empty
4 Empty
5 Empty
6 Empty
7 Empty
```

show chassis fpc
pic-status (TX Matrix
Router)

```
user@host> show chassis fpc pic-status
lcc0-re0:
```

```
-----
Slot 0  Online      FPC Type 3
PIC 0  Online      1x OC-192 SM SR1
PIC 1  Online      1x OC-192 SM SR2
PIC 2  Online      1x OC-192 SM SR1
PIC 3  Online      1x Tunnel
Slot 1  Online      FPC Type 2
PIC 0  Online      1x OC-48 SONET, SMSR
PIC 1  Online      1x OC-48 SONET, SMSR
```

```
lcc1-re0:
```

```
lcc2-re0:
```

```
-----
Slot 1  Online      FPC Type 3
PIC 0  Online      1x OC-192 SM SR1
Slot 5  Online      FPC Type 2
PIC 0  Online      1x OC-48 SONET, SMSR
PIC 1  Online      2x G/E, 1000 BASE-LX
PIC 2  Online      2x G/E, 1000 BASE-LX
PIC 3  Online      1x OC-48 SONET, SMSR
```

```
lcc3-re0:
```

show chassis fpc
pic-status lcc (TX
Matrix Router)

```
user@host> show chassis fpc pic-status lcc 0
lcc0-re0:
```

```
-----
Slot 0  Online      FPC Type 3
PIC 0  Online      1x OC-192 SM SR2
Slot 1  Online      FPC Type 2
PIC 0  Online      2x OC-12 ATM2 IQ, MM
PIC 1  Online      1x OC-48 SONET, SMSR
PIC 2  Online      1x OC-48 SONET, SMSR
PIC 3  Online      4x G/E, 1000 BASE-SX
```

show chassis fpc (TX
Matrix Plus Router)

```
user@host> show chassis fpc
lcc0-re0:
```

```
-----
Temp CPU Utilization (%)  Memory  Utilization (%)
```

Slot	State	(C)	Total	Interrupt	DRAM (MB)	Heap	Buffer
0	Empty						
1	Online	38	4	0	2048	3	24
2	Online	43	8	0	2048	6	24
3	Empty						
4	Online	43	6	0	2048	6	24
5	Empty						
6	Online	42	13	0	2048	6	24
7	Online	45	7	0	2048	3	24

lcc2-re0:

Slot	State	Temp (C)	CPU Total	Utilization (%) Interrupt	Memory DRAM (MB)	Utilization (%) Heap	Buffer
0	Online	42	10	0	2048	6	24
1	Empty						
2	Online	42	11	0	2048	6	24
3	Online	40	5	0	2048	3	24
4	Online	33	26	0	1024	8	49
5	Empty						
6	Online	43	8	0	2048	6	24
7	Online	46	6	0	2048	3	24

lcc3-re0:

Slot	State	Temp (C)	CPU Total	Utilization (%) Interrupt	Memory DRAM (MB)	Utilization (%) Heap	Buffer
0	Empty						
1	Empty						
2	Online	39	30	0	2048	7	24
3	Empty						
4	Online	41	8	0	2048	6	24
5	Online	41	12	0	2048	6	24
6	Online	40	8	0	2048	6	24
7	Online	42	4	0	2048	3	24

show chassis fpc lcc
(TX Matrix Plus
Router)

user@host> show chassis fpc lcc 0

lcc0-re0:

Slot	State	Temp (C)	CPU Total	Utilization (%) Interrupt	Memory DRAM (MB)	Utilization (%) Heap	Buffer
0	Empty						
1	Online	38	4	0	2048	3	24
2	Online	43	8	0	2048	6	24
3	Empty						
4	Online	43	6	0	2048	6	24
5	Empty						
6	Online	42	14	0	2048	6	24
7	Online	45	6	0	2048	3	24

show chassis fpc detail
(TX Matrix Plus
Router)

user@host> show chassis fpc details

lcc0-re0:

Slot 1 information:

```

State                Online
Temperature          38 degrees C / 100 degrees F
Total CPU DRAM       2048 MB
Total SRAM           64 MB
Total SDRAM          1280 MB
Start time           2010-10-04 20:06:22 PDT

```

```

Uptime                               1 hour, 32 minutes, 51 seconds
Slot 2 information:
State                                Online
Temperature                          43 degrees C / 109 degrees F
Total CPU DRAM                       2048 MB
Total SRAM                           128 MB
Total SDRAM                          2560 MB
Start time                           2010-10-04 20:06:37 PDT
Uptime                               1 hour, 32 minutes, 36 seconds
Slot 4 information:
State                                Online
Temperature                          43 degrees C / 109 degrees F
Total CPU DRAM                       2048 MB
Total SRAM                           128 MB
Total SDRAM                          2560 MB
Start time                           2010-10-04 20:06:40 PDT
Uptime                               1 hour, 32 minutes, 33 seconds
Slot 6 information:
State                                Online
Temperature                          42 degrees C / 107 degrees F
Total CPU DRAM                       2048 MB
Total SRAM                           128 MB
Total SDRAM                          2560 MB
Start time                           2010-10-04 20:06:42 PDT
Uptime                               1 hour, 32 minutes, 31 seconds
Slot 7 information:
State                                Online
Temperature                          45 degrees C / 113 degrees F
Total CPU DRAM                       2048 MB
Total SRAM                           64 MB
Total SDRAM                          1280 MB
Start time                           2010-10-04 20:06:43 PDT
Uptime                               1 hour, 32 minutes, 30 seconds

```

```
lcc2-re0:
```

```

-----
Slot 0 information:
State                                Online
Temperature                          42 degrees C / 107 degrees F
Total CPU DRAM                       2048 MB
Total SRAM                           128 MB
Total SDRAM                          2560 MB
Start time                           2010-10-04 20:06:35 PDT
Uptime                               1 hour, 32 minutes, 38 seconds
Slot 2 information:
State                                Online
Temperature                          42 degrees C / 107 degrees F
Total CPU DRAM                       2048 MB
Total SRAM                           128 MB
Total SDRAM                          2560 MB
Start time                           2010-10-04 20:06:37 PDT
Uptime                               1 hour, 32 minutes, 36 seconds
Slot 3 information:
State                                Online
Temperature                          40 degrees C / 104 degrees F
Total CPU DRAM                       2048 MB
Total SRAM                           64 MB
Total SDRAM                          1280 MB
Start time                           2010-10-04 20:06:28 PDT
Uptime                               1 hour, 32 minutes, 45 seconds
Slot 4 information:

```

```
State Online
Temperature 33 degrees C / 91 degrees F
Total CPU DRAM 1024 MB
Total SRAM 64 MB
Total SDRAM 1280 MB
Start time 2010-10-04 20:08:03 PDT
Uptime 1 hour, 31 minutes, 10 seconds
```

Slot 6 information:

```
State Online
Temperature 43 degrees C / 109 degrees F
Total CPU DRAM 2048 MB
Total SRAM 128 MB
Total SDRAM 2560 MB
Start time 2010-10-04 20:06:44 PDT
Uptime 1 hour, 32 minutes, 29 seconds
```

Slot 7 information:

```
State Online
Temperature 46 degrees C / 114 degrees F
Total CPU DRAM 2048 MB
Total SRAM 64 MB
Total SDRAM 1280 MB
Start time 2010-10-04 20:06:46 PDT
Uptime 1 hour, 32 minutes, 27 seconds
```

lcc3-re0:

----- Slot 2 information:

```
State Online
Temperature 38 degrees C / 100 degrees F
Total CPU DRAM 2048 MB
Total SRAM 128 MB
Total SDRAM 2560 MB
Start time 2010-10-04 20:17:31 PDT
Uptime 1 hour, 21 minutes, 42 seconds
```

Slot 4 information:

```
State Online
Temperature 41 degrees C / 105 degrees F
Total CPU DRAM 2048 MB
Total SRAM 128 MB
Total SDRAM 2560 MB
Start time 2010-10-04 20:17:34 PDT
Uptime 1 hour, 21 minutes, 39 seconds
```

Slot 5 information:

```
State Online
Temperature 41 degrees C / 105 degrees F
Total CPU DRAM 2048 MB
Total SRAM 128 MB
Total SDRAM 2560 MB
Start time 2010-10-04 20:17:36 PDT
Uptime 1 hour, 21 minutes, 37 seconds
```

Slot 6 information:

```
State Online
Temperature 40 degrees C / 104 degrees F
Total CPU DRAM 2048 MB
Total SRAM 128 MB
Total SDRAM 2560 MB
Start time 2010-10-04 20:17:39 PDT
Uptime 1 hour, 21 minutes, 34 seconds
```

Slot 7 information:

```
State Online
Temperature 42 degrees C / 107 degrees F
```

```

Total CPU DRAM          2048 MB
Total SRAM              64 MB
Total SDRAM            1280 MB
Start time              2010-10-04 20:17:41 PDT
Uptime                  1 hour, 21 minutes, 32 seconds

```

**show chassis fpc
pic-status (TX Matrix
Plus Router)**

```
user@host> show chassis fpc pic-status
```

```
1cc0-re0:
```

```

-----
Slot 1  Online      FPC Type 2-ES
      PIC 0  Online      8x 1GE(LAN), IQ2
Slot 2  Online      FPC Type 4-ES
      PIC 0  Online      4x 10GE (LAN/WAN) XFP
Slot 4  Online      FPC Type 4-ES
      PIC 0  Online      4x 10GE (LAN/WAN) XFP
Slot 6  Online      FPC Type 4-ES
      PIC 0  Online      4x 10GE (LAN/WAN) XFP
      PIC 1  Online      4x 10GE (LAN/WAN) XFP
Slot 7  Online      FPC Type 3-ES
      PIC 0  Online      10x 1GE(LAN), 1000 BASE
      PIC 2  Online      1x OC-192 SM SR2
      PIC 3  Online      10x 1GE(LAN), 1000 BASE

```

```
1cc2-re0:
```

```

-----
Slot 0  Online      FPC Type 4-ES
      PIC 0  Online      4x 10GE (LAN/WAN) XFP
Slot 2  Online      FPC Type 4-ES
      PIC 0  Online      4x 10GE (LAN/WAN) XFP
      PIC 1  Online      4x 10GE (LAN/WAN) XFP
Slot 3  Online      FPC Type 2-ES
      PIC 0  Online      8x 1GE(LAN), IQ2
Slot 4  Online      FPC Type 4
      PIC 0  Online      10x10GE(LAN/WAN) SFPP
Slot 6  Online      FPC Type 4-ES
      PIC 0  Online      4x OC-192 SONET XFP
Slot 7  Online      FPC Type 3-ES
      PIC 0  Online      10x 1GE(LAN), 1000 BASE
      PIC 1  Offline     1x 10GE(LAN/WAN) IQ2E
      PIC 2  Online      1x OC-192 SM SR2
      PIC 3  Online      1x Tunnel

```

```
1cc3-re0:
```

```

-----
Slot 2  Online      FPC Type 4-ES
      PIC 0  Online      10x10GE(LAN/WAN) SFPP
Slot 4  Online      FPC Type 4-ES
      PIC 0  Online      4x OC-192 SONET XFP
Slot 5  Online      FPC Type 4-ES
      PIC 0  Online      4x OC-192 SONET XFP
      PIC 1  Online      4x 10GE (LAN/WAN) XFP
Slot 6  Online      FPC Type 4-ES
      PIC 1  Online      4x 10GE (LAN/WAN) XFP
Slot 7  Online      FPC Type 3-ES
      PIC 0  Online      10x 1GE(LAN), 1000 BASE
      PIC 1  Online      8x 1GE(TYPE3), IQ2E
      PIC 2  Online      4x OC-48 SONET

```

**show chassis fpc
(T1600 Router)**

```

user@host> show chassis fpc

```

Slot	State	Temp (C)	CPU Utilization (%) Total Interrupt	Memory DRAM (MB)	Utilization (%) Heap	Buffer
0	Empty					
1	Empty					
2	Online	49	3 0	2048	3	24
3	Online	46	6 0	2048	6	24
4	Empty					
5	Online	46	5 0	2048	3	24
6	Empty					
7	Online	44	8 0	1024	7	49

**show chassis fpc detail
(T1600 Router)**

```

user@host> show chassis fpc detail
show chassis fpc detail
Slot 2 information:
  State Online
  Temperature 49 degrees C / 120 degrees F
  Total CPU DRAM 2048 MB
  Total SRAM 64 MB
  Total SDRAM 1280 MB
  Start time 2010-10-04 21:12:52 PDT
  Uptime 32 minutes, 9 seconds
Slot 3 information:
  State Online
  Temperature 47 degrees C / 116 degrees F
  Total CPU DRAM 2048 MB
  Total SRAM 128 MB
  Total SDRAM 2560 MB
  Start time 2010-10-04 21:13:06 PDT
  Uptime 31 minutes, 55 seconds
Slot 5 information:
  State Online
  Temperature 46 degrees C / 114 degrees F
  Total CPU DRAM 2048 MB
  Total SRAM 64 MB
  Total SDRAM 1280 MB
  Start time 2010-10-04 21:12:56 PDT
  Uptime 32 minutes, 5 seconds
Slot 7 information:
  State Online
  Temperature 44 degrees C / 111 degrees F
  Total CPU DRAM 1024 MB
  Total SRAM 64 MB
  Total SDRAM 1280 MB
  Start time 2010-10-04 21:14:34 PDT
  Uptime 30 minutes, 27 seconds

```

**show chassis fpc slot
(T1600 Router)**

```

user@host> show chassis fpc slot 2

```

Slot	State	Temp (C)	CPU Utilization (%) Total Interrupt	Memory DRAM (MB)	Utilization (%) Heap	Buffer
2	Online	49	3 0	2048	3	24

**show chassis fpc
pic-status (T1600
Router)**

```

user@host> show chassis fpc pic-status
Slot 2 Online FPC Type 1-ES
PIC 0 Online Load Type 1
PIC 1 Online 4x 1GE(LAN), IQ2E
PIC 3 Online 1x OC-12-3 SFP

```

```

Slot 3  Online      FPC Type 4-ES
        PIC 0  Online  4x 10GE (LAN/WAN) XFP
        PIC 1  Online  4x OC-192 SONET XFP
Slot 5  Online      FPC Type 2-ES
        PIC 0  Online  Load Type 2
        PIC 1  Online  8x 1GE(LAN), IQ2E
        PIC 2  Online  8x 1GE(LAN), IQ2E
        PIC 3  Online  1x OC-48-12-3 SFP
Slot 7  Online      FPC Type 4
        PIC 0  Online  4x 10GE (LAN/WAN) XFP

```

**show chassis fpc
(T4000 Router)**

```
user@host> show chassis fpc
```

```
regress@stymphalian# run show chassis fpc
```

Slot	State	Temp (C)	CPU Utilization (%) Total Interrupt	Memory DRAM (MB)	Utilization (%) Heap Buffer
0	Online	48	15 0	2816	21 27
1	Empty				
2	Empty				
3	Online	51	15 0	2816	21 27
4	Empty				
5	Online	39	8 0	2048	6 23
6	Online	49	15 0	2816	21 27
7	Empty				

**show chassis fpc detail
(T4000 Router)**

```
user@host> show chassis fpc detail
```

```

Slot 0 information:
  State                Online
  Temperature          48 degrees C / 118 degrees F
  Total CPU DRAM       2816 MB
  Total SRAM           1554 MB
  Total SDRAM          10752 MB
  Start time           2012-02-09 22:56:25 PST
  Uptime               2 hours, 40 minutes, 52 seconds

Slot 3 information:
  State                Online
  Temperature          51 degrees C / 123 degrees F
  Total CPU DRAM       2816 MB
  Total SRAM           1554 MB
  Total SDRAM          10752 MB
  Start time           2012-02-09 22:56:22 PST
  Uptime               2 hours, 40 minutes, 55 seconds

Slot 5 information:
  State                Online
  Temperature          39 degrees C / 102 degrees F
  Total CPU DRAM       2048 MB
  Total SRAM           128 MB
  Total SDRAM          2560 MB
  Start time           2012-02-09 22:51:27 PST
  Uptime               2 hours, 45 minutes, 50 seconds

Slot 6 information:
  State                Online
  Temperature          49 degrees C / 120 degrees F
  Total CPU DRAM       2816 MB
  Total SRAM           1554 MB
  Total SDRAM          10752 MB
  Start time           2012-02-09 22:56:29 PST
  Uptime               2 hours, 40 minutes, 48 seconds

```

```

show chassis fpc      user@host> show chassis fpc pic-status
pic-status (T4000    Slot 0  Online      FPC Type 5-3D
Router)             PIC 0  Online      12x10GE (LAN/WAN) SFPP
                       PIC 1  Online      12x10GE (LAN/WAN) SFPP
                       Slot 3  Online      FPC Type 5-3D
                       PIC 0  Online      1x100GE
                       PIC 1  Online      12x10GE (LAN/WAN) SFPP
                       Slot 5  Online      FPC Type 4-ES
                       PIC 0  Online      100GE
                       PIC 1  Online      100GE CFP
                       Slot 6  Online      FPC Type 5-3D
                       PIC 0  Online      12x10GE (LAN/WAN) SFPP
                       PIC 1  Online      12x10GE (LAN/WAN) SFPP

show chassis fpc (QFX user@switch> show chassis fpc
Series)              Temp CPU Utilization (%) Memory      Utilization (%)
                       Slot State      (C) Total Interrupt      DRAM (MB) Heap      Buffer
                       0  Online        26    2          0          2820    0          49

show chassis fpc detail user@switch> show chassis fpc detail
(QFX3500 Switches)    Slot 0 information:
                       State              Online
                       Temperature          28 degrees C / 82 degrees F
                       Total CPU DRAM      2820 MB
                       Total SRAM          0 MB
                       Total SDRAM         0 MB
                       Start time          2010-09-20 01:34:13 PDT
                       Uptime              3 days, 3 hours, 31 minutes, 48 seconds

show chassis fpc      user@switch> show chassis fpc pic-status
pic-status (QFX3500    Slot 0  Online      QFX 48x10G 4x40G Switch
Switches)             PIC 0  Online      48x 10G-SFP+
                       PIC 1  Online      15x 10G-SFP+

show chassis fpc      user@switch> show chassis fpc interconnect-device interconnect1
interconnect-device    FPC status:
(QFabric System)      Slot State      Temp
                       (C)
                       0  Online      0
                       1  Online      0
                       2  Online      0
                       3  Online      0
                       4  Online      0
                       5  Online      0
                       6  Online      0
                       7  Online      0
                       8  Online      0
                       9  Online      0
                       10 Online      0
                       11 Online      0
                       12 Online      0
                       13 Online      0
                       14 Online      0
                       15 Online      0

show chassis fpc      user@switch> show chassis fpc interconnect-device interconnect1 3
interconnect-device    FPC status:
(QFabric System)      Temp

```

```

Slot State          (C)
  3 Online          0

show chassis fpc    user@switch> show chassis fpc interconnect-device interconnect1 3 detail
interconnect-device Slot 3 information:
                    State Online
                    Temperature 0 degrees C / 32 degrees F
                    Start time 2011-08-18 10:45:04 PDT
                    Uptime 1 minute, 49 seconds

show chassis fpc    user@switch> show chassis fpc pic-status interconnect-device interconnect1
pic-status          Slot 0 Online QFX 16-port QSFP+ Front Card
interconnect-device PIC 0 Online 16x 40G-QSFP+
(QFabric System)    PIC 1 Online 16x 40G-GE
                    Slot 1 Online QFX 16-port QSFP+ Front Card
                    PIC 0 Online 16x 40G-QSFP+
                    PIC 1 Online 16x 40G-GE
                    Slot 2 Online QFX 16-port QSFP+ Front Card
                    PIC 0 Online 16x 40G-QSFP+
                    PIC 1 Online 16x 40G-GE
                    Slot 3 Online QFX 16-port QSFP+ Front Card
                    PIC 0 Online 16x 40G-QSFP+
                    PIC 1 Online 16x 40G-GE
                    Slot 4 Online QFX 16-port QSFP+ Front Card
                    PIC 0 Online 16x 40G-QSFP+
                    PIC 1 Online 16x 40G-GE
                    Slot 5 Online QFX 16-port QSFP+ Front Card
                    PIC 0 Online 16x 40G-QSFP+
                    PIC 1 Online 16x 40G-GE
                    Slot 6 Online QFX 16-port QSFP+ Front Card
                    PIC 0 Online 16x 40G-QSFP+
                    PIC 1 Online 16x 40G-GE
                    Slot 7 Online QFX 16-port QSFP+ Front Card
                    PIC 0 Online 16x 40G-QSFP+
                    PIC 1 Online 16x 40G-GE
                    Slot 8 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE
                    Slot 9 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE
                    Slot 10 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE
                    Slot 11 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE
                    Slot 12 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE
                    Slot 13 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE
                    Slot 14 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE
                    Slot 15 Online QFX Fabric Rear Card
                    PIC 0 Online 16x 40G-GE

show chassis fpc    user@switch> show chassis fpc pic-status node-device node1
pic-status node-device Slot node1 Online QFX 48x10G 4x40G Switch
(QFabric System)      PIC 0 Online 48x 10G-SFP+
                      PIC 1 Online 4x 40G-QSFP+

```

show chassis fpc
(PTX5000 Packet
Transport Switch)

```
user@host> show chassis fpc
```

Slot	State	Temp (C)	CPU Total	Utilization (%) Interrupt	Memory DRAM (MB)	Utilization (%) Heap	Buffer
0	Empty						
1	Empty						
2	Online	50	6	0	2816	5	27
3	Empty						
4	Empty						
5	Online	48	9	0	2816	5	27
6	Empty						
7	Online	49	8	0	2816	5	27

show chassis fpc detail
(PTX5000 Packet
Transport Switch)

```
user@host> show chassis fpc detail
```

Slot 2 information:

State	Online
Temperature	35 degrees C / 95 degrees F (PMB)
Temperature	35 degrees C / 95 degrees F (Intake)
Temperature	50 degrees C / 122 degrees F (Exhaust A)
Temperature	54 degrees C / 129 degrees F (Exhaust B)
Temperature	54 degrees C / 129 degrees F (TL0)
Temperature	52 degrees C / 125 degrees F (TQ0)
Temperature	61 degrees C / 141 degrees F (TL1)
Temperature	58 degrees C / 136 degrees F (TQ1)
Temperature	57 degrees C / 134 degrees F (TL2)
Temperature	58 degrees C / 136 degrees F (TQ2)
Temperature	62 degrees C / 143 degrees F (TL3)
Temperature	61 degrees C / 141 degrees F (TQ3)
Total CPU DRAM	2816 MB
Total SRAM	0 MB
Total SDRAM	0 MB
Start time	2012-01-12 12:05:42 PST
Uptime	3 hours, 14 minutes, 7 seconds

Slot 5 information:

State	Online
Temperature	35 degrees C / 95 degrees F (PMB)
Temperature	34 degrees C / 93 degrees F (Intake)
Temperature	48 degrees C / 118 degrees F (Exhaust A)
Temperature	53 degrees C / 127 degrees F (Exhaust B)
Temperature	54 degrees C / 129 degrees F (TL0)
Temperature	52 degrees C / 125 degrees F (TQ0)
Temperature	69 degrees C / 156 degrees F (TL1)
Temperature	56 degrees C / 132 degrees F (TQ1)
Temperature	54 degrees C / 129 degrees F (TL2)
Temperature	56 degrees C / 132 degrees F (TQ2)
Temperature	59 degrees C / 138 degrees F (TL3)
Temperature	60 degrees C / 140 degrees F (TQ3)
Total CPU DRAM	2816 MB
Total SRAM	0 MB
Total SDRAM	0 MB
Start time	2012-01-12 12:05:43 PST
Uptime	3 hours, 14 minutes, 6 seconds

Slot 7 information:

State	Online
Temperature	35 degrees C / 95 degrees F (PMB)
Temperature	33 degrees C / 91 degrees F (Intake)
Temperature	50 degrees C / 122 degrees F (Exhaust A)
Temperature	55 degrees C / 131 degrees F (Exhaust B)
Temperature	56 degrees C / 132 degrees F (TL0)
Temperature	56 degrees C / 132 degrees F (TQ0)
Temperature	61 degrees C / 141 degrees F (TL1)
Temperature	57 degrees C / 134 degrees F (TQ1)

```

Temperature                    55 degrees C / 131 degrees F (TL2)
Temperature                    59 degrees C / 138 degrees F (TQ2)
Temperature                    62 degrees C / 143 degrees F (TL3)
Temperature                    62 degrees C / 143 degrees F (TQ3)
Total CPU DRAM                 2816 MB
Total SRAM                     0 MB
Total SDRAM                    0 MB
Start time                     2012-01-12 12:05:44 PST
Uptime                         3 hours, 14 minutes, 5 seconds

show chassis fpc pic-status user@host> show chassis fpc pic-status
pic-status (PTX5000 Packet Transport Switch)
Slot 2 Online FPC
PIC 0 Online 24x 10GE(LAN) SFP+
PIC 1 Online 24x 10GE(LAN) SFP+
Slot 5 Online FPC
PIC 0 Online 24x 10GE(LAN) SFP+
PIC 1 Online 2x 40GE CFP
Slot 7 Online FPC
PIC 0 Online 24x 10GE(LAN) SFP+
PIC 1 Online 2x 40GE CFP

show chassis fpc user@host> show chassis fpc
(ACX2000 Universal Access Router)
Slot State Temp CPU Utilization (%) Memory Utilization (%)
(C) Total Interrupt DRAM (MB) Heap Buffer
0 Online 61 17 6 512 21 37

show chassis fpc 0 user@host> show chassis fpc 0
(ACX2000 Universal Access Router)
Slot State Temp CPU Utilization (%) Memory Utilization (%)
(C) Total Interrupt DRAM (MB) Heap Buffer
0 Online 61 17 6 512 21 37

show chassis fpc detail user@host> show chassis fpc detail
(ACX2000 Universal Access Router)
Slot 0 information:
State Online
Temperature 61 degrees C / 141 degrees F
Total CPU DRAM 512 MB
Start time 2012-05-29 02:52:06 PDT
Uptime 27 minutes, 17 seconds

show chassis fpc pic-status user@host> show chassis fpc pic-status
pic-status (ACX2000 Universal Access Router)
Slot 0 Online
PIC 0 Online 16x CHE1T1, RJ48
PIC 1 Online 8x 1GE(LAN) RJ45
PIC 2 Online 2x 1GE(LAN) SFP
PIC 3 Online 2x 10GE(LAN) SFP+

show chassis FPC 1 user@switch> show chassis fpc 1
(MX Routers with Media Services Blade [MSB])
Temp CPU Utilization (%) Memory Utilization (%)
(C) Total Interrupt DRAM (MB) Heap Buffer
1 Online 34 5 0 3072 5 13

show chassis FPC 1 detail user@switch> show chassis fpc 1 detail
(MX Routers with Media Services Blade [MSB])
Slot 1 information:
State Online
Temperature 34
Total CPU DRAM 3072 MB
Total RLDRAM 259 MB
Total DDR DRAM 4864 MB

```

Start time:	2012-06-19 10:51:43 PDT
Uptime:	16 minutes, 48 seconds
Max Power Consumption	550 Watts

show chassis hardware

Syntax	show chassis hardware <detail extensive> <clei-models> <models>
Syntax (EX Series)	show chassis hardware <clei-models> <detail extensive> <models>
Syntax (T4000 Router)	show chassis hardware <clei-models> <detail extensive> <models>
Syntax (TX Matrix Router)	show chassis hardware <clei-models> <detail extensive> <models> <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	show chassis hardware <clei-models> <detail extensive> <models> <lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Routers)	show chassis hardware <detail extensive> <clei-models> <models> <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis hardware <clei-models> <detail extensive> <models>
Syntax (MX2020 3D Universal Edge Routers)	show chassis hardware <clei-models> <detail extensive> <models>
Syntax (QFX Series)	show chassis hardware <detail extensive> <clei-models> <interconnect-device <i>name</i> > <node-device <i>name</i> > <models>

Syntax (PTX Series Packet Transport Switches)	show chassis hardware <detail extensive> <clei-models> <models>
Syntax (ACX Series Universal Access Routers)	show chassis hardware <detail extensive> <clei-models> <models>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>models option introduced in Junos OS Release 8.2.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 11.1 for QFX Series.</p> <p>Command introduced in Junos OS Release 12.1 for PTX Series Packet Transport Switches.</p> <p>Command introduced in Junos OS Release 12.2 for ACX Series Universal Access Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	<p>Display a list of all Flexible PIC Concentrators (FPCs) and PICs installed in the router or switch chassis, including the hardware version level and serial number.</p> <p>In the EX Series switch command output, FPC refers to the following:</p> <ul style="list-style-type: none"> On EX2200 switches, EX3200 switches, EX4200 standalone switches, and EX4500 switches—Refers to the switch; FPC number is always 0. On EX4200 switches in a Virtual Chassis configuration—Refers to the member of a Virtual Chassis; FPC number equals the member ID, from 0 through 9. On EX8208 and EX8216 switches—Refers to a line card; FPC number equals the slot number for the line card. <p>On a QFX3500 standalone switch, both the FPC and FPC number are always 0.</p> <p>On Type 5 FPC on T4000 routers, there are no top temperature sensor or bottom temperature sensor parameters. Instead, fan intake temperature sensor and fan exhaust temperature sensors parameters are displayed.</p>
Options	<p>none—Display information about hardware. For a TX Matrix router, display information about the TX Matrix router and its attached T640 routers. For a TX Matrix Plus router, display information about the TX Matrix Plus router and its attached T1600 routers.</p> <p>clei-models—(Optional) Display Common Language Equipment Identifier (CLEI) barcode and model number for orderable field-replaceable units (FRUs).</p> <p>detail—(Optional) Include RAM and disk information in output.</p> <p>extensive—(Optional) Display ID EEPROM information.</p> <p>all-members—(MX Series routers only) (Optional) Display hardware-specific information for all the members of the Virtual Chassis configuration.</p>

interconnect-device *name*—(QFabric systems only) (Optional) Display hardware-specific information for the Interconnect device.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display hardware information for a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display hardware information for a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace ***number*** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display hardware-specific information for the local Virtual Chassis members.

member *member-id*—(MX Series routers only) (Optional) Display hardware-specific information for the specified member of the Virtual Chassis configuration. Replace ***member-id*** with a value of 0 or 1.

models—(Optional) Display model numbers and part numbers for orderable FRUs and, for components that use ID EEPROM format v2, the CLEI code.

node-device *name*—(QFabric systems only) (Optional) Display hardware-specific information for the Node device.

scc—(TX Matrix router only) (Optional) Display hardware information for the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus router only) (Optional) Display hardware information for the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

Additional Information The **show chassis hardware detail** command now displays DIMM information for the following Routing Engines:

Table 23: Routing Engines Displaying DIMM Information

Routing Engines	Routers
RE-S-1800x2 and RE-S-1800x4	MX240, MX480, and MX960 routers
RE-A-1800x2	M120 and M320 routers

Required Privilege Level view

Related Documentation

- show chassis power

List of Sample Output

- [show chassis hardware \(EX8216 Switch\) on page 470](#)
- [show chassis hardware clei-models \(EX8216 Switch\) on page 471](#)
- [show chassis hardware clei-models \(T1600 Router\) on page 472](#)
- [show chassis hardware detail \(EX4200 Switch\) on page 472](#)
- [show chassis hardware models \(EX4500 Switch\) on page 473](#)
- [show chassis hardware \(J6350 Router\) on page 473](#)
- [show chassis hardware \(J6300 Router\) on page 473](#)

[show chassis hardware \(M7i Router\) on page 473](#)
[show chassis hardware \(M10 Router\) on page 474](#)
[show chassis hardware models \(M10 Router\) on page 474](#)
[show chassis hardware \(M20 Router\) on page 475](#)
[show chassis hardware models \(M20 Router\) on page 475](#)
[show chassis hardware \(M40 Router\) on page 476](#)
[show chassis hardware \(M40e Router\) on page 476](#)
[show chassis hardware \(M120 Router\) on page 477](#)
[show chassis hardware detail \(M120 Router\) on page 478](#)
[show chassis hardware models \(M120 Router\) on page 479](#)
[show chassis hardware \(M160 Router\) on page 479](#)
[show chassis hardware models \(M160 Router\) on page 480](#)
[show chassis hardware detail \(M160 Router\) on page 480](#)
[show chassis hardware \(M320 Router\) on page 481](#)
[show chassis hardware models \(M320 Router\) on page 482](#)
[show chassis hardware \(MX5 Router\) on page 483](#)
[show chassis hardware \(MX10 Router\) on page 483](#)
[show chassis hardware \(MX40 Router\) on page 484](#)
[show chassis hardware \(Fixed MX80 Router\) on page 485](#)
[show chassis hardware \(Modular MX80 Router\) on page 485](#)
[show chassis hardware \(MX240 Router\) on page 485](#)
[show chassis hardware detail \(MX 240 Router with Routing Engine Displaying DIMM information\) on page 486](#)
[show chassis hardware \(MX240 Router with Enhanced MX SCB\) on page 486](#)
[show chassis hardware \(MX480 Router\) on page 487](#)
[show chassis hardware \(MX480 Router with Enhanced MX SCB\) on page 488](#)
[show chassis hardware \(MX960 Router\) on page 488](#)
[show chassis hardware \(MX960 Router with Bidirectional Optics\) on page 488](#)
[show chassis hardware \(MX960 Router with Enhanced MX SCB\) on page 489](#)
[show chassis hardware models \(MX960 Router with Enhanced MX SCB\) on page 491](#)
[show chassis hardware detail \(MX960 Router\) on page 492](#)
[show chassis hardware \(MX2010 Router\) on page 492](#)
[show chassis hardware detail \(MX2010 Router\) on page 494](#)
[show chassis hardware extensive \(MX2010 Router\) on page 499](#)
[show chassis hardware models \(MX2010 Router\) on page 504](#)
[show chassis hardware clei-models \(MX2010 Routers\) on page 505](#)
[show chassis hardware \(MX2020 Router\) on page 506](#)
[show chassis hardware detail \(MX2020 Router\) on page 514](#)
[show chassis hardware models \(MX2020 Router\) on page 523](#)
[show chassis hardware clei-models \(MX2020 Router\) on page 524](#)
[show chassis hardware \(MX Series routers with ATM MIC\) on page 525](#)
[show chassis hardware \(MX240, MX480, MX960 routers with Application Services Modular Line Card\) on page 526](#)
[show chassis hardware extensive \(MX240, MX480, MX960 routers with Application Services Modular Line Card\) on page 527](#)
[show chassis hardware \(T320 Router\) on page 527](#)
[show chassis hardware \(T640 Router\) on page 529](#)
[show chassis hardware models \(T640 Router\) on page 529](#)
[show chassis hardware extensive \(T640 Router\) on page 530](#)

[show chassis hardware \(T4000 Router\) on page 530](#)
[show chassis hardware \(T4000 Router with 16 GB line card chassis \(LCC\) Routing Engine\) on page 532](#)
[show chassis hardware clei-models \(T4000 Router\) on page 533](#)
[show chassis hardware detail \(T4000 Router\) on page 533](#)
[show chassis hardware models \(T4000 Router\) on page 535](#)
[show chassis hardware lcc \(TX Matrix Router\) on page 536](#)
[show chassis hardware scc \(TX Matrix Router\) on page 536](#)
[show chassis hardware \(T1600 Router\) on page 537](#)
[show chassis hardware \(TX Matrix Plus Router\) on page 539](#)
[show chassis hardware sfc \(TX Matrix Plus Router\) on page 544](#)
[show chassis hardware extensive \(TX Matrix Plus Router\) on page 545](#)
[show chassis hardware clei-models \(TX Matrix Plus Router\) on page 546](#)
[show chassis hardware detail \(TX Matrix Plus Router\) on page 549](#)
[show chassis hardware models \(TX Matrix Plus Router\) on page 550](#)
[show chassis hardware \(16-Port 10-Gigabit Ethernet MPC with SFP+ Optics \[MX Series Routers\]\) on page 553](#)
[show chassis hardware \(MPC3E \[MX Series Routers\]\) on page 554](#)
[show chassis hardware \(QFX3500 Switches\) on page 555](#)
[show chassis hardware detail \(QFX3500 Switches\) on page 555](#)
[show chassis hardware models \(QFX3500 Switches\) on page 556](#)
[show chassis hardware clei-models \(QFX3500 Switches\) on page 557](#)
[show chassis hardware interconnect-device \(QFabric Systems\) on page 557](#)
[show chassis hardware node-device \(QFabric Systems\) on page 557](#)
[show chassis hardware \(PTX5000 Packet Transport Switch\) on page 557](#)
[show chassis hardware clei-models \(PTX5000 Packet Transport Switch\) on page 558](#)
[show chassis hardware detail \(PTX5000 Packet Transport Switch\) on page 559](#)
[show chassis hardware models \(PTX5000 Packet Transport Switch\) on page 560](#)
[show chassis hardware extensive \(PTX5000 Packet Transport Switch\) on page 561](#)
[show chassis hardware \(MX Routers with Media Services Blade \[MSB\]\) on page 562](#)
[show chassis hardware extensive \(MX Routers with Media Services Blade \[MSB\]\) on page 562](#)

Output Fields [Table 24 on page 468](#) lists the output fields for the **show chassis hardware** command. Output fields are listed in the approximate order in which they appear.

Table 24: show chassis hardware Output Fields

Field Name	Field Description	Level of Output
Item	<p>Chassis component:</p> <ul style="list-style-type: none"> (EX Series switches)—Information about the chassis, Routing Engine (SRE and Routing Engine modules in EX8200 switches), power supplies, fan trays, and LCD panel. Also displays information about Flexible PIC Concentrators (FPCs) and associated Physical Interface Cards (PICs). Information about the backplane, midplane, and SIBs (SF modules) is displayed for EX8200 switches. See EX Series Switches Hardware and CLI Terminology Mapping. (MX Series routers)—Information about the backplane, Routing Engine, Power Entry Modules (PEMs), and fan trays. Also displays information about Flexible PIC Concentrators (FPCs) and associated Physical Interface Cards (PICs), Modular Port Concentrators (MPCs) and associated Modular Interface Cards (MICs), or Dense Port Concentrators (DPCs). MX80 routers have a single Routing Engine and a built-in Packet Forwarding Engine that attaches directly to MICs. The Packet Forwarding Engine has two “pseudo” FPCs (FPC 0 and FPC1). MX80 routers also have a Forwarding Engine Board (FEB). (M Series routers, except for the M320 router)—Information about the backplane; power supplies; fan trays; Routing Engine; maxicab (the connection between the Routing Engine and the backplane, for the M40 router only); SCB, SSB, SFM, or FEB; MCS and PCG (for the M160 router only); each FPC and PIC; and each fan, blower, and impeller. (M120, M320, and T Series routers)—Information about the backplane, power supplies, fan trays, midplane, FPM (craft interface), CIP, PEM, SCG, CB, FPC, PIC, SFP, SPMB, and SIB. (QFX Series)—Information about the chassis, Routing Engine, power supplies, fan trays, Interconnect devices, and Node devices. Also displays information about Flexible PIC Concentrators (FPCs) and associated Physical Interface Cards (PICs). (PTX Series)—Information about the chassis, midplane, craft interface (FPM), power distribution units (PDUs) and Power Supply Modules (PSMs), Centralized Clock Generators (CCGs), Routing Engines, Control Boards (CBs) and Switch Processor Mezzanine Boards (SPMBs), Flexible PIC Concentrators (FPCs), PICs, Switch Interface Boards (SIBs), and fan trays (vertical and horizontal). (MX2010 and MX2020 routers)—Information about the chassis, midplane, craft interface (FPM), power midplane (PMP), Power Supply Modules (PSMs), Power Distribution Modules (PDMs), Routing Engines, Control Boards (CBs) and Switch Processor Mezzanine Boards (SPMBs), Switch Fabric Boards (SFBs), Flexible PIC Concentrators (FPCs), PICs, adapter cards (ADCs) and fan trays. 	All levels
Version	Revision level of the chassis component.	All levels
Part number	Part number of the chassis component.	All levels
Serial number	Serial number of the chassis component. The serial number of the backplane is also the serial number of the router chassis. Use this serial number when you need to contact Juniper Networks Customer Support about the router or switch chassis.	All levels
Assb ID or Assembly ID	(extensive keyword only) Identification number that describes the FRU hardware.	extensive

Table 24: show chassis hardware Output Fields (*continued*)

Field Name	Field Description	Level of Output
Assembly Version	(extensive keyword only) Version number of the FRU hardware.	extensive
Assembly Flags	(extensive keyword only) Flags.	extensive
FRU model number	(clei-models , extensive , and models keyword only) Model number of the FRU hardware component.	none specified
CLEI code	(clei-models and extensive keyword only) Common Language Equipment Identifier code. This value is displayed only for hardware components that use ID EEPROM format v2. This value is not displayed for components that use ID EEPROM format v1.	none specified
EEPROM Version	ID EEPROM version used by the hardware component: 0x00 (version 0), 0x01 (version 1), or 0x02 (version 2).	extensive
Description	<p>Brief description of the hardware item:</p> <ul style="list-style-type: none"> • Type of power supply. • Type of PIC. If the PIC type is not supported on the current software release, the output states Hardware Not Supported. • Type of FPC: FPC Type 1, FPC Type 2, FPC Type 3, FPC Type 4, or FPC TypeOC192. <p>On EX Series switches, a brief description of the FPC.</p> <p>On the J Series routers, the FPC type corresponds to the Physical Interface Module (PIM). The following list shows the PIM abbreviation in the output and the corresponding PIM name.</p> <ul style="list-style-type: none"> • 2x FE—Either two built-in Fast Ethernet interfaces (fixed PIM) or dual-port Fast Ethernet PIM • 4x FE—4-port Fast Ethernet ePIM • 1x GE Copper—Copper Gigabit Ethernet ePIM (one 10-Mbps, 100-Mbps, or 1000-Mbps port) • 1x GE SFP—SFP Gigabit Ethernet ePIM (one fiber port) • 4x GE Base PIC—Four built-in Gigabit Ethernet ports on a J4350 or J6350 chassis (fixed PIM) • 2x Serial—Dual-port serial PIM • 2x T1—Dual-port T1 PIM • 2x E1—Dual-port E1 PIM • 2x CTIE1—Dual-port channelized T1/E1 PIM • 1x T3—T3 PIM (one port) • 1x E3—E3 PIM (one port) • 4x BRI S/T—4-port ISDN BRI S/T PIM • 4x BRI U—4-port ISDN BRI U PIM • 1x ADSL Annex A—ADSL 2/2+ Annex A PIM (one port, for POTS) • 1x ADSL Annex B—ADSL 2/2+ Annex B PIM (one port, for ISDN) • 2x SHDSL (ATM)—G SHDSL PIM (2-port two-wire module or 1-port four-wire module) 	All levels

Table 24: show chassis hardware Output Fields (*continued*)

Field Name	Field Description	Level of Output
	<ul style="list-style-type: none"> • 1x TGM550—TGM550 Telephony Gateway Module (Avaya VoIP gateway module with one console port, two analog LINE ports, and two analog TRUNK ports) • 1x DS1 TIM510—TIM510 E1/T1 Telephony Interface Module (Avaya VoIP media module with one E1 or T1 trunk termination port and ISDN PRI backup) • 4x FXS, 4x FXO, TIM514—TIM514 Analog Telephony Interface Module (Avaya VoIP media module with four analog LINE ports and four analog TRUNK ports) • 4x BRI TIM521—TIM521 BRI Telephony Interface Module (Avaya VoIP media module with four ISDN BRI ports) • Crypto Accelerator Module—For enhanced performance of cryptographic algorithms used in IP Security (IPsec) services • MPCM16x10GE—16-port 10-Gigabit Module Port Concentrator that supports SFP+ optical transceivers. (Not on EX Series switches.) • For hosts, the Routing Engine type. • For small form-factor pluggable transceiver (SFP) modules, the type of fiber: LX, SX, LH, or T. • LCD description for EX Series switches (except EX2200 switches). • MPC2—1-port MPC2 that supports two separate slots for MICs. • MPC3E—1-port MPC3E that supports two separate slots for MICs (MIC-3D-1X100GE-CFP and MIC-3D-20GE-SFP) on MX960, MX480, and MX240 routers. The MPC3E maps one MIC to one PIC (1 MIC, 1 PIC), which differs from the mapping of legacy MPCs. • 100GBASE-LR4, pluggable CFP optics • Supports the Enhanced MX Switch Control Board with fabric redundancy and existing SCBs without fabric redundancy. • Interoperates with existing MX Series line cards, including Flexible Port Concentrators (FPC), Dense Port Concentrators (DPCs), and Modular Port Concentrators (MPCs). • LCD description for MX Series routers 	

Sample Output

```

user@host> show chassis hardware
show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis       REV 06    710-016845   CY0109220035   EX8216
Midplane      REV 06    710-016845   BA0909120112   EX8216-MP
CB 0          REV 22    710-020771   AX0109197723   EX8216-RE320
CB 1          REV 22    710-020771   AX0109197726   EX8216-RE320
Routing Engine 1    BUILTIN    BUILTIN        RE-EX8216
FPC 3         REV 19    710-020683   BC0109083125   EX8200-48F
CPU           REV 13    710-020598   BF0109144549   EX8200-CPU
FPC 4         REV 17    710-020683   BC0108500127   EX8200-48F
CPU           REV 10    710-020598   BF0108460510   EX8200-CPU
PIC 0         BUILTIN    BUILTIN        48x 100 Base-QFX/1000
Base-X
Xcvr 1        REV 01    740-011613   PE70V89        SFP-SX
Xcvr 11       REV 01    740-011613   PE70YCE        SFP-SX
Xcvr 12       REV 01    740-011613   PE70VSH        SFP-SX

```

Xcvr 13	REV 01	740-011613	E08C02063	SFP-SX
Xcvr 14	REV 01	740-011613	PE70VKU	SFP-SX
Xcvr 15	REV 01	740-011613	E08E03372	SFP-SX
Xcvr 21	REV 01	740-011613	PE70VAD	SFP-SX
Xcvr 22	REV 01	740-011613	E08E01228	SFP-SX
Xcvr 23	REV 01	740-011613	PE70VSL	SFP-SX
Xcvr 24	REV 01	740-011613	E08E03409	SFP-SX
Xcvr 25	REV 01	740-011613	PE70VL4	SFP-SX
Xcvr 26	REV 01	740-011613	PDQ4L2Z	SFP-SX
Xcvr 27	REV 01	740-011613	PE70WFK	SFP-SX
Xcvr 28	REV 01	740-011782	PBD2B5U	SFP-SX
Xcvr 29	REV 01	740-011613	PE70UQX	SFP-SX
Xcvr 30	REV 01	740-011613	PE70VL5	SFP-SX
Xcvr 31	REV 01	740-011613	PE70V0F	SFP-SX
Xcvr 32	REV 01	740-011613	E08C02052	SFP-SX
Xcvr 33	REV 01	740-011613	E08C02197	SFP-SX
Xcvr 34	REV 01	740-011613	PE70VOL	SFP-SX
Xcvr 35	REV 01	740-011613	E08E03390	SFP-SX
Xcvr 36	REV 01	740-011613	PDQ4VL9	SFP-SX
Xcvr 37	REV 01	740-011613	E08E03370	SFP-SX
Xcvr 38	REV 01	740-011613	E08E03362	SFP-SX
Xcvr 39	REV 01	740-011613	E08C02065	SFP-SX
Xcvr 40	REV 01	740-011613	E08E03405	SFP-SX
Xcvr 41	REV 01	740-011613	E08E03411	SFP-SX
Xcvr 43	REV 01	740-011613	E08C02171	SFP-SX
Xcvr 45	REV 01	740-011613	E08E03410	SFP-SX
FPC 13	REV 16	710-016837	BB0109051344	EX8200-8XS
CPU				
SIB 0	REV 10	710-021613	AY0109166244	EX8216-SF320
SIB 1	REV 10	710-021613	AY0109166357	EX8216-SF320
SIB 2	REV 10	710-021613	AY0109166362	EX8216-SF320
SIB 3	REV 10	710-021613	AY0109166338	EX8216-SF320
SIB 4	REV 10	710-021613	AY0109166350	EX8216-SF320
SIB 5	REV 10	710-021613	AY0109166365	EX8216-SF320
SIB 6	REV 10	710-021613	AY0109166361	EX8216-SF320
SIB 7	REV 10	710-021613	AY0109166399	EX8216-SF320
PSU 0	REV 17	740-021466	BG0709170003	EX8200-AC2K
PSU 1	REV 17	740-021466	BG0709170004	EX8200-AC2K
PSU 2	REV 17	740-021466	BG0709170020	EX8200-AC2K
PSU 3	REV 17	740-021466	BG0709170017	EX8200-AC2K
PSU 4	REV 17	740-021466	BG0709170008	EX8200-AC2K
PSU 5	REV 17	740-021466	BG0709170018	EX8200-AC2K
Top Fan Tray				
FTC 0	REV 4	760-022620	CX1209140212	EX8216-FT
FTC 1	REV 4	760-022620	CX1209140212	EX8216-FT
Bottom Fan Tray				
FTC 0	REV 4	760-022620	CX1209140211	EX8216-FT
FTC 1	REV 4	760-022620	CX1209140211	EX8216-FT
LCD 0	REV 04	710-025742	CE0109186919	EX8200 LCD

show chassis hardware
clei-models (EX8216
Switch)

user@host> show chassis hardware clei-models

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 08	710-016845		
PSU 0	REV 05	740-023002	COUPAEAEAA	EX8200-PWR-AC3KR
PSU 1	REV 05	740-023002	COUPAEAEAA	EX8200-PWR-AC3KR
PSU 2	REV 05	740-023002	COUPAEAEAA	EX8200-PWR-AC3KR
PSU 3	REV 05	740-023002	COUPAEAEAA	EX8200-PWR-AC3KR
PSU 4	REV 05	740-023002	COUPAEAEAA	EX8200-PWR-AC3KR
PSU 5	REV 05	740-023002	COUPAEAEAA	EX8200-PWR-AC3KR

Top Fan Tray
Bottom Fan Tray

**show chassis hardware
clei-models (T1600
Router)**

user@host> show chassis hardware clei-models

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 03	710-005608		CHAS-BP-T640-S
FPM Display	REV 05	710-002897		CRAFT-T640-S
CIP	REV 06	710-002895		CIP-L-T640-S
PEM 0	Rev 07	740-017906	IPUPAC7KTA	PWR-T1600-3-80-DC-S
PEM 1	Rev 18	740-002595		PWR-T-DC-S
SCG 0	REV 15	710-003423		SCG-T-S
Routing Engine 0	REV 08	740-014082		RE-A-2000-4096-S
Routing Engine 1	REV 07	740-014082		RE-A-2000-4096-S
CB 0	REV 05	710-007655		CB-T-S
CB 1	REV 03	710-017707		CB-T-S
FPC 0	REV 07	710-013558		T640-FPC2-E2
PIC 0	REV 01	750-010618		PB-4GE-SFP
PIC 1	REV 06	750-001900		PB-10C48-SON-SMSR
PIC 2	REV 14	750-001901		PB-40C12-SON-SMIR
PIC 3	REV 07	750-001900		PB-10C48-SON-SMSR
FPC 1	REV 06	710-013553		T640-FPC1-E2
PIC 0	REV 08	750-001072		P-1GE-SX
PIC 1	REV 10	750-012266		PB-4GE-TYPE1-SFP-IQ2
PIC 2	REV 22	750-005634		PB-1CHOC12SMIR-QPP
FPC 2				
PIC 0	REV 16	750-007141		PC-10GE-SFP
PIC 1	REV 06	750-015217		PC-8GE-TYPE3-SFP-IQ2
PIC 2	REV 05	750-004695		PC-TUNNEL
PIC 3	REV 17	750-009553		PC-40C48-SON-SFP
FPC 3	REV 01	710-010154		T640-FPC3-E
PIC 0	REV 07	750-012793		PC-1XGE-TYPE3-XFP-IQ2
PIC 1	REV 25	750-007141		PC-10GE-SFP
PIC 2	REV 17	750-009553		PC-40C48-SON-SFP
PIC 3	REV 32	750-003700		PC-10C192-SON-VSR
FPC 4	REV 16	710-013037		T1600-FPC4-ES
PIC 1	REV 06	750-034781		PD-1CE-CFP
FPC 5	REV 02	710-013037		T1600-FPC4-ES
PIC 0	REV 16	750-012518		PD-40C192-SON-XFP
PIC 1	REV 01	750-010850		PD-10C768-SON-SR
FPC 6	REV 14	710-013037		T1600-FPC4-ES
PIC 0	REV 11	750-017405		PD-4XGE-XFP
PIC 1	REV 13	750-017405		PD-4XGE-XFP
FPC 7	REV 09	710-007529		T640-FPC3
PIC 0	REV 10	750-012793		PC-1XGE-TYPE3-XFP-IQ2
PIC 1	REV 01	750-015217		PC-8GE-TYPE3-SFP-IQ2
PIC 2	REV 01	750-015217		PC-8GE-TYPE3-SFP-IQ2
PIC 3	REV 15	750-009450		PC-10C192-SON-SR2
SIB 0	REV 07	710-013074		SIB-I-T1600-S
SIB 1	REV 07	710-013074		SIB-I-T1600-S
SIB 2	REV 07	710-013074		SIB-I-T1600-S
SIB 3	REV 07	710-013074		SIB-I-T1600-S
SIB 4	REV 07	710-013074		SIB-I-T1600-S
Fan Tray 0				FANTRAY-T-S
Fan Tray 1				FANTRAY-T-S
Fan Tray 2				FAN-REAR-TX-T640-S

**show chassis hardware
detail (EX4200
Switch)**

user@host> show chassis hardware detail

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			BM0208327733	EX4200-24T

```

Routing Engine 0 REV 11 750-021256 BM0208327733 EX4200-24T, 8 POE
Routing Engine 0 BM0208327733 EX4200-24T, 8 POE
FPC 0 REV 11 750-021256 BM0208327733 EX4200-24T, 8 POE
CPU BUILTIN BUILTIN FPC CPU
PIC 0 BUILTIN BUILTIN 24x 10/100/1000 Base-T
PIC 1 REV 03B 711-021270 AR0208162285 4x GE SFP
BRD REV 08 711-021264 AK0208328289 EX4200-24T, 8 POE
Power Supply 0 REV 03 740-020957 AT0508346354 PS 320W AC
Fan Tray Fan Tray

```

show chassis hardware models (EX4500 Switch)

```

user@host> show chassis hardware models
Hardware inventory:
Item Version Part number Serial number FRU model number
Routing Engine 0 REV 01 750-035700 GG0210271867 EX4500-40F-FB-C
FPC 0 REV 01 750-035700 GG0210271867 EX4500-40F-FB-C
PIC 0 BUILTIN BUILTIN EX4500-40F-FB-C
Power Supply 1 REV 01 740-029654 H884FS00JC09 EX4500-PWR1-AC-FB

```

show chassis hardware (J6350 Router)

```

user@host> show chassis hardware
Hardware inventory:
Item Version Part number Serial number Description
Chassis JN1090E07ADB JSR6350
Midplane REV 03 710-014593 NP1265
System IO REV 01 710-016210 NN9950 JX350 System IO
Crypto Module Crypto Acceleration
Routing Engine REV 08 710-015273 NM6509 RE-J6350-3400
ad0 248 MB 256MB CKS 00102006C24A00000039 Compact
Flash
FPC 0 FPC
PIC 0 4x GE Base PIC
FPC 1 REV 06 750-010355 AI07030023 FPC
PIC 0 2x T1
FPC 3 REV 06 750-011148 AJ06520151 FPC
PIC 0 2x E1
FPC 6 REV 06 750-013492 NC4170 FPC
PIC 0 4x FE
Power Supply 0

```

show chassis hardware (J6300 Router)

```

user@host> show chassis hardware
Hardware inventory:
Item Version Part number Serial number Description
Chassis JN000164AB J6300
Midplane REV 02.04 710-010001 CORE99570
System IO REV 02.00 710-010003 CORE100848 System IO board
Routing Engine RevX2.6 750-010006 IWGS40735390 RE-J.3
FPC 0 FPC
PIC 0 2x FE
FPC 1 RevX2.0 750-011380 N3960005 FPC
PIC 0 1xADSL pic Annex A
FPC 2 RevX2.0 750-011380 N3960002 FPC
PIC 0 1xADSL pic Annex B
FPC 3 REV 03 750-010354 N0780028 FPC
PIC 0 1x T3

```

show chassis hardware (M7i Router)

```

user@host> show chassis hardware
Hardware inventory:
Item Version Part number Serial number Description
Chassis 31959 M7i
Midplane REV 02 710-008761 CA0209 M7i Midplane
Power Supply 0 Rev 04 740-008537 PD10272 AC Power Supply

```

Routing Engine	REV 01	740-008846	1000396803	RE-5.0
CFEB	REV 02	750-009492	CA0166	Internet Processor IIv1
FPC 0				E-FPC
PIC 0	REV 04	750-003163	HJ6416	1x G/E, 1000 BASE-SX
PIC 1	REV 04	750-003163	HJ6423	1x G/E, 1000 BASE-SX
PIC 2	REV 04	750-003163	HJ6421	1x G/E, 1000 BASE-SX
PIC 3	REV 02	750-003163	HJ0425	1x G/E, 1000 BASE-SX
FPC 1				E-FPC
PIC 2	REV 01	750-009487	HM2275	ASP - Integrated
PIC 3	REV 01	750-009098	CA0142	2x F/E, 100 BASE-TX

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			B1157	M7i
Midplane	REV 05	710-008761	DM0840	M7i Midplane
Power Supply 0	Rev 08	740-008537	TE53755	AC Power Supply
Routing Engine	REV 07	740-011202	1000736567	RE-850
CFEB	REV 09	750-010463	DK6952	Internet Processor II
FPC 0				E-FPC
PIC 0	REV 12	750-012838	DL7993	4x 1GE(LAN), IQ2
Xcvr 0	REV 01	740-011614	PD94TDJ	SFP-LX10
Xcvr 1	REV 01	740-011615	PAD5EER	UNSUPPORTED
Xcvr 2	REV 01	740-011614	PD94THU	SFP-LX10
Xcvr 3		NON-JNPR	PDC2E7A	SFP-LX10
PIC 1	REV 03	750-023116	JT0203	4x CHSTM1 SDH CE SFP
Xcvr 0	REV 01	740-012434	AGT063832PS	SFP-SR
Xcvr 1	REV 01	740-012434	AGT063832LY	SFP-SR
Xcvr 3	REV 01	740-016064	C06J19018	SFP-LR
PIC 2	REV 15	750-014895	DM5757	MultiServices 100
PIC 3	REV 01	750-025390	JW9448	12x T1/E1 CE
FPC 1				E-FPC
PIC 2		BUILTIN	BUILTIN	1x Tunnel
PIC 3	REV 09	750-009099	DM0899	1x G/E, 1000 BASE
Xcvr 0	REV 01	740-012434	AGT07150HGJ	UNSUPPORTED
Fan Tray				Rear Fan Tray

show chassis hardware
(M10 Router)

user@host> show chassis hardware				
Hardware inventory:				
Item	Version	Part number	Serial number	Description
Chassis			1122	M10
Midplane	REV 1.1	710-001950	S/N AC6626	
Power supply A	Rev 01	740-002497	S/N LC36095	AC
Power supply B	Rev 01	740-002497	S/N LC36100	AC
Display	REV 1.2	710-001995	S/N AC6656	
Host			18000005dfb3fb01	teknor
FEB	REV 01	710-001948	S/N AC6632	Internet Processor II
FPC 0				
PIC 0	REV 08	750-001072	S/N AB2485	1x G/E, 1000 BASE-SX
PIC 1	REV 01	750-000613	S/N AA1048	1x OC-12 SONET, SMIR
FPC 1				
Fan Tray 0				FANTRAY-M10I-S
Fan Tray 1				FANTRAY-M10I-S

show chassis hardware
models (M10 Router)

user@host> show chassis hardware models				
Hardware inventory:				
Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 04	710-008920		CHAS-MP-M10i-S
Power Supply 0	Rev 06	740-008537		PWR-M10i-M7i-AC-S
Power Supply 1	Rev 06	740-008537		PWR-M10i-M7i-AC-S
HCM 0	REV 03	710-010580		HCM-M10i-S
HCM 1	REV 03	710-010580		HCM-M10i-S

Routing Engine 0	REV 09	740-009459	RE-400-256-S
CFEB 0	REV 05	750-010465	FEB-M10i-M7i-S
FPC 0			
PIC 0	REV 10	750-002971	PE-40C3-SON-MM
PIC 1	REV 11	750-002992	PE-4FE-TX
PIC 2	REV 03	750-002977	PE-20C3-ATM-MM
PIC 3	REV 08	750-005724	PE-20C3-ATM2-MM
FPC 1			
PIC 2	REV 12	750-008425	PE-AS
PIC 3	REV 13	750-005636	PE-4CHDS3-QPP
Fan Tray 0			FANTRAY-M10I-S
Fan Tray 1			FANTRAY-M10I-S

show chassis hardware (M20 Router) user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			20033	M20
Backplane	REV 07	710-001517	S/N AA7940	
Power supply B	Rev 01	740-001465	S/N 000001	AC
Display	REV 02	710-001519	S/N AA9704	
Host 0			98000004f8f27501	teknor
SSB slot 0	REV 01	710-001951	S/N AD5905	Internet Processor II
SSRAM bank 0	REV 01	710-001385	S00480	2 MB
SSRAM bank 1	REV 01	710-001385	S00490	2 MB
SSRAM bank 2	REV 01	710-001385	S001:?	2 MB
SSRAM bank 3	REV 01	710-001385	S00483	2 MB
SSB slot 1	N/A	N/A	N/A	Backup
FPC 1	REV 01	710-001292	S/N AB7528	
SSRAM	REV 01	710-000077	S/N 304209	1 MB
SDRAM bank 0	REV 01	710-000099	S/N 000603	64 MB
SDRAM bank 1	REV 01	710-000099	S/N 000414	64 MB
PIC 0	REV 03	750-000612	S/N AB8433	2x OC-3 ATM, MM
PIC 1	REV 01	750-000616	S/N AA1168	1x OC-12 ATM, MM
PIC 2	REV 01	750-000613	S/N AA1008	1x OC-12 SONET, SMIR
PIC 3	REV 01	750-002501	S/N AD5810	4x E3
FPC 2	REV 01	710-001292	S/N AC0119	
SSRAM	REV 01	710-000077	S/N 503241	1 MB
SDRAM bank 0	REV 01	710-000099	S/N 306835	64 MB
SDRAM bank 1	REV 01	710-000099	S/N 306832	64 MB
Fan Tray 0				Front Upper Fan Tray
Fan Tray 1				Front Middle Fan Tray
Fan Tray 2				Front Bottom Fan Tray
Fan Tray 3				Rear Fan Tray

show chassis hardware models (M20 Router) user@host> show chassis hardware models

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Backplane	REV 03	710-002334		CHAS-MP-M20-S
Power Supply A	REV 06	740-001465		PWR-M20-AC-S
Display	REV 04	710-001519		CRAFT-M20-S
Routing Engine 0	REV 06	740-003239		RE-333-768-S
Routing Engine 1	REV 06	740-003239		RE-333-768-S
SSB 0	REV 02	710-001951		SSB-E-M20
SSB 1	N/A	N/A		
FPC 0	REV 03	710-003308		FPC-E
PIC 0	REV 08	750-002303		P-4FE-TX
PIC 1	REV 07	750-004745		P-2MCDS3
PIC 2	REV 03	750-002965		PE-4CHDS3
FPC 1	REV 03	710-003308		FPC-E
PIC 0	REV 03	750-002914		P-20C3-ATM-MM
Fan Tray 0				FANTRAY-F-M20-S

```

Fan Tray 1
Fan Tray 2
Fan Tray 3
FANTRAY-F-M20-S
FANTRAY-F-M20-S
FANTRAY-R-M20-S

```

show chassis hardware
(M40 Router)

```
user@host> show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Backplane	REV 02	710-000073	S/N AA0053	
Power supply A	Rev 2	740-000235	S/N 000042	DC
Maxicab	REV X1	710-000229	S/N AA0139	
Minicab	REV X1	710-000482	S/N AA0201	
Display	REV 06	710-000150	S/N AA0905	
Host				cpv5000
SCB	REV X1	710-000075	S/N AA0158	Internet Processor I
SSRAM bank 0	REV 02	710-000077	S/N AA2267	1 MB
SSRAM bank 1	REV 02	710-000077	S/N AA2270	1 MB
SSRAM bank 2	REV 02	710-000077	S/N AA2269	1 MB
SSRAM bank 3	REV 02	710-000077	S/N AA2268	1 MB
FPC 0	REV 01	710-000175	S/N AA0048	
SSRAM	REV 01	710-000077	S/N AA2333	1 MB
SDRAM bank 0	REV 01	710-000099	S/N AA2332	64 MB
SDRAM bank 1	REV X1	710-000099	S/N AA2337	64 MB
PIC 0	REV 04	750-000613	S/N aa0343	1x OC-12 SONET, SMIR
PIC 1	REV 04	750-000613	S/N AA0379	1x OC-12 SONET, SMIR
PIC 2	REV 04	750-000613	S/N AA0377	1x OC-12 SONET, SMIR
PIC 3	REV 04	750-000613	S/N AA0378	1x Tunnel
FPC 2	REV 01	710-000175	S/N AA0042	
SSRAM	REV 02	710-000077	S/N AA2288	1 MB
SDRAM bank 0	REV 01	710-000099	S/N AA2331	64 MB
SDRAM bank 1	REV 01	710-000099	S/N AA2330	64 MB
PIC 0	REV X1	750-000603	S/N AA0143	4x OC-3 SONET, SMIR
PIC 1	REV X1	750-000615	S/N AA0149	4x OC-3 SONET, MM
PIC 2	REV X1	750-000611	S/N AA0148	4x OC-3 SONET, MM
PIC 3	REV 04	750-000613	S/N AA0330	1x OC-12 SONET, SMIR
FPC 4	REV 01	710-000175	S/N AA0050	
SSRAM	REV 01	710-000077	S/N AA2327	1 MB
SDRAM bank 0	REV 01	710-000099	S/N AA2329	64 MB
SDRAM bank 1	REV 01	710-000099	S/N AA2328	64 MB
PIC 0	REV 04	750-000613	S/N AA0320	1x OC-12 SONET, SMIR
PIC 2	REV 05	750-000616	S/N AA1341	1x OC-12 ATM, MM
PIC 3	REV 08	750-001072	S/N AB2462	1x G/E, 1000 BASE-SX
FPC 5	REV 10	710-000175	S/N AA7663	
SSRAM	REV 01	710-000077	S/N 501590	1 MB
SDRAM bank 0	REV 01	710-000099	S/N 300949	64 MB
SDRAM bank 1	REV 01	710-000099	S/N 300868	64 MB
PIC 1	REV 01	750-001323	S/N AB1670	1x Tunnel

show chassis hardware
(M40e Router)

```
user@host> show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis				m40e
Midplane	REV 01	710-005071	AX3671	
FPM CMB	REV 03	710-001642	AR9074	
FPM Display	REV 03	710-001647	AR7331	
CIP	REV 04	710-002649	BB4449	
PEM 0	Rev 01	740-003787	MC12364	Power Entry Module
PEM 1	Rev 01	740-003787	MC12383	Power Entry Module
PCG 0	REV 07	710-001568	AG1332	
PCG 1	REV 07	710-001568	AR3789	
Host 0			3e000007c8176601	Present
MCS 0	REV 11	710-001226	AN5813	

SFM 0 SPP	REV 07	710-001228	AG4676	
SFM 0 SPR	REV 05	710-002189	AE4735	Internet Processor II
SFM 1 SPP	REV 07	710-001228	AP1347	
SFM 1 SPR	REV 05	710-002189	BE0063	Internet Processor II
FPC 0	REV 01	710-011725	BE0669	M40e-EP-FPC Type 1
CPU	REV 01	710-004600	BD9504	
PIC 0	REV 03	750-003737	AY3991	4x G/E, 1000 BASE-SX
FPC 1	REV 01	710-005197	BD9842	M40e-FPC Type 2
CPU	REV 01	710-004600	BB4869	
PIC 0	REV 07	750-001900	AR8278	1x OC-48 SONET, SMSR
FPC 2	REV 02	710-005197	BD9824	M40e-FPC Type 2
CPU	REV 01	710-004600	BD9531	
PIC 0	REV 03	750-003737	AY3986	4x G/E, 1000 BASE-SX
FPC 4	REV 02	710-005078	BE0664	M40e-FPC Type 1
CPU	REV 01	710-004600	BD9559	
PIC 0	REV 03	750-001894	AG7963	1x G/E, 1000 BASE-SX
PIC 2	REV 01	750-002575	AF2472	4x OC-3 SONET, SMIR
FPC 6	REV 02	710-005078	BE0652	M40e-FPC Type 1
CPU	REV 01	710-004600	BD9607	
PIC 0	REV 02	750-002911	AN2286	4x F/E, 100 BASE-TX
PIC 2	REV 01	750-002577	AP6345	4x OC-3 SONET, MM

show chassis hardware
(M120 Router)

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN000054AC	M120
Midplane	REV 01	710-013667	RB4170	M120 Midplane
FPM Board	REV 02	710-011407	CJ9186	M120 FPM Board
FPM Display	REV 02	710-011405	CJ9173	M120 FPM Display
FPM CIP	REV 02	710-011410	CJ9221	M120 FPM CIP
PEM 0	Rev 05	740-011936	RM28320	AC Power Entry Module
PEM 1	Rev 05	740-011936	RM28321	AC Power Entry Module
Routing Engine 0	REV 03	740-014080	1000642883	RE-A-1000
CB 0	REV 03	710-011403	CM8346	M120 Control Board
CB 1	REV 06	710-011403	CP6728	M120 Control Board
FPC 1	REV 02	710-015908	CP6925	M120 CFPC 10GE
PIC 0		BUILTIN	BUILTIN	1x 10GE(LAN/WAN) XFP
Xcvr 0	REV 01	740-014279	62E204N00007	XFP-10G-LR
FPC 3	REV 03	710-011393	CJ9234	M120 FPC Type 2
PIC 0	REV 16	750-008155	NB5229	2x G/E IQ, 1000 BASE
Xcvr 0	REV 01	740-011613	P9F15JB	SFP-SX
Xcvr 1	REV 01	740-007326	P4Q0R9G	SFP-SX
PIC 1	REV 09	750-007745	CG4360	4x OC-3 SONET, SMIR
PIC 2	REV 16	750-008155	ND7787	2x G/E IQ, 1000 BASE
Xcvr 0	REV 01	740-011613	P9F12AS	SFP-SX
Xcvr 1	REV 01	740-011613	P9F1ALU	SFP-SX
PIC 3	REV 07	750-011800	JW1284	8x 1GE(LAN), IQ2
Xcvr 0	REV 01	740-011613	P9F1AM6	SFP-SX
Xcvr 6	REV 01	740-011613	P9F16NN	SFP-SX
Xcvr 7	REV 01	740-011782	P8C29Y7	SFP-SX
Board B	REV 02	710-011395	CN3754	M120 FPC Mezz
FPC 4	REV 02	710-011398	CP6741	M120 FPC Type 3
PIC 0	REV 16	750-007141	NB2855	10x 1GE(LAN), 1000 BASE
Xcvr 0	REV 01	740-011782	P922A1F	SFP-SX
Xcvr 1	REV 01	740-011782	P922A16	SFP-SX
Xcvr 2	REV 01	740-011782	P922A0U	SFP-SX
Xcvr 3	REV 01	740-011782	P9229UZ	SFP-SX
Xcvr 4	REV 01	740-009029	P11JXWP	SFP-LX
Xcvr 6	REV 01	740-011613	P9F1ALW	SFP-SX
FPC 5	REV 01	710-011388	CJ9088	M120 FPC Type 1

```

PIC 0          *** Hardware Not Supported ***
PIC 1          REV 05   750-012052   NB0410          1x CHOC3 IQ SONET, SMLR

PIC 2          REV 01   750-013167   CM3824          4x CHDS3 IQ
PIC 3          REV 01   750-010240   CB5366          1x G/E SFP, 1000 BASE
Board B        REV 01   710-011390   CJ9103          M120 FPC Mezz Board
FEB 3          REV 04   710-011663   CP6673          M120 FEB
FEB 4          REV 04   710-011663   CJ9368          M120 FEB
FEB 5          REV 04   710-011663   CJ9386          M120 FEB
Fan Tray 0     Front Top Fan Tray
Fan Tray 1     Front Bottom Fan Tray
Fan Tray 2     Rear Top Fan Tray
Fan Tray 3     Rear Bottom Fan Tray

```

show chassis hardware detail (M120 Router) user@host> show chassis hardware detail

```

Hardware inventory:
Item              Version  Part number  Serial number  Description
Chassis                               JN000054AC    M120
Midplane          REV 01   710-013667   RB4170         M120 Midplane
FPM Board         REV 02   710-011407   CJ9186         M120 FPM Board
FPM Display       REV 02   710-011405   CJ9173         M120 FPM Display
FPM CIP           REV 02   710-011410   CJ9221         M120 FPM CIP
PEM 0             Rev 05   740-011936   RM28320        AC Power Entry Module
PEM 1             Rev 05   740-011936   RM28321        AC Power Entry Module
Routing Engine 0  REV 03   740-014080   1000642883     RE-A-1000
  ad0             248 MB   SILICONSYSTEMS INC 256M 126CT505S0763SC00110 Compact Flash
  ad2             38154 MB HTE541040G9SA00    MPBBTOX2HS2E3M Hard Disk
CB 0              REV 03   710-011403   CM8346         M120 Control Board
CB 1              REV 06   710-011403   CP6728         M120 Control Board
FPC 1             REV 02   710-015908   CP6925         M120 CFPC 10GE
  PIC 0           BUILTIN    BUILTIN        1x 10GE(LAN/WAN) XFP
    Xcvr 0        REV 01   740-014279   62E204N00007   XFP-10G-LR
FPC 3             REV 03   710-011393   CJ9234         M120 FPC Type 2
  PIC 0           REV 16   750-008155   NB5229         2x G/E IQ, 1000 BASE
    Xcvr 0        REV 01   740-011613   P9F15JB        SFP-SX
    Xcvr 1        REV 01   740-007326   P4Q0R9G        SFP-SX
  PIC 1           REV 09   750-007745   CG4360         4x OC-3 SONET, SMIR
  PIC 2           REV 16   750-008155   ND7787         2x G/E IQ, 1000 BASE
    Xcvr 0        REV 01   740-011613   P9F12AS        SFP-SX
    Xcvr 1        REV 01   740-011613   P9F1ALU        SFP-SX
  PIC 3           REV 07   750-011800   JW1284         8x 1GE(LAN), IQ2
    Xcvr 0        REV 01   740-011613   P9F1AM6        SFP-SX
    Xcvr 6        REV 01   740-011613   P9F16NN        SFP-SX
    Xcvr 7        REV 01   740-011782   P8C29Y7        SFP-SX
Board B          REV 02   710-011395   CN3754         M120 FPC Mezz
FPC 4            REV 02   710-011398   CP6741         M120 FPC Type 3
  PIC 0           REV 16   750-007141   NB2855         10x 1GE(LAN), 1000 BASE

    Xcvr 0        REV 01   740-011782   P922A1F        SFP-SX
    Xcvr 1        REV 01   740-011782   P922A16        SFP-SX
    Xcvr 2        REV 01   740-011782   P922A0U        SFP-SX
    Xcvr 3        REV 01   740-011782   P9229UZ        SFP-SX
    Xcvr 4        REV 01   740-009029   P11JXWP        SFP-LX
    Xcvr 6        REV 01   740-011613   P9F1ALW        SFP-SX
FPC 5            REV 01   710-011388   CJ9088         M120 FPC Type 1
  PIC 0          *** Hardware Not Supported ***
  PIC 1          REV 05   750-012052   NB0410          1x CHOC3 IQ SONET, SMLR

PIC 2            REV 01   750-013167   CM3824          4x CHDS3 IQ
PIC 3            REV 01   750-010240   CB5366          1x G/E SFP, 1000 BASE
Board B          REV 01   710-011390   CJ9103          M120 FPC Mezz Board

```

FEB 3	REV 04	710-011663	CP6673	M120 FEB
FEB 4	REV 04	710-011663	CJ9368	M120 FEB
FEB 5	REV 04	710-011663	CJ9386	M120 FEB
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Top Fan Tray
Fan Tray 3				Rear Bottom Fan Tray

show chassis hardware models (M120 Router) user@host> show chassis hardware models

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 01	710-013667		
FPM CIP	REV 02	710-011410		CRAFT-M120-S
PEM 0	Rev 05	740-011936		PWR-M120-AC-S
PEM 1	Rev 05	740-011936		PWR-M120-AC-S
Routing Engine 0	REV 03	740-014080		RE-A-1000-2048-S
CB 0	REV 03	710-011403		CB-M120-S
CB 1	REV 06	710-011403		CB-M120-S
FPC 1	REV 02	710-015908		M120-cFPC-1XGE-XFP
FPC 3				
PIC 0	REV 16	750-008155		PB-2GE-SFP-QPP
PIC 1	REV 09	750-007745		PC-40C3-SON-SMIR
PIC 2	REV 16	750-008155		PB-2GE-SFP-QPP
PIC 3	REV 07	750-011800		PB-8GE-TYPE2-SFP-IQ2
FPC 4				
PIC 0	REV 16	750-007141		PC-10GE-SFP
FPC 5				
PIC 1	REV 05	750-012052		PB-1CHOC3-SMIR-QPP
PIC 2	REV 01	750-013167		PE-4CHDS3-QPP
PIC 3	REV 01	750-010240		PB-1GE-SFP
Fan Tray 0				FFANTRAY-M120-S
Fan Tray 1				FFANTRAY-M120-S
Fan Tray 2				RFANTRAY-M120-S
Fan Tray 3				RFANTRAY-M120-S

show chassis hardware (M160 Router) user@host> show chassis hardware

Item	Version	Part number	Serial number	Description
Chassis			101	M160
Midplane	REV 02	710-001245	S/N AB4107	
FPM CMB	REV 01	710-001642	S/N AA2911	
FPM Display	REV 01	710-001647	S/N AA2999	
CIP	REV 02	710-001593	S/N AA9563	
PEM 0	Rev 01	740-001243	S/N KJ35769	DC
PEM 1	Rev 01	740-001243	S/N KJ35765	DC
PCG 0	REV 01	710-001568	S/N AA9794	
PCG 1	REV 01	710-001568	S/N AA9804	
Host 1			da000004f8d57001	teknor
MCS 1	REV 03	710-001226	S/N AA9777	
SFM 0 SPP	REV 04	710-001228	S/N AA2975	
SFM 0 SPR	REV 02	710-001224	S/N AA9838	Internet Processor I
SFM 1 SPP	REV 04	710-001228	S/N AA2860	
SFM 1 SPR	REV 01	710-001224	S/N AB0139	Internet Processor I
FPC 0	REV 03	710-001255	S/N AA9806	FPC Type 1
CPU	REV 02	710-001217	S/N AA9590	
PIC 1	REV 05	750-000616	S/N AA1527	1x OC-12 ATM, MM
PIC 2	REV 05	750-000616	S/N AA1535	1x OC-12 ATM, MM
PIC 3	REV 01	750-000616	S/N AA1519	1x OC-12 ATM, MM
FPC 1	REV 02	710-001611	S/N AA9523	FPC Type 2
CPU	REV 02	710-001217	S/N AA9571	
PIC 0	REV 03	750-001900	S/N AA9626	1x STM-16 SDH, SMIR
PIC 1	REV 01	710-002381	S/N AD3633	2x G/E, 1000 BASE-SX

FPC 2				FPC Type OC192
CPU	REV 03	710-001217	S/N AB3329	
PIC 0	REV 01			1x OC-192 SM SR-2
Fan Tray 0				Rear Bottom Blower
Fan Tray 1				Rear Top Blower
Fan Tray 2				Front Top Blower
Fan Tray 3				Front Fan Tray

show chassis hardware models (M160 Router)

user@host> show chassis hardware models

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 03	710-009120		CHAS-BP-M320-S
FPM Display	REV 02	710-009351		CRAFT-M320-S
CIP	REV 03	710-005926		CIP-M320-S
PEM 2	Rev X4	740-009148		PWR-M-DC-S
PEM 3	Rev X4	740-009148		PWR-M-DC-S
Routing Engine 0	REV 02	740-008883		RE-1600-2048-S
Routing Engine 1	REV 02	740-008883		RE-1600-2048-S
FPC 0	REV 02	710-010419		M320-FPC1
PIC 0	REV 01	750-001323		P-TUNNEL
PIC 1	REV 02	750-002987		PE-10C12-SON-SMIR
PIC 2	REV 04	750-001894		PB-1GE-SX
PIC 3	REV 04	750-001896		PB-10C12-SON-SMIR
FPC 1	REV 02	710-010419		M320-FPC1
PIC 0	REV 04	750-001894		PB-1GE-SX
PIC 1	REV 04	750-001894		PB-1GE-SX
PIC 3	REV 03	750-001894		PB-1GE-SX
FPC 2	REV 02	710-010419		M320-FPC1
PIC 0	REV 10	750-005634		PB-1CHOC12SMIR-QPP
PIC 1	REV 10	750-005634		PB-1CHOC12SMIR-QPP
PIC 2	REV 07	750-005634		PB-1CHOC12SMIR-QPP
PIC 3	REV 07	750-005634		PB-1CHOC12SMIR-QPP
PIC 1	REV 10	750-005634		PB-1CHOC12SMIR-QPP
PIC 2	REV 07	750-005634		PB-1CHOC12SMIR-QPP
PIC 3	REV 07	750-005634		PB-1CHOC12SMIR-QPP
FPC 3				
PIC 0	REV 03	750-001895		PB-10C12-SON-MM
PIC 1	REV 04	750-001894		PB-1GE-SX
PIC 3	REV 04	750-003141		PB-1GE-SX-B
FPC 4	REV 02	710-010419		M320-FPC1
FPC 5	REV 02	710-010419		M320-FPC1
FPC 6	REV 02	710-010419		M320-FPC1
FPC 7				
PIC 0	REV 15	750-001901		PB-40C12-SON-SMIR
PIC 1	REV 06	750-001900		PB-10C48-SON-SMSR
PIC 2	REV 07	750-001900		PB-10C48-SON-SMSR
PIC 3	REV 05	750-003737		PB-4GE-SX
SIB 0	REV 03	710-009184		SIB-M-S
SIB 1	REV 03	710-009184		SIB-M-S
SIB 2	REV 03	710-009184		SIB-M-S
SIB 3	REV 03	710-009184		SIB-M-S
Fan Tray 0				FFANTRAY-M320-S
Fan Tray 1				FFANTRAY-M320-S
Fan Tray 2				RFANTRAY-M320-S

show chassis hardware detail (M160 Router)

user@host> show chassis hardware detail

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			101	M160
Midplane	REV 02	710-001245	S/N AB4107	
FPM CMB	REV 01	710-001642	S/N AA2911	

```

FPM Display      REV 01  710-001647  S/N AA2999
CIP              REV 02  710-001593  S/N AA9563
PEM 0           Rev 01  740-001243  S/N KJ35769  DC
PEM 1           Rev 01  740-001243  S/N KJ35765  DC
PCG 0           REV 01  710-001568  S/N AA9794
PCG 1           REV 01  710-001568  S/N AA9804
Host 1          da000004f8d57001  teknor
MCS 1           REV 03  710-001226  S/N AA9777
SFM 0 SPP       REV 04  710-001228  S/N AA2975
SFM 0 SPR       REV 02  710-001224  S/N AA9838  Internet Processor I
SSRAM bank 0    REV 01  710-000077  S/N 306456  1 MB
SSRAM bank 1    REV 01  710-000077  S/N 306474  1 MB
SSRAM bank 2    REV 01  710-000077  S/N 306388  1 MB
SSRAM bank 3    REV 01  710-000077  S/N 306392  1 MB
SFM 1 SPP       REV 04  710-001228  S/N AA2860
SFM 1 SPR       REV 01  710-001224  S/N AB0139  Internet Processor I
SSRAM bank 0    REV 01  710-000077  S/N 302917  1 MB
SSRAM bank 1    REV 01  710-000077  S/N 302662  1 MB
SSRAM bank 2    REV 01  710-000077  S/N 302593  1 MB
SSRAM bank 3    REV 01  710-000077  S/N 100160  1 MB
FPC 0           REV 03  710-001255  S/N AA9806  FPC Type 1
CPU             REV 02  710-001217  S/N AA9590
SSRAM           REV 01  710-000077  S/N 302836  1 MB
SDRAM 0         REV 01  710-001196  S00141      32 MB
SDRAM 1         REV 01  710-001196  S0010;      32 MB
SSRAM           REV 01  710-000077  S/N 302633  1 MB
SDRAM 0         REV 01  710-001196  S00143      32 MB
SDRAM 1         REV 01  710-001196  S00115      32 MB
SSRAM           REV 01  710-000077  S/N 302952  1 MB
SDRAM 0         REV 01  710-001196  S00135      32 MB
SDRAM 1         REV 01  710-001196  S001=3      32 MB
SSRAM           REV 01  710-000077  S/N 302892  1 MB
SDRAM 0         REV 01  710-001196  S000?6      32 MB
SDRAM 1         REV 01  710-001196  S001=5      32 MB
PIC 1           REV 05  750-000616  S/N AA1527  1x OC-12 ATM, MM
PIC 2           REV 05  750-000616  S/N AA1535  1x OC-12 ATM, MM
PIC 3           REV 01  750-000616  S/N AA1519  1x OC-12 ATM, MM
FPC 1           REV 02  710-001611  S/N AA9523  FPC Type 2
CPU             REV 02  710-001217  S/N AA9571
SSRAM           REV 01  710-000077  S/N 306340  1 MB
SDRAM 0         REV 01  710-001196  S00012      32 MB
SDRAM 1         REV 01  710-001196  S0001?      32 MB
SSRAM           REV 01  710-000077  S/N 306454  1 MB
SDRAM 0         REV 01  710-001196  S00028      32 MB
SDRAM 1         REV 01  710-001196  S0002?      32 MB
SSRAM           REV 01  710-000077  S/N 306492  1 MB
SDRAM 0         REV 01  710-001196  S00015      32 MB
SDRAM 1         REV 01  710-001196  S00031      32 MB
SSRAM           REV 01  710-000077  S/N 306363  1 MB
SDRAM 0         REV 01  710-001196  S00013      32 MB
SDRAM 1         REV 01  710-001196  S00032      32 MB
PIC 0           REV 03  750-001900  S/N AA9626  1x STM-16 SDH, SMIR
PIC 1           REV 01  710-002381  S/N AD3633  2x G/E, 1000 BASE-SX
FPC 2           FPC Type OC192
... SSRAM       REV 01  710-000077  S/N 306466  1 MB

```

show chassis hardware
(M320 Router)

```
user@host> show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis			67245	M320
Midplane	REV 05	710-009120	RB1202	M320 Midplane

FPM GBUS	REV 04	710-005928	HZ5697	M320 Board
FPM Display	REV 05	710-009351	HR1464	M320 FPM Display
CIP	REV 04	710-005926	HT8672	M320 CIP
PEM 0	Rev 05	740-009148	QK34208	DC Power Entry Module
PEM 1	Rev 05	740-009148	QK34262	DC Power Entry Module
PEM 2	Rev 05	740-009148	QF10449	DC Power Entry Module
PEM 3	Rev 05	740-009148	QJ18257	DC Power Entry Module
Routing Engine 0	REV 06	740-008883	P11123901185	RE-4.0
CB 0	REV 07	710-009115	JB2382	M320 Control Board
FPC 0	REV 02	710-005017	CD9926	M320 FPC Type 2
CPU	REV 01	710-011659	CJ6940	M320 PCA SCPU
PIC 0	REV 07	750-001900	AT1594	1x OC-48 SONET, SMSR
PIC 1	REV 03	750-001850	HS2746	1x Tunnel
PIC 2	REV 05	750-010618	JE7117	4x G/E SFP, 1000 BASE
PIC 3	REV 06	750-001900	HE6083	1x OC-48 SONET, SMSR
FPC 2	REV 02	710-005017	CH0319	M320 FPC Type 1
CPU	REV 01	710-011659	CJ6942	M320 PCA SCPU
PIC 0	REV 05	750-003034	BD8705	4x OC-3 SONET, SMIR
FPC 5	REV 02	710-005017	CD9938	M320 FPC Type 2
CPU				
FPC 7	REV 02	710-005017	CD9934	M320 FPC Type 2
CPU				
SIB 0	REV 09	710-009184	JA6540	M320 SIB
SIB 1	REV 09	710-009184	HV9511	M320 SIB
SIB 2	REV 09	710-009184	HW2057	M320 SIB
SIB 3	REV 09	710-009184	JA6687	M320 SIB
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray

show chassis hardware models (M320 Router)

```
user@host> show chassis hardware models
Hardware inventory:
```

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 03	710-009120		CHAS-BP-M320-S
FPM Display	REV 02	710-009351		CRAFT-M320-S
CIP	REV 03	710-005926		CIP-M320-S
PEM 2	Rev X4	740-009148		PWR-M-DC-S
PEM 3	Rev X4	740-009148		PWR-M-DC-S
Routing Engine 0	REV 02	740-008883		RE-1600-2048-S
Routing Engine 1	REV 02	740-008883		RE-1600-2048-S
FPC 0	REV 02	710-010419		M320-FPC1
PIC 0	REV 01	750-001323		P-TUNNEL
PIC 1	REV 02	750-002987		PE-10C12-SON-SMIR
PIC 2	REV 04	750-001894		PB-1GE-SX
PIC 3	REV 04	750-001896		PB-10C12-SON-SMIR
FPC 1	REV 02	710-010419		M320-FPC1
PIC 0	REV 04	750-001894		PB-1GE-SX
PIC 1	REV 04	750-001894		PB-1GE-SX
PIC 3	REV 03	750-001894		PB-1GE-SX
FPC 2	REV 02	710-010419		M320-FPC1
PIC 0	REV 10	750-005634		PB-1CHOC12SMIR-QPP
PIC 1	REV 10	750-005634		PB-1CHOC12SMIR-QPP
PIC 2	REV 07	750-005634		PB-1CHOC12SMIR-QPP
PIC 3	REV 07	750-005634		PB-1CHOC12SMIR-QPP
PIC 1	REV 10	750-005634		PB-1CHOC12SMIR-QPP
PIC 2	REV 07	750-005634		PB-1CHOC12SMIR-QPP
PIC 3	REV 07	750-005634		PB-1CHOC12SMIR-QPP
FPC 3				
PIC 0	REV 03	750-001895		PB-10C12-SON-MM
PIC 1	REV 04	750-001894		PB-1GE-SX
PIC 3	REV 04	750-003141		PB-1GE-SX-B

FPC 4	REV 02	710-010419	M320-FPC1
FPC 5	REV 02	710-010419	M320-FPC1
FPC 6	REV 02	710-010419	M320-FPC1
FPC 7			
PIC 0	REV 15	750-001901	PB-40C12-SON-SMIR
PIC 1	REV 06	750-001900	PB-10C48-SON-SMSR
PIC 2	REV 07	750-001900	PB-10C48-SON-SMSR
PIC 3	REV 05	750-003737	PB-4GE-SX
SIB 0	REV 03	710-009184	SIB-M-S
SIB 1	REV 03	710-009184	SIB-M-S
SIB 2	REV 03	710-009184	SIB-M-S
SIB 3	REV 03	710-009184	SIB-M-S
Fan Tray 0			FFANTRAY-M320-S
Fan Tray 1			FFANTRAY-M320-S
Fan Tray 2			RFANTRAY-M320-S

show chassis hardware (MX5 Router) user@host> **show chassis hardware**
Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			E1368	MX5-T
Midplane	REV 01	711-038215	YF5288	MX5-T
PEM 0	Rev 04	740-028288	VA01215	AC Power Entry Module
PEM 1	Rev 04	740-028288	VA01218	AC Power Entry Module
Routing Engine		BUILTIN	BUILTIN	Routing Engine
TFEB 0		BUILTIN	BUILTIN	Forwarding Engine
Processor				
QXM 0	REV 05	711-028408	ZA9136	MPC QXM
FPC 0		BUILTIN	BUILTIN	MPC BUILTIN
MIC 0		BUILTIN	BUILTIN	4x 10GE XFP
PIC 0		BUILTIN	BUILTIN	4x 10GE XFP
FPC 1		BUILTIN	BUILTIN	MPC BUILTIN
MIC 0	REV 24	750-028392	YX9820	3D 20x 1GE(LAN) SFP
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-031851	AM1045SUAQ3	SFP-SX
Xcvr 1	REV 01	740-031851	AM1045SUAPA	SFP-SX
Xcvr 2	REV 01	740-031851	AM1045SUAN7	SFP-SX
Xcvr 3	REV 01	740-031851	AM1045SU91Q	SFP-SX
Xcvr 4	REV 01	740-031851	AM1045SUDDR	SFP-SX
Xcvr 9	REV 01	740-011613	AM0848SB6A1	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-031851	AM1045SUANO	SFP-SX
Xcvr 1	REV 01	740-011613	AS0812S0719	SFP-SX
Xcvr 2	REV 01	740-011613	AM0821SA121	SFP-SX
Xcvr 3	REV 01	740-011613	PF21K21	SFP-SX
Xcvr 4	REV 01	740-011613	AM0848SB69Z	SFP-SX
Xcvr 5	REV 01	740-011782	P9POXV3	SFP-SX
Xcvr 6	REV 01	740-011613	AM0812S8WJN	SFP-SX
Xcvr 7	REV 01	740-011613	PAM3G9Q	SFP-SX
Xcvr 8	REV 01	740-011613	AM0848SB4A6	SFP-SX
Xcvr 9	REV 01	740-011782	P9MOU37	SFP-SX
MIC 1	REV 20	750-028380	ZG2657	3D 2x 10GE XFP
PIC 2		BUILTIN	BUILTIN	1x 10GE XFP
PIC 3		BUILTIN	BUILTIN	1x 10GE XFP
Fan Tray				Fan Tray

show chassis hardware (MX10 Router) user@host> **show chassis hardware**
Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			E1372	MX10-T
Midplane	REV 01	711-038211	YF5285	MX10-T
PEM 0	Rev 04	740-028288	VB01678	AC Power Entry Module

Routing Engine		BUILTIN	BUILTIN	Routing Engine
TFEB 0		BUILTIN	BUILTIN	Forwarding Engine
Processor				
QXM 0	REV 05	711-028408	ZA9053	MPC QXM
FPC 0		BUILTIN	BUILTIN	MPC BUILTIN
MIC 0		BUILTIN	BUILTIN	4x 10GE XFP
PIC 0		BUILTIN	BUILTIN	4x 10GE XFP
FPC 1		BUILTIN	BUILTIN	MPC BUILTIN
MIC 0	REV 24	750-028392	YX9436	3D 20x 1GE(LAN) SFP
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-031851	AM1107SUFQW	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Fan Tray				Fan Tray

show chassis hardware
(MX40 Router)

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			E1367	MX40-T
Midplane	REV 01	711-038211	YF5284	MX40-T
PEM 0	Rev 04	740-028288	VB01680	AC Power Entry Module
PEM 1	Rev 04	740-028288	VB01700	AC Power Entry Module
Routing Engine		BUILTIN	BUILTIN	Routing Engine
TFEB 0		BUILTIN	BUILTIN	Forwarding Engine
Processor				
QXM 0	REV 05	711-028408	ZA9048	MPC QXM
FPC 0		BUILTIN	BUILTIN	MPC BUILTIN
MIC 0		BUILTIN	BUILTIN	4x 10GE XFP
PIC 0		BUILTIN	BUILTIN	4x 10GE XFP
Xcvr 0	REV 01	740-014279	M7067UPP	XFP-10G-LR
Xcvr 1		NON-JNPR	K9J02UN	XFP-10G-LR
FPC 1		BUILTIN	BUILTIN	MPC BUILTIN
MIC 0	REV 24	750-028392	YX3504	3D 20x 1GE(LAN) SFP
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-011613	AM0812S8WTE	SFP-SX
Xcvr 1	REV 01	740-011613	PFA6KV2	SFP-SX
Xcvr 2	REV 01	740-031851	AM1045SUDDM	SFP-SX
Xcvr 3	REV 01	740-011613	PD63C7M	SFP-SX
Xcvr 4	REV 01	740-011613	PD63DJY	SFP-SX
Xcvr 5	REV 02	740-011613	AA0950STLL9	SFP-SX
Xcvr 6	REV 01	740-011782	PAR1YHC	SFP-SX
Xcvr 7	REV 01	740-011782	P9P0XXL	SFP-SX
Xcvr 8	REV 01	740-011613	PD63D95	SFP-SX
Xcvr 9	REV 01	740-031851	AM1045SU9B8	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-011613	PF21L3Z	SFP-SX
Xcvr 1	REV 01	740-031851	AM1045SU7M9	SFP-SX
Xcvr 2	REV 01	740-031851	AM1045SUAPT	SFP-SX
Xcvr 3	REV 01	740-011613	PFF2BZH	SFP-SX
Xcvr 4	REV 01	740-031851	AM1045SUDDN	SFP-SX
Xcvr 5	REV 01	740-031851	AM1039S00ZR	SFP-SX
Xcvr 6	REV 01	740-031851	AM1045SUD6Y	SFP-SX
Xcvr 8	REV 01	740-011613	PFM1QBS	SFP-SX
Xcvr 9	REV 01	740-011613	PFF2E25	SFP-SX
MIC 1	REV 01	750-021130	KG4391	3D 2x 10GE XFP
PIC 2		BUILTIN	BUILTIN	1x 10GE XFP
Xcvr 0	REV 01	740-011571	C645XJ04G	XFP-10G-SR
PIC 3		BUILTIN	BUILTIN	1x 10GE XFP
Xcvr 0		NON-JNPR	CA49BK0AE	XFP-10G-SR
Fan Tray				Fan Tray

show chassis hardware
(Fixed MX80 Router)

```
user@host> show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               MX80-48T
Midplane      REV 01   711-031603   KF9250         MX80-48T
Routing Engine                               Routing Engine
FEB 0          BUILTIN BUILTIN      Forwarding Engine Board
FPC 0          BUILTIN BUILTIN      MPC BUILTIN
  MIC 0        BUILTIN BUILTIN      4x 10GE XFP
  PIC 0        BUILTIN BUILTIN      4x 10GE XFP
    Xcvr 0     NON-JNPR M6439D41     XFP-10G-LR
    Xcvr 1     REV 01   740-014279   6XE931N00202  XFP-10G-LR
    Xcvr 2     REV 01   740-014289   C715XU05F     XFP-10G-SR
    Xcvr 3     REV 01   740-014289   C650XU0EP     XFP-10G-SR
FPC 1          BUILTIN BUILTIN      MPC BUILTIN
  MIC 0        REV 01   711-029399   JR6981        12x 1GE(LAN) RJ45
  PIC 0        BUILTIN BUILTIN      12x 1GE(LAN) RJ45
  PIC 1        BUILTIN BUILTIN      12x 1GE(LAN) RJ45
  MIC 1        REV 01   BUILTIN      12x 1GE(LAN) RJ45
  PIC 2        BUILTIN BUILTIN      12x 1GE(LAN) RJ45
  PIC 3        BUILTIN BUILTIN      12x 1GE(LAN) RJ45
Fan Tray                               Fan Tray
```

show chassis hardware
(Modular MX80 Router)

```
user@host> show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               MX80
Midplane      REV 02   711-031594   JR7084         MX80
PEM 0          Rev 01   740-028288   000018         AC Power Entry Module
Routing Engine                               Routing Engine
FEB 0          BUILTIN BUILTIN      Forwarding Engine Board

  QXM 0        REV 05   711-028408   JR7041         MPC QXM
FPC 0          BUILTIN BUILTIN      MPC BUILTIN
  MIC 0        BUILTIN BUILTIN      4x 10GE XFP
  PIC 0        BUILTIN BUILTIN      4x 10GE XFP
FPC 1          BUILTIN BUILTIN      MPC BUILTIN
  MIC 0        REV 02   750-028380   JR6598         3D 2x 10GE XFP
  PIC 0        BUILTIN BUILTIN      1x 10GE XFP
    Xcvr 0     REV 01   740-014289   T07M86365     XFP-10G-SR
    PIC 1      BUILTIN BUILTIN      1x 10GE XFP
    Xcvr 0     REV 01   740-014289   T07M71094     XFP-10G-SR
  MIC 1        REV 02   750-028380   JG8548         3D 2x 10GE XFP
  PIC 2        BUILTIN BUILTIN      1x 10GE XFP
    Xcvr 0     REV 02   740-014289   T08L86302     XFP-10G-SR
    PIC 3      BUILTIN BUILTIN      1x 10GE XFP
    Xcvr 0     REV 02   740-014289   C810XU0BA     XFP-10G-SR
Fan Tray                               Fan Tray
```

show chassis hardware
(MX240 Router)

```
user@host> show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               MX240
Midplane      REV 01   710-021041   TR1502         MX240 Backplane
FPM Board     REV 01   710-017254   KD4017         Front Panel Display
PEM 0          Rev 02   740-017330   000332         PS 1.2-1.7kW; 100-240V
AC in
PEM 1          Rev 02   740-017330   000226         PS 1.2-1.7kW; 100-240V
AC in
```

Routing Engine 0	REV 06	740-013063	1000703522	RE-S-2000
Routing Engine 1	REV 06	740-015113	1000687625	RE-S-1300
CB 0	REV 07	710-013385	KC9057	MX SCB
CB 1	REV 05	710-013385	JY4760	MX SCB
FPC 1	REV 01	750-021679	KC7340	DPCE 40x 1GE R
CPU	REV 06	710-013713	KD4078	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-011613	P9F18ME	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN)
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN)
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN)
FPC 2	REV 04	710-016669	JS4529	DPCE 40x 1GE R EQ
CPU	REV 06	710-013713	KB3969	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3Y79	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3XU8	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3YG6	SFP-SX
Xcvr 3	REV 01	740-011613	PBG3XUG	SFP-SX
Xcvr 4	REV 01	740-011613	PBG3XTJ	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3ZUM	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3Y5H	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3UZT	SFP-SX
Xcvr 3	REV 01	740-011613	PBG3US1	SFP-SX
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3YG7	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3XZ9	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3XTY	SFP-SX
Xcvr 3	REV 01	740-011613	PBG3UZG	SFP-SX
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3Y8W	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3YVX	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3YB3	SFP-SX
Xcvr 3	REV 01	740-011613	PBG43VQ	SFP-SX
Fan Tray 0	REV 01	710-021113	JS4642	MX240 Fan Tray

**show chassis hardware
detail (MX 240 Router
with Routing Engine
Displaying DIMM
information)**

user@host> show chassis hardware detail

Item	Version	Part number	Serial number	Description
Chassis			JN11279B4AFC	MX240 Backplane
Midplane	REV 07	760-021404	TS2474	MX240 Backplane
FPM Board	REV 03	760-021392	XC2643	Front Panel Display
PEM 0	Rev 03	740-017343	QCS0908A068	DC Power Entry Module
Routing Engine 0			AARCH00	RE-S-1800x4
ad0 3764 MB	STEC M2+	CF 9.0.2	STIM2Q3209239145303	Removable Compact Flash
ad1 28626 MB	WDC SSD-F0030S-5000		C933Z036237215548S00	Compact Flash
usb0 (addr 1)	EHCI root hub 0		Intel	uhub0
usb0 (addr 2)	product 0x0020 32		vendor 0x8087	uhub1
DIMM 0	VL31B5263E-F8S DIE REV-0 PCB REV-0			MFR ID-ce80
DIMM 1	VL31B5263E-F8S DIE REV-0 PCB REV-0			MFR ID-ce80
DIMM 2	VL31B5263E-F8S DIE REV-0 PCB REV-0			MFR ID-ce80
DIMM 3	SL31B5263E-F8S DIE REV-0 PCB REV-0			MFR ID-ce80
CB 0	REV 03	710-021523	XD7225	MX SCB
Fan Tray 0	REV 01	710-021113	WZ4986	MX240 Fan Tray

**show chassis hardware
(MX240 Router with
Enhanced MX SCB)**

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN10C7F7EAFC	MX240
Midplane	REV 01	710-021041	TR1502	MX240 Backplane

FPM Board	REV 01	710-017254	KD4017	Front Panel Display
PEM 0	Rev 02	740-017330	000332	PS 1.2-1.7kW; 100-240V
AC in				
PEM 1	Rev 02	740-017330	000226	PS 1.2-1.7kW; 100-240V
AC in				
Routing Engine 0	REV 06	740-013063	1000703522	RE-S-2000
Routing Engine 1	REV 06	740-015113	1000687625	RE-S-1300
CB 0	REV 02	710-031391	YE8494	Enhanced MX SCB
CB 1	REV 05	710-031391	YOP5764	Enhanced MX SCB
FPC 1	REV 01	750-021679	KC7340	DPCE 40x 1GE R
CPU	REV 06	710-013713	KD4078	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-011613	P9F18ME	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN)
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN)
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN)
FPC 2	REV 04	710-016669	JS4529	DPCE 40x 1GE R EQ
CPU	REV 06	710-013713	KB3969	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3Y79	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3XU8	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3YG6	SFP-SX
Xcvr 3	REV 01	740-011613	PBG3XUG	SFP-SX
Xcvr 4	REV 01	740-011613	PBG3XTJ	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3ZUM	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3Y5H	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3UZT	SFP-SX
Xcvr 3	REV 01	740-011613	PBG3US1	SFP-SX
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3YG7	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3XZ9	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3XTY	SFP-SX
Xcvr 3	REV 01	740-011613	PBG3UZG	SFP-SX
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PBG3Y8W	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3YVX	SFP-SX
Xcvr 2	REV 01	740-011613	PBG3YB3	SFP-SX
Xcvr 3	REV 01	740-011613	PBG43VQ	SFP-SX
Fan Tray 0	REV 01	710-021113	JS4642	MX240 Fan Tray

show chassis hardware
(MX480 Router)

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN10C7F7FAFB	MX480
Midplane	REV 04	710-017414	TR2071	MX480 Midplane
FPM Board	REV 02	710-017254	KB8459	Front Panel Display
PEM 0	Rev 02	740-017330	QCS07519029	PS 1.2-1.7kW; 100-240V
AC in				
PEM 1	Rev 02	740-017330	QCS07519041	PS 1.2-1.7kW; 100-240V
AC in				
PEM 2	Rev 02	740-017330	QCS07519097	PS 1.2-1.7kW; 100-240V
AC in				
Routing Engine 0	REV 07	740-013063	1000733381	RE-S-2000
Routing Engine 1	REV 07	740-013063	1000733540	RE-S-2000
CB 0	REV 07	710-013385	KA8022	MX SCB
CB 1	REV 07	710-013385	KA8303	MX SCB
FPC 0	REV 09	750-020452	KA8660	DPCE 40x 1GE X EQ
CPU	REV 06	710-013713	KA8185	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) EQ

PIC 2	BUILTIN	BUILTIN	10x 1GE(LAN) EQ
PIC 3	BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Fan Tray			Left Fan Tray

show chassis hardware user@host> **show chassis hardware**

(MX480 Router with
Enhanced MX SCB)

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN10C7F7FAFB	MX480
Midplane	REV 04	710-017414	TR2071	MX480 Midplane
FPM Board	REV 02	710-017254	KB8459	Front Panel Display
PEM 0	Rev 02	740-017330	QCS07519029	PS 1.2-1.7kW; 100-240V
AC in				
PEM 1	Rev 02	740-017330	QCS07519041	PS 1.2-1.7kW; 100-240V
AC in				
PEM 2	Rev 02	740-017330	QCS07519097	PS 1.2-1.7kW; 100-240V
AC in				
Routing Engine 0	REV 07	740-013063	1000733381	RE-S-2000
Routing Engine 1	REV 07	740-013063	1000733540	RE-S-2000
CB 0	REV 07	710-013385	KA8022	Enhanced MX SCB
CB 1	REV 07	710-013385	KA8303	Enhanced MX SCB
FPC 0	REV 09	750-020452	KA8660	DPCE 40x 1GE X EQ
CPU	REV 06	710-013713	KA8185	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Fan Tray				Left Fan Tray

show chassis hardware user@host> **show chassis hardware**

(MX960 Router)

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis				MX960
Midplane	REV 01	710-013698	AA6082	MX960 Midplane
PIM	Rev 01	740-013110	000008	Power Inlet Module
PEM 2				
PEM 3	Rev 01	740-013682	000038	PS 1.7kW; 200-240VAC in
Routing Engine 0	REV 00	740-015113	1000617944	RE-S-1300
CB 0	REV 05	710-013725	JK6947	MX960 Test SCB
FPC 4	REV 01	710-013305	JM7617	MX960 Test DPC
CPU				
PIC 0		BUILTIN	BUILTIN	1x 10GE(LAN/WAN)
PIC 1		BUILTIN	BUILTIN	10x 1GE
FPC 7	REV 01	710-013305	JL9634	MX960 Test DPC
CPU				
PIC 0		BUILTIN	BUILTIN	1x 10GE(LAN/WAN)
Xcvr 0		NON-JNPR	MYBG65I82C	XFP-10G-SR
PIC 1		BUILTIN	BUILTIN	10x 1GE
Xcvr 1	REV 01	740-011782	P7N0368	SFP-SX
Xcvr 4	REV 01	740-011782	P8J1W27	SFP-SX
Xcvr 6	REV 01	740-011782	P8J1VSD	SFP-SX
Xcvr 9	REV 01	740-011782	P8J1W25	SFP-SX
Fan Tray 0				
Fan Tray 1				

show chassis hardware user@host> **show chassis hardware**

(MX960 Router with
Bidirectional Optics)

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN10BA5B9AFA	MX960
Midplane	REV 03	710-013698	TR0234	MX960 Backplane
FPM Board	REV 03	710-014974	JA0878	Front Panel Display

PDM	Rev 03	740-013110	QCS11135028	Power Distribution Module
PEM 0	Rev 03	740-013682	QCS11154036	PS 1.7kW; 200-240VAC in
PEM 1	Rev 03	740-013682	QCS11154010	PS 1.7kW; 200-240VAC in
PEM 2	Rev 03	740-013682	QCS11154022	PS 1.7kW; 200-240VAC in
Routing Engine 0	REV 06	740-013063	1000691458	RE-S-2000
CB 0	REV 07	710-013385	KA2190	MX SCB
CB 1	REV 07	710-013385	KA0837	MX SCB
FPC 3	REV 02	750-018122	KB3890	DPCE 40x 1GE R
CPU				
FPC 4	REV 01	750-018122	KB3889	DPCE 40x 1GE R
CPU	REV 06	710-013713	KB3976	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 1	REV 01	740-020426	4910549	SFP-1000BASE-BX40-D
Xcvr 2	REV 01	740-020426	4910551	SFP-1000BASE-BX40-D
Xcvr 5	REV 01	740-021340	77E245N00006	SFP-1000BASE-BX10-U
Xcvr 6	REV 01	740-020425	4882821	SFP-1000BASE-BX40-U
Xcvr 8	REV 01	740-020425	4882820	SFP-1000BASE-BX40-U
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-020465	77E555N00894	SFP-1000BASE-BX10-D
Xcvr 1	REV 01	740-020465	75E467X00818	SFP-1000BASE-BX10-D
Xcvr 2	REV 01	740-020465	75E467X00573	SFP-1000BASE-BX10-D
Xcvr 3	REV 01	740-020465	4888227	SFP-1000BASE-BX10-D
Xcvr 4	REV 01	740-020465	4888241	SFP-1000BASE-BX10-D
Xcvr 5	REV 01	740-021340	77E245N00005	SFP-1000BASE-BX10-U
Xcvr 6	REV 01	740-021340	76E245X00487	SFP-1000BASE-BX10-U
Xcvr 7	REV 01	740-021341	5255889	SFP-1000BASE-BX10-U
Xcvr 8	REV 01	740-021341	5255887	SFP-1000BASE-BX10-U
Xcvr 9	REV 01	740-021340	77E245N00004	SFP-1000BASE-BX10-U
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-020424	5007582	SFP-1000BASE-BX10-D
Xcvr 1	REV 01	740-020424	4888187	SFP-1000BASE-BX10-D
Xcvr 2	REV 01	740-020424	4656500	SFP-1000BASE-BX10-D
Xcvr 5	REV 01	740-021341	5255886	SFP-1000BASE-BX10-U
Xcvr 7	REV 01	740-021340	77E245N00003	SFP-1000BASE-BX10-U
Xcvr 8	REV 01	740-021341	5255888	SFP-1000BASE-BX10-U
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-017726	74S184H30341	SFP-EX
Xcvr 1	REV 01	740-017726	4814061	SFP-EX
Xcvr 5	REV 01	740-017726	6ZS184H31108	SFP-EX
Xcvr 9	REV 01	740-021340	76E245X00486	SFP-1000BASE-BX10-U
Fan Tray 0				
Fan Tray 1	REV 03	740-014971	TP0850	Fan Tray

show chassis hardware
(MX960 Router with
Enhanced MX SCB)

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1096805AFA	MX960
Midplane	REV 03	710-013698	TR0183	MX960 Backplane
Fan Extender	REV 02	710-018051	JY5227	Extended Cable Manager
FPM Board	REV 03	710-014974	JZ6876	Front Panel Display
PDM	Rev 03	740-013110	QCS111035023	Power Distribution Module
PEM 1	Rev 03	740-013682	QCS1109400L	PS 1.7kW; 200-240VAC in
PEM 2	Rev 03	740-013682	QCS11094015	PS 1.7kW; 200-240VAC in
PEM 3	Rev 03	740-013682	QCS11094012	PS 1.7kW; 200-240VAC in
Routing Engine 0	REV 06	740-013063	1000687969	RE-S-2000
Routing Engine 1	REV 06	740-013063	1000687955	RE-S-2000
CB 0	REV 11	750-031391	YZ6072	Enhanced MX SCB
CB 1	REV 11	750-031391	YZ6068	Enhanced MX SCB
CB 2	REV 11	750-031391	YZ6081	Enhanced MX SCB
FPC 0	REV 01	750-018122	KA5576	DPCE 40x 1GE R
CPU	REV 06	710-013713	KB3961	DPC PMB

PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-011613	P9F18GF	SFP-SX
Xcvr 2	REV 01	740-011782	P9M0TL9	SFP-SX
Xcvr 7	REV 01	740-011782	P9P0XXH	SFP-SX
Xcvr 9	REV 01	740-011782	P9M0TN1	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-011613	PAJ4UHC	SFP-SX
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-011613	PFF2CD0	SFP-SX
Xcvr 1	REV 01	740-011613	PBG3ZUT	SFP-SX
Xcvr 2	REV 01	740-011613	PFF2DDV	SFP-SX
Xcvr 5	REV 01	740-011613	P8E2SST	SFP-SX
Xcvr 9	REV 01	740-011782	PB8329N	SFP-SX
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-026192	1U0201084503342	SFP-100BASE-BX10-U
Xcvr 1	REV 01	740-026193	1U1201084503313	SFP-100BASE-BX10-D
Xcvr 2	REV 01	740-011613	PAJ4Y5B	SFP-SX
Xcvr 6	REV 01	740-011782	P9M0U3M	SFP-SX
Xcvr 7	REV 01	740-011782	P9M0TLA	SFP-SX
FPC 1	REV 16	750-031089	YL0719	MPC Type 2 3D
CPU	REV 06	711-030884	YL1463	MPC PMB 2G
MIC 0	REV 07	750-028387	JR6500	3D 4x 10GE XFP
PIC 0		BUILTIN	BUILTIN	2x 10GE XFP
Xcvr 0	REV 01	740-014279	733019A00154	XFP-10G-LR
Xcvr 1	REV 02	740-014289	T09F55034	XFP-10G-SR
PIC 1		BUILTIN	BUILTIN	2x 10GE XFP
Xcvr 0	REV 01	740-014279	913019B00791	XFP-10G-LR
Xcvr 1	REV 01	740-014289	98S803A90384	XFP-10G-SR
MIC 1	REV 24	750-028387	YJ3950	3D 4x 10GE XFP
PIC 2		BUILTIN	BUILTIN	2x 10GE XFP
Xcvr 0	REV 02	740-014279	T10B36134	XFP-10G-LR
Xcvr 1	REV 01	740-014289	T07M86354	XFP-10G-SR
PIC 3		BUILTIN	BUILTIN	2x 10GE XFP
FPC 2	REV 08	710-014219	JY9654	DPCE 4x 10GE R
CPU	REV 06	710-013713	JZ6549	DPC PMB
PIC 0		BUILTIN	BUILTIN	1x 10GE(LAN/WAN)
PIC 1		BUILTIN	BUILTIN	1x 10GE(LAN/WAN)
PIC 2		BUILTIN	BUILTIN	1x 10GE(LAN/WAN)
Xcvr 0	REV 03	740-011571	C931BK028	XFP-10G-SR
PIC 3		BUILTIN	BUILTIN	1x 10GE(LAN/WAN)
FPC 3	REV 10	750-024199	XJ6692	MX FPC Type 3
CPU	REV 03	710-022351	XF5182	DPC PMB
PIC 0	REV 17	750-009553	RJ2945	4x OC-48 SONET
Xcvr 1	REV 01	740-011785	PCP3YLL	SFP-SR
Xcvr 3	REV 01	740-011785	PDSOMRY	SFP-SR
PIC 1	REV 32	750-003700	DP2113	1x OC-192 12xMM VSR
FPC 5	REV 25	750-028467	YM8256	MPC 3D 16x 10GE
CPU	REV 10	711-029089	YL3029	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 1	REV 01	740-031980	AHNOX1Z	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
FPC 7	REV 02	750-031092	JR6658	MPC Type 1 3D Q
CPU	REV 01	711-030884	JZ9038	MPC PMB 2G
MIC 0	REV 08	750-028392	JZ8737	3D 20x 1GE(LAN) SFP
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-011782	PBE2C6Y	SFP-SX
Xcvr 2		NON-JNPR	U8105N8	SFP-SX
Xcvr 4	REV 01	740-011613	PFM18EF	SFP-SX
Xcvr 7	REV 01	740-011613	PFF2AM8	SFP-SX

Xcvr 8	REV 01	740-011613	PFF2CT6	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-011782	PB82VHH	SFP-SX
Xcvr 1	REV 01	740-011613	PFF2CSW	SFP-SX
Xcvr 9	REV 01	740-011613	PFF2BY0	SFP-SX
QXM 0	REV 04	711-028408	JR6372	MPC QXM
FPC 8	REV 05	750-024387	JW9754	MX FPC Type 2
CPU	REV 03	710-022351	KF1651	DPC PMB
PIC 0	REV 08	750-014730	DM3664	4x OC-3 1x OC-12 SFP
Xcvr 0	REV 01	740-016065	81S290N00077	SFP-SR
Xcvr 1		NON-JNPR	2191844	SFP-SR
Xcvr 2	REV 01	740-011618	PD81EE5	SFP-IR
PIC 1	REV 08	750-014637	DM3671	4x OC-12-3 SFP
Xcvr 0	REV 01	740-011785	PCK3UNK	SFP-SR
Xcvr 3	REV 01	740-011785	PDSOMPZ	SFP-SR
FPC 10	REV 04	710-013699	JY4654	DPCE 40x 1GE R
CPU	REV 05	710-013713	JS9717	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 5	REV 01	740-011782	PAR1L72	SFP-SX
Xcvr 6	REV 01	740-011782	P8N1YQ4	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN)
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN)
Xcvr 0	REV 01	740-011782	P8Q2AVL	SFP-SX
Xcvr 5	REV 01	740-011782	PAR1L7B	SFP-SX
Xcvr 6	REV 01	740-011782	PAR1L2J	SFP-SX
Xcvr 8	REV 01	740-011782	P8N1YMY	SFP-SX
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN)
Fan Tray 0	REV 03	740-014971	TP0567	Fan Tray
Fan Tray 1	REV 03	740-014971	TP0702	Fan Tray

show chassis hardware
models (MX960
Router with Enhanced
MX SCB)

user@host> show chassis hardware models
Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
Midplane	REV 03	710-013698	TR0183	CHAS-BP-MX960-S
Fan Extender	REV 02	710-018051	JY5227	ECM-MX960
FPM Board	REV 03	710-014974	JZ6876	CRAFT-MX960-S
Routing Engine 0	REV 06	740-013063	1000687969	RE-S-2000-4096-S
Routing Engine 1	REV 06	740-013063	1000687955	RE-S-2000-4096-S
CB 0	REV 11	750-031391	YZ6072	SCBE-MX-S
CB 1	REV 11	750-031391	YZ6068	SCBE-MX-S
CB 2	REV 11	750-031391	YZ6081	SCBE-MX-S
FPC 0	REV 01	750-018122	KA5576	DPCE-R-40GE-SFP
FPC 1	REV 16	750-031089	YL0719	MX-MPC2-3D
MIC 0	REV 07	750-028387	JR6500	MIC-3D-4XGE-XFP
MIC 1	REV 24	750-028387	YJ3950	MIC-3D-4XGE-XFP
FPC 2	REV 08	710-014219	JY9654	DPC-R-4XGE-XFP
FPC 3	REV 10	750-024199	XJ6692	MX-FPC3
PIC 0	REV 17	750-009553	RJ2945	PC-40C48-SON-SFP
PIC 1	REV 32	750-003700	DP2113	PC-10C192-SON-VSR
FPC 5	REV 25	750-028467	YM8256	MPC-3D-16XGE-SFPP
FPC 7	REV 02	750-031092	JR6658	MX-MPC1-3D-Q
MIC 0	REV 08	750-028392	JZ8737	MIC-3D-20GE-SFP
FPC 8	REV 05	750-024387	JW9754	MX-FPC2
PIC 0	REV 08	750-014730	DM3664	PB-40C3-10C12-SON2-SFP
PIC 1	REV 08	750-014637	DM3671	PB-40C3-40C12-SON-SFP
FPC 10	REV 04	710-013699	JY4654	DPC-R-40GE-SFP
Fan Tray 0	REV 03	740-014971	TP0567	FFANTRAY-MX960-S
Fan Tray 1	REV 03	740-014971	TP0702	FFANTRAY-MX960-S

**show chassis hardware
detail (MX960 Router)**

user@host> show chassis hardware detail

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis				MX960
Midplane	REV 01	710-013698	AA6082	MX960 Midplane
PIM	Rev 01	740-013110	000008	Power Inlet Module
PEM 2				
PEM 3	Rev 01	740-013682	000038	PS 1.7kW; 200-240VAC in
Routing Engine 0	REV 00	740-015113	1000617944	RE-S-1300
ad0	245 MB	SanDisk	SDCFB-256	111419E1805T1141 Compact Flash
ad2	38154 MB	FUJITSU	MHT2040BH	NROWT5925N77 Hard Disk
CB 0	REV 05	710-013725	JK6947	MX960 Test SCB
FPC 4	REV 01	710-013305	JM7617	MX960 Test DPC
CPU				
PIC 0		BUILTIN	BUILTIN	1x 10GE (LAN/WAN)
PIC 1		BUILTIN	BUILTIN	10x 1GE
FPC 7	REV 01	710-013305	JL9634	MX960 Test DPC
CPU				
PIC 0		BUILTIN	BUILTIN	1x 10GE (LAN/WAN)
Xcvr 0		NON-JNPR	MYBG65I82C	XFP-10G-SR
PIC 1		BUILTIN	BUILTIN	10x 1GE
Xcvr 1	REV 01	740-011782	P7N0368	SFP-SX
Xcvr 4	REV 01	740-011782	P8J1W27	SFP-SX
Xcvr 6	REV 01	740-011782	P8J1VSD	SFP-SX
Xcvr 9	REV 01	740-011782	P8J1W25	SFP-SX
Fan Tray 0				
Fan Tray 1				

**show chassis hardware
(MX2010 Router)**

user@host > show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN11E3217AFK	MX2010
Midplane	REV 01	750-044636	ABAB8506	Lower Backplane
Midplane 1	REV 01	711-044557	ZY8296	Upper Backplane
PMP	REV 03	711-032426	ACAJ1388	Power Midplane
FPM Board	REV 06	711-032349	ZX8744	Front Panel Display
PSM 4	REV 0C	740-033727	VK00254	DC 52V Power Supply
Module				
PSM 5	REV 0B	740-033727	VG00015	DC 52V Power Supply
Module				
PSM 6	REV 0B	740-033727	VH00097	DC 52V Power Supply
Module				
PSM 7	REV 0C	740-033727	VJ00151	DC 52V Power Supply
Module				
PSM 8	REV 0C	740-033727	VJ00149	DC 52V Power Supply
Module				
PDM 0	REV 0B	740-038109	WA00008	DC Power Dist Module
PDM 1	REV 0B	740-038109	WA00014	DC Power Dist Module
Routing Engine 0	REV 02	740-041821	9009094134	RE-S-1800x4
Routing Engine 1	REV 02	740-041821	9009094141	RE-S-1800x4
CB 0	REV 08	750-040257	CAAB3491	Control Board
CB 1	REV 08	750-040257	CAAB3489	Control Board
SPMB 0	REV 02	711-041855	CAAA6135	PMB Board
SPMB 1	REV 02	711-041855	CAAA6137	PMB Board
SFB 0	REV 06	711-032385	ZV1828	Switch Fabric Board
SFB 1	REV 07	711-032385	ZZ2568	Switch Fabric Board
SFB 2	REV 07	711-032385	ZZ2563	Switch Fabric Board
SFB 3	REV 07	711-032385	ZZ2564	Switch Fabric Board
SFB 4	REV 07	711-032385	ZZ2580	Switch Fabric Board
SFB 5	REV 07	711-032385	ZZ2579	Switch Fabric Board
SFB 6	REV 07	711-032385	CAAB4882	Switch Fabric Board

SFB 7	REV 07	711-032385	CAAB4898	Switch Fabric Board
FPC 0	REV 33	750-028467	CAAB1919	MPC 3D 16x 10GE
CPU	REV 11	711-029089	CAAB7174	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	AMH02RE	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	AMH038C	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	AMH0390	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	AMG0SUA	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	AMH0579	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	AMG0SGP	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	AMH04SV	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	AMH04X3	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	AMH0135	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	AMH02NC	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	AMH02XB	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	AMH02PN	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	AMH057Y	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	AMG0JHE	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	AMH02HT	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	AMH04V4	SFP+-10G-SR
FPC 1	REV 21	750-033205	ZG5027	MPC Type 3
CPU	REV 04	711-035209	YT4780	HMPC PMB 2G
MIC 0	REV 03	750-033307	ZV6299	10X10GE SFPP
PIC 0		BUILTIN	BUILTIN	10X10GE SFPP
Xcvr 0	REV 01	740-031980	083363A00410	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	083363A00334	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	113363A00125	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	083363A00953	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AHR013D	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	AJ40JUR	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJ40JKL	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	AJ30ECK	SFP+-10G-SR
Xcvr 8	REV 01	740-021308	19T511100864	SFP+-10G-SR
Xcvr 9	REV 01	740-021308	19T511100868	SFP+-10G-SR
MIC 1	REV 03	750-033307	ZV6268	10X10GE SFPP
PIC 2		BUILTIN	BUILTIN	10X10GE SFPP
Xcvr 0	REV 01	740-031980	AJCOJML	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AJ403PC	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJ10N25	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AJ40JF4	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AJ40JSJ	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	AJ403V7	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJ40JN3	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	AJ40JSU	SFP+-10G-SR
Xcvr 8	REV 01	740-021308	19T511100468	SFP+-10G-SR
Xcvr 9	REV 01	740-021308	19T511101363	SFP+-10G-SR
FPC 8	REV 22	750-031089	ZT9746	MPC Type 2 3D
CPU	REV 06	711-030884	ZS1271	MPC PMB 2G
MIC 0	REV 26	750-028392	ABBS1150	3D 20x 1GE(LAN) SFP
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-031851	PLG023C	SFP-SX
Xcvr 1	REV 01	740-031851	PLG09C6	SFP-SX
Xcvr 2	REV 02	740-011613	AM0950SF9L7	SFP-SX
Xcvr 3	REV 02	740-011613	AM1001SFN1H	SFP-SX
Xcvr 4	REV 02	740-011613	AM1001SFM9D	SFP-SX
Xcvr 5	REV 02	740-011613	AM1001SFLTJ	SFP-SX
Xcvr 6	REV 01	740-031851	AC1108S03L9	SFP-SX
Xcvr 7	REV 01	740-031851	AC1102S00NC	SFP-SX

Xcvr 8	REV 01	740-031851	AC1102S00MX	SFP-SX
Xcvr 9	REV 01	740-031851	AC1102S0085	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-031851	AC1102S00KU	SFP-SX
Xcvr 1	REV 01	740-031851	AC1102S00NG	SFP-SX
Xcvr 2	REV 01	740-031851	AC1102S00K3	SFP-SX
Xcvr 3	REV 01	740-031851	AC1102S008R	SFP-SX
Xcvr 4	REV 01	740-031851	AM1107SUFVJ	SFP-SX
Xcvr 5	REV 01	740-031851	AC1108S03LG	SFP-SX
MIC 1	REV 26	750-028387	ABBR9582	3D 4x 10GE XFP
PIC 2		BUILTIN	BUILTIN	2x 10GE XFP
Xcvr 0		NON-JNPR	T10A91703	XFP-10G-SR
Xcvr 1		NON-JNPR	T09L42604	XFP-10G-SR
PIC 3		BUILTIN	BUILTIN	2x 10GE XFP
FPC 9	REV 11	750-036284	ZL3591	MPC 3D 16x 10GE EM
CPU	REV 10	711-029089	ZL0513	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	1YT517101825	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	1YT517101821	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	1YT517101682	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	ALQ13R6	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	1YT517101828	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	1YT517101716	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	1YT517101732	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	ALP0TR1	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	1YT517101741	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	1YT517101829	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	1YT517101669	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	ALQ14E3	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	1YT517101826	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	1YT517101817	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	1YT517101735	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	ALQ159A	SFP+-10G-SR
ADC 0	REV 05	750-043596	CAAC2073	Adapter Card
ADC 1	REV 01	750-043596	ZV4117	Adapter Card
ADC 8	REV 01	750-043596	ZV4107	Adapter Card
ADC 9	REV 02	750-043596	ZW1555	Adapter Card
Fan Tray 0	REV 2A	760-046960	ACAY0015	172mm FanTray - 6 Fans
Fan Tray 1	REV 2A	760-046960	ACAY0019	172mm FanTray - 6 Fans
Fan Tray 2	REV 2A	760-046960	ACAY0020	172mm FanTray - 6 Fans
Fan Tray 3	REV 2A	760-046960	ACAY0021	172mm FanTray - 6 Fans

show chassis hardware
detail (MX2010
Router)

user@host > show chassis hardware detail
Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN11E233DAFK	MX2010
Midplane	REV 26	750-044636	ABAB9357	Lower Backplane
Midplane 1	REV 01	711-044557	ABAB8643	Upper Backplane
PMP	REV 04	711-032426	ACAJ1677	Power Midplane
FPM Board	REV 08	760-044634	ABBV9726	Front Panel Display
PSM 0	REV 01	740-045050	1E02224000P	DC 52V Power Supply
Module				
PSM 1	REV 01	740-045050	1E02224000M	DC 52V Power Supply
Module				
PSM 2	REV 01	740-045050	1E022240010	DC 52V Power Supply
Module				
PSM 3	REV 01	740-045050	1E02224000G	DC 52V Power Supply
Module				

PSM 4 Module	REV 01	740-045050	1E022240013	DC 52V Power Supply
PSM 5 Module	REV 01	740-045050	1E022240007	DC 52V Power Supply
PSM 6 Module	REV 01	740-045050	1E02224001C	DC 52V Power Supply
PSM 7 Module	REV 01	740-045050	1E02224001D	DC 52V Power Supply
PSM 8 Module	REV 01	740-045050	1E02224001B	DC 52V Power Supply
PDM 0	REV 01	740-045234	1E262250067	DC Power Dist Module
Routing Engine 0	REV 02	740-041821	9009099704	RE-S-1800x4
ad0 3831 MB		UGB30SFA4000T1	SFA4000T1 00000651	Compact Flash
ad1 30533 MB		UGB94BPH32H0S1-KCI	11000019592	Disk 1
usb0 (addr 1)		EHCI root hub 0	Intel	uhub0
usb0 (addr 2)		product 0x0020 32	vendor 0x8087	uhub1
DIMM 0		SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54	MFR ID-ce80	
DIMM 1		SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54	MFR ID-ce80	
DIMM 2		SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54	MFR ID-ce80	
DIMM 3		SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54	MFR ID-ce80	
Routing Engine 1	REV 02	740-041821	9009099706	RE-S-1800x4
ad0 3998 MB		Virtium - TuffDrive	VCF P1T0200262860208 114	Compact Flash
ad1 30533 MB		UGB94ARF32H0S3-KC	UNIGEN-499551-000404	Disk 1
CB 0	REV 13	750-040257	CAAF8436	Control Board
CB 1	REV 13	750-040257	CAAF8434	Control Board
SPMB 0	REV 02	711-041855	ABBV3825	PMB Board
SPMB 1	REV 02	711-041855	ABBV3833	PMB Board
SFB 0	REV 05	711-044466	ABBX5682	Switch Fabric Board
SFB 1	REV 05	711-044466	ABBX5676	Switch Fabric Board
SFB 2	REV 05	711-044466	ABBX5665	Switch Fabric Board
SFB 3	REV 05	711-044466	ABBX5699	Switch Fabric Board
SFB 4	REV 05	711-044466	ABBX5603	Switch Fabric Board
SFB 5	REV 05	711-044466	ABBX5587	Switch Fabric Board
SFB 6	REV 05	711-044466	ABBX5607	Switch Fabric Board
SFB 7	REV 05	711-044466	ABBX5669	Switch Fabric Board
FPC 0	REV 09	750-037355	CAAF0924	MPC Type 4-2
CPU	REV 08	711-035209	CAAB9842	HMPC PMB 2G
PIC 0		BUILTIN	BUILTIN	4x10GE SFPP
Xcvr 0	REV 01	740-021308	19T511101656	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AMA04RU	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	193363A00558	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B10M00202	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0		NON-JNPR	X12J00328	CFP-100G-SR10
PIC 2		BUILTIN	BUILTIN	4x10GE SFPP
Xcvr 0	REV 01	740-031980	AMA088W	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B10L04211	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	19T511101602	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B10L04151	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0		NON-JNPR	X12J00332	CFP-100G-SR10
FPC 1	REV 18	750-033205	ZE0128	MPC Type 3
CPU	REV 06	711-035209	ZG5431	HMPC PMB 2G
MIC 0	REV 15	750-033199	ZP6435	1X100GE CFP
PIC 0		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0	REV 01	740-032210	J11E46118	CFP-100G-LR4
MIC 1	REV 15	750-033199	ZP6442	1X100GE CFP
PIC 2		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0	REV 01	740-032210	UMN03T4	CFP-100G-LR4
FPC 2	REV 16	750-037358	CAAL1001	MPC Type 4-1
CPU	REV 08	711-035209	CAAK7927	HMPC PMB 2G

PIC 0		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	193363A00589	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00028	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	193363A00376	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00016	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	193363A00499	SFP+-10G-SR
Xcvr 5	REV 01	740-021308	973152A00039	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	B11E01239	SFP+-10G-SR
Xcvr 7	REV 01	740-021308	973152A00058	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	B10M00075	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00014	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AMA0638	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00063	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AMA0629	SFP+-10G-SR
Xcvr 5	REV 01	740-021308	973152A00053	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	193363A00344	SFP+-10G-SR
Xcvr 7	REV 01	740-021308	973152A00046	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	AMA062M	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00080	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	193363A00580	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00064	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	093363A01494	SFP+-10G-SR
Xcvr 5	REV 01	740-021308	973152A00020	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	123363A00047	SFP+-10G-SR
Xcvr 7	REV 01	740-021308	973152A00072	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-021308	03DZ06A01033	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00022	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	03DZ06A01026	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00013	SFP+-10G-SR
Xcvr 4	REV 01	740-021308	03DZ06A01028	SFP+-10G-SR
Xcvr 5	REV 01	740-021308	973152A00079	SFP+-10G-SR
Xcvr 6	REV 01	740-021308	03DZ06A01018	SFP+-10G-SR
Xcvr 7	REV 01	740-021308	973152A00025	SFP+-10G-SR
FPC 3	REV 33	750-028467	CAAF5400	MPC 3D 16x 10GE
CPU	REV 11	711-029089	CAAH7626	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	973152A00066	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00021	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	973152A00062	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00027	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	973152A00065	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00069	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	973152A00026	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00003	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	973152A00035	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00004	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	973152A00049	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00055	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	973152A00010	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	973152A00001	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	973152A00073	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	973152A00012	SFP+-10G-SR
FPC 4	REV 21	750-033205	ZG5028	MPC Type 3
CPU	REV 05	711-035209	YX3911	HMPC PMB 2G
MIC 0	REV 03	750-036233	ZL2036	2X40GE QSFP

PIC 0			BUILTIN	BUILTIN	2X40GE QSFP
Xcvr 0	REV 01	740-032986	QB220708	QSFP+-40G-SR4	
Xcvr 1	REV 01	740-032986	QB220735	QSFP+-40G-SR4	
MIC 1	REV 03	750-036233	ZL2028	2X40GE QSFP	
PIC 2			BUILTIN	BUILTIN	2X40GE QSFP
Xcvr 0	REV 01	740-032986	QB220727	QSFP+-40G-SR4	
Xcvr 1	REV 01	740-032986	QB220715	QSFP+-40G-SR4	
FPC 5	REV 11	750-037358	CAAE2196	MPC Type 4-1	
CPU	REV 08	711-035209	CAAD9074	HMPC PMB 2G	
PIC 0			BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	AMA062S	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	AMA062P	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	AMA052R	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	AMA0632	SFP+-10G-SR	
Xcvr 4	REV 01	740-031980	193363A00564	SFP+-10G-SR	
Xcvr 5	REV 01	740-031980	193363A00229	SFP+-10G-SR	
Xcvr 6	REV 01	740-031980	193363A00363	SFP+-10G-SR	
Xcvr 7	REV 01	740-031980	193363A00278	SFP+-10G-SR	
PIC 1			BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	AMA04CC	SFP+-10G-SR	
Xcvr 1	REV 01	740-021308	AD0927A001W	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	AMA04N2	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	AMA062U	SFP+-10G-SR	
Xcvr 4	REV 01	740-031980	193363A00491	SFP+-10G-SR	
Xcvr 5	REV 01	740-031980	183363A01511	SFP+-10G-SR	
Xcvr 6	REV 01	740-031980	193363A00565	SFP+-10G-SR	
Xcvr 7	REV 01	740-031980	193363A00405	SFP+-10G-SR	
PIC 2			BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	AMA07QX	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	AMA06MS	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	193363A00318	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	193363A00402	SFP+-10G-SR	
Xcvr 4	REV 01	740-031980	193363A00174	SFP+-10G-SR	
Xcvr 5	REV 01	740-031980	193363A00388	SFP+-10G-SR	
Xcvr 6	REV 01	740-031980	193363A00377	SFP+-10G-SR	
Xcvr 7	REV 01	740-031980	193363A00234	SFP+-10G-SR	
PIC 3			BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	AMA062T	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	193363A00550	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	193363A00364	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	AMA0630	SFP+-10G-SR	
Xcvr 4	REV 01	740-031980	193363A00509	SFP+-10G-SR	
Xcvr 5	REV 01	740-031980	193363A00459	SFP+-10G-SR	
Xcvr 6	REV 01	740-031980	113363A00191	SFP+-10G-SR	
Xcvr 7	REV 01	740-031980	193363A00352	SFP+-10G-SR	
FPC 6	REV 33	750-028467	CAAF5552	MPC 3D 16x 10GE	
CPU	REV 11	711-029089	CAAH7601	AMPC PMB	
PIC 0			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	AD0927A0036	SFP+-10G-SR	
Xcvr 1	REV 01	740-021308	AD0927A003M	SFP+-10G-SR	
Xcvr 2	REV 01	740-021308	AD0927A003G	SFP+-10G-SR	
Xcvr 3	REV 01	740-021308	AD0927A0031	SFP+-10G-SR	
PIC 1			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	193363A00331	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	193363A00325	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	193363A00417	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	183363A02509	SFP+-10G-SR	
PIC 2			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	T09K75140	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	B11A04356	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	B11K01952	SFP+-10G-SR	

Xcvr 3	REV 01	740-031980	B11K01914	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	T09K75157	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	T09K75194	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01926	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K01936	SFP+-10G-SR
FPC 7	REV 16	750-037358	CAAL1012	MPC Type 4-1
CPU	REV 08	711-035209	CAAJ3851	HMPC PMB 2G
PIC 0		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	AMA04NK	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11F00260	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11E02192	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AMA04CP	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AJ40JJK	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11F00238	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	B10M00275	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	193363A00211	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	B11D05577	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11G00586	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AMA08B7	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AMA04Q0	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	B11D05840	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11E00467	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	B11E00029	SFP+-10G-SR
Xcvr 7	REV 01	740-021308	19T511101712	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-031980	193363A00568	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B10M00166	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B10M00212	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11D05823	SFP+-10G-SR
Xcvr 4	REV 01	740-021308	03DZ06A01005	SFP+-10G-SR
Xcvr 5	REV 01	740-021308	03DZ06A01003	SFP+-10G-SR
Xcvr 6	REV 01	740-021308	03DZ06A01009	SFP+-10G-SR
Xcvr 7	REV 01	740-021308	03DZ06A01004	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	8X10GE SFPP
Xcvr 0	REV 01	740-021308	03DZ06A01017	SFP+-10G-SR
Xcvr 1	REV 01	740-021308	03DZ06A01016	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	03DZ06A01024	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	03DZ06A01008	SFP+-10G-SR
Xcvr 4	REV 01	740-030658	AD0946A02UH	SFP+-10G-USR
Xcvr 5	REV 01	740-021308	T09J67913	SFP+-10G-SR
Xcvr 6	REV 01	740-021308	AD0837ES09G	SFP+-10G-SR
Xcvr 7	REV 01	740-021308	03DZ06A01015	SFP+-10G-SR
FPC 8	REV 03	750-045372	CAAD3111	MPC Type 3
CPU	REV 08	711-035209	CAAD8033	HMPC PMB 2G
MIC 0	REV 03	750-036233	ZL2032	2X40GE QSFP
PIC 0		BUILTIN	BUILTIN	2X40GE QSFP
Xcvr 0	REV 01	740-032986	QB230273	QSFP+-40G-SR4
Xcvr 1	REV 01	740-032986	QB230254	QSFP+-40G-SR4
MIC 1	REV 03	750-036233	ZL2021	2X40GE QSFP
PIC 2		BUILTIN	BUILTIN	2X40GE QSFP
Xcvr 0	REV 01	740-032986	QB390962	QSFP+-40G-SR4
Xcvr 1	REV 01	740-032986	QB390960	QSFP+-40G-SR4
FPC 9	REV 09	750-037355	CAAF1531	MPC Type 4-2
CPU	REV 08	711-035209	CAAB9927	HMPC PMB 2G
PIC 0		BUILTIN	BUILTIN	4x10GE SFPP
Xcvr 0	REV 01	740-031980	193363A00525	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	193363A00504	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	193363A00368	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AJ40JSS	SFP+-10G-SR

PIC 1		BUILTIN	BUILTIN	1X100GE CFP
PIC 2		BUILTIN	BUILTIN	4x10GE SFPP
Xcvr 0	REV 01	740-031980	123363A00042	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B10M00023	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJ802EM	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11E02348	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	1X100GE CFP
ADC 0	REV 13	750-043596	ABBX5532	Adapter Card
ADC 1	REV 13	750-043596	ABBX5550	Adapter Card
ADC 2	REV 13	750-043596	ABBX5571	Adapter Card
ADC 3	REV 13	750-043596	ABBX5568	Adapter Card
ADC 4	REV 13	750-043596	ABBX5556	Adapter Card
ADC 5	REV 13	750-043596	ABBX5553	Adapter Card
ADC 6	REV 13	750-043596	ABBX5541	Adapter Card
ADC 7	REV 13	750-043596	ABBX5578	Adapter Card
ADC 8	REV 13	750-043596	ABBX5560	Adapter Card
ADC 9	REV 07	750-043596	ABBV7188	Adapter Card
Fan Tray 0	REV 03	760-046960	ACAY0127	172mm FanTray - 6 Fans
Fan Tray 1	REV 2A	760-046960	ACAY0068	172mm FanTray - 6 Fans
Fan Tray 2	REV 2A	760-046960	ACAY0072	172mm FanTray - 6 Fans
Fan Tray 3	REV 2A	760-046960	ACAY0070	172mm FanTray - 6 Fans

**show chassis hardware
extensive (MX2010
Router)**

```

user@host > show chassis hardware extensive
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis
Jedec Code:   0x7fb0          EEPROM Version: 0x02
S/N:          JN11E233DAFK
Assembly ID:  0x0557          Assembly Version: 00.00
Date:         00-00-0000      Assembly Flags:  0x00
ID: MX2010
Board Information Record:
Address 0x00: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
I2C Hex Data:
Address 0x00: 7f b0 02 ff 05 57 00 00 00 00 00 00 00 00 00 00
Address 0x10: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x20: 4a 4e 31 31 45 32 33 33 44 41 46 4b 00 00 00 00
Address 0x30: 00 00 00 ff 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Midplane     REV 26    750-044636  ABAB9357      Lower Backplane
Jedec Code:   0x7fb0          EEPROM Version: 0x02
P/N:         750-044636      S/N:          S/N ABAB9357
Assembly ID:  0x0b66          Assembly Version: 01.26
Date:         08-28-2012      Assembly Flags: 0x00
Version:      REV 26         CLEI Code:    PROTOXCLEI
ID: Lower Backplane          FRU Model Number: PROTO-ASSEMBLY
Board Information Record:
Address 0x00: ad 01 08 00 2c 21 72 70 a0 00 ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 66 01 1a 52 45 56 20 32 36 00 00
Address 0x10: 00 00 00 00 37 35 30 2d 30 34 34 36 33 36 00 00
Address 0x20: 53 2f 4e 20 41 42 41 42 39 33 35 37 00 1c 08 07
Address 0x30: dc ff ff ff ad 01 08 00 2c 21 72 70 a0 00 ff ff
Address 0x40: ff ff ff ff 01 50 52 4f 54 4f 58 43 4c 45 49 50
Address 0x50: 52 4f 54 4f 2d 41 53 53 45 4d 42 4c 59 00 00 00
Address 0x60: 00 00 00 00 00 00 41 30 30 ff ff ff ff ff ff ff
Address 0x70: ff ff ff c2 ff ff ff ff ff ff ff ff ff ff ff ff
Midplane 1    REV 01    711-044557  ABAB8643      Upper Backplane

```

```

Jedec Code: 0x7fb0      EEPROM Version: 0x01
P/N: 711-044557        S/N: S/N ABAB8643
Assembly ID: 0x0b65     Assembly Version: 01.01
Date: 07-27-2012       Assembly Flags: 0x00
Version: REV 01
ID: Upper Backplane
Board Information Record:
  Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
  Address 0x00: 7f b0 01 ff 0b 65 01 01 52 45 56 20 30 31 00 00
  Address 0x10: 00 00 00 00 37 31 31 2d 30 34 34 35 35 37 00 00
  Address 0x20: 53 2f 4e 20 41 42 41 42 38 36 34 33 00 1b 07 07
  Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x40: ff ff ff ff 00 ff ff ff ff ff ff ff ff ff ff ff
  Address 0x50: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x60: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x70: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
PMP REV 04 711-032426 ACAJ1677 Power Midplane
Jedec Code: 0x7fb0      EEPROM Version: 0x01
P/N: 711-032426        S/N: S/N ACAJ1677
Assembly ID: 0x045d     Assembly Version: 01.04
Date: 07-20-2012       Assembly Flags: 0x00
Version: REV 04
ID: Power Midplane
Board Information Record:
  Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
  Address 0x00: 7f b0 01 ff 04 5d 01 04 52 45 56 20 30 34 00 00
  Address 0x10: 00 00 00 00 37 31 31 2d 30 33 32 34 32 36 00 00
  Address 0x20: 53 2f 4e 20 41 43 41 4a 31 36 37 37 00 14 07 07
  Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x40: ff ff ff ff 00 ff ff ff ff ff ff ff ff ff ff ff
  Address 0x50: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x60: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x70: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
FPM Board REV 08 760-044634 ABBV9726 Front Panel Display
Jedec Code: 0x7fb0      EEPROM Version: 0x02
P/N: 760-044634        S/N: S/N ABBV9726
Assembly ID: 0x0b64     Assembly Version: 01.08
Date: 09-10-2012       Assembly Flags: 0x00
Version: REV 08        CLEI Code: IPMYA4EJRA
ID: Front Panel Display FRU Model Number: MX2010-CRAFT-S
Board Information Record:
  Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
  Address 0x00: 7f b0 02 ff 0b 64 01 08 52 45 56 20 30 38 00 00
  Address 0x10: 00 00 00 00 37 36 30 2d 30 34 34 36 33 34 00 00
  Address 0x20: 53 2f 4e 20 41 42 42 56 39 37 32 36 00 0a 09 07
  Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x40: ff ff ff ff 01 49 50 4d 59 41 34 45 4a 52 41 4d
  Address 0x50: 58 32 30 31 30 2d 43 52 41 46 54 2d 53 00 00 00
  Address 0x60: 00 00 00 00 00 00 41 00 00 ff ff ff ff ff ff ff
  Address 0x70: ff ff ff 93 ff ff ff ff ff ff ff ff ff ff ff ff
PSM 0 REV 01 740-045050 1E02224000P DC 52V Power Supply
Module
Jedec Code: 0x7fb0      EEPROM Version: 0x02
P/N: 740-045050        S/N: 1E02224000P
Assembly ID: 0x0478     Assembly Version: 01.01
Date: 12-06-2012       Assembly Flags: 0x00
Version: REV 01        CLEI Code: XXXXXXXXXX
ID: DC 52V Power Supply Module FRU Model Number: MX2000-PSM-HC-DC-S-A

```

Board Information Record:

Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff

I2C Hex Data:

Address 0x00: 7f b0 02 ff 04 78 01 01 52 45 56 20 30 31 00 00

Address 0x10: 00 00 00 00 37 34 30 2d 30 34 35 30 35 30 00 00

Address 0x20: 31 45 30 32 32 32 34 30 30 30 50 00 00 06 0c 07

Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff

Address 0x40: ff ff ff ff 01 58 58 58 58 58 58 58 58 58 58 4d

Address 0x50: 58 32 30 30 30 2d 50 53 4d 2d 48 43 2d 44 43 2d

Address 0x60: 53 2d 41 00 00 00 31 30 31 ff ff ff ff ff ff ff

Address 0x70: ff ff ff 4a 00 00 00 00 00 00 00 00 00 00 00 00

PSM 1 REV 01 740-045050 1E02224000M DC 52V Power Supply Module

Jedec Code: 0x7fb0

EEPROM Version: 0x02

P/N: 740-045050

S/N: 1E02224000M

Assembly ID: 0x0478

Assembly Version: 01.01

Date: 12-06-2012

Assembly Flags: 0x00

Version: REV 01

CLEI Code: XXXXXXXXXX

ID: DC 52V Power Supply Module FRU Model Number: MX2000-PSM-HC-DC-S-A

Board Information Record:

Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff

I2C Hex Data:

Address 0x00: 7f b0 02 ff 04 78 01 01 52 45 56 20 30 31 00 00

Address 0x10: 00 00 00 00 37 34 30 2d 30 34 35 30 35 30 00 00

Address 0x20: 31 45 30 32 32 32 34 30 30 30 4d 00 00 06 0c 07

Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff

Address 0x40: ff ff ff ff 01 58 58 58 58 58 58 58 58 58 58 4d

Address 0x50: 58 32 30 30 30 2d 50 53 4d 2d 48 43 2d 44 43 2d

Address 0x60: 53 2d 41 00 00 00 31 30 31 ff ff ff ff ff ff ff

Address 0x70: ff ff ff 4a 00 00 00 00 00 00 00 00 00 00 00 00

...

PDM 0 REV 01 740-045234 1E262250067 DC Power Dist Module

Jedec Code: 0x7fb0

EEPROM Version: 0x02

P/N: 740-045234

S/N: 1E262250067

Assembly ID: 0x047b

Assembly Version: 01.01

Date: 06-28-2012

Assembly Flags: 0x00

Version: REV 01

CLEI Code: IPUPAJSKAA

ID: DC Power Dist Module

FRU Model Number: MX2000-PDM-DC-S-A

Board Information Record:

Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff

I2C Hex Data:

Address 0x00: 7f b0 02 ff 04 7b 01 01 52 45 56 20 30 31 00 00

Address 0x10: 00 00 00 00 37 34 30 2d 30 34 35 32 33 34 00 00

Address 0x20: 31 45 32 36 32 32 35 30 30 36 37 00 00 1c 06 07

Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff

Address 0x40: ff ff ff ff 01 49 50 55 50 41 4a 53 4b 41 41 4d

Address 0x50: 58 32 30 30 30 2d 50 44 4d 2d 44 43 2d 53 2d 41

Address 0x60: 00 00 00 00 00 00 31 30 31 ff ff ff ff ff ff ff

Address 0x70: ff ff ff 89 00 00 00 00 00 00 00 00 00 00 00 00

Routing Engine 0 REV 02 740-041821 9009099704 RE-S-1800x4

Jedec Code: 0x7fb0

EEPROM Version: 0x02

P/N: 740-041821

S/N: 9009099704

Assembly ID: 0x09c0

Assembly Version: 01.02

Date: 03-15-2012

Assembly Flags: 0x00

Version: REV 02

ID: RE-S-1800x4

FRU Model Number: RE-S-1800X4-16G-S

Board Information Record:

Address 0x00: 54 32 30 32 37 44 41 2d 34 34 47 42 23 41 23 00

I2C Hex Data:

Address 0x00: 7f b0 02 ff 09 c0 01 02 52 45 56 20 30 32 00 00

Address 0x10: 00 00 00 00 37 34 30 2d 30 34 31 38 32 31 00 00

```

Address 0x20: 39 30 30 39 30 39 39 37 30 34 00 00 00 0f 03 07
Address 0x30: dc ff ff ff 54 32 30 32 37 44 41 2d 34 34 47 42
Address 0x40: 23 41 23 00 01 00 00 00 00 00 00 00 00 00 00 52
Address 0x50: 45 2d 53 2d 31 38 30 30 58 34 2d 31 36 47 2d 53
Address 0x60: 00 00 00 00 00 00 41 30 30 ff ff ff ff ff ff ff
Address 0x70: ff ff ff 8c ff ff ff ff ff ff ff ff ff ff ff ff
ad0    3831 MB   UGB30SFA4000T1      SFA4000T1 00000651 Compact Flash
ad1    30533 MB UGB94BPH32H0S1-KCI  11000019592      Disk 1
usb0 (addr 1) EHCI root hub 0      Intel      uhub0
usb0 (addr 2) product 0x0020 32     vendor 0x8087    uhub1
DIMM 0      SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54 MFR ID-ce80
DIMM 1      SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54 MFR ID-ce80
DIMM 2      SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54 MFR ID-ce80
DIMM 3      SGU04G72H1BD2SA-BB DIE REV-52 PCB REV-54 MFR ID-ce80
Routing Engine 1 REV 02   740-041821   9009099706      RE-S-1800x4
Jedec Code: 0x7fb0      EEPROM Version: 0x02
P/N:      740-041821    S/N:      9009099706
Assembly ID: 0x09c0     Assembly Version: 01.02
Date:     02-23-2012   Assembly Flags: 0x00
Version:   REV 02
ID: RE-S-1800x4      FRU Model Number: RE-S-1800X4-16G-S
Board Information Record:
Address 0x00: 54 32 30 32 37 44 41 2d 34 34 47 42 23 41 23 00
I2C Hex Data:
Address 0x00: 7f b0 02 ff 09 c0 01 02 52 45 56 20 30 32 00 00
Address 0x10: 00 00 00 00 37 34 30 2d 30 34 31 38 32 31 00 00
Address 0x20: 39 30 30 39 30 39 39 37 30 36 00 00 00 17 02 07
Address 0x30: dc ff ff ff 54 32 30 32 37 44 41 2d 34 34 47 42
Address 0x40: 23 41 23 00 01 00 00 00 00 00 00 00 00 00 00 52
Address 0x50: 45 2d 53 2d 31 38 30 30 58 34 2d 31 36 47 2d 53
Address 0x60: 00 00 00 00 00 00 41 30 30 ff ff ff ff ff ff ff
Address 0x70: ff ff ff 8c ff ff ff ff ff ff ff ff ff ff ff ff
ad0    3998 MB   Virtium - TuffDrive VCF P1T0200262860208 114 Compact Flash
ad1    30533 MB UGB94ARF32H0S3-KC  UNIGEN-499551-000404 Disk 1
CB 0      REV 13   750-040257   CAAF8436      Control Board
Jedec Code: 0x7fb0      EEPROM Version: 0x02
P/N:      750-040257   S/N:      S/N CAAF8436
Assembly ID: 0x0b26     Assembly Version: 01.13
Date:     08-29-2012   Assembly Flags: 0x00
Version:   REV 13     CLEI Code:  PROTOXCLEI
ID: Control Board      FRU Model Number:  PROTO-ASSEMBLY
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 26 01 0d 52 45 56 20 31 33 00 00
Address 0x10: 00 00 00 00 37 35 30 2d 30 34 30 32 35 37 00 00
Address 0x20: 53 2f 4e 20 43 41 41 46 38 34 33 36 00 1d 08 07
Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 01 50 52 4f 54 4f 58 43 4c 45 49 50
Address 0x50: 52 4f 54 4f 2d 41 53 53 45 4d 42 4c 59 00 00 00
Address 0x60: 00 00 00 00 00 00 41 30 30 ff ff ff ff ff ff ff
Address 0x70: ff ff ff c2 ff ff ff ff ff ff ff ff ff ff ff ff
...
SPMB 0      REV 02   711-041855   ABBV3825      PMB Board
Jedec Code: 0x7fb0      EEPROM Version: 0x01
P/N:      711-041855   S/N:      S/N ABBV3825
Assembly ID: 0x0b29     Assembly Version: 01.02
Date:     08-14-2012   Assembly Flags: 0x00
Version:   REV 02
ID: PMB Board
Board Information Record:

```

```

Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 01 ff 0b 29 01 02 52 45 56 20 30 32 00 00
Address 0x10: 00 00 00 00 37 31 31 2d 30 34 31 38 35 35 00 00
Address 0x20: 53 2f 4e 20 41 42 42 56 33 38 32 35 00 0e 08 07
Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 00 ff ff ff ff ff ff ff ff ff ff
Address 0x50: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x60: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x70: ff ff ff ff 00 00 00 00 00 00 00 00 00 00 00 00
...
SFB 0          REV 05    711-044466  ABBX5682          Switch Fabric Board
Jedec Code:    0x7fb0          EEPROM Version:    0x02
P/N:           711-044466      S/N:              S/N ABBX5682
Assembly ID:   0x0b25          Assembly Version:  01.05
Date:          09-07-2012      Assembly Flags:    0x00
Version:       REV 05          CLEI Code:         PROTOXCLEI
ID: Switch Fabric Board        FRU Model Number:  PROTO-ASSEMBLY
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 25 01 05 52 45 56 20 30 35 00 00
Address 0x10: 00 00 00 00 37 31 31 2d 30 34 34 34 36 36 00 00
Address 0x20: 53 2f 4e 20 41 42 42 58 35 36 38 32 00 07 09 07
Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 01 50 52 4f 54 4f 58 43 4c 45 49 50
Address 0x50: 52 4f 54 4f 2d 41 53 53 45 4d 42 4c 59 00 00 00
Address 0x60: 00 00 00 00 00 00 41 30 30 ff ff ff ff ff ff
Address 0x70: ff ff ff c2 00 00 00 01 00 00 00 00 00 00 48 00
...
FPC 0          REV 09    750-037355  CAAF0924          MPC Type 4-2
Jedec Code:    0x7fb0          EEPROM Version:    0x02
P/N:           750-037355      S/N:              S/N CAAF0924
Assembly ID:   0x0b4e          Assembly Version:  01.09
Date:          05-21-2012      Assembly Flags:    0x00
Version:       REV 09          CLEI Code:         PROTOXCLEI
ID: MPC Type 4-2              FRU Model Number:  MPC4E-2CGE-8XGE
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 4e 01 09 52 45 56 20 30 39 00 00
Address 0x10: 00 00 00 00 37 35 30 2d 30 33 37 33 35 35 00 00
Address 0x20: 53 2f 4e 20 43 41 41 46 30 39 32 34 00 15 05 07
Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 01 50 52 4f 54 4f 58 43 4c 45 49 4d
Address 0x50: 50 43 34 45 2d 32 43 47 45 2d 38 58 47 45 00 00
Address 0x60: 00 00 00 00 00 00 30 39 00 ff ff ff ff ff ff
Address 0x70: ff ff ff c6 ff ff ff ff ff ff ff ff ff ff ff
CPU          REV 08    711-035209  CAAB9842          HMPC PMB 2G
Jedec Code:    0x7fb0          EEPROM Version:    0x01
P/N:           711-035209      S/N:              S/N CAAB9842
Assembly ID:   0x0b04          Assembly Version:  01.08
Date:          05-17-2012      Assembly Flags:    0x00
Version:       REV 08
ID: HMPC PMB 2G
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 01 ff 0b 04 01 08 52 45 56 20 30 38 00 00
Address 0x10: 00 00 00 00 37 31 31 2d 30 33 35 32 30 39 00 00
Address 0x20: 53 2f 4e 20 43 41 41 42 39 38 34 32 00 11 05 07

```

```

Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 00 ff ff ff ff ff ff ff ff ff ff
Address 0x50: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x60: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x70: ff ff ff ff 00 00 00 00 00 00 00 00 00 00 00
PIC 0          BUILTIN          BUILTIN          4x10GE SFPP
Jedec Code:    0x0000          EEPROM Version: 0x00
P/N:          BUILTIN          S/N:          BUILTIN
Assembly ID:   0x0a53          Assembly Version: 00.00
Date:          00-00-0000      Assembly Flags: 0x00
ID: 4x10GE SFPP
Board Information Record:
Address 0x00: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
I2C Hex Data:
Address 0x00: 00 00 00 00 0a 53 00 00 00 00 00 00 00 00 00
Address 0x10: 00 00 00 00 42 55 49 4c 54 49 4e 00 4d 58 43 00
Address 0x20: 42 55 49 4c 54 49 4e 00 4d 58 43 00 00 00 00 00
Address 0x30: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x70: 00 00 00 00 c0 02 ae 64 00 00 00 00 0a 52 00 00
Xcvr 0        REV 01    740-021308    19T511101656    SFP+-10G-SR
Xcvr 1        REV 01    740-031980    AMA04RU        SFP+-10G-SR
Xcvr 2        REV 01    740-031980    193363A00558   SFP+-10G-SR
Xcvr 3        REV 01    740-031980    B10M00202      SFP+-10G-SR
...
ADC 0         REV 13    750-043596    ABBX5532      Adapter Card
Jedec Code:    0x7fb0          EEPROM Version: 0x02
P/N:          750-043596      S/N:          S/N ABBX5532
Assembly ID:   0x0b3d          Assembly Version: 01.13
Date:          09-12-2012      Assembly Flags: 0x00
Version:       REV 13          CLEI Code:     IPUCBA8CAA
ID: Adapter Card              FRU Model Number: MX2000-LC-ADAPTER
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 3d 01 0d 52 45 56 20 31 33 00 00
Address 0x10: 00 00 00 00 37 35 30 2d 30 34 33 35 39 36 00 00
Address 0x20: 53 2f 4e 20 41 42 42 58 35 35 33 32 00 0c 09 07
Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 01 49 50 55 43 42 41 38 43 41 41 4d
Address 0x50: 58 32 30 30 30 2d 4c 43 2d 41 44 41 50 54 45 52
Address 0x60: 00 00 00 00 00 00 41 00 00 ff ff ff ff ff ff ff
Address 0x70: ff ff ff 3a 00 00 00 00 00 00 00 00 00 00 00 00
...

```

**show chassis hardware
models (MX2010
Router)**

user@host > show chassis hardware models

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
FPM Board	REV 06	711-032349	ZX8744	711-032349
PSM 4	REV 0C	740-033727	VK00254	000000000000000000000000
PSM 5	REV 0B	740-033727	VG00015	000000000000000000000000
PSM 6	REV 0B	740-033727	VH00097	000000000000000000000000
PSM 7	REV 0C	740-033727	VJ00151	000000000000000000000000
PSM 8	REV 0C	740-033727	VJ00149	000000000000000000000000
PDM 0	REV 0B	740-038109	WA00008	
PDM 1	REV 0B	740-038109	WA00014	
Routing Engine 0	REV 02	740-041821	9009094134	RE-S-1800X4-16G-S
Routing Engine 1	REV 02	740-041821	9009094141	RE-S-1800X4-16G-S
CB 0	REV 08	750-040257	CAAB3491	750-040257

CB 1	REV 08	750-040257	CAAB3489	750-040257
SFB 0	REV 06	711-032385	ZV1828	711-032385
SFB 1	REV 07	711-032385	ZZ2568	711-032385
SFB 2	REV 07	711-032385	ZZ2563	711-032385
SFB 3	REV 07	711-032385	ZZ2564	711-032385
SFB 4	REV 07	711-032385	ZZ2580	711-032385
SFB 5	REV 07	711-032385	ZZ2579	711-0323856
SFB 6	REV 07	711-032385	CAAB4882	711-044170
SFB 7	REV 07	711-032385	CAAB4898	711-044170
FPC 0	REV 33	750-028467	CAAB1919	MPC-3D-16XGE-SFPP
FPC 1	REV 21	750-033205	ZG5027	MX-MPC3-3D
MIC 0	REV 03	750-033307	ZV6299	MIC3-3D-10XGE-SFPP
MIC 1	REV 03	750-033307	ZV6268	MIC3-3D-10XGE-SFPP
FPC 8	REV 22	750-031089	ZT9746	MX-MPC2-3D
MIC 0	REV 26	750-028392	ABBS1150	MIC-3D-20GE-SFP
MIC 1	REV 26	750-028387	ABBR9582	MIC-3D-4XGE-XFP
FPC 9	REV 11	750-036284	ZL3591	MPCE-3D-16XGE-SFPP
ADC 0	REV 05	750-043596	CAAC2073	750-043596
ADC 1	REV 01	750-043596	ZV4117	750-043596
ADC 8	REV 01	750-043596	ZV4107	750-043596
ADC 9	REV 02	750-043596	ZW1555	750-043596
Fan Tray 0	REV 2A	760-046960	ACAY0015	
Fan Tray 1	REV 2A	760-046960	ACAY0019	
Fan Tray 2	REV 2A	760-046960	ACAY0020	
Fan Tray 3	REV 2A	760-046960	ACAY0021	

show chassis hardware
clei-models (MX2010
Routers)

user@host > show chassis hardware clei-models

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
FPM Board	REV 06	711-032349	PROTOXCLEI	711-032349
PSM 4	REV 0C	740-033727	0000000000	000000000000000000000000
PSM 5	REV 0B	740-033727	0000000000	000000000000000000000000
PSM 6	REV 0B	740-033727	0000000000	000000000000000000000000
PSM 7	REV 0C	740-033727	0000000000	000000000000000000000000
PSM 8	REV 0C	740-033727	0000000000	000000000000000000000000
PDM 0	REV 0B	740-038109		
PDM 1	REV 0B	740-038109		
Routing Engine 0	REV 02	740-041821		RE-S-1800X4-16G-S
Routing Engine 1	REV 02	740-041821		RE-S-1800X4-16G-S
CB 0	REV 08	750-040257	PROTOXCLEI	750-040257
CB 1	REV 08	750-040257	PROTOXCLEI	750-040257
SFB 0	REV 06	711-032385	PROTOXCLEI	711-032385
SFB 1	REV 07	711-032385	PROTOXCLEI	711-032385
SFB 2	REV 07	711-032385	PROTOXCLEI	711-032385
SFB 3	REV 07	711-032385	PROTOXCLEI	711-032385
SFB 4	REV 07	711-032385	PROTOXCLEI	711-032385
SFB 5	REV 07	711-032385	PROTOXCLEI	711-0323856
SFB 6	REV 07	711-032385	PROTOXCLEI	711-044170
SFB 7	REV 07	711-032385	PROTOXCLEI	711-044170
FPC 0	REV 33	750-028467		MPC-3D-16XGE-SFPP
FPC 1	REV 21	750-033205		MX-MPC3-3D
MIC 0	REV 03	750-033307	PROTOXCLEI	MIC3-3D-10XGE-SFPP
MIC 1	REV 03	750-033307	PROTOXCLEI	MIC3-3D-10XGE-SFPP
FPC 8	REV 22	750-031089	COUIBAYBAA	MX-MPC2-3D
MIC 0	REV 26	750-028392	COUIA15BAA	MIC-3D-20GE-SFP
MIC 1	REV 26	750-028387	COUIA16BAA	MIC-3D-4XGE-XFP
FPC 9	REV 11	750-036284	CMUIACGBAA	MPCE-3D-16XGE-SFPP
ADC 0	REV 05	750-043596	PROTOXCLEI	750-043596
ADC 1	REV 01	750-043596	PROTOXCLEI	750-043596
ADC 8	REV 01	750-043596	PROTOXCLEI	750-043596
ADC 9	REV 02	750-043596	PROTOXCLEI	750-043596

```

Fan Tray 0      REV 2A  760-046960
Fan Tray 1      REV 2A  760-046960
Fan Tray 2      REV 2A  760-046960
Fan Tray 3      REV 2A  760-046960

```

show chassis hardware
(MX2020 Router)

```
user@host > show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis			JN11E2227AFJ	MX2020
Midplane				
Midplane 1	REV 27	750-040240	ABAB9384	Lower Power Midplane
PMP 1	REV 04	711-032386	ABAB9386	Upper Backplane
PMP 0	REV 05	711-032428	ACAJ1579	Upper Power Midplane
FPM Board	REV 04	711-032426	ACAJ1524	Lower Power Midplane
PSM 0	REV 06	760-040242	ABBT8837	Front Panel Display
Module				
PSM 1	REV 01	740-045050	1E022240056	DC 52V Power Supply
Module				
PSM 2	REV 01	740-045050	1E022240054	DC 52V Power Supply
Module				
PSM 3	REV 01	740-045050	1E02224005H	DC 52V Power Supply
Module				
PSM 4	REV 01	740-045050	1E022240053	DC 52V Power Supply
Module				
PSM 7	REV 01	740-045050	1E02224004K	DC 52V Power Supply
Module				
PSM 8	REV 01	740-045050	1E02224006W	DC 52V Power Supply
Module				
PSM 9	REV 01	740-045050	1E022240062	DC 52V Power Supply
Module				
PSM 10	REV 01	740-045050	1E02224005B	DC 52V Power Supply
Module				
PSM 11	REV 01	740-045050	1E02224005A	DC 52V Power Supply
Module				
PSM 12	REV 01	740-045050	1E022240052	DC 52V Power Supply
Module				
PSM 13	REV 01	740-045050	1E022240051	DC 52V Power Supply
Module				
PSM 14	REV 01	740-045050	1E022240058	DC 52V Power Supply
Module				
PSM 15	REV 01	740-045050	1E02224004L	DC 52V Power Supply
Module				
PSM 16	REV 01	740-045050	1E02224005M	DC 52V Power Supply
Module				
PSM 17	REV 01	740-045050	1E02224006S	DC 52V Power Supply
Module				
PDM 0	REV 01	740-045050	1E02224005Z	DC 52V Power Supply
PDM 1	REV 01	740-045234	1E012150033	DC Power Dist Module
PDM 2	REV 01	740-045234	1E012150027	DC Power Dist Module
PDM 3	REV 01	740-045234	1E012150028	DC Power Dist Module
PDM 3	REV 01	740-045234	1E012150045	DC Power Dist Module
Routing Engine 0	REV 02	740-041821	9009089704	RE-S-1800x4
Routing Engine 1	REV 02	740-041821	9009094138	RE-S-1800x4
CB 0	REV 14	750-040257	CAAF8430	Control Board
CB 1	REV 08	750-040257	CAAB3482	Control Board
SPMB 0	REV 01	711-041855	ZS2290	PMB Board
SPMB 1	REV 02	711-041855	CAAA6141	PMB Board
SFB 0	REV 03	711-044466	ABBV6789	Switch Fabric Board
SFB 1	REV 05	711-044466	ABBX5666	Switch Fabric Board
SFB 2	REV 05	711-044466	ABBX5678	Switch Fabric Board
SFB 3	REV 05	711-044466	ABBX5687	Switch Fabric Board
SFB 4	REV 05	711-044466	ABBX5609	Switch Fabric Board

SFB 5	REV 05	711-044466	ABBX5675	Switch Fabric Board
SFB 6	REV 03	711-044466	ABBV6805	Switch Fabric Board
SFB 7	REV 05	711-044466	ABBX5701	Switch Fabric Board
FPC 0	REV 30	750-028467	ABBN0284	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0507	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00990	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E04357	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01327	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E04375	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02760	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02904	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E03963	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E00756	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04418	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01077	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01128	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01253	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E01140	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11F01626	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01075	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01177	SFP+-10G-USR
FPC 1	REV 30	750-028467	ABBN0208	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBJ1084	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04745	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11F01570	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E04388	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01439	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04739	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11F01869	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01675	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01901	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01346	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11F01288	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01824	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E04312	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02811	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E03847	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01495	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01265	SFP+-10G-USR
FPC 2	REV 30	750-028467	ZM5111	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ZP6607	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LJA	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MFZ	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NKL	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80KF4	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80FBJ	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MM2	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LJV	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NXV	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N1H	SFP+-10G-SR

Xcvr 1	REV 01	740-031980	AK80NLS	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80FL5	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NL9	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NG2	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80KDU	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80MG1	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80MM0	SFP+-10G-SR
FPC 3	REV 30	750-028467	ABBN0302	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0495	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01581	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01176	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01251	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02752	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00786	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01020	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01023	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02819	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02812	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11D04437	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01279	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01333	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00978	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01018	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01784	SFP+-10G-USR
Xcvr 3	REV 01	740-031980	AK80NKP	SFP+-10G-SR
FPC 4	REV 30	750-028467	ABBN0308	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBJ1095	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04305	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01147	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01195	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01743	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01892	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02880	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00725	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01057	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02816	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11C04501	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E02764	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E00789	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01250	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02847	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00787	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E03803	SFP+-10G-USR
FPC 5	REV 30	750-028467	ABBN0316	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBJ1082	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00523	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01848	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01865	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00540	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00422	SFP+-10G-SR

Xcvr 1	REV 01	740-031980	B11K00428	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K00423	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K01855	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K01847	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K00526	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K00529	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00525	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00425	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K00530	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01851	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00528	SFP+-10G-SR
FPC 6	REV 32	750-028467	ABBN6832	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6534	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80MB4	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80FQ6	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80N1F	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NLQ	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80KDR	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80FGJ	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80N5G	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80KD8	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LET	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80N1X	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NRF	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NL2	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N3D	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MRB	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LEQ	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LER	SFP+-10G-SR
FPC 7	REV 32	750-028467	ABBN6811	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7288	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NK8	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80LJG	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LBU	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80N21	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEU	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NLM	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NL6	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LES	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEN	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80ME0	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LMG	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80MM1	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80MG7	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80KF9	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NRQ	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NLE	SFP+-10G-SR
FPC 8	REV 23	750-028467	YN2977	MPC 3D 16x 10GE
CPU	REV 10	711-029089	YP1856	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00875	SFP+-10G-SR

Xcvr 1	REV 01	740-031980	183363A00851	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	183363A00772	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	183363A00882	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00735	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	183363A00169	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	183363A00726	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	183363A00077	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00168	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	183363A00676	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	183363A00732	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	183363A00091	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00725	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	183363A00642	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	183363A00871	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	183363A00853	SFP+-10G-SR
FPC 9	REV 32	750-028467	ABBN6798	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6556	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	9ZDZ06A00055	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	183363A00239	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	AD0915E003K	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	AD0915E003A	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80MRC	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NL5	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NKN	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80N3U	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N1T	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AJ808DJ	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NG4	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80FND	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80FKQ	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NLT	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NKR	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LKM	SFP+-10G-SR
FPC 10	REV 32	750-028467	ABBN6813	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6542	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NA3	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NLF	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80MRH	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80KE4	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	973152A00030	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80L9H	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80ME8	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NLR	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NG1	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MCA	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LFC	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LEM	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N9X	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80LAC	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LF2	SFP+-10G-SR

Xcvr 3	REV 01	740-031980	AK80N8T	SFP+-10G-SR
FPC 11	REV 30	750-028467	ABBN0281	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0526	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01326	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E03973	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00950	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E00674	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00775	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E04461	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01074	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02821	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04501	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E00757	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01623	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01022	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04359	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02751	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E02736	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01178	SFP+-10G-USR
FPC 12	REV 32	750-028467	ABBN6796	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7259	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K01856	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01853	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01863	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02863	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02668	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02881	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01671	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02627	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02725	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02692	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02730	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03081	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02736	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02568	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02747	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02579	SFP+-10G-SR
FPC 13	REV 30	750-028467	ABBN0270	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBJ0966	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NL1	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NXW	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80KD2	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80FMD	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NKQ	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MGH	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80N38	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NL7	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEL	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NKD	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80KCY	SFP+-10G-SR

Xcvr 3	REV 01	740-031980	AK80LHK	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80M5J	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MBE	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NLG	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LFH	SFP+-10G-SR
FPC 14	REV 32	750-028467	ABBN6790	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6515	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LZM	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MCC	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80KCM	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80KE0	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021310	C10F99155	SFP+-10G-LRM
Xcvr 1	REV 01	740-021310	C10F99049	SFP+-10G-LRM
Xcvr 2	REV 01	740-021310	C10F99128	SFP+-10G-LRM
Xcvr 3	REV 01	740-021310	C10F99169	SFP+-10G-LRM
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LF3	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02597	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A03060	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03057	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEX	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80FEU	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80FNM	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	AJQQQ5G	SFP+-10G-SR
FPC 15	REV 32	750-028467	ABBN6791	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7289	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00424	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01849	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01862	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K01852	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00427	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K00430	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01854	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00426	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00429	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01864	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01850	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00522	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E01144	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E00985	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00796	SFP+-10G-USR
Xcvr 3	REV 01	740-031980	B11K01866	SFP+-10G-SR
FPC 16	REV 30	750-028467	ABBM4592	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0465	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01435	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01052	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01328	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01254	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02738	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02881	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01624	SFP+-10G-USR

Xcvr 3	REV 01	740-030658	B11E00889	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02883	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E00681	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E04306	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02813	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01801	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02753	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01156	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E04324	SFP+-10G-USR
FPC 17	REV 32	750-028467	ABBN6810	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7237	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02638	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02082	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01674	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03058	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A03048	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02729	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02566	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02567	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02878	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02739	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01959	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02660	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02731	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02588	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02673	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02654	SFP+-10G-SR
FPC 18	REV 30	750-028467	ABBM4739	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0487	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02569	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02886	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A03082	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	133363A00297	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02726	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A03050	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02884	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03076	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02581	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02873	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02582	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03083	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031981	UL70BU6	SFP+-10G-LR
Xcvr 1	REV 01	740-031981	UL50QC6	SFP+-10G-LR
Xcvr 2	REV 01	740-031981	UL708N6	SFP+-10G-LR
Xcvr 3	REV 01	740-031981	UL603KK	SFP+-10G-LR
FPC 19	REV 32	750-028467	ABBN6827	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN6508	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A01688	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A01724	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01773	SFP+-10G-SR

Xcvr 3	REV 01	740-031980	163363A02593	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A03061	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A03056	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02669	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03070	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02572	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02697	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02585	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03052	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02591	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02649	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02577	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02698	SFP+-10G-SR
ADC 0	REV 13	750-043596	ABBX5561	Adapter Card
ADC 1	REV 13	750-043596	ABBX5546	Adapter Card
ADC 2	REV 13	750-043596	ABBX5535	Adapter Card
ADC 3	REV 13	750-043596	ABBX5552	Adapter Card
ADC 4	REV 13	750-043596	ABBX5581	Adapter Card
ADC 5	REV 13	750-043596	ABBX5545	Adapter Card
ADC 6	REV 13	750-043596	ABBX5554	Adapter Card
ADC 7	REV 07	750-043596	ABBV7194	Adapter Card
ADC 8	REV 07	750-043596	ABBV7251	Adapter Card
ADC 9	REV 07	750-043596	ABBV7202	Adapter Card
ADC 10	REV 13	750-043596	ABBX5538	Adapter Card
ADC 11	REV 13	750-043596	ABBX5566	Adapter Card
ADC 12	REV 13	750-043596	ABBX5542	Adapter Card
ADC 13	REV 13	750-043596	ABBX5539	Adapter Card
ADC 14	REV 13	750-043596	ABBX5555	Adapter Card
ADC 15	REV 13	750-043596	ABBX5557	Adapter Card
ADC 16	REV 13	750-043596	ABBX5536	Adapter Card
ADC 17	REV 13	750-043596	ABBX5559	Adapter Card
ADC 18	REV 13	750-043596	ABBX5537	Adapter Card
ADC 19	REV 11	750-043596	ABBW5685	Adapter Card
Fan Tray 0	REV 2A	760-046960	ACAY0030	172mm FanTray - 6 Fans
Fan Tray 1	REV 2A	760-046960	ACAY0039	172mm FanTray - 6 Fans
Fan Tray 2	REV 2A	760-046960	ACAY0033	172mm FanTray - 6 Fans
Fan Tray 3	REV 2A	760-046960	ACAY0062	172mm FanTray - 6 Fans

show chassis hardware
detail (MX2020
Router)

user@host> show chassis hardware detail

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN11E2227AFJ	MX2020
Midplane	REV 27	750-040240	ABAB9384	Lower Power Midplane
Midplane 1	REV 04	711-032386	ABAB9386	Upper Backplane
PMP 1	REV 05	711-032428	ACAJ1821	Upper Power Midplane
PMP 0	REV 04	711-032426	ACAJ1524	Lower Power Midplane
FPM Board	REV 06	760-040242	ABBT8837	Front Panel Display
PSM 0	REV 01	740-045050	1E02224006G	DC 52V Power Supply
Module				
PSM 1	REV 01	740-045050	1E022240053	DC 52V Power Supply
Module				
PSM 2	REV 01	740-045050	1E02224004K	DC 52V Power Supply
Module				
PSM 3	REV 01	740-045050	1E022240056	DC 52V Power Supply
Module				
PSM 4	REV 01	740-045050	1E022240054	DC 52V Power Supply
Module				
PSM 5	REV 01	740-045050	1E02224005H	DC 52V Power Supply

Module				
PSM 6	REV 01	740-045050	1E02224006S	DC 52V Power Supply
Module				
PSM 7	REV 01	740-045050	1E02224005M	DC 52V Power Supply
Module				
PSM 8	REV 01	740-045050	1E022240062	DC 52V Power Supply
Module				
PSM 9	REV 03	740-045050	1EDB2350095	DC 52V Power Supply
Module				
PSM 10	REV 03	740-045050	1EDB235009L	DC 52V Power Supply
Module				
PSM 11	REV 03	740-045050	1EDB2350092	DC 52V Power Supply
Module				
PSM 12	REV 03	740-045050	1EDB23500AT	DC 52V Power Supply
Module				
PSM 13	REV 03	740-045050	1EDB2350094	DC 52V Power Supply
Module				
PSM 15	REV 03	740-045050	1EDB235008X	DC 52V Power Supply
Module				
PDM 0	REV 01	740-045234	1E012150033	DC Power Dist Module
PDM 1	REV 01	740-045234	1E012150027	DC Power Dist Module
PDM 2	REV 01	740-045234	1E262250072	DC Power Dist Module
Routing Engine 0	REV 02	740-041821	9009094138	RE-S-1800x4
ad0	3998 MB	Virtium - TuffDisk	VCF3 20110825A021D0000064	Compact Flash
ad1	30533 MB	UGB94ARF32H0S3-KC	UNIGEN-499551-000347	Disk 1
usb0 (addr 1)		EHCI root hub 0	Intel	uhub0
usb0 (addr 2)		product 0x0020 32	vendor 0x8087	uhub1
DIMM 0		SGU04G72H1BD2SA-BB DIE	REV-52 PCB REV-54	MFR ID-ce80
DIMM 1		SGU04G72H1BD2SA-BB DIE	REV-52 PCB REV-54	MFR ID-ce80
DIMM 2		SGU04G72H1BD2SA-BB DIE	REV-52 PCB REV-54	MFR ID-ce80
DIMM 3		SGU04G72H1BD2SA-BB DIE	REV-52 PCB REV-54	MFR ID-ce80
Routing Engine 1	REV 02	740-041821	9009089709	RE-S-1800x4
ad0	3831 MB	UGB30SFA4000T1	SFA4000T1 00000113	Compact Flash
ad1	30533 MB	UGB94ARF32H0S3-KC	UNIGEN-478612-001044	Disk 1
CB 0	REV 08	750-040257	CAAB3482	Control Board
CB 1	REV 04	750-040257	ZT2864	Control Board
SPMB 0	REV 02	711-041855	CAAA6141	PMB Board
SPMB 1	REV 01	711-041855	ZS2275	PMB Board
SFB 0	REV 05	711-044466	ABBT2161	Switch Fabric Board
SFB 1	REV 05	711-044466	ABBT2159	Switch Fabric Board
SFB 2	REV 05	711-044466	ABBX3718	Switch Fabric Board
SFB 3	REV 05	711-044466	ABBT2152	Switch Fabric Board
SFB 4	REV 05	711-044466	ABBT2160	Switch Fabric Board
SFB 5	REV 05	711-044466	ABBT2145	Switch Fabric Board
SFB 6	REV 05	711-044466	ABBT2150	Switch Fabric Board
SFB 7	REV 05	711-044466	ABBT2163	Switch Fabric Board
FPC 0	REV 30	750-028467	ABBN0284	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0507	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00990	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E04357	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01327	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E04375	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02760	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02904	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E03963	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E00756	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04418	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01077	SFP+-10G-USR

Xcvr 2	REV 01	740-030658	B11E01128	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01253	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E01140	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11F01626	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01075	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01177	SFP+-10G-USR
FPC 1	REV 30	750-028467	ABBN0308	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABB11095	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04305	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01147	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01195	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01743	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01892	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02880	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00725	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01057	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02816	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11C04501	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E02764	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E00789	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01250	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02847	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00787	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E03803	SFP+-10G-USR
FPC 2	REV 30	750-028467	ABBN0316	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABB11082	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00523	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01848	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01865	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00540	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00422	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K00428	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K00423	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K01855	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K01847	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K00526	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K00529	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00525	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00425	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K00530	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01851	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00528	SFP+-10G-SR
FPC 3	REV 32	750-028467	ABBN6832	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN6534	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80MB4	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80FQ6	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80N1F	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NLQ	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80KDR	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80FGJ	SFP+-10G-SR

Xcvr 2	REV 01	740-031980	AK80N5G	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80KD8	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LET	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80N1X	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NRF	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NL2	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N3D	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MRB	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LEQ	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LER	SFP+-10G-SR
FPC 4	REV 32	750-028467	ABBN6811	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7288	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NK8	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80LJG	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LBU	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80N21	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEU	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NLM	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NL6	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LES	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEN	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80ME0	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LMG	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80MM1	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80MG7	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80KF9	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NRQ	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NLE	SFP+-10G-SR
FPC 5	REV 32	750-028467	ABBN6791	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7289	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00424	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01849	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01862	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K01852	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP
Xcvr 0	REV 01	740-031980	B11K00427	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K00430	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01854	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00426	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K00429	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01864	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01850	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11K00522	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E01144	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E00985	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00796	SFP+-10G-USR
Xcvr 3	REV 01	740-031980	B11K01866	SFP+-10G-SR
FPC 6	REV 30	750-028467	ABBM4592	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0465	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01435	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01052	SFP+-10G-USR

Xcvr 2	REV 01	740-030658	B11F01328	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01254	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02738	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02881	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01624	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E00889	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02883	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E00681	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E04306	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02813	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01801	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02753	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01156	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E04324	SFP+-10G-USR
FPC 7	REV 32	750-028467	ABBN6810	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7237	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A03058	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02082	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01674	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02638	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A03048	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02729	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02566	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02567	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02878	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02739	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01959	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02660	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02731	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02588	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02673	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02654	SFP+-10G-SR
FPC 8	REV 30	750-028467	ABBN4739	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0487	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02569	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02886	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A03082	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	133363A00297	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02726	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A03050	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02884	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03076	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02581	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02873	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02582	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03083	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031981	UL70BU6	SFP+-10G-LR
Xcvr 1	REV 01	740-031981	UL50QC6	SFP+-10G-LR
Xcvr 2	REV 01	740-031981	UL708N6	SFP+-10G-LR
Xcvr 3	REV 01	740-031981	UL603KK	SFP+-10G-LR

FPC 9	REV 32	750-028467	ABBN6827	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6508	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A01688	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A01724	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01773	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02593	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A03061	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A03056	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02669	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03070	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02572	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02697	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02585	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03052	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02591	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02649	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02577	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02698	SFP+-10G-SR
FPC 10	REV 30	750-028467	ABBN0302	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0495	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01581	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01176	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01251	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02752	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00786	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01020	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01023	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02819	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02812	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11D04437	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01279	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11F01333	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00978	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E01018	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01784	SFP+-10G-USR
Xcvr 3	REV 01	740-031980	AK80NKP	SFP+-10G-SR
FPC 11	REV 32	750-028467	ABBN6790	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6515	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LZM	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MCC	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80KCM	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80KE0	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021310	C10F99155	SFP+-10G-LRM
Xcvr 1	REV 01	740-021310	C10F99049	SFP+-10G-LRM
Xcvr 2	REV 01	740-021310	C10F99128	SFP+-10G-LRM
Xcvr 3	REV 01	740-021310	C10F99169	SFP+-10G-LRM
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LF3	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02597	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A03060	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03057	SFP+-10G-SR

PIC 3			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEX	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	AK80FEU	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	AK80FNM	SFP+-10G-SR	
Xcvr 3	REV 01	740-021308	AJQQQ5G	SFP+-10G-SR	
FPC 12	REV 30	750-028467	ZM5111	MPC 3D 16x 10GE	
CPU	REV 10	711-029089	ZP6607	AMPC PMB	
PIC 0			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LJA	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	AK80MFZ	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	AK80NKL	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	AK80KF4	SFP+-10G-SR	
PIC 1			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80FBJ	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	AK80MM2	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	AK80LJV	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	AK80NXV	SFP+-10G-SR	
PIC 2			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N1H	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	AK80NLS	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	AK80FL5	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	AK80NL9	SFP+-10G-SR	
PIC 3			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NG2	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	AK80KDU	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	AK80MG1	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	AK80MM0	SFP+-10G-SR	
FPC 13	REV 30	750-028467	ABBNO208	MPC 3D 16x 10GE	
CPU	REV 10	711-029089	ABB1084	AMPC PMB	
PIC 0			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04745	SFP+-10G-USR	
Xcvr 1	REV 01	740-030658	B11F01570	SFP+-10G-USR	
Xcvr 2	REV 01	740-030658	B11E04388	SFP+-10G-USR	
Xcvr 3	REV 01	740-030658	B11F01439	SFP+-10G-USR	
PIC 1			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04739	SFP+-10G-USR	
Xcvr 1	REV 01	740-030658	B11F01869	SFP+-10G-USR	
Xcvr 2	REV 01	740-030658	B11F01675	SFP+-10G-USR	
Xcvr 3	REV 01	740-030658	B11F01901	SFP+-10G-USR	
PIC 2			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01346	SFP+-10G-USR	
Xcvr 1	REV 01	740-030658	B11F01288	SFP+-10G-USR	
Xcvr 2	REV 01	740-030658	B11F01824	SFP+-10G-USR	
Xcvr 3	REV 01	740-030658	B11E04312	SFP+-10G-USR	
PIC 3			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E02811	SFP+-10G-USR	
Xcvr 1	REV 01	740-030658	B11E03847	SFP+-10G-USR	
Xcvr 2	REV 01	740-030658	B11F01495	SFP+-10G-USR	
Xcvr 3	REV 01	740-030658	B11F01265	SFP+-10G-USR	
FPC 14	REV 23	750-028467	YN2977	MPC 3D 16x 10GE	
CPU	REV 10	711-029089	YP1856	AMPC PMB	
PIC 0			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00875	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	183363A00851	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	183363A00772	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	183363A00882	SFP+-10G-SR	
PIC 1			BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00735	SFP+-10G-SR	
Xcvr 1	REV 01	740-031980	183363A00169	SFP+-10G-SR	
Xcvr 2	REV 01	740-031980	183363A00726	SFP+-10G-SR	
Xcvr 3	REV 01	740-031980	183363A00077	SFP+-10G-SR	

PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00168	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	183363A00676	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	183363A00732	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	183363A00091	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	183363A00725	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	183363A00642	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	183363A00871	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	183363A00853	SFP+-10G-SR
FPC 15	REV 32	750-028467	ABBN6798	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6556	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	9ZDZ06A00055	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	183363A00239	SFP+-10G-SR
Xcvr 2	REV 01	740-021308	AD0915E003K	SFP+-10G-SR
Xcvr 3	REV 01	740-021308	AD0915E003A	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80MRC	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NL5	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NKN	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80N3U	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N1T	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AJ808DJ	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NG4	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80FND	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80FKQ	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NLT	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NKR	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LKM	SFP+-10G-SR
FPC 16	REV 30	750-028467	ABBN0270	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABB30966	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NL1	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NXW	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80KD2	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80FMD	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NKQ	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MGH	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80N38	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NL7	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80M5J	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NKD	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80KCY	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LHK	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LEL	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MBE	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80NLG	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LFH	SFP+-10G-SR
FPC 17	REV 32	750-028467	ABBN6796	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN7259	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	B11K01856	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11K01853	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11K01863	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02863	SFP+-10G-SR

PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02668	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02881	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A01671	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02627	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02725	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02692	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02730	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A03081	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	163363A02736	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	163363A02568	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	163363A02747	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	163363A02579	SFP+-10G-SR
FPC 18	REV 30	750-028467	ABBN0281	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBN0526	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11F01326	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E03973	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E00950	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E00674	SFP+-10G-USR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E00775	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E04461	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E01074	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E02821	SFP+-10G-USR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04501	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E00757	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11F01623	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01022	SFP+-10G-USR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-030658	B11E04359	SFP+-10G-USR
Xcvr 1	REV 01	740-030658	B11E02751	SFP+-10G-USR
Xcvr 2	REV 01	740-030658	B11E02736	SFP+-10G-USR
Xcvr 3	REV 01	740-030658	B11E01178	SFP+-10G-USR
FPC 19	REV 32	750-028467	ABBN6813	MPC 3D 16x 10GE
CPU	REV 10	711-029089	ABBK6542	AMPC PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NA3	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80NLF	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80MRH	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80KE4	SFP+-10G-SR
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-021308	973152A00030	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80L9H	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80ME8	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80NLR	SFP+-10G-SR
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80NG1	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80MCA	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LFC	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80LEM	SFP+-10G-SR
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80N9X	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AK80LAC	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80LF2	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AK80N8T	SFP+-10G-SR
ADC 0	REV 13	750-043596	ABBX5561	Adapter Card
ADC 1	REV 13	750-043596	ABBX5546	Adapter Card

ADC 2	REV 13	750-043596	ABBX5535	Adapter Card
ADC 3	REV 13	750-043596	ABBX5552	Adapter Card
ADC 4	REV 13	750-043596	ABBX5581	Adapter Card
ADC 5	REV 13	750-043596	ABBX5545	Adapter Card
ADC 6	REV 13	750-043596	ABBX5554	Adapter Card
ADC 7	REV 07	750-043596	ABBV7194	Adapter Card
ADC 8	REV 07	750-043596	ABBV7251	Adapter Card
ADC 9	REV 07	750-043596	ABBV7202	Adapter Card
ADC 10	REV 13	750-043596	ABBX5579	Adapter Card
ADC 11	REV 13	750-043596	ABBX5548	Adapter Card
ADC 12	REV 13	750-043596	ABBX5575	Adapter Card
ADC 13	REV 13	750-043596	ABBX5539	Adapter Card
ADC 14	REV 13	750-043596	ABBX5555	Adapter Card
ADC 15	REV 13	750-043596	ABBX5557	Adapter Card
ADC 16	REV 13	750-043596	ABBX5536	Adapter Card
ADC 17	REV 13	750-043596	ABBX5559	Adapter Card
ADC 18	REV 13	750-043596	ABBX5537	Adapter Card
ADC 19	REV 11	750-043596	ABBW5685	Adapter Card
Fan Tray 0	REV 04	760-046960	ACAY0090	172mm FanTray - 6 Fans
Fan Tray 1	REV 04	760-046960	ACAY0088	172mm FanTray - 6 Fans
Fan Tray 2	REV 04	760-046960	ACAY0089	172mm FanTray - 6 Fans
Fan Tray 3	REV 04	760-046960	ACAY0108	172mm FanTray - 6 Fans

show chassis hardware user@host > **show chassis hardware models**

**models (MX2020
Router)**

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
Midplane	REV 27	750-040240	ABAB9384	750-040240
FPM Board	REV 06	760-040242	ABBT8837	760-040242
PSM 0	REV 01	740-045050	1E02224006G	MX2000-PSM-HC-DC-S-A
PSM 1	REV 01	740-045050	1E022240053	MX2000-PSM-HC-DC-S-A
PSM 2	REV 01	740-045050	1E02224004K	MX2000-PSM-HC-DC-S-A
PSM 3	REV 01	740-045050	1E022240056	MX2000-PSM-HC-DC-S-A
PSM 4	REV 01	740-045050	1E022240054	MX2000-PSM-HC-DC-S-A
PSM 5	REV 01	740-045050	1E02224005H	MX2000-PSM-HC-DC-S-A
PSM 6	REV 01	740-045050	1E02224006S	MX2000-PSM-HC-DC-S-A
PSM 7	REV 01	740-045050	1E02224005M	MX2000-PSM-HC-DC-S-A
PSM 8	REV 01	740-045050	1E022240062	MX2000-PSM-HC-DC-S-A
PSM 9	REV 03	740-045050	1EDB2350095	MX2000-PSM-DC-S-A
PSM 10	REV 03	740-045050	1EDB235009L	MX2000-PSM-DC-S-A
PSM 11	REV 03	740-045050	1EDB2350092	MX2000-PSM-DC-S-A
PSM 12	REV 03	740-045050	1EDB23500AT	MX2000-PSM-DC-S-A
PSM 13	REV 03	740-045050	1EDB2350094	MX2000-PSM-DC-S-A
PSM 15	REV 03	740-045050	1EDB235008X	MX2000-PSM-DC-S-A
PDM 0	REV 01	740-045234	1E012150033	
PDM 1	REV 01	740-045234	1E012150027	
PDM 2	REV 01	740-045234	1E262250072	MX2000-PDM-DC-S-A
Routing Engine 0	REV 02	740-041821	9009094138	RE-S-1800X4-16G-S
Routing Engine 1	REV 02	740-041821	9009089709	RE-S-1800X4-16G-S
CB 0	REV 08	750-040257	CAAB3482	750-040257
CB 1	REV 04	750-040257	ZT2864	750-040257
SFB 0	REV 05	711-044466	ABBT2161	MX2000-SFB-S
SFB 1	REV 05	711-044466	ABBT2159	MX2000-SFB-S
SFB 2	REV 05	711-044466	ABBX3718	MX2000-SFB-S
SFB 4	REV 05	711-044466	ABBT2160	MX2000-SFB-S
SFB 5	REV 05	711-044466	ABBT2145	MX2000-SFB-S
SFB 7	REV 05	711-044466	ABBT2163	MX2000-SFB-S
FPC 0	REV 30	750-028467	ABBN0284	MPC-3D-16XGE-SFPP
FPC 1	REV 30	750-028467	ABBN0308	MPC-3D-16XGE-SFPP
FPC 2	REV 30	750-028467	ABBN0316	MPC-3D-16XGE-SFPP
FPC 3	REV 32	750-028467	ABBN6832	MPC-3D-16XGE-SFPP
FPC 4	REV 32	750-028467	ABBN6811	MPC-3D-16XGE-SFPP

FPC 5	REV 32	750-028467	ABBN6791	MPC-3D-16XGE-SFPP
FPC 6	REV 30	750-028467	ABBM4592	MPC-3D-16XGE-SFPP
FPC 7	REV 32	750-028467	ABBN6810	MPC-3D-16XGE-SFPP
FPC 8	REV 30	750-028467	ABBM4739	MPC-3D-16XGE-SFPP
FPC 9	REV 32	750-028467	ABBN6827	MPC-3D-16XGE-SFPP
FPC 10	REV 30	750-028467	ABBN0302	MPC-3D-16XGE-SFPP
FPC 11	REV 32	750-028467	ABBN6790	MPC-3D-16XGE-SFPP
FPC 12	REV 30	750-028467	ZM5111	MPC-3D-16XGE-SFPP
FPC 13	REV 30	750-028467	ABBN0208	MPC-3D-16XGE-SFPP
FPC 14	REV 23	750-028467	YN2977	MPC-3D-16XGE-SFPP
FPC 15	REV 32	750-028467	ABBN6798	MPC-3D-16XGE-SFPP
FPC 16	REV 30	750-028467	ABBN0270	MPC-3D-16XGE-SFPP
FPC 17	REV 32	750-028467	ABBN6796	MPC-3D-16XGE-SFPP
FPC 18	REV 30	750-028467	ABBN0281	MPC-3D-16XGE-SFPP
FPC 19	REV 32	750-028467	ABBN6813	MPC-3D-16XGE-SFPP
ADC 0	REV 13	750-043596	ABBX5561	PROTO-ASSEMBLY
ADC 1	REV 13	750-043596	ABBX5546	PROTO-ASSEMBLY
ADC 2	REV 13	750-043596	ABBX5535	MX2000-LC-ADAPTER
ADC 3	REV 13	750-043596	ABBX5552	MX2000-LC-ADAPTER
ADC 4	REV 13	750-043596	ABBX5581	MX2000-LC-ADAPTER
ADC 5	REV 13	750-043596	ABBX5545	PROTO-ASSEMBLY
ADC 6	REV 13	750-043596	ABBX5554	PROTO-ASSEMBLY
ADC 7	REV 07	750-043596	ABBV7194	MX2000-LC-ADAPTER
ADC 8	REV 07	750-043596	ABBV7251	MX2000-LC-ADAPTER
ADC 9	REV 07	750-043596	ABBV7202	MX2000-LC-ADAPTER
ADC 10	REV 13	750-043596	ABBX5579	MX2000-LC-ADAPTER
ADC 12	REV 13	750-043596	ABBX5575	MX2000-LC-ADAPTER
ADC 13	REV 13	750-043596	ABBX5539	PROTO-ASSEMBLY
ADC 14	REV 13	750-043596	ABBX5555	PROTO-ASSEMBLY
ADC 15	REV 13	750-043596	ABBX5557	MX2000-LC-ADAPTER
ADC 16	REV 13	750-043596	ABBX5536	PROTO-ASSEMBLY
ADC 17	REV 13	750-043596	ABBX5559	PROTO-ASSEMBLY
ADC 18	REV 13	750-043596	ABBX5537	PROTO-ASSEMBLY
ADC 19	REV 11	750-043596	ABBW5685	PROTO-ASSEMBLY
Fan Tray 0	REV 04	760-046960	ACAY0090	
Fan Tray 1	REV 04	760-046960	ACAY0088	
Fan Tray 2	REV 04	760-046960	ACAY0089	
Fan Tray 3	REV 04	760-046960	ACAY0108	

show chassis hardware
clei-models (MX2020
Router)

user@ host > show chassis hardware clei-models
Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 27	750-040240	PROTOXCLEI	750-040240
FPM Board	REV 06	760-040242	PROTOXCLEI	760-040242
PSM 0	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 1	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 2	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 3	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 4	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 5	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 6	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 7	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 8	REV 01	740-045050	IPUPAJMKAA	MX2000-PSM-HC-DC-S-A
PSM 9	REV 03	740-045050	IPUPAJMKAA	MX2000-PSM-DC-S-A
PSM 10	REV 03	740-045050	IPUPAJMKAA	MX2000-PSM-DC-S-A
PSM 11	REV 03	740-045050	IPUPAJMKAA	MX2000-PSM-DC-S-A
PSM 12	REV 03	740-045050	IPUPAJMKAA	MX2000-PSM-DC-S-A
PSM 13	REV 03	740-045050	IPUPAJMKAA	MX2000-PSM-DC-S-A
PSM 15	REV 03	740-045050	IPUPAJMKAA	MX2000-PSM-DC-S-A
PDM 0	REV 01	740-045234		
PDM 1	REV 01	740-045234		

PDM 2	REV 01	740-045234	IPUPAJSKAA	MX2000-PDM-DC-S-A
Routing Engine 0	REV 02	740-041821		RE-S-1800X4-16G-S
Routing Engine 1	REV 02	740-041821		RE-S-1800X4-16G-S
CB 0	REV 08	750-040257	PROTOXCLEI	750-040257
CB 1	REV 04	750-040257	PROTOXCLEI	750-040257
SFB 0	REV 05	711-044466	IPUCBA6CAA	MX2000-SFB-S
SFB 1	REV 05	711-044466	IPUCBA6CAA	MX2000-SFB-S
SFB 2	REV 05	711-044466	IPUCBA6CAA	MX2000-SFB-S
SFB 4	REV 05	711-044466	IPUCBA6CAA	MX2000-SFB-S
SFB 5	REV 05	711-044466	IPUCBA6CAA	MX2000-SFB-S
SFB 7	REV 05	711-044466	IPUCBA6CAA	MX2000-SFB-S
FPC 0	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 1	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 2	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 3	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 4	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 5	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 6	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 7	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 8	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 9	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 10	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 11	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 12	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 13	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 14	REV 23	750-028467		MPC-3D-16XGE-SFPP
FPC 15	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 16	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 17	REV 32	750-028467		MPC-3D-16XGE-SFPP
FPC 18	REV 30	750-028467		MPC-3D-16XGE-SFPP
FPC 19	REV 32	750-028467		MPC-3D-16XGE-SFPP
ADC 0	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 1	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 2	REV 13	750-043596	IPUCBA8CAA	MX2000-LC-ADAPTER
ADC 3	REV 13	750-043596	IPUCBA8CAA	MX2000-LC-ADAPTER
ADC 4	REV 13	750-043596	IPUCBA8CAA	MX2000-LC-ADAPTER
ADC 5	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 6	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 7	REV 07	750-043596	PROTOXCLEI	MX2000-LC-ADAPTER
ADC 8	REV 07	750-043596	PROTOXCLEI	MX2000-LC-ADAPTER
ADC 9	REV 07	750-043596	PROTOXCLEI	MX2000-LC-ADAPTER
ADC 10	REV 13	750-043596	IPUCBA8CAA	MX2000-LC-ADAPTER
ADC 12	REV 13	750-043596	IPUCBA8CAA	MX2000-LC-ADAPTER
ADC 13	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 14	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 15	REV 13	750-043596	IPUCBA8CAA	MX2000-LC-ADAPTER
ADC 16	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 17	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 18	REV 13	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
ADC 19	REV 11	750-043596	PROTOXCLEI	PROTO-ASSEMBLY
Fan Tray 0	REV 04	760-046960		
Fan Tray 1	REV 04	760-046960		
Fan Tray 2	REV 04	760-046960		
Fan Tray 3	REV 04	760-046960		

show chassis hardware user@host> show chassis hardware

(MX Series routers with
ATM MIC)

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN115736EAF	MX240
Midplane	REV 07	760-021404	ABAA5038	MX240 Backplane
FPM Board	REV 03	760-021392	ABBA2758	Front Panel Display

PEM 0	Rev 01	740-022697	QCS0937C07K	PS 1.2-1.7kW; 100-240V
AC in				
PEM 1	Rev 01	740-022697	QCS0939C04X	PS 1.2-1.7kW; 100-240V
AC in				
PEM 2	Rev 01	740-022697	QCS0937C06B	PS 1.2-1.7kW; 100-240V
AC in				
PEM 3	Rev 01	740-022697	QCS0937C07U	PS 1.2-1.7kW; 100-240V
AC in				
Routing Engine 0	REV 12	740-013063	9009042291	RE-S-2000
Routing Engine 1	REV 12	740-013063	9009042266	RE-S-2000
CB 0	REV 06	710-021523	ABBC1435	MX SCB
CB 1	REV 06	710-021523	ABBC1497	MX SCB
FPC 2	REV 14	750-031088	YH8446	MPC Type 2 3D Q
CPU	REV 06	711-030884	YH9612	MPC PMB 2G
MIC 0				
MIC 1	REV 10	750-036132	ZP7062	2x0C12/8x0C3 CC-CE
PIC 2		BUILTIN	BUILTIN	2x0C12/8x0C3 CC-CE
Xcvr 0		NON-JNPR	23393-00492	UNKNOWN
Xcvr 1		NON-JNPR	23393-00500	UNKNOWN
Xcvr 2		NON-JNPR	23393-00912	UNKNOWN
Xcvr 3	REV 01	740-015638	22216-00575	Load SFP
Xcvr 4	REV 01	740-015638	24145-00110	Load SFP
Xcvr 5	REV 01	740-015638	24145-00016	Load SFP
Xcvr 6	REV 01	740-015638	24145-00175	Load SFP
Xcvr 7		NON-JNPR	23393-00627	UNKNOWN
QXM 0	REV 05	711-028408	YF4681	MPC QXM
QXM 1	REV 05	711-028408	YF4817	MPC QXM
Fan Tray 0	REV 01	710-021113	XL3645	MX240 Fan Tray

show chassis hardware
(MX240, MX480,
MX960 routers with
Application Services
Modular Line Card)

```

user@host>show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               JN11D969BAFA  MX960
Midplane      REV 03   710-013698   ACAA2362      MX960 Backplane
FPM Board     REV 03   710-014974   ZR0639        Front Panel Display
PDM           Rev 03   740-013110   QCS152250SX   Power Distribution Module
PEM 0         Rev 10   740-013683   QCS1512718W   DC Power Entry Module
PEM 1         Rev 10   740-013683   QCS1512702Y   DC Power Entry Module
Routing Engine 0 REV 15   740-013063   9012024667    RE-S-2000
Routing Engine 1 REV 15   740-013063   9012024649    RE-S-2000
CB 0          REV 14   750-031391   ZJ7749        Enhanced MX SCB
CB 1          REV 14   750-031391   ZJ7750        Enhanced MX SCB
CB 2          REV 14   750-031391   ZY9233        Enhanced MX SCB
FPC 0         REV 17   750-031089   YR7434        MPC Type 2 3D
CPU
FPC 1         REV 11   750-037207   ZW9727        AS-MCC
CPU           REV 04   711-038173   ZW4817        AS-MCC-PMB
MIC 0         REV 01   750-037214   ZH3764        AS-MSC
PIC 0         BUILTIN BUILTIN      AS-MSC
MIC 1         REV 01   711-028408   JZ9200        AS-MXC
PIC 2         BUILTIN BUILTIN      AS-MXC
FPC 4         REV 30   750-028467   ABBN0232      MPC 3D 16x 10GE
CPU

```

FPC 5	REV 04	750-037207	ZK9074	AS-MCC
CPU				
Fan Tray 0	REV 05	740-014971	VT5683	Fan Tray
Fan Tray 1	REV 05	740-014971	VT5684	Fan Tray

**show chassis hardware
extensive (MX240,
MX480, MX960
routers with
Application Services
Modular Line Card)**

user@host> show chassis hardware extensive

```
ID: AS-MCC                                FRU Model Number: 750-037207
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 37 01 0b 52 45 56 20 31 31 00 00
Address 0x10: 00 00 00 00 37 35 30 2d 30 33 37 32 30 37 00 00
Address 0x20: 53 2f 4e 20 5a 57 39 37 32 37 00 00 00 11 02 07
Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 01 50 52 4f 54 4f 58 43 4c 45 49 37
Address 0x50: 35 30 2d 30 33 37 32 30 37 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 31 31 00 ff ff ff ff ff ff ff
Address 0x70: ff ff ff 5e ff ff ff ff ff ff ff ff ff ff ff ff
CPU                                REV 04    711-038173    ZW4817    AS-MCC-PMB
Jedec Code: 0x7fb0                EEPROM Version: 0x02
P/N: 711-038173                  S/N: S/N ZW4817
Assembly ID: 0x0b38              Assembly Version: 01.04
Date: 12-30-2011                 Assembly Flags: 0x00
Version: REV 04
ID: AS-MCC-PMB
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 38 01 04 52 45 56 20 30 34 00 00
Address 0x10: 00 00 00 00 37 31 31 2d 30 33 38 31 37 33 00 00
Address 0x20: 53 2f 4e 20 5a 57 34 38 31 37 00 00 00 1e 0c 07
Address 0x30: db ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 00 50 52 4f 54 4f 58 43 4c 45 49 37
Address 0x50: 31 31 2d 30 33 38 31 37 33 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 30 34 00 ff ff ff ff ff ff ff
Address 0x70: ff ff ff 60 00 00 00 00 00 00 00 00 00 00 00 00
MIC 0                                REV 01    750-037214    ZH3764    AS-MSC
Jedec Code: 0x7fb0                EEPROM Version: 0x02
P/N: 750-037214                  S/N: S/N ZH3764
Assembly ID: 0x0a44              Assembly Version: 01.01
Date: 07-04-2011                 Assembly Flags: 0x00
Version: REV 01
ID: AS-MSC
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff I2C Hex Data:
Address 0x00: 7f b0 02 ff 0a 44 01 01 52 45 56 20 30 31 00 00
Address 0x10: 00 00 00 00 37 35 30 2d 30 33 37 32 31 34 00 00
Address 0x20: 53 2f 4e 20 5a 48 33 37 36 34 00 00 00 04 07 07
Address 0x30: db ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 00 00 ff ff ff ff ff ff ff ff
Address 0x70: ff ff ff f6 c0 03 e1 bc 00 00 00 00 00 00 00 00
PIC 0                                BUILTIN    BUILTIN    AS-MSC
FPC 4                                REV 30    750-028467    ABBN0232    MPC 3D 16x 10GE
Jedec Code: 0x7fb0                EEPROM Version: 0x01
```

**show chassis hardware
(T320 Router)**

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			19093	T320

Midplane	REV 04	710-004339	BC1436	T320 Backplane
FPM GBUS	REV 03	710-004461	BC1407	T320 FPM Board
FPM Display	REV 04	710-002897	BE0763	FPM Display
CIP	REV 05	710-002895	BB2311	T Series CIP
PEM 0	Rev 01	740-004359	NB12546	Power Entry Module
SCG 0	REV 06	710-004455	AY4522	T320 Sonet
Clock Gen.				
Routing Engine 0				unknown
CB 0	REV 13	710-002728	BC1577	T Series
Control Board				
CB 1	REV 13	710-002728	BC1595	T Series
Control Board				
FPC 1	REV 09	710-007531	HS1572	FPC Type 2
CPU	REV 15	710-001726	HR8763	FPC CPU
PIC 0	REV 01	750-010618	CB5579	4x G/E SFP,
1000 BASE				
SFP 0	REV 01	740-007326	P5809Z1	SFP-SX
SFP 1	REV 01	740-007326	P4Q10XU	SFP-SX
SFP 2		NON-JNPR	RA45020031	SFP-SX
SFP 3		NON-JNPR	RA45020032	SFP-SX
PIC 1	REV 01	750-010618	CD9587	4x G/E SFP,
1000 BASE				
SFP 0		NON-JNPR	P5A08QZ	SFP-T
SFP 1	REV 01	740-007326	P4Q133K	SFP-SX
SFP 2	REV 01	740-007326	P5809YY	SFP-SX
SFP 3	REV 01	740-007327	4C81704	SFP-LX
MMB 1	REV 03	710-005555	HR9401	MMB-288mbit
PPB 0	REV 04	710-003758	HR2886	PPB Type 2
FPC 2	REV 07	710-005860	HP2392	FPC Type 1
CPU	REV 14	710-001726	HP7797	FPC CPU
PIC 0	REV 02	750-007643	HM0853	1x G/E QPP,
1000 BASE				
SFP 0	REV 01	740-007326	P11E9JJ	SFP-SX
MMB 1	REV 02	710-005555	HN2379	MMB-288mbit
PPB 0	REV 04	710-003758	HP8092	PPB Type 2
FPC 3	REV 07	710-005860	HP2393	FPC Type 1
CPU	REV 14	710-001726	HP0968	FPC CPU
PIC 0	REV 01	750-010240	CB5363	1x G/E SFP,
1000 BASE				
SFP 0	REV 01	740-007326	P4R0PNH	SFP-SX
PIC 1	REV 03	750-003034	HD2832	4x OC-3 SONET,
SMIR				
MMB 1	REV 02	710-005555	HN6307	MMB-288mbit
PPB 0	REV 04	710-003758	HP5051	PPB Type 2
FPC 4	REV 01	710-010845	JD3872	FPC Type 4
CPU	REV 02	710-011481	JB6042	FPC CPU
5	REV 01	710-005802	BC1566	FPC Type 2
CPU	REV 09	710-001726	AY4922	FPC CPU
PIC 0	REV 02	750-008155	BE2114	2x G/E QPP,
1000 BASE				
SFP 0	REV 01	740-007326	P4R0PMQ	SFP-SX
SFP 1	REV 01	740-007326	P4R0PN9	SFP-SX
PIC 1	REV 01	750-008155	BE2116	2x G/E QPP,
1000 BASE				
SFP 0	REV 01	740-007326	P4R0PNZ	SFP-SX
SFP 1		NON-JNPR	2908	SFP-T
MMB 1	REV 01	710-005555	AZ2246	MMB-288mbit
PPB 0	REV 03	710-003758	AY4839	PPB Type 2

```
FPC 7          REV 01  710-005803  AZ2123          FPC Type 3
...
```

show chassis hardware (T640 Router)

```
user@host> show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis			19182	T640
Midplane	REV 04	710-002726	AX5608	T640 Backplane
FPM GBUS	REV 02	710-002901	HE3064	T640 FPM Board
FPM Display	REV 02	710-002897	HE7864	FPM Display
CIP	REV 05	710-002895	HA5024	T Series CIP
PEM 0	Rev 02	740-029522	VH26235	AC PEM 10kW US
PEM 1	Rev 02	740-029522	VH26230	AC PEM 10kW US
SCG 0	REV 03	710-003423	HA4508	T640 Sonet Clock Gen.
Routing Engine 0	REV 02	740-005022	210865700483	RE-3.0 (RE-600)
CB 0	REV 01	710-002728	HD3044	T Series Control Board
FPC 2	REV 04	710-001721	HD5572	FPC Type 3
CPU	REV 06	710-001726	HA4712	FPC CPU
PIC 1	REV 03	750-009567	HV2331	1x 10GE(LAN),XENPAK
SFP 0	REV 01	740-009898	USC202R103	XENPAK-SR
PIC 2	REV 03	750-009567	HV2332	1x 10GE(LAN),XENPAK
SFP 0	REV 01	740-011268	USC202R112	XENPAK-ZR
PIC 3	REV 03	750-009567	HX4416	1x 10GE(LAN),XENPAK
SFP 0	REV 01	740-012056	434TC004	XENPAK-CX4
PIC 4	REV 03	750-009567	HX4420	1x 10GE(LAN),XENPAK
SFP 0	REV 01	740-012058	434TC124	XENPAK-LX4
FPC 5	REV 01	710-013553	JE4839	E2-FPC Type 1
CPU	REV 01	710-013569	JW9163	FPC CPU
PIC 0	REV 01	750-009567	HX4419	1x 10GE(LAN),XENPAK
SFP 0	REV 01	740-009898	USC202RT05	XENPAK-LR
PIC 1	REV 03	750-009567	HN7426	1x 10GE(LAN),XENPAK
SFP 0	REV 01	740-009550	03L90051	XENPAK-ER
PIC 2	REV 03	750-009467	HT7423	1x 10GE(LAN),XENPAK
SFP 0		NON-JNPR		UNKNOWN
PIC 3	REV 04	750-005100	AY4850	1x 10GE(LAN),DWDM
FPC 4	REV 01	710-010845	JD3872	FPC Type 4
CPU	REV 02	710-011481	JB6042	FPC CPU
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray

show chassis hardware models (T640 Router)

```
user@host> show chassis hardware models
```

```
Hardware inventory:
```

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 04	710-002726		CHAS-BP-T640-S
FPM Display	REV 02	710-002897		CRAFT-T640-S
CIP	REV 05	710-002895		CIP-L-T640-S
PEM 0	Rev 01	740-002595		PWR-T-DC-S
SCG 0	REV 04	710-003423		SCG-T-S
SCG 1	REV 04	710-003423		SCG-T-S
Routing Engine 0	REV 01	740-005022		RE-600-2048-S
Routing Engine 1	REV 07	740-005022		RE-600-2048-S
CB 0	REV 06	710-002726		CHAS-BP-T640-S
CB 1	REV 06	710-002728		CB-L-T-S
FPC 5	REV 05	710-007527		T640-FPC2
PIC 0	REV 05	750-002510		PB-2GE-SX
PIC 1	REV 05	750-001901		PB-40C12-SON-SMIR
FPC 6	REV 03	710-001721		T640-FPC3
PIC 1	REV 01	750-009553		PC-40C48-SON-SFP
SIB 4	REV 02	750-005486		SIB-I-T640-S
Fan Tray 0				FANTRAY-T-S

Fan Tray 1
Fan Tray 2

FANTRAY-T-S
FAN-REAR-TX-T640-S

show chassis hardware
extensive (T640
Router)

user@host> show chassis hardware extensive

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis				T640
Jedec Code:	0x7fb0		EEPROM Version:	0x01
P/N:		S/N:
Assembly ID:	0x0507		Assembly Version:	00.00
Date:	00-00-0000		Assembly Flags:	0x00
Version:			
ID:	Gibson LCC Chassis			
Board Information Record:				
Address 0x00:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00			
I2C Hex Data:				
Address 0x00:	7f b0 01 ff 05 07 00 00 00 00 00 00 00 00 00 00			
Address 0x10:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00			
Address 0x20:	ff ff ff ff ff ff ff ff ff ff ff ff ff 00 00 00 00			
Address 0x30:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00			
Address 0x40:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00			
Midplane	REV 04	710-002726	AX5633	
Jedec Code:	0x7fb0		EEPROM Version:	0x01
P/N:	710-002726.		S/N:	S/N AX5633.
Assembly ID:	0x0127		Assembly Version:	01.04
Date:	06-27-2001		Assembly Flags:	0x00
Version:	REV 04.....			
ID:	Gibson Backplane			
Board Information Record:				
Address 0x00:	ad 01 08 00 00 90 69 0e f8 00 ff ff ff ff ff ff ff			
I2C Hex Data:				
Address 0x00:	7f b0 01 ff 01 27 01 04 52 45 56 20 30 34 00 00			
Address 0x10:	00 00 00 00 37 31 30 2d 30 30 32 37 32 36 00 00			
Address 0x20:	53 2f 4e 20 41 58 35 36 33 33 00 00 00 1b 06 07			
Address 0x30:	d1 ff ff ff ad 01 08 00 00 90 69 0e f8 00 ff ff			
Address 0x40:	ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff			
FPM GBUS	REV 02	710-002901	HE3245	
...				
FPM Display	REV 02	710-002897	HA4873	
...				
CIP	REV 05	710-002895	HA4729	
...				
PEM 1	RevX02	740-002595	MD21815	Power Entry Module
...				
SCG 0	REV 04	710-003423	HF6023	
...				
SCG 1	REV 04	710-003423	HF6061	
...				
Routing Engine 0	REV 01	740-005022	210865700292	RE-3.0
...				
CB 0	REV 06	710-002728	HE3614	
...				
FPC 1	REV 01	710-002385	HE3009	FPC Type 1
...	REV 06	710-001726	HC0010	

show chassis hardware
(T4000 Router)

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1172F25AHA	T4000
Midplane	REV 01	710-027486	RC8355	T-series Backplane
FPM GBUS	REV 13	710-002901	BBAE0927	T640 FPM Board

FPM Display	REV 01	710-021387	EF6764	T1600 FPM Display
CIP	REV 06	710-002895	BBAD9210	T-series CIP
PEM 0	REV 01	740-036442	VA00016	Power Entry Module 6x60
SCG 0	REV 18	710-003423	BBAD7248	T640 Sonet Clock Gen.
SCG 1	REV 18	710-003423	BBAE3874	T640 Sonet Clock Gen.
Routing Engine 0	REV 05	740-026941	P737F-002248	RE-DUO-1800
Routing Engine 1	REV 06	740-026941	P737F-002653	RE-DUO-1800
CB 0	REV 09	710-022597	ED0295	LCC Control Board
CB 1	REV 09	710-022597	EA6050	LCC Control Board
FPC 0	REV 26	750-032819	EK1173	FPC Type 5-3D
CPU	REV 12	711-030686	EJ8584	SNG PMB
PIC 0	REV 07	750-034624	EF6837	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	123363A01145	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	123363A01147	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJJ01P3	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B10M03256	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AJJ01M2	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	123363A01137	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJJ01PN	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	AJJ01NW	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	123363A01139	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	AJJ01KE	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	123363A01336	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	B10M01325	SFP+-10G-SR
PIC 1	REV 07	750-034624	EF6800	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	AJJ01SA	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AJJ01QZ	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJH0217	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AJJ01TE	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AJJ01KV	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	AJJ01MU	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJJ01R0	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	AJJ01TC	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	AJJ0364	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	AJD0GV3	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	B10M03343	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	AJJ01QJ	SFP+-10G-SR
LMB 0	REV 05	711-034381	EJ8490	Type-0 LMB
LMB 1	REV 04	711-035774	EJ8517	Type-1 LMB
LMB 2	REV 05	711-034381	EJ8489	Type-0 LMB
FPC 3	REV 07	750-032819	EG3637	FPC Type 5-3D
CPU	REV 09	711-030686	EG0150	SNG PMB
PIC 0	REV 08	750-035293	EF3657	1x100GE
Xcvr 0	REV 01	740-032210	C22CQNJ	CFP-100G-LR4
PIC 1	REV 10	750-034624	BBAN4098	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	B11J04902	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11J04891	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJJ01MX	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11J04183	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	B11J04894	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11J04184	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	B11J04897	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	B11J04899	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	AJJ01TV	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	B11J04057	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	AJJ01M4	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	B11J04905	SFP+-10G-SR
LMB 0	REV 04	711-034381	EG1524	Type-0 LMB
LMB 1	REV 03	711-035774	EG0345	Type-1 LMB
LMB 2	REV 04	711-034381	EG1522	Type-0 LMB
FPC 5	REV 03	710-033871	BBAJ0768	FPC Type 4-ES

CPU	REV 11	710-016744	BBAH9342	ST-PMB2
PIC 0	REV 09	750-029262	EE6789	100GE
PIC 1	REV 03	750-034781	EE6655	100GE CFP
Xcvr 0	REV 01	740-032210	J11A22334	CFP-100G-LR4
BRIDGE 0	REV 03	711-029995	EE6572	100GE Bridge Board
MMB 0	REV 07	710-025563	BBAJ4657	ST-MMB2
MMB 1	REV 07	710-025563	BBAJ3073	ST-MMB2
FPC 6	REV 05	750-010153	EF4936	FPC Type 5-3D
CPU	REV 06	711-030686	EF4189	SNG PMB
PIC 0	REV 10	750-034624	BBAN4109	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	B11J04895	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11J04898	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11J04021	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11J04903	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	B11J04311	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11J04059	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	B11J04016	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	B11J04017	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	B11J04887	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	B11J04297	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	B11J04893	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	B11J04022	SFP+-10G-SR
PIC 1	REV 02	750-034624	EE3711	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	AJH033X	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AJJ01N0	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJJ01SV	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AJJ032L	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	B10M01593	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	AJD0FF1	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJJ01NU	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	123363A01305	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	B10M00361	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	AJJ01M7	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	AJJ032X	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	AJJ01PG	SFP+-10G-SR
LMB 0	REV 04	711-034381	EF3838	Type-0 LMB
LMB 1	REV 03	711-035774	EF3821	Type-1 LMB
LMB 2	REV 04	711-034381	EF3834	Type-0 LMB
SPMB 0	REV 05	710-023321	ED1990	LCC Switch CPU
SPMB 1	REV 05	710-023321	EA2768	LCC Switch CPU
SIB 0	REV 02	711-036340	EF8802	SIB-HC-3D
SIB 1	REV 07	711-036340	EG2286	SIB-HC-3D
SIB 2	REV 07	711-036340	EG2252	SIB-HC-3D
SIB 3	REV 02	711-036340	EF1358	SIB-HC-3D
SIB 4	REV 02	711-036340	EF8806	SIB-HC-3D
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
-- Rev 2				
Fan Tray 2				Rear Fan Tray -- Rev 3

show chassis hardware
(T4000 Router with 16
GB line card chassis
(LCC) Routing Engine)

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN11BDF2CAHA	T1600
Midplane	REV 01	710-027486	ACAJ0774	T640 Backplane
FPM GBUS	REV 13	710-002901	BBAL6812	T640 FPM Board
FPM Display	REV 04	710-021387	BBAP2679	T1600 FPM Display
CIP	REV 06	710-002895	BBAP4758	T-series CIP
PEM 0	Rev 03	740-026384	XF86421	Power Entry Module 3x80
PEM 1	Rev 03	740-026384	XF86429	Power Entry Module 3x80
SCG 0	REV 18	710-003423	BBAP1896	T640 Sonet Clock Gen.

SCG 1	REV 18	710-003423	BBAN8659	T640 Sonet Clock Gen.
Routing Engine 0	REV 01	740-042243	737F-002238	RE-DUO-1800-16G
Routing Engine 1	REV 01	740-042243	737F-002403	RE-DUO-1800-16G
CB 1	REV 11	710-022597	EK4526	LCC Control Board
CB 1	REV 11	710-022597	EK4527	LCC Control Board
FPC 0	REV 05	710-033871	EK5644	FPC Type 4-ES
CPU	REV 11	710-016744	EK3428	ST-PMB2
PIC 0	REV 20	750-017405	EJ3041	4x 10GE (LAN/WAN) XFP
PIC 1	REV 17	750-026962	EH7536	10x10GE (LAN/WAN) SFPP
MMB 0	REV 07	710-025563	EK6039	ST-MMB2
MMB 1	REV 07	710-025563	EK6086	ST-MMB2
FPC 1	REV 05	710-033871	EK6583	FPC Type 4-ES
CPU	REV 11	710-016744	EK3401	ST-PMB2
PIC 0	REV 17	750-026962	EJ8948	10x10GE (LAN/WAN) SFPP
MMB 0	REV 07	710-025563	EK6202	ST-MMB2
MMB 1	REV 07	710-025563	EK6112	ST-MMB2
SPMB 1	REV 05	710-023321	EK4900	LCC Switch CPU
SIB 0	REV 11	710-013074	EK5958	SIB-I8-SF
SIB 1	REV 11	710-013074	EK4606	SIB-I8-SF
SIB 2	REV 11	710-013074	EK5971	SIB-I8-SF
SIB 3	REV 11	710-013074	EK4609	SIB-I8-SF
SIB 4	REV 11	710-013074	EK4602	SIB-I8-SF
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray -- Rev 2

show chassis hardware user@host> show chassis hardware clei-models

clei-models (T4000 Router)

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 01	710-027486	IPMJ700DRD	CHAS-BP-T1600-S
FPM Display	REV 01	710-021387		CRAFT-T1600-S
CIP	REV 06	710-002895		CIP-L-T640-S
PEM 0	REV 01	740-036442	IPUPAG6KAA	PWR-T-6-60-DC
SCG 0	REV 18	710-003423		SCG-T-S
SCG 1	REV 18	710-003423		SCG-T-S
Routing Engine 0	REV 05	740-026941		RE-DUO-C1800-8G-S
Routing Engine 1	REV 06	740-026941		RE-DUO-C1800-8G-S
CB 0	REV 09	710-022597		CB-LCC-S
CB 1	REV 09	710-022597		CB-LCC-S
FPC 3				
PIC 0	REV 08	750-035293	XXXXXXXXBB	PF-1CGE-CFP
PIC 1	REV 10	750-034624	XXXXXXXXCC	PF-12XGE-SFPP
FPC 5	REV 03	710-033871	IPUCAMBCTD	T1600-FPC4-ES
PIC 1	REV 03	750-034781	IPUIBKLMMA	PD-1CE-CFP-FPC4
FPC 6				
PIC 0	REV 10	750-034624	XXXXXXXXCC	PF-12XGE-SFPP
Fan Tray 0				FANTRAY-T-S
Fan Tray 1				FANTRAY-T4000-S
Fan Tray 2				FANTRAY-TXP-R-S

show chassis hardware user@host> show chassis hardware detail
detail (T4000 Router)

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1172F25AHA	T4000
Midplane	REV 01	710-027486	RC8355	T-series Backplane
FPM GBUS	REV 13	710-002901	BBAE0927	T640 FPM Board
FPM Display	REV 01	710-021387	EF6764	T1600 FPM Display
CIP	REV 06	710-002895	BBAD9210	T-series CIP
PEM 0	REV 01	740-036442	VA00016	Power Entry Module 6x60
SCG 0	REV 18	710-003423	BBAD7248	T640 Sonet Clock Gen.
SCG 1	REV 18	710-003423	BBAE3874	T640 Sonet Clock Gen.

Routing Engine 0	REV 05	740-026941	P737F-002248	RE-DUO-1800
ad0	3823 MB	SMART CF	2009121602A661576157	Compact Flash
ad1	59690 MB	STEC MACH-8 SSD	STM000103FDB	Disk 1
Routing Engine 1	REV 06	740-026941	P737F-002653	RE-DUO-1800
ad0	3823 MB	SMART CF	201011150153F52CF52C	Compact Flash
ad1	62720 MB	SMART Lite SATA Drive	2010110900150A880A88	Disk 1
CB 0	REV 09	710-022597	ED0295	LCC Control Board
CB 1	REV 09	710-022597	EA6050	LCC Control Board
FPC 0	REV 26	750-032819	EK1173	FPC Type 5-3D
CPU	REV 12	711-030686	EJ8584	SNG PMB
PIC 0	REV 07	750-034624	EF6837	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	123363A01145	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	123363A01147	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJJ01P3	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B10M03256	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AJJ01M2	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	123363A01137	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJJ01PN	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	AJJ01NW	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	123363A01139	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	AJJ01KE	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	123363A01336	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	B10M01325	SFP+-10G-SR
PIC 1	REV 07	750-034624	EF6800	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	AJJ01SA	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AJJ01QZ	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJH0217	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AJJ01TE	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	AJJ01KV	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	AJJ01MU	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJJ01R0	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	AJJ01TC	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	AJJ0364	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	AJD0GV3	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	B10M03343	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	AJJ01QJ	SFP+-10G-SR
LMB 0	REV 05	711-034381	EJ8490	Type-0 LMB
LMB 1	REV 04	711-035774	EJ8517	Type-1 LMB
LMB 2	REV 05	711-034381	EJ8489	Type-0 LMB
FPC 3	REV 07	750-032819	EG3637	FPC Type 5-3D
CPU	REV 09	711-030686	EG0150	SNG PMB
PIC 0	REV 08	750-035293	EF3657	1x100GE
Xcvr 0	REV 01	740-032210	C22CQNJ	CFP-100G-LR4
PIC 1	REV 10	750-034624	BBAN4098	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	B11J04902	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11J04891	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJJ01MX	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11J04183	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	B11J04894	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11J04184	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	B11J04897	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	B11J04899	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	AJJ01TV	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	B11J04057	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	AJJ01M4	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	B11J04905	SFP+-10G-SR
LMB 0	REV 04	711-034381	EG1524	Type-0 LMB
LMB 1	REV 03	711-035774	EG0345	Type-1 LMB
LMB 2	REV 04	711-034381	EG1522	Type-0 LMB
FPC 5	REV 03	710-033871	BBAJ0768	FPC Type 4-ES
CPU	REV 11	710-016744	BBAH9342	ST-PMB2

PIC 0	REV 09	750-029262	EE6789	100GE
PIC 1	REV 03	750-034781	EE6655	100GE CFP
Xcvr 0	REV 01	740-032210	J11A22334	CFP-100G-LR4
BRIDGE 0	REV 03	711-029995	EE6572	100GE Bridge Board
MMB 0	REV 07	710-025563	BBAJ4657	ST-MMB2
MMB 1	REV 07	710-025563	BBAJ3073	ST-MMB2
FPC 6	REV 05	750-010153	EF4936	FPC Type 5-3D
CPU	REV 06	711-030686	EF4189	SNG PMB
PIC 0	REV 10	750-034624	BBAN4109	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	B11J04895	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11J04898	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	B11J04021	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	B11J04903	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	B11J04311	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11J04059	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	B11J04016	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	B11J04017	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	B11J04887	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	B11J04297	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	B11J04893	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	B11J04022	SFP+-10G-SR
PIC 1	REV 02	750-034624	EE3711	12x10GE (LAN/WAN) SFPP
Xcvr 0	REV 01	740-031980	AJH033X	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	AJJ01N0	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AJJ01SV	SFP+-10G-SR
Xcvr 3	REV 01	740-031980	AJJ032L	SFP+-10G-SR
Xcvr 4	REV 01	740-031980	B10M01593	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	AJD0FF1	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	AJJ01NU	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	123363A01305	SFP+-10G-SR
Xcvr 8	REV 01	740-031980	B10M00361	SFP+-10G-SR
Xcvr 9	REV 01	740-031980	AJJ01M7	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	AJJ032X	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	AJJ01PG	SFP+-10G-SR
LMB 0	REV 04	711-034381	EF3838	Type-0 LMB
LMB 1	REV 03	711-035774	EF3821	Type-1 LMB
LMB 2	REV 04	711-034381	EF3834	Type-0 LMB
SPMB 0	REV 05	710-023321	ED1990	LCC Switch CPU
SPMB 1	REV 05	710-023321	EA2768	LCC Switch CPU
SIB 0	REV 02	711-036340	EF8802	SIB-HC-3D
SIB 1	REV 07	711-036340	EG2286	SIB-HC-3D
SIB 2	REV 07	711-036340	EG2252	SIB-HC-3D
SIB 3	REV 02	711-036340	EF1358	SIB-HC-3D
SIB 4	REV 02	711-036340	EF8806	SIB-HC-3D
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
-- Rev 2				
Fan Tray 2				Rear Fan Tray -- Rev 3

```
show chassis hardware models (T4000 Router)
```

```
user@host> show chassis hardware models
```

Hardware inventory:				
Item	Version	Part number	Serial number	FRU model number
Midplane	REV 01	710-027486	RC8355	CHAS-BP-T1600-S
FPM Display	REV 01	710-021387	EF6764	CRAFT-T1600-S
CIP	REV 06	710-002895	BBAD9210	CIP-L-T640-S
PEM 0	REV 01	740-036442	VA00016	PWR-T-6-60-DC
SCG 0	REV 18	710-003423	BBAD7248	SCG-T-S
SCG 1	REV 18	710-003423	BBAE3874	SCG-T-S
Routing Engine 0	REV 05	740-026941	P737F-002248	RE-DUO-C1800-8G-S
Routing Engine 1	REV 06	740-026941	P737F-002653	RE-DUO-C1800-8G-S

CB 0	REV 09	710-022597	ED0295	CB-LCC-S
CB 1	REV 09	710-022597	EA6050	CB-LCC-S
FPC 3				
PIC 0	REV 08	750-035293	EF3657	PF-1CGE-CFP
PIC 1	REV 10	750-034624	BBAN4098	PF-12XGE-SFPP
FPC 5	REV 03	710-033871	BBAJ0768	T1600-FPC4-ES
PIC 1	REV 03	750-034781	EE6655	PD-1CE-CFP-FPC4
FPC 6				
PIC 0	REV 10	750-034624	BBAN4109	PF-12XGE-SFPP
Fan Tray 0				FANTRAY-T-S
Fan Tray 1				FANTRAY-T4000-S
Fan Tray 2				FAN-REAR-TXP-LCC

show chassis hardware user@host> **show chassis hardware lcc 0**
lcc (TX Matrix Router) lcc0-re0:

```
-----
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               65751         T640
Midplane      REV 03    710-005608   RA1408         T640 Backplane
FPM GBUS      REV 09    710-002901   RA2784         T640 FPM Board
FPM Display   REV 05    710-002897   RA2825         FPM Display
CIP           REV 06    710-002895   HT0684         T Series CIP
PEM 0         Rev 11    740-002595   PM18483        Power Entry Module
PEM 1         Rev 11    740-002595   qb13984        Power Entry Module
SCG 0         REV 11    710-003423   HT0022         T640 Sonet Clock Gen.
Routing Engine 0 REV 13    740-005022   210865700363   RE-3.0 (RE-600)
CB 0          REV 03    710-007655   HW1195         Control Board (CB-T)
FPC 1         REV 05    710-007527   HM3245         FPC Type 2
  CPU         REV 14    710-001726   HM1084         FPC CPU
  PIC 0        REV 02    750-007218   AZ1112         2x OC-12 ATM2 IQ, SMIR
  PIC 1        REV 02    750-007745   HG3462         4x OC-3 SONET, SMIR
  PIC 2        REV 14    750-001901   BA5390         4x OC-12 SONET, SMIR
  PIC 3        REV 09    750-008155   HS3012         2x G/E IQ, 1000 BASE
    SFP 0      NON-JNPR   P1186TY        SFP-S
    SFP 1      REV 01    740-007326   P11WLTF        SFP-SX
  MMB 1        REV 02    710-005555   HL7514         MMB-288mbit
  PPB 0        REV 04    710-003758   HM4405         PPB Type 2
  PPB 1        REV 04    710-003758   AV1960         PPB Type 2
FPC 2         REV 08    710-010154   HZ3578         E-FPC Type 3
  CPU         REV 05    710-010169   HZ3219         FPC CPU-Enhanced
  PIC 0        REV 02    750-009567   HX2882         1x 10GE(LAN), XENPAK
    SFP 0      REV 01    740-009898   USC202U709     XENPAK-LR
  PIC 1        REV 03    750-003336   HJ9954         4x OC-48 SONET, SMSR
  PIC 2        REV 01    750-004535   HC0235         1x OC-192 SM SR1
  PIC 3        REV 07    750-007141   HX1699         10x 1GE(LAN), 1000 BASE

    SFP 0      REV 01    740-007326   2441042        SFP-SX
    SFP 1      REV 01    740-007326   2441027        SFP-SX
  MMB 0        REV 03    710-010171   HV2365         MMB-5M3-288mbit
  MMB 1        REV 03    710-010171   HZ3888         MMB-5M3-288mbit
SPMB 0        REV 09    710-003229   HW5245         T Series Switch CPU
SIB 3         REV 07    710-005781   HR5927         SIB-L8-F16
  B Board     REV 06    710-005782   HR5971         SIB-L8-F16 (B)
SIB 4         REV 07    710-005781   HR5903         SIB-L8-F16
  B Board     REV 06    710-005782   HZ5275         SIB-L8-F16 (B)
```

show chassis hardware user@host> **show chassis hardware scc**
scc (TX Matrix Router) scc-re0:

```
-----
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis				TX Matrix
Midplane	REV 04	710-004396	RB0014	SCC Midplane
FPM GBUS	REV 04	710-004617	HW9141	SCC FPM Board
FPM Display	REV 04	710-004619	HS5950	SCC FPM
CIP 0	REV 01	710-010218	HV9151	SCC CIP
CIP 1	REV 01	710-010218	HV9152	SCC CIP
PEM 1	Rev 11	740-002595	QB13977	Power Entry Module
Routing Engine 0	REV 05	740-008883	P11123900153	RE-4.0 (RE-1600)
CB 0	REV 01	710-011709	HR5964	Control Board (CB-TX)
SPMB 0	REV 09	710-003229	HW5293	T Series Switch CPU
SIB 3				
SIB 4	REV 01	710-005839	HW1177	SIB-S8-F16
B Board	REV 01	710-005840	HW1202	SIB-S8-F16 (B)

show chassis hardware
(T1600 Router)

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			B2703	T1600
Midplane	REV 03	710-005608	RC4137	T640 Backplane
FPM GBUS	REV 10	710-002901	DT7062	T640 FPM Board
FPM Display	REV 05	710-002897	DS3067	FPM Display
CIP	REV 06	710-002895	DT3386	T-series CIP
PEM 0	Rev 07	740-017906	UA26344	Power Entry Module 3x80
PEM 1	Rev 18	740-002595	UF38441	Power Entry Module
SCG 0	REV 15	710-003423	DV0941	T640 Sonet Clock Gen.
Routing Engine 0	REV 08	740-014082	9009014502	RE-A-2000
Routing Engine 1	REV 07	740-014082	9009009591	RE-A-2000
CB 0	REV 05	710-007655	JA9360	Control Board (CB-T)
CB 1	REV 03	710-017707	DT3251	Control Board (CB-T)
FPC 0	REV 07	710-013558	DR4253	E2-FPC Type 2
CPU	REV 05	710-013563	DS3902	FPC CPU-Enhanced
PIC 0	REV 01	750-010618	CB5446	4x G/E SFP, 1000 BASE
Xcvr 0	REV 01	740-011613	P9F11CW	SFP-SX
Xcvr 1	REV 01	740-011613	P9F15C2	SFP-SX
Xcvr 2	REV 01	740-011782	PB94K0L	SFP-SX
PIC 1	REV 06	750-001900	HB6399	1x OC-48 SONET, SMSR
PIC 2	REV 14	750-001901	AP1092	4x OC-12 SONET, SMIR
PIC 3	REV 07	750-001900	AR8275	1x OC-48 SONET, SMSR
MMB 1	REV 07	710-010171	DS1524	MMB-5M3-288mbit
FPC 1	REV 06	710-013553	DL9067	E2-FPC Type 1
CPU	REV 04	710-013563	DM1685	FPC CPU-Enhanced
PIC 0	REV 08	750-001072	AB1688	1x G/E, 1000 BASE-SX
PIC 1	REV 10	750-012266	JX5519	4x 1GE(LAN), IQ2
Xcvr 0	REV 01	740-011613	AM0812S8UK6	SFP-SX
Xcvr 2	REV 01	740-011613	AM0812S8UK1	SFP-SX
Xcvr 3	REV 01	740-011782	P8N1YHG	SFP-SX
PIC 2	REV 22	750-005634	DP0083	1x CHOC12 IQ SONET, SMIR
MMB 1	REV 07	710-008923	DN1862	MMB 3M 288-bit
FPC 2	REV 01	710-005548	HJ9899	FPC Type 3
CPU	REV 06	710-001726	HC0586	FPC CPU
PIC 0	REV 16	750-007141	NC9660	10x 1GE(LAN), 1000 BASE
Xcvr 0	REV 01	740-011613	AM0812S8XAR	SFP-SX
Xcvr 1	REV 01	740-011782	P920E7B	SFP-SX
Xcvr 2	REV 01	740-011613	AM0812S8XAU	SFP-SX
Xcvr 4	REV 01	740-011613	AM0812S8XAK	SFP-SX
Xcvr 5	REV 01	740-011613	AM0812S8XAA	SFP-SX
Xcvr 6	REV 01	740-011613	PAJ4NKY	SFP-SX
Xcvr 7	REV 01	740-011613	AM0812S8UJW	SFP-SX

Xcvr 8	REV 01	740-011782	PB81X89	SFP-SX
Xcvr 9	REV 01	740-011613	AM0812S8UJX	SFP-SX
PIC 1	REV 06	750-015217	DK3280	8x 1GE(TYPE3), IQ2
Xcvr 0	REV 01	740-011782	P8POA3T	SFP-SX
Xcvr 1	REV 01	740-013111	5090002	SFP-T
Xcvr 2	REV 01	740-011613	AM0814S93BQ	SFP-SX
Xcvr 4		NON-JNPR	PDEOFAN	SFP-SX
Xcvr 5	REV 01	740-011782	P8Q20XY	SFP-SX
Xcvr 6	REV 01	740-011613	AM0812S8UJV	SFP-SX
Xcvr 7	REV 01	740-011613	AM0812S8UP7	SFP-SX
PIC 2	REV 05	750-004695	HT4383	1x Tunnel
PIC 3	REV 17	750-009553	RL0204	4x OC-48 SONET
Xcvr 0	REV 01	740-011785	PDS3T23	SFP-SR
Xcvr 1	REV 01	740-011785	P6Q0F3E	SFP-SR
MMB 0	REV 03	710-004047	HD5843	MMB-288mbit
MMB 1	REV 03	710-004047	HE3208	MMB-288mbit
PPB 0	REV 02	710-002845	HA4524	PPB Type 3
PPB 1	REV 02	710-002845	HA4766	PPB Type 3
FPC 3	REV 01	710-010154	HR0863	E-FPC Type 3
CPU	REV 01	710-010169	HN3422	FPC CPU-Enhanced
PIC 0	REV 07	750-012793	WF5096	1x 10GE(LAN/WAN) IQ2
Xcvr 0		NON-JNPR	M64294TP	XFP-10G-LR
PIC 1	REV 25	750-007141	DV2127	10x 1GE(LAN), 1000 BASE
Xcvr 0	REV 01	740-011613	PFA6LTJ	SFP-SX
Xcvr 1	REV 01	740-011782	P9POXV4	SFP-SX
Xcvr 2	REV 01	740-011782	P9M0TNX	SFP-SX
Xcvr 4	REV 01	740-011782	P9B0TTP	SFP-SX
Xcvr 5		NON-JNPR	PBS4LED	SFP-SX
PIC 2	REV 17	750-009553	RL0212	4x OC-48 SONET
Xcvr 0	REV 01	740-011785	PDS3T8G	SFP-SR
PIC 3	REV 32	750-003700	DL1279	1x OC-192 12xMM VSR
MMB 0	REV 01	710-010171	HR0821	MMB-288mbit
MMB 1	REV 01	710-010171	HR0818	MMB-288mbit
FPC 4	REV 16	710-013037	EB4919	FPC Type 4-ES
CPU	REV 09	710-016744	BBAA4382	ST-PMB2
PIC 0	REV 03	711-029996	EB1569	100GE
PIC 1	REV 05	711-029999	EB9983	100GE CFP
Xcvr 0	REV 0	740-032210	J10G80746	CFP-100G-LR4
BRIDGE 0	REV 02	711-029995	EB2235	100GE Bridge Board
MMB 0	REV 04	710-025563	BBAA7112	ST-MMB2
MMB 1	REV 04	710-025563	BBAA7149	ST-MMB2
FPC 5	REV 02	710-013037	DE3407	FPC Type 4-ES
CPU	REV 04	710-016744	DA2124	ST-PMB2
PIC 0	REV 16	750-012518	DF2554	4x OC-192 SONET XFP
Xcvr 0	REV 01	740-014279	AA0745N1FX8	XFP-OC192-SR
Xcvr 1	REV 01	740-014279	AA0748N1HN5	XFP-OC192-SR
Xcvr 2	REV 01	740-014279	AA0748N1HT6	XFP-OC192-SR
Xcvr 3	REV 01	740-014279	AA0744N1EC9	XFP-OC192-SR
PIC 1	REV 01	750-010850	JA0329	1x OC-768 SONET SR
MMB 0	REV 04	710-016036	DE9577	ST-MMB2
MMB 1	REV 04	710-016036	DK4060	ST-MMB2
FPC 6	REV 14	710-013037	DV1431	FPC Type 4-ES
CPU	REV 09	710-016744	DT9020	ST-PMB2
PIC 0	REV 11	750-017405	DM6261	4x 10GE (LAN/WAN) XFP
Xcvr 0	REV 01	740-014289	C701XU05Q	XFP-10G-SR
Xcvr 1	REV 01	740-014279	AA0748N1HPT	XFP-10G-LR
Xcvr 2	REV 01	740-014289	T08E19189	XFP-10G-SR
Xcvr 3	REV 01	740-014289	C715XU058	XFP-10G-SR
PIC 1	REV 13	750-017405	DP8772	4x 10GE (LAN/WAN) XFP
Xcvr 0	REV 02	740-011571	C850XJ037	XFP-10G-SR

Xcvr 1	REV 02	740-014289	C839XU0L9	XFP-10G-SR
Xcvr 2	REV 02	740-014289	C834XU05A	XFP-10G-SR
Xcvr 3	REV 02	740-014289	C810XU0CE	XFP-10G-SR
MMB 0	REV 01	710-025563	DT8454	ST-MMB2
MMB 1	REV 01	710-025563	DT8366	ST-MMB2
FPC 7	REV 09	710-007529	HZ7624	FPC Type 3
CPU	REV 15	710-001726	HZ1413	FPC CPU
PIC 0	REV 10	750-012793	DM5627	1x 10GE(LAN/WAN) IQ2
Xcvr 0	REV 02	740-011571	C831XJ062	XFP-10G-SR
PIC 1	REV 01	750-015217	JT6762	8x 1GE(TYPE3), IQ2
Xcvr 0	REV 01	740-011782	P8Q25JU	SFP-SX
Xcvr 1	REV 01	740-011782	P9B0U0K	SFP-SX
PIC 2	REV 01	750-015217	JS4268	8x 1GE(TYPE3), IQ2
Xcvr 0	REV 01	740-011613	AM0812S8XBZ	SFP-SX
Xcvr 1	REV 01	740-011613	AM0812S8XAP	SFP-SX
Xcvr 2	REV 01	740-011613	AM0812S8XBY	SFP-SX
Xcvr 3	REV 01	740-011613	AM0812S8XBX	SFP-SX
Xcvr 4	REV 01	740-011613	P9F1652	SFP-SX
Xcvr 5	REV 01	740-011782	P8Q21YC	SFP-SX
Xcvr 6	REV 01	740-011782	P8Q27HQ	SFP-SX
Xcvr 7	REV 01	740-011613	P8E2SSU	SFP-SX
PIC 3	REV 15	750-009450	NB6790	1x OC-192 SM SR2
MMB 0	REV 03	710-005555	HZ3450	MMB-288mbit
MMB 1	REV 03	710-005555	HZ3415	MMB-288mbit
PPB 0	REV 04	710-002845	HP0887	PPB Type 3
PPB 1	REV 04	710-002845	HW5255	PPB Type 3
SPMB 0	REV 10	710-003229	HX3699	T-series Switch CPU
SPMB 1	REV 12	710-003229	DT3091	T-series Switch CPU
SIB 0	REV 07	710-013074	DS4747	SIB-I8-SF
SIB 1	REV 07	710-013074	DS4942	SIB-I8-SF
SIB 2	REV 07	710-013074	DS4965	SIB-I8-SF
SIB 3	REV 07	710-013074	DS4990	SIB-I8-SF
SIB 4	REV 07	710-013074	DS4944	SIB-I8-SF
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray -- Rev 2

show chassis hardware user@host> show chassis hardware
 (TX Matrix Plus sfc0-re0:
 Router)

```
-----
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               JN113186EAHB  TXP
Midplane      REV 05    710-022574   TS3822         SFC Midplane
FPM Display   REV 03    710-024027   DW4701         TXP FPM Display
CIP 0         REV 05    710-023792   DW7998         TXP CIP
CIP 1         REV 05    710-023792   DW7999         TXP CIP
PEM 0         Rev 04    740-027463   UM26367        Power Entry Module
PEM 1         Rev 04    740-027463   UM26346        Power Entry Module
Routing Engine 0 REV 06    740-026942   737A-1081      RE-DUO-2600
Routing Engine 1 REV 06    740-026942   737A-1043      RE-DUO-2600
CB 0          REV 05    710-022606   DW4435         SFC Control Board
CB 1          REV 09    710-022606   DW6100         SFC Control Board
SPMB 0                               BUILTIN        SFC Switch CPU
SPMB 1                               BUILTIN        SFC Switch CPU
SIB F13 0     REV 04    750-024564   DW5764         F13 SIB
  B Board     REV 03    710-023431   DW9053         F13 SIB Mezz
SIB F13 3     REV 04    750-024564   DW5785         F13 SIB
  B Board     REV 03    710-023431   DW9030         F13 SIB Mezz
SIB F13 6
SIB F13 8     REV 04    750-024564   DW5752         F13 SIB
```

B Board	REV 03	710-023431	DW9051	F13 SIB Mezz
SIB F13 11	REV 04	750-024564	DW5782	F13 SIB
B Board	REV 03	710-023431	DW9058	F13 SIB Mezz
SIB F13 12	REV 03	750-024564	DT9466	F13 SIB
B Board	REV 02	710-023431	DT6556	F13 SIB Mezz
SIB F2S 0/0	REV 05	710-022603	DW7898	F2S SIB
B Board	REV 05	710-023787	DW7625	F2S SIB Mezz
SIB F2S 0/2	REV 05	710-022603	DW7811	F2S SIB
B Board	REV 05	710-023787	DW7550	F2S SIB Mezz
SIB F2S 0/4	REV 04	710-022603	DW4873	F2S SIB
B Board	REV 05	710-023787	DW8509	F2S SIB Mezz
SIB F2S 0/6	REV 04	710-022603	DW4867	F2S SIB
B Board	REV 05	710-023787	DW8472	F2S SIB Mezz
SIB F2S 1/0	REV 04	710-022603	DW4871	F2S SIB
B Board	REV 05	710-023787	DW8497	F2S SIB Mezz
SIB F2S 1/2	REV 05	710-022603	DW7868	F2S SIB
B Board	REV 05	710-023787	DW7551	F2S SIB Mezz
SIB F2S 1/4	REV 04	710-022603	DW4854	F2S SIB
B Board	REV 05	710-023787	DW8496	F2S SIB Mezz
SIB F2S 1/6	REV 05	710-022603	DW7889	F2S SIB
B Board	REV 05	710-023787	DW7496	F2S SIB Mezz
SIB F2S 2/0	REV 04	710-022603	DW4852	F2S SIB
B Board	REV 05	710-023787	DW8498	F2S SIB Mezz
SIB F2S 2/2	REV 04	710-022603	DW4845	F2S SIB
B Board	REV 05	710-023787	DW8457	F2S SIB Mezz
SIB F2S 2/4	REV 05	710-022603	DW7802	F2S SIB
B Board	REV 05	710-023787	DW7562	F2S SIB Mezz
SIB F2S 2/6	REV 04	710-022603	DW4822	F2S SIB
B Board	REV 05	710-023787	DW8467	F2S SIB Mezz
SIB F2S 3/0	REV 05	710-022603	DW7815	F2S SIB
B Board	REV 05	710-023787	DW7518	F2S SIB Mezz
SIB F2S 3/2	REV 03	710-022603	DV0068	F2S SIB
B Board	REV 03	710-023787	DT9974	F2S SIB Mezz
SIB F2S 3/4	REV 05	710-022603	DW7874	F2S SIB
B Board	REV 05	710-023787	DW7601	F2S SIB Mezz
SIB F2S 3/6	REV 03	710-022603	DV0033	F2S SIB
B Board	REV 03	710-023787	DT9969	F2S SIB Mezz
SIB F2S 4/0	REV 03	710-022603	DV0043	F2S SIB
B Board	REV 03	710-023787	DT9948	F2S SIB Mezz
SIB F2S 4/2	REV 05	710-022603	DW5446	F2S SIB
B Board	REV 05	710-023787	DW7611	F2S SIB Mezz
SIB F2S 4/4	REV 04	710-022603	DW4826	F2S SIB
B Board	REV 05	710-023787	DW8458	F2S SIB Mezz
SIB F2S 4/6	REV 03	710-022603	DV0026	F2S SIB
B Board	REV 03	710-023787	DT9963	F2S SIB Mezz
Fan Tray 0	REV 02	760-024497	DR8290	Front Fan Tray
Fan Tray 1	REV 02	760-024497	DR8293	Front Fan Tray
Fan Tray 2	REV 05	760-024502	DR8280	Rear Fan Tray
Fan Tray 3				
Fan Tray 4	REV 05	760-024502	DR8276	Rear Fan Tray
Fan Tray 5	REV 02	760-024502	DP5643	Rear Fan Tray

1cc0-re0:

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN11036F8AHA	T1600
Midplane	REV 03	710-017247	RC3799	T-series Backplane
FPM GBUS	REV 10	710-002901	DP7009	T640 FPM Board
FPM Display	REV 01	710-021387	DN7026	T1600 FPM Display
CIP	REV 06	710-002895	DP6024	T-series CIP

PEM 1	Rev 02	740-023211	WA50019	Power Entry Module 4x60A
SCG 0	REV 15	710-003423	DR6757	T640 Sonet Clock Gen.
SCG 1	REV 15	710-003423	DS2225	T640 Sonet Clock Gen.
Routing Engine 0	REV 01	740-026941	737F-1040	RE-DUO-1800
Routing Engine 1	REV 01	740-026941	737F-1016	RE-DUO-1800
CB 0	REV 06	710-022597	DX4011	LCC Control Board
CB 1	REV 06	710-022597	DX4017	LCC Control Board
FPC 1	REV 07	710-013035	DN5847	FPC Type 3-ES
CPU	REV 08	710-016744	DP2570	ST-PMB2
PIC 0	REV 05	750-015217	DB0418	8x 1GE(TYPE3), IQ2
Xcvr 0	REV 01	740-011782	P8Q27ZG	SFP-SX
Xcvr 1		NON-JNPR	PDA1U0D	SFP-SX
Xcvr 2	REV 01	740-011613	P9F1ALW	SFP-SX
Xcvr 3	REV 01	740-011782	PBA403V	SFP-SX
Xcvr 4		NON-JNPR	PDE09DP	SFP-SX
Xcvr 5	REV 01	740-011782	PCH2P4K	SFP-SX
Xcvr 6	REV 01	740-011782	PB94K0F	SFP-SX
Xcvr 7	REV 01	740-011782	PBA2R2A	SFP-SX
PIC 1	REV 03	750-004424	HJ4020	1x 10GE(LAN),DWDM
PIC 2	REV 01	750-003336	HG6073	4x OC-48 SONET, SMSR
MMB 0	REV 04	710-016036	DP3401	ST-MMB2
FPC 3	REV 12	710-013037	DR1169	FPC Type 4-ES
CPU	REV 08	710-016744	DP9429	ST-PMB2
PIC 0	REV 02	750-010850	JA0332	1x OC-768 SONET SR
MMB 0	REV 04	710-016036	DR0628	ST-MMB2
MMB 1	REV 04	710-016036	DR0592	ST-MMB2
FPC 4	REV 05	710-021534	DR7350	FPC Type 1-ES
CPU	REV 08	710-016744	DP8096	ST-PMB2
PIC 0	REV 04	750-014627	DP9171	4x OC-3 1x OC-12 SFP
Xcvr 0	REV 02	740-011615	PDE2RVR	SFP-SR
PIC 1	REV 22	750-005634	DS5815	1x CHOC12 IQ SONET, SMIR
PIC 2	REV 09	750-002911	CF4539	4x F/E, 100 BASE-TX
PIC 3	REV 08	750-021652	DR2827	1x CHOC12 IQE SONET
Xcvr 0		NON-JNPR	8	UNKNOWN
MMB 0	REV 04	710-016036	DR0809	ST-MMB2
FPC 5	REV 07	710-007529	HS5608	FPC Type 3
CPU	REV 15	710-001726	HX4351	FPC CPU
PIC 0	REV 14	750-009567	WJ8961	1x 10GE(LAN),XENPAK
Xcvr 0	REV 01	740-013170	J05K05961	XENPAK-LR
PIC 1	REV 16	750-007141	JJ8146	10x 1GE(LAN), 1000 BASE
Xcvr 1	REV 01	740-011613	P9F117T	SFP-SX
Xcvr 2	REV 01	740-011782	PBA2VCL	SFP-SX
Xcvr 3	REV 01	740-011782	PB83DRB	SFP-SX
Xcvr 4	REV 01	740-011613	AM0812S8UP8	SFP-SX
PIC 2	REV 12	750-009567	WF3566	1x 10GE(LAN),XENPAK
Xcvr 0	REV 02	740-013170	T07C94489	XENPAK-LR
MMB 0	REV 03	710-005555	HZ1907	MMB-288mbit
MMB 1	REV 03	710-005555	HW5283	MMB-288mbit
PPB 0	REV 04	710-002845	HZ7717	PPB Type 3
PPB 1	REV 04	710-002845	HS0110	PPB Type 3
FPC 6	REV 07	710-013035	DP7486	FPC Type 3-ES
CPU	REV 08	710-016744	DP2545	ST-PMB2
PIC 0	REV 09	750-009567	NE6323	1x 10GE(LAN),XENPAK
Xcvr 0	REV 02	740-013170	T09C71959	XENPAK-LR
PIC 1	REV 06	750-015217	DN4775	8x 1GE(TYPE3), IQ2
Xcvr 0	REV 01	740-011782	P7E0T6M	SFP-SX
Xcvr 1	REV 01	740-011613	AM0812S8XAY	SFP-SX
Xcvr 2	REV 01	740-011782	P7E0T6J	SFP-SX
Xcvr 3	REV 01	740-011782	PCH2P7D	SFP-SX

Xcvr 4	REV 01	740-011782	P9B0QYT	SFP-SX
Xcvr 5	REV 01	740-011613	AM0812S8WQJ	SFP-SX
Xcvr 6	REV 02	740-013111	9301220	SFP-T
Xcvr 7	REV 01	740-011782	P9B0TZ5	SFP-SX
PIC 2	REV 06	750-015217	DM6747	8x 1GE(TYPE3), IQ2
Xcvr 0	REV 01	740-011613	PAP0ZB2	SFP-SX
Xcvr 1	REV 01	740-013111	70191002	SFP-T
Xcvr 6	REV 01	740-011782	PBA29H8	SFP-SX
Xcvr 7	REV 01	740-011613	AM0812S8WQG	SFP-SX
MMB 0	REV 04	710-016036	DP3238	ST-MMB2
FPC 7	REV 03	710-021540	DV3154	FPC Type 2-ES
CPU	REV 09	710-016744	DT9053	ST-PMB2
PIC 0	REV 13	750-001901	HB4225	4x OC-12 SONET, SMIR
PIC 1	REV 05	750-001900	AD3644	1x OC-48 SONET, SMSR
PIC 2	REV 10	750-008155	HV0335	2x G/E IQ, 1000 BASE
Xcvr 0	REV 01	740-011782	PCH2UKF	SFP-SX
Xcvr 1	REV 01	740-011782	PCH2V19	SFP-SX
PIC 3	REV 03	750-014638	JS9493	1x OC-48-12-3 SFP
Xcvr 0	REV 01	740-011785	P6Q0ENK	SFP-SR
MMB 0	REV 05	710-016036	DP3323	ST-MMB2
SPMB 0	REV 04	710-023321	DX3004	LCC Switch CPU
SPMB 1	REV 04	710-023321	DX3009	LCC Switch CPU
SIB 0	REV 07	710-022594	DW4195	LCC SIB
B Board	REV 07	710-023185	DW3930	LCC SIB Mezz
SIB 1	REV 07	710-022594	DW4179	LCC SIB
B Board	REV 07	710-023185	DW3919	LCC SIB Mezz
SIB 2				
SIB 3	REV 06	710-022594	DT8251	LCC SIB
B Board	REV 06	710-023185	DT5792	LCC SIB Mezz
SIB 4	REV 08	710-022594	DW8014	LCC SIB
B Board	REV 07	710-023185	DW3917	LCC SIB Mezz
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray -- Rev 3

lcc1-re0:

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1102270AHA	T1600
Midplane	REV 04	710-017247	RC5358	T-series Backplane
FPM GBUS	REV 10	710-002901	DS3443	T640 FPM Board
FPM Display	REV 01	710-021387	DS6411	T1600 FPM Display
CIP	REV 06	710-002895	DS4235	T-series CIP
PEM 0	Rev 02	740-023211	VM82438	Power Entry Module 4x60A
SCG 0	REV 15	710-003423	DS6649	T640 Sonet Clock Gen.
SCG 1	REV 15	710-003423	DR6775	T640 Sonet Clock Gen.
Routing Engine 0	REV 01	740-026941	737F-1083	RE-DUO-1800
Routing Engine 1	REV 01	740-026941	737F-1104	RE-DUO-1800
CB 0	REV 06	710-022597	DW8542	LCC Control Board
CB 1	REV 06	710-022597	DW8530	LCC Control Board
FPC 0	REV 02	710-010845	JE2392	FPC Type 4
CPU	REV 02	710-011481	JF6820	FPC CPU-Enhanced
PIC 0	REV 11	750-017405	DP7259	4x 10GE (LAN/WAN) XFP
Xcvr 0	REV 01	740-014279	AA0741N1C8T	XFP-10G-LR
Xcvr 1	REV 01	740-014279	AA0746N1GAM	XFP-10G-LR
Xcvr 2	REV 01	740-014279	AA0747N1H0B	XFP-10G-LR
Xcvr 3	REV 01	740-014279	AA0748N1HZ5	XFP-10G-LR
MMB 0	REV 03	710-010842	HY7601	ST-MMB
FPC 1	REV 16	710-013037	BBAA7398	FPC Type 4-ES
CPU	REV 09	710-016744	BBAA2329	ST-PMB2

PIC 0	REV 03	711-029996	EB1575	100GE
PIC 1	REV 06	750-034781	EB9980	100GE CFP
MMB 0	REV 04	710-025563	BBAA5325	ST-MMB2
MMB 1	REV 04	710-025563	BBAA5444	ST-MMB2
FPC 2	REV 16	710-013037	BBAA7185	FPC Type 4-ES
CPU	REV 09	710-016744	BBAA3522	ST-PMB2
PIC 0	REV 03	711-029996	EB1557	100GE
PIC 1	REV 05	750-034781	EB4660	100GE CFP
Xcvr 0	REV 0	740-032210	J10F73666	CFP-100G-LR4
BRIDGE 0	REV 02	711-029995	EB2237	100GE Bridge Board
MMB 0	REV 04	710-025563	BBAA5347	ST-MMB2
MMB 1	REV 04	710-025563	BBAA5401	ST-MMB2
FPC 3	REV 10	710-021534	DZ0941	FPC Type 1-ES
CPU	REV 09	710-016744	DY6364	ST-PMB2
PIC 0	REV 13	750-012266	DK9192	4x 1GE(LAN), IQ2
Xcvr 0	REV 01	740-011613	AM0812S8WVD	SFP-SX
Xcvr 1		NON-JNPR	PDD63Q4	SFP-SX
Xcvr 2		NON-JNPR	PDE4G54	SFP-SX
Xcvr 3		NON-JNPR	PD40MAG	SFP-SX
PIC 1	REV 01	750-007641	HJ2003	1x G/E IQ, 1000 BASE
Xcvr 0	REV 01	740-011613	AM0812S8WVG	SFP-SX
PIC 3	REV 17	750-007444	JB6873	1x CHSTM1 IQ SDH, SMIR
MMB 0	REV 04	710-025563	DZ0281	ST-MMB2
FPC 4	REV 06	710-013035	DK0614	FPC Type 3-ES
CPU	REV 07	710-016744	DK1616	ST-PMB2
PIC 0	REV 22	750-007141	DM1870	10x 1GE(LAN), 1000 BASE
Xcvr 0	REV 01	740-011782	PCL3UKW	SFP-SX
Xcvr 1	REV 01	740-011782	P7E0T73	SFP-SX
Xcvr 2	REV 01	740-007326	P4TOWLR	SFP-SX
Xcvr 3	REV 01	740-011782	PAR1LRL	SFP-SX
Xcvr 4	REV 01	740-011782	P9M0U3Z	SFP-SX
Xcvr 5	REV 01	740-011782	P9M0U0C	SFP-SX
Xcvr 6	REV 01	740-011782	P9M0TLG	SFP-SX
Xcvr 7	REV 01	740-011782	P9M0U0F	SFP-SX
Xcvr 8	REV 01	740-011613	PFA6LAP	SFP-SX
Xcvr 9	REV 01	740-011782	PCH2P0U	SFP-SX
PIC 1	REV 16	750-009450	CV2565	1x OC-192 SM SR2
PIC 2	REV 05	750-004424	HH3057	1x 10GE(LAN), 10GBASE-LR
PIC 3	REV 12	750-013423	DP0403	MultiServices 500
MMB 0	REV 04	710-016036	DK1988	ST-MMB2
FPC 5	REV 07	710-013560	DR0004	E2-FPC Type 3
CPU	REV 05	710-013563	DR0089	FPC CPU-Enhanced
PIC 0	REV 11	750-012793	DR6107	1x 10GE(LAN/WAN) IQ2
Xcvr 0	REV 01	740-014289	C743XU074	XFP-10G-SR
PIC 1	REV 01	750-004695	HD5980	1x Tunnel
PIC 2	REV 32	750-003700	DL3770	1x OC-192 12xMM VSR
PIC 3	REV 12	750-009553	WB8901	4x OC-48 SONET
Xcvr 0	REV 01	740-011785	P9D1GTQ	SFP-SR
Xcvr 1	REV 01	740-011785	PDS0MMB	SFP-SR
Xcvr 3	REV 01	740-011785	PDE1KXP	SFP-SR
MMB 0	REV 07	710-010171	DP7374	MMB-5M3-288mbit
MMB 1	REV 07	710-010171	DP7404	MMB-5M3-288mbit
FPC 6	REV 07	710-013035	DM0994	FPC Type 3-ES
CPU	REV 07	710-016744	DM3651	ST-PMB2
PIC 0	REV 07	750-015217	DN4743	8x 1GE(TYPE3), IQ2
Xcvr 3	REV 01	740-011613	AM0812S8XB0	SFP-SX
Xcvr 4	REV 01	740-011782	PB829RB	SFP-SX
Xcvr 5	REV 01	740-011782	P8J1SYX	SFP-SX
PIC 1	REV 03	750-003336	HJ9954	4x OC-48 SONET, SMSR

PIC 3	REV 02	750-012793	JM7665	1x 10GE(LAN/WAN) IQ2
MMB 0	REV 04	710-016036	DN6913	ST-MMB2
FPC 7	REV 08	710-010845	JM3958	FPC Type 4
CPU	REV 04	710-011481	JK3669	FPC CPU-Enhanced
PIC 0	REV 11	750-017405	DP8837	4x 10GE (LAN/WAN) XFP
Xcvr 1	REV 01	740-014279	753019A00277	XFP-10G-LR
Xcvr 2	REV 02	740-011571	C850XJ00P	XFP-10G-SR
Xcvr 3	REV 01	740-014279	AA0813N1RTG	XFP-10G-LR
MMB 0	REV 04	710-010842	JN1971	ST-MMB
SPMB 0	REV 04	710-023321	DW3629	LCC Switch CPU
SPMB 1	REV 04	710-023321	DW3621	LCC Switch CPU
SIB 0	REV 07	710-022594	DW4200	LCC SIB
B Board	REV 07	710-023185	DW3932	LCC SIB Mezz
SIB 1	REV 07	710-022594	DW4193	LCC SIB
B Board	REV 07	710-023185	DW3904	LCC SIB Mezz
SIB 2				
SIB 3	REV 07	710-022594	DW4210	LCC SIB
B Board	REV 06	710-023185	DT5780	LCC SIB Mezz
SIB 4	REV 08	710-022594	DW8019	LCC SIB
B Board	REV 06	710-023185	DT5795	LCC SIB Mezz
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray -- Rev 3

show chassis hardware
sfc (TX Matrix Plus
Router)

user@host> show chassis hardware sfc 0
sfc0-re0:

Hardware inventory:				
Item	Version	Part number	Serial number	Description
Chassis			JN112F007AHB	TXP
Midplane	REV 05	710-022574	TS4027	SFC Midplane
FPM Display	REV 03	710-024027	DX0282	TXP FPM Display
CIP 0	REV 04	710-023792	DW4889	TXP CIP
CIP 1	REV 04	710-023792	DW4887	TXP CIP
PEM 0	Rev 07	740-027463	UM26368	Power Entry Module
Routing Engine 0	REV 01	740-026942	737A-1064	SFC RE
Routing Engine 1	REV 01	740-026942	737A-1082	SFC RE
CB 0	REV 09	710-022606	DW6099	SFC Control Board
CB 1	REV 09	710-022606	DW6096	SFC Control Board
SPMB 0		BUILTIN		SFC Switch CPU
SPMB 1		BUILTIN		SFC Switch CPU
SIB F13 0	REV 04	710-022600	DX0841	F13 SIB
B Board	REV 03	710-023431	DX0966	F13 SIB Mezz
SIB F13 1	REV 04	750-024564	DW5776	F13 SIB
B Board	REV 03	710-023431	DW9028	F13 SIB
SIB F13 3	REV 04	750-024564	DW5762	F13 SIB
B Board	REV 03	710-023431	DW9059	F13 SIB
SIB F13 4	REV 04	750-024564	DW5797	F13 SIB
B Board	REV 03	710-023431	DW9041	F13 SIB
SIB F13 6	REV 04	750-024564	DW5770	F13 SIB
B Board	REV 03	710-023431	DW9079	F13 SIB Mezz
SIB F13 7	REV 04	750-024564	DW5758	F13 SIB
B Board	REV 03	710-023431	DW9047	F13 SIB
SIB F13 8	REV 04	750-024564	DW5761	F13 SIB
B Board	REV 03	710-023431	DW9043	F13 SIB Mezz
SIB F13 9	REV 04	750-024564	DW5754	F13 SIB
B Board	REV 03	710-023431	DW9078	F13 SIB Mezz
SIB F13 11	REV 04	710-022600	DX0826	F13 SIB
B Board	REV 03	710-023431	DX0967	F13 SIB Mezz
SIB F13 12	REV 04	750-024564	DW5794	F13 SIB
B Board	REV 03	710-023431	DW9044	F13 SIB Mezz

SIB F2S 0/0	REV 05	710-022603	DW7897	F2S SIB
B Board	REV 05	710-023787	DW7657	NEO PMB
SIB F2S 0/2	REV 05	710-022603	DW7833	F2S SIB
B Board	REV 05	710-023787	DW7526	NEO PMB
SIB F2S 0/4	REV 05	710-022603	DW7875	F2S SIB
B Board	REV 05	710-023787	DW7588	NEO PMB
SIB F2S 0/6	REV 05	710-022603	DW7860	F2S SIB
B Board	REV 05	710-023787	DW7589	NEO PMB
SIB F2S 1/0	REV 04	710-022603	DW4820	F2S SIB
B Board	REV 05	710-023787	DW8510	NEO PMB
SIB F2S 1/2	REV 05	710-022603	DW7849	F2S SIB
B Board	REV 05	710-023787	DW7525	NEO PMB
SIB F2S 1/4	REV 05	710-022603	DW7927	F2S SIB
B Board	REV 05	710-023787	DW7556	F2S SIB Mezz
SIB F2S 1/6	REV 05	710-022603	DW7866	F2S SIB
B Board	REV 05	710-023787	DW7651	NEO PMB
SIB F2S 2/0	REV 05	710-022603	DW7880	F2S SIB
B Board	REV 05	710-023787	DW7523	NEO PMB
SIB F2S 2/2	REV 05	710-022603	DW7895	F2S SIB
B Board	REV 05	710-023787	DW7591	NEO PMB
SIB F2S 2/4	REV 05	710-022603	DW7907	F2S SIB
B Board	REV 05	710-023787	DW7590	NEO PMB
SIB F2S 2/6	REV 05	710-022603	DW7785	F2S SIB
B Board	REV 05	710-023787	DW7524	NEO PMB
SIB F2S 3/0	REV 05	710-022603	DW7782	F2S SIB
B Board	REV 05	710-023787	DW7634	NEO PMB
SIB F2S 3/2	REV 05	710-022603	DW7793	F2S SIB
B Board	REV 05	710-023787	DW7548	NEO PMB
SIB F2S 3/4	REV 05	710-022603	DW7779	F2S SIB
B Board	REV 05	710-023787	DW7587	NEO PMB
SIB F2S 3/6	REV 05	710-022603	DW7930	F2S SIB
B Board	REV 05	710-023787	DW7505	NEO PMB
SIB F2S 4/0	REV 05	710-022603	DW7867	F2S SIB
B Board	REV 05	710-023787	DW7656	NEO PMB
SIB F2S 4/2	REV 05	710-022603	DW7917	F2S SIB
B Board	REV 05	710-023787	DW7640	NEO PMB
SIB F2S 4/4	REV 05	710-022603	DW7929	F2S SIB
B Board	REV 05	710-023787	DW7643	NEO PMB
SIB F2S 4/6	REV 05	710-022603	DW7870	F2S SIB
B Board	REV 05	710-023787	DW7635	NEO PMB
Fan Tray 0	REV 06	760-024497	DV7831	Front Fan Tray
Fan Tray 1	REV 06	760-024497	DV9614	Front Fan Tray
Fan Tray 2	REV 06	760-024502	DV9618	Rear Fan Tray
Fan Tray 3	REV 06	760-024502	DV9616	Rear Fan Tray
Fan Tray 4	REV 06	760-024502	DV7807	Rear Fan Tray
Fan Tray 5	REV 06	760-024502	DV7828	Rear Fan Tray

show chassis hardware extensive (TX Matrix Plus Router)

```
user@host> show chassis hardware extensive
sfc0-re0:
```

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN112F007AHB	TXP
Jedec Code:	0x7fb0	EEPROM Version:	0x02	
		S/N:	JN112F007AHB	
Assembly ID:	0x052c	Assembly Version:	00.00	
Date:	00-00-0000	Assembly Flags:	0x00	
ID:	TXP			
Board Information Record:				
Address 0x00: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00				
I2C Hex Data:				

```

Address 0x00: 7f b0 02 ff 05 2c 00 00 00 00 00 00 00 00 00
Address 0x10: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x20: 4a 4e 31 31 32 46 30 30 37 41 48 42 00 00 00
Address 0x30: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x40: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x50: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Address 0x70: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Midplane          REV 05   710-022574   TS4027          SFC Midplane
Jedec Code:      0x7fb0          EEPROM Version: 0x01
P/N:             710-022574      S/N:           S/N TS4027
Assembly ID:     0x0962          Assembly Version: 01.05
Date:            03-23-2009      Assembly Flags: 0x00
Version:         REV 05
ID: SFC Midplane
Board Information Record:
Address 0x00: ad 01 ff ff 00 1d b5 14 00 00 ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 01 ff 09 62 01 05 52 45 56 20 30 35 00 00
Address 0x10: 00 00 00 00 37 31 30 2d 30 32 32 35 37 34 00 00
Address 0x20: 53 2f 4e 20 54 53 34 30 32 37 00 00 00 17 03 07
Address 0x30: d9 ff ff ff ad 01 ff ff 00 1d b5 14 00 00 ff ff
Address 0x40: ff ff ff ff 00 ff ff ff ff ff ff ff ff ff ff ff
Address 0x50: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x60: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x70: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
FPM Display       REV 03   710-024027   DX0282          TXP FPM Display
Jedec Code:      0x7fb0          EEPROM Version: 0x01
P/N:             710-024027      S/N:           S/N DX0282
Assembly ID:     0x096c          Assembly Version: 01.03
Date:            02-10-2009      Assembly Flags: 0x00
Version:         REV 03
ID: TXP FPM Display          FRU Model Number: CRAFT-TXP
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 01 ff 09 6c 01 03 52 45 56 20 30 33 00 00
Address 0x10: 00 00 00 00 37 31 30 2d 30 32 34 30 32 37 00 00
Address 0x20: 53 2f 4e 20 44 58 30 32 38 32 00 00 00 0a 02 07
Address 0x30: d9 ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 01 00 00 00 00 00 00 00 00 00 00 43
Address 0x50: 52 41 46 54 2d 54 58 50 00 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 00 00 ff ff ff ff ff ff ff ff
Address 0x70: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
CIP 0             REV 04   710-023792   DW4889          TXP CIP
Jedec Code:      0x7fb0          EEPROM Version: 0x01
P/N:             710-023792      S/N:           S/N DW4889
Assembly ID:     0x0969          Assembly Version: 01.04
Date:            01-26-2009      Assembly Flags: 0x00
Version:         REV 04
ID: TXP CIP          FRU Model Number: CIP-TXP
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff

```

show chassis hardware
clei-models (TX Matrix
Plus Router)

user@host> show chassis hardware clei-models
sfc0-re0:

```

-----
Hardware inventory:
Item          Version  Part number  CLEI code          FRU model number
Midplane      REV 05   710-022574          CHAS-BP-TXP-S
FPM Display   REV 03   710-024027          CRAFT-TXP-S

```

CIP 0	REV 05	710-023792		CIP-TXP-S
CIP 1	REV 05	710-023792		CIP-TXP-S
PEM 0	Rev 04	740-027463	IPUPAFGKTA	PWR-TXP-7-60-DC
PEM 1	Rev 04	740-027463	IPUPAFGKTA	PWR-TXP-7-60-DC
Routing Engine 0	REV 06	740-026942		RE-DUO-C2600-16G-S
Routing Engine 1	REV 06	740-026942		RE-DUO-C2600-16G-S
CB 0	REV 05	710-022606		CB-TXP-S
CB 1	REV 09	710-022606		CB-TXP-S
SIB F13 0	REV 04	750-024564		SIB-TXP-F13
SIB F13 3	REV 04	750-024564		SIB-TXP-F13
SIB F13 8	REV 04	750-024564		SIB-TXP-F13
SIB F13 11	REV 04	750-024564		SIB-TXP-F13
SIB F13 12	REV 03	750-024564		SIB-TXP-F13
SIB F2S 0/0	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 0/2	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 0/4	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 0/6	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 1/0	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 1/2	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 1/4	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 1/6	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 2/0	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 2/2	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 2/4	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 2/6	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 3/0	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 3/2	REV 03	710-022603		SIB-TXP-F2S-S
SIB F2S 3/4	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 3/6	REV 03	710-022603		SIB-TXP-F2S-S
SIB F2S 4/0	REV 03	710-022603		SIB-TXP-F2S-S
SIB F2S 4/2	REV 05	710-022603		SIB-TXP-F2S-S
SIB F2S 4/4	REV 04	710-022603		SIB-TXP-F2S-S
SIB F2S 4/6	REV 03	710-022603		SIB-TXP-F2S-S
Fan Tray 0	REV 02	760-024497		FANTRAY-TXP-H-S
Fan Tray 1	REV 02	760-024497		FANTRAY-TXP-H-S
Fan Tray 2	REV 05	760-024502		FANTRAY-TXP-V-S
Fan Tray 3				
Fan Tray 4	REV 05	760-024502		FANTRAY-TXP-V-S
Fan Tray 5	REV 02	760-024502		FANTRAY-TXP-V-S

1cc0-re0:

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 03	710-017247		CHAS-BP-T1600-S
FPM Display	REV 01	710-021387		CRAFT-T1600-S
CIP	REV 06	710-002895		CIP-L-T640-S
PEM 1	Rev 02	740-023211	IPUPAC8KTA	PWR-T1600-4-60-DC-S
SCG 0	REV 15	710-003423		SCG-T-S
SCG 1	REV 15	710-003423		SCG-T-S
Routing Engine 0	REV 01	740-026941		RE-DUO-C1800-8G-S
Routing Engine 1	REV 01	740-026941		RE-DUO-C1800-8G-S
CB 0	REV 06	710-022597		CB-LCC-S
CB 1	REV 06	710-022597		CB-LCC-S
FPC 1	REV 07	710-013035		T640-FPC3-ES
PIC 0	REV 05	750-015217		PC-8GE-TYPE3-SFP-IQ2
PIC 1	REV 03	750-004424		PC-1XGE-LR
PIC 2	REV 01	750-003336		PC-40C48-SON-SMSR
FPC 3	REV 12	710-013037		T1600-FPC4-ES
PIC 0	REV 02	750-010850		PD-10C768-SON-SR
FPC 4	REV 05	710-021534		T640-FPC1-ES

PIC 0	REV 04	750-014627	PB-40C3-10C12-SON-SFP
PIC 1	REV 22	750-005634	PB-1CH0C12SMIR-QPP
PIC 2	REV 09	750-002911	PB-4FE-TX
PIC 3	REV 08	750-021652	PB-1CH0C12-STM4-IQE-SFP
FPC 5	REV 07	710-007529	T640-FPC3
PIC 0	REV 14	750-009567	PC-1XGE-XENPAK
PIC 1	REV 16	750-007141	PC-10GE-SFP
PIC 2	REV 12	750-009567	PC-1XGE-XENPAK
FPC 6	REV 07	710-013035	T640-FPC3-ES
PIC 0	REV 09	750-009567	PC-1XGE-XENPAK
PIC 1	REV 06	750-015217	PC-8GE-TYPE3-SFP-IQ2
PIC 2	REV 06	750-015217	PC-8GE-TYPE3-SFP-IQ2
FPC 7	REV 03	710-021540	T640-FPC2-ES
PIC 0	REV 13	750-001901	PB-40C12-SON-SMIR
PIC 1	REV 05	750-001900	PB-10C48-SON-SMSR
PIC 2	REV 10	750-008155	PB-2GE-SFP-QPP
PIC 3	REV 03	750-014638	PB-10C48-SON-B-SFP
SIB 0	REV 07	710-022594	SIB-TXP-T1600-S
SIB 1	REV 07	710-022594	SIB-TXP-T1600-S
SIB 3	REV 06	710-022594	SIB-TXP-T1600-S
SIB 4	REV 08	710-022594	SIB-TXP-T1600-S
Fan Tray 0			FANTRAY-T-S
Fan Tray 1			FANTRAY-T-S
Fan Tray 2			FANTRAY-TXP-R-S

lcc1-re0:

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
Midplane	REV 04	710-017247		CHAS-BP-T1600-S
FPM Display	REV 01	710-021387		CRAFT-T1600-S
CIP	REV 06	710-002895		CIP-L-T640-S
PEM 0	Rev 02	740-023211	IPUPAC8KTA	PWR-T1600-4-60-DC-S
SCG 0	REV 15	710-003423		SCG-T-S
SCG 1	REV 15	710-003423		SCG-T-S
Routing Engine 0	REV 01	740-026941		RE-DUO-C1800-8G-S
Routing Engine 1	REV 01	740-026941		RE-DUO-C1800-8G-S
CB 0	REV 06	710-022597		CB-LCC-S
CB 1	REV 06	710-022597		CB-LCC-S
FPC 0	REV 02	710-010845		T640-FPC4-ES
PIC 0	REV 11	750-017405		PD-4XGE-XFP
FPC 1	REV 16	710-013037		T1600-FPC4-ES
PIC 1	REV 06	750-034781		PD-1CE-CFP
FPC 2	REV 16	710-013037		T1600-FPC4-ES
PIC 1	REV 05	750-034781		PD-1CE-CFP
FPC 3	REV 10	710-021534		T640-FPC1-ES
PIC 0	REV 13	750-012266		PB-4GE-TYPE1-SFP-IQ2
PIC 1	REV 01	750-007641		PE-1GE-SFP-QPP
PIC 3	REV 17	750-007444		PB-1CHSTM1-SMIR-QPP
FPC 4	REV 06	710-013035		T640-FPC3-ES
PIC 0	REV 22	750-007141		PC-10GE-SFP
PIC 1	REV 16	750-009450		PC-10C192-SON-SR2
PIC 2	REV 05	750-004424		PC-1XGE-LR
PIC 3	REV 12	750-013423		PC-MS-500-3
FPC 5	REV 07	710-013560		T640-FPC3-E2
PIC 0	REV 11	750-012793		PC-1XGE-TYPE3-XFP-IQ2
PIC 1	REV 01	750-004695		PC-TUNNEL
PIC 2	REV 32	750-003700		PC-10C192-SON-VSR
PIC 3	REV 12	750-009553		PC-40C48-SON-SFP
FPC 6	REV 07	710-013035		T640-FPC3-ES
PIC 0	REV 07	750-015217		PC-8GE-TYPE3-SFP-IQ2

PIC 1	REV 03	750-003336	PC-40C48-SON-SMSR
PIC 3	REV 02	750-012793	PC-1XGE-TYPE3-XFP-IQ2
FPC 7	REV 08	710-010845	T640-FPC4-ES
PIC 0	REV 11	750-017405	PD-4XGE-XFP
SIB 0	REV 07	710-022594	SIB-TXP-T1600-S
SIB 1	REV 07	710-022594	SIB-TXP-T1600-S
SIB 3	REV 07	710-022594	SIB-TXP-T1600-S
SIB 4	REV 08	710-022594	SIB-TXP-T1600-S
Fan Tray 0			FANTRAY-T-S
Fan Tray 1			FANTRAY-T-S
Fan Tray 2			FANTRAY-TXP-R-S

```
show chassis hardware detail (TX Matrix Plus Router)
user@host> show chassis hardware detail
sfc0-re0:
-----
```

```
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               JN111B023AHB  TXP
Midplane      REV 01    710-022574   TR7990        SFC Midplane
FPM Display   REV 03    710-024027   DW4699        TXP FPM Display
CIP 0         REV 01    710-023792   DR1437        TXP CIP
CIP 1         REV 02    710-023792   DS4564        TXP CIP
PEM 0         Rev 07    740-027463   UM26360       Power Entry Module
Routing Engine 0 REV 01    740-026942   737A-1024     SFC RE
  ad0 3887 MB SMART CF 200811050193CEB1CEB1 Compact Flash
  ad1 30533 MB SAMSUNG MCBQE32G8MPP-0V SY814A0762 Disk 1
Routing Engine 1 REV 01    740-026942   737A-1024     SFC RE
  ad0 3887 MB SMART CF 20081105004C19A019A0 Compact Flash
  ad1 30533 MB SAMSUNG MCBQE32G8MPP-0V SY814A0794 Disk 1
CB 0          REV 03    710-022606   DR7134        SFC Control Board
CB 1          REV 01    710-022606   DP8890        SFC Control Board
SPMB 0        BUILTIN                               SFC Switch CPU
SPMB 1        BUILTIN                               SFC Switch CPU
SIB F13 0     REV 03    750-024564   DT9478        F13 SIB
  B Board     REV 02    710-023431   DT6554        F13 SIB
SIB F13 1     REV 03    750-024564   DT9454        F13 SIB
  B Board     REV 02    710-023431   DT6551        F13 SIB
SIB F2S 0/0   REV 02    710-022603   DT2838        F2S SIB
  B Board     REV 02    710-023787   DT1725        NEO PMB
SIB F2S 0/2   REV 02    710-022603   DT2824        F2S SIB
  B Board     REV 02    710-023787   DT1706        NEO PMB
SIB F2S 0/4   REV 02    710-022603   DT2822        F2S SIB
  B Board     REV 02    710-023787   DT1696        NEO PMB
SIB F2S 0/6   REV 02    710-022603   DT2823        F2S SIB
  B Board     REV 02    710-023787   DT1717        NEO PMB
SIB F2S 1/0   REV 03    710-022603   DV0059        F2S SIB
  B Board     REV 03    710-023787   DT9942        NEO PMB
SIB F2S 1/2   REV 02    710-022603   DT2826        F2S SIB
  B Board     REV 02    710-023787   DT1713        NEO PMB
SIB F2S 1/4   REV 03    710-022603   DV0092        F2S SIB
  B Board     REV 03    710-023787   DV0000        NEO PMB
SIB F2S 1/6   REV 03    710-022603   DV0079        F2S SIB
  B Board     REV 03    710-023787   DT9972        NEO PMB
SIB F2S 2/0   REV 03    710-022603   DV0100        F2S SIB
  B Board     REV 03    710-023787   DT9925        NEO PMB
SIB F2S 2/2   REV 03    710-022603   DV0050        F2S SIB
  B Board     REV 03    710-023787   DV0005        NEO PMB
SIB F2S 2/4   REV 03    710-022603   DV0097        F2S SIB
  B Board     REV 03    710-023787   DT9936        NEO PMB
Fan Tray 0    REV 02    760-024497   DR8286        Front Fan Tray
Fan Tray 1    REV 06    760-024497   DV9624        Front Fan Tray
```

Fan Tray 2	REV 02	760-024502	DR8259	Rear Fan Tray
Fan Tray 3	REV 02	760-024502	DR8270	Rear Fan Tray
Fan Tray 4	REV 02	760-024502	DR8284	Rear Fan Tray
Fan Tray 5	REV 06	760-024502	DV7813	Rear Fan Tray

lcc0-re0:

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1101F27AHA	T1600
Midplane	REV 04	710-017247	RC5317	T Series Backplane
FPM GBUS	REV 10	710-002901	DS8197	T640 FPM Board
FPM Display	REV 01	710-021387	DS6433	T1600 FPM Display
CIP	REV 06	710-002895	DS1493	T Series CIP
PEM 0	Rev 08	740-017906	UD26601	Power Entry Module 3x80
SCG 0	REV 15	710-003423	DP5847	T640 Sonet Clock Gen.
SCG 1	REV 15	710-003423	DR0924	T640 Sonet Clock Gen.
Routing Engine 0	REV 01	740-026942	737F-1024	LCC RE
ad0	3887 MB	SMART CF	2008110502B63E513E51	Compact Flash
ad1	30533 MB	SAMSUNG MCBQE32G8MPP-0V	SY814A1208	Disk 1
Routing Engine 1	REV 01	740-026942	737F-1024	LCC RE
ad0	3887 MB	SMART CF	2008110500F9A8A8A8A8	Compact Flash
ad1	30533 MB	SAMSUNG MCBQE32G8MPP-0V	SY814A1076	Disk 1
CB 0	REV 05	710-022597	DV4264	LCC Control Board
CB 1	REV 03	710-022597	DP8558	LCC Control Board
FPC 0	REV 14	710-013037	DS9967	FPC Type 4-ES
CPU	REV 08	710-016744	DS3989	ST-PMB2
PIC 0	REV 12	750-013198	DL7506	1x Tunnel
PIC 1	REV 12	750-013198	DL7505	1x Tunnel
MMB 0	REV 01	710-025563	DS8524	ST-MMB2
MMB 1	REV 01	710-025563	DS8373	ST-MMB2
FPC 1	REV 14	710-013037	DT0027	FPC Type 4-ES
CPU	REV 09	710-016744	DS7684	ST-PMB2
PIC 0	REV 12	750-013198	DL7512	1x Tunnel
PIC 1	REV 12	750-013198	DL7498	1x Tunnel
MMB 0	REV 01	710-025563	DS8494	ST-MMB2
MMB 1	REV 01	710-025563	DS8436	ST-MMB2
SPMB 0	REV 04	710-023321	DV3867	LCC Switch CPU
SPMB 1	REV 02	710-023321	DP0238	LCC Switch CPU
SIB 0	REV 06	710-022594	DT8268	LCC SIB
B Board	REV 06	710-023185	DT5791	LCC SIB Mezz
SIB 1	REV 06	710-022594	DT8261	LCC SIB
B Board	REV 06	710-023185	DT5769	LCC SIB Mezz
SIB 2	REV 04	710-022594	DS2315	LCC SIB
B Board	REV 06	710-023185	DT5788	LCC SIB Mezz
SIB 3	REV 06	710-022594	DT8253	LCC SIB
B Board	REV 06	710-023185	DT5811	LCC SIB Mezz
SIB 4	REV 06	710-022594	DT8248	LCC SIB
B Board	REV 06	710-023185	DT5812	LCC SIB Mezz
Fan Tray 0				Front Top Fan Tray
Fan Tray 1				Front Bottom Fan Tray
Fan Tray 2				Rear Fan Tray

show chassis hardware user@host> show chassis hardware models
models (TX Matrix sfc0-re0:
Plus Router)

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
FPM Display	REV 03	710-024027	DX0282	CRAFT-TXP
CIP 0	REV 04	710-023792	DW4889	CIP-TXP
CIP 1	REV 04	710-023792	DW4887	CIP-TXP

PEM 0	Rev 07	740-027463	UM26368	yyyyyyyyyyyyyyyyyyyy
Routing Engine 0	REV 01	740-026942	737A-1064	RE-TXP-SFC-DU0-2600-16G
Routing Engine 1	REV 01	740-026942	737A-1082	RE-TXP-SFC-DU0-2600-16G
CB 0	REV 09	710-022606	DW6099	CB-TXP
CB 1	REV 09	710-022606	DW6096	CB-TXP
SIB F13 1	REV 04	750-024564	DW5776	SIB-TXP-F13
SIB F13 3	REV 04	750-024564	DW5762	SIB-TXP-F13
SIB F13 4	REV 04	750-024564	DW5797	SIB-TXP-F13
SIB F13 6	REV 04	750-024564	DW5770	SIB-TXP-F13
SIB F13 7	REV 04	750-024564	DW5758	SIB-TXP-F13
SIB F13 8	REV 04	750-024564	DW5761	SIB-TXP-F13
SIB F13 9	REV 04	750-024564	DW5754	SIB-TXP-F13
SIB F13 12	REV 04	750-024564	DW5794	SIB-TXP-F13
SIB F2S 0/0	REV 05	710-022603	DW7897	
SIB F2S 0/2	REV 05	710-022603	DW7833	
SIB F2S 0/4	REV 05	710-022603	DW7875	
SIB F2S 0/6	REV 05	710-022603	DW7860	
SIB F2S 1/0	REV 04	710-022603	DW4820	
SIB F2S 1/2	REV 05	710-022603	DW7849	
SIB F2S 1/4	REV 05	710-022603	DW7927	SIB-TXP-F2S
SIB F2S 1/6	REV 05	710-022603	DW7866	
SIB F2S 2/0	REV 05	710-022603	DW7880	
SIB F2S 2/2	REV 05	710-022603	DW7895	
SIB F2S 2/4	REV 05	710-022603	DW7907	
SIB F2S 2/6	REV 05	710-022603	DW7785	
SIB F2S 3/0	REV 05	710-022603	DW7782	
SIB F2S 3/2	REV 05	710-022603	DW7793	
SIB F2S 3/4	REV 05	710-022603	DW7779	
SIB F2S 3/6	REV 05	710-022603	DW7930	
SIB F2S 4/0	REV 05	710-022603	DW7867	
SIB F2S 4/2	REV 05	710-022603	DW7917	
SIB F2S 4/4	REV 05	710-022603	DW7929	
SIB F2S 4/6	REV 05	710-022603	DW7870	
Fan Tray 0	REV 06	760-024497	DV7831	FANTRAY-TXP-F
Fan Tray 1	REV 06	760-024497	DV9614	FANTRAY-TXP-F
Fan Tray 2	REV 06	760-024502	DV9618	FANTRAY-TXP-R
Fan Tray 3	REV 06	760-024502	DV9616	FANTRAY-TXP-R
Fan Tray 4	REV 06	760-024502	DV7807	FANTRAY-TXP-R
Fan Tray 5	REV 06	760-024502	DV7828	FANTRAY-TXP-R

1cc0-re0:

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
Midplane	REV 03	710-017247	RC3765	CHAS-BP-T1600-S
FPM Display	REV 01	710-021387	DN5441	CRAFT-T1600-S
CIP	REV 06	710-002895	DP6021	CIP-L-T640-S
PEM 0	Rev 07	740-017906	UA26384	PWR-T1600-3-80-DC-S
PEM 1	Rev 07	740-017906	UA26296	PWR-T1600-3-80-DC-S
SCG 0	REV 15	710-003423	DR0875	SCG-T-S
CB 0	REV 06	710-022597	DW8534	CB-LCC
CB 1	REV 06	710-022597	DW8527	CB-LCC
FPC 4	REV 12	710-013037	DJ8717	T1600-FPC4-ES
PIC 0	REV 11	750-017405	DP8795	PD-4XGE-XFP
PIC 1	REV 11	750-017405	DP8794	PD-4XGE-XFP
FPC 6	REV 14	710-013037	DS5335	T1600-FPC4-ES
PIC 0	REV 13	750-017405	DS7634	PD-4XGE-XFP
PIC 1	REV 13	750-017405	DS7637	PD-4XGE-XFP
FPC 7	REV 07	710-013035	DM0990	T1600-FPC3-ES
PIC 0	REV 16	750-007141	JJ8067	PC-10GE-SFP
PIC 1	REV 08	750-015749	WE9598	PC-10C192-S0N-XFP

PIC 2	REV 10	750-009450	HX6466	PC-10C192-SON-SR2
SIB 0	REV 08	710-022594	DW8033	SIB-TXP-T1600-S
SIB 1	REV 08	710-022594	DW8044	SIB-TXP-T1600-S
SIB 2	REV 08	710-022594	DW8020	SIB-TXP-T1600-S
SIB 3	REV 08	710-022594	DW8063	SIB-TXP-T1600-S
SIB 4	REV 08	710-022594	DW8064	SIB-TXP-T1600-S
Fan Tray 0				FANTRAY-T-S
Fan Tray 1				FANTRAY-T-S
Fan Tray 2				FANTRAY-TXP-R-S

lcc1-re0:

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
Midplane	REV 04	710-017247	RC5361	CHAS-BP-T1600-S
FPM Display	REV 01	710-021387	DS6430	CRAFT-T1600-S
CIP	REV 06	710-002895	DS4239	CIP-L-T640-S
PEM 0	Rev 08	740-017906	UD26649	PWR-T1600-3-80-DC-S
SCG 0	REV 15	710-003423	DP5820	SCG-T-S
CB 0	REV 06	710-022597	DW8523	CB-LCC
CB 1	REV 06	710-022597	DW8528	CB-LCC
FPC 4	REV 12	710-013037	DP8509	T1600-FPC4-ES
PIC 0	REV 11	750-017405	DP8808	PD-4XGE-XFP
PIC 1	REV 11	750-017405	DP7263	PD-4XGE-XFP
FPC 6	REV 14	710-013037	DS9961	T1600-FPC4-ES
PIC 0	REV 13	750-017405	DS5532	PD-4XGE-XFP
PIC 1	REV 13	750-017405	DS7639	PD-4XGE-XFP
FPC 7	REV 03	710-013035	DF5564	T1600-FPC3-ES
PIC 0	REV 16	750-007141	JJ8063	PC-10GE-SFP
SIB 0	REV 08	710-022594	DW8035	SIB-TXP-T1600-S
SIB 1	REV 10	710-022594	DX7672	SIB-TXP-T1600-S
SIB 2	REV 08	710-022594	DW8060	SIB-TXP-T1600-S
SIB 3	REV 08	710-022594	DW8072	SIB-TXP-T1600-S
SIB 4	REV 08	710-022594	DW8043	SIB-TXP-T1600-S
Fan Tray 0				FANTRAY-T-S
Fan Tray 1				FANTRAY-T-S
Fan Tray 2				FANTRAY-TXP-R-S

lcc2-re0:

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
Midplane	REV 03	710-017247	RC3956	CHAS-BP-T1600-S
FPM Display	REV 01	710-021387	DN7030	CRAFT-T1600-S
CIP	REV 06	710-002895	DM3962	CIP-L-T640-S
PEM 0	Rev 08	740-017906	UD26519	PWR-T1600-3-80-DC-S
PEM 1	Rev 07	740-017906	UC26601	PWR-T1600-3-80-DC-S
SCG 0	REV 15	710-003423	DP0277	SCG-T-S
CB 0	REV 06	710-022597	DW8524	CB-LCC
CB 1	REV 06	710-022597	DW8536	CB-LCC
FPC 4	REV 12	710-013037	DR1194	T1600-FPC4-ES
PIC 0	REV 11	750-017405	DP8811	PD-4XGE-XFP
PIC 1	REV 11	750-017405	DP8823	PD-4XGE-XFP
FPC 5	REV 12	710-013037	DR1184	T1600-FPC4-ES
PIC 1	REV 11	750-017405	DP4744	PD-4XGE-XFP
FPC 6	REV 12	710-013037	DN8622	T1600-FPC4-ES
PIC 0	REV 14	750-012518	JY9924	PD-40C192-SON-XFP
PIC 1	REV 11	750-017405	DP8776	PD-4XGE-XFP
FPC 7	REV 04	710-013560	JR3968	T640-FPC3-E2
PIC 0	REV 16	750-007141	NC9330	PC-10GE-SFP
SIB 0	REV 07	710-022594	DW4217	SIB-TXP-T1600-S

```

SIB 1          REV 07  710-022594  DW4213          SIB-TXP-T1600-S
SIB 2          REV 07  710-022594  DW4189          SIB-TXP-T1600-S
SIB 3          REV 07  710-022594  DW4173          SIB-TXP-T1600-S
SIB 4          REV 07  710-022594  DW4201          SIB-TXP-T1600-S
Fan Tray 0     FANTRAY-T-S
Fan Tray 1     FANTRAY-T-S
Fan Tray 2     FANTRAY-TXP-R-S

```

```
lcc3-re0:
```

```
-----
Hardware inventory:
```

Item	Version	Part number	Serial number	FRU model number
Midplane	REV 04	710-017247	RC5319	CHAS-BP-T1600-S
FPM Display	REV 01	710-021387	DS6402	CRAFT-T1600-S
CIP	REV 06	710-002895	DR9973	CIP-L-T640-S
PEM 0	Rev 07	740-017906	UC26496	PWR-T1600-3-80-DC-S
PEM 1	Rev 07	740-017906	UC26599	PWR-T1600-3-80-DC-S
SCG 0	REV 15	710-003423	DP5831	SCG-T-S
CB 0	REV 06	710-022597	DW8533	CB-LCC
CB 1	REV 06	710-022597	DW8538	CB-LCC
FPC 0	REV 14	710-013037	DS5345	T1600-FPC4-ES
PIC 0	REV 13	750-017405	DS7641	PD-4XGE-XFP
PIC 1	REV 13	750-017405	DS5479	PD-4XGE-XFP
FPC 1	REV 14	710-013037	DS7338	T1600-FPC4-ES
PIC 0	REV 13	750-017405	DS7631	PD-4XGE-XFP
PIC 1	REV 13	750-017405	DS7632	PD-4XGE-XFP
FPC 2	REV 14	710-013037	DS9962	T1600-FPC4-ES
PIC 0	REV 13	750-017405	DS7581	PD-4XGE-XFP
PIC 1	REV 13	750-017405	DS7627	PD-4XGE-XFP
FPC 4	REV 10	710-010845	JZ6573	T640-FPC4-ES
PIC 0	REV 14	750-012518	JT5124	PD-40C192-SON-XFP
FPC 5	REV 14	710-013037	DT0016	T1600-FPC4-ES
PIC 0	REV 14	750-012518	JY9918	PD-40C192-SON-XFP
FPC 7	REV 07	710-013035	DM0967	T1600-FPC3-ES
PIC 0	REV 16	750-007141	JJ8059	PC-10GE-SFP
PIC 1	REV 13	750-004695	DM5712	PC-TUNNEL
SIB 0	REV 07	710-022594	DW4174	SIB-TXP-T1600-S
SIB 1	REV 07	710-022594	DW4207	SIB-TXP-T1600-S
SIB 2	REV 06	710-022594	DT8231	SIB-TXP-T1600-S
SIB 3	REV 07	710-022594	DW4175	SIB-TXP-T1600-S
SIB 4	REV 07	710-022594	DW4209	SIB-TXP-T1600-S
Fan Tray 0				FANTRAY-T-S
Fan Tray 1				FANTRAY-T-S
Fan Tray 2				FANTRAY-TXP-R-S

```
show chassis hardware
(16-Port 10-Gigabit
Ethernet MPC with
SFP+ Optics [MX
Series Routers])
```

```
user@host> show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis			JN112D865AFA	MX960
Midplane	REV 03	710-013698	TS3339	MX960 Backplane
FPM Board	REV 03	710-014974	WW6267	Front Panel Display
PDM	Rev 03	740-013110	QCS12485026	Power Distribution
Module				
PEM 0	Rev 04	740-013682	QCS12434086	PS 1.7kW; 200-240VAC
in				
PEM 1	Rev 04	740-013682	QCS1243408Z	PS 1.7kW; 200-240VAC
in				
PEM 2	Rev 04	740-013682	QCS1243407X	PS 1.7kW; 200-240VAC
in				
Routing Engine 0	REV 07	740-015113	9009009677	RE-S-1300

Routing Engine 1	REV 07	740-015113	9009011510	RE-S-1300
CB 0	REV 03	710-021523	XF0394	MX SCB
CB 1	REV 03	710-021523	XF0550	MX SCB
CB 2	REV 03	710-021523	XD7455	MX SCB
FPC 4	REV 02	750-028467	JR6127	MPC M 16x 10GE
CPU	REV 02	711-029089	JX0129	AS PMB
PIC 0		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
PIC 1		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
PIC 2		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
PIC 3		BUILTIN	BUILTIN	4x 10GE(LAN) SFP+
Fan Tray 0	REV 05	740-014971	TP9990	Fan Tray
Fan Tray 1	REV 05	740-014971	VS1709	Fan Tray

show chassis hardware
(MPC3E [MX Series
Routers])

user@host> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN1101AFEAFB	MX480
Midplane	REV 05	710-017414	TR4444	MX480 Midplane
FPM Board	REV 02	710-017254	KG6056	Front Panel Display
PEM 0	Rev 03	740-017330	QCS082090FC	PS 1.2-1.7kW; 100-240V
PEM 1	Rev 03	740-017330	QCS082090FD	PS 1.2-1.7kW; 100-240V
Routing Engine 0	REV 07	740-013063	9009004124	RE-S-2000
Routing Engine 1	REV 07	740-013063	9009005569	RE-S-2000
CB 0	REV 07	710-021523	XZ3587	MX SCB
CB 1	REV 03	710-021523	KH8306	MX SCB
FPC 1	REV 04.1.07	750-033205	P1240	MPC Type 3
CPU	REV 01	711-035209	YL0504	HMPC PMB 2G
MIC 1	REV 10	750-033199	YX4495	1X100GE CFP
PIC 2		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0	REV 01	740-032210	C22CQNE	CFP-100G-LR4
FPC 2	REV 26	750-016670	KH0045	DPCE 40x 1GE R EQ
CPU	REV 07	710-013713	KF5448	DPC PMB
PIC 0		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 01	740-011613	PF21JHU	SFP-SX
PIC 1		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 9	REV 01	740-011613	AM0813S8ZL6	SFP-SX
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 0	REV 02	740-011613	PGL2KYF	SFP-SX
Xcvr 2	REV 01	740-011613	AM0806S8N4P	SFP-SX
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN) EQ
Xcvr 5	REV 01	740-011613	AM0815S967N	SFP-SX
Xcvr 7	REV 01	740-011613	AM0806S8N1X	SFP-SX
Xcvr 8	REV 01	740-011613	AM0815S967J	SFP-SX
Xcvr 9	REV 01	740-011613	AM0815S967M	SFP-SX
FPC 3	REV 12.2.09	750-033205	YR9443	MPC Type 3
CPU	REV 03	711-035209	YL6931	HMPC PMB 2G
MIC 0	REV 05	750-033199	YR3269	1X100GE CFP
PIC 0		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0	REV 01	740-032210	ULHOKG3	CFP-100G-LR4
MIC 1	REV 02	750-033199	YG3245	1X100GE CFP
PIC 2		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0	REV 01	740-032210	ULHOKGF	CFP-100G-LR4
FPC 4	REV 12.3.09	750-033205	YR9437	MPC Type 3
CPU	REV 03	711-035209	YT5857	HMPC PMB 2G
MIC 0	REV 05	750-033199	YR3295	1X100GE CFP
PIC 0		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0		NON-JNPR	X12000187	CFP-100G-SR10
MIC 1	REV 10	750-033199	YX4518	1X100GE CFP

PIC 2		BUILTIN	BUILTIN	1X100GE CFP
Xcvr 0	REV 01	740-035329	X12J00008	CFP-100G-SR10
FPC 5	REV 06	750-024884	JW9769	MPC Type 2 3D EQ
CPU	REV 02	711-028401	JR6158	MPC PMB 2G Proto
MIC 0	REV 05	750-028387	JR6197	3D 4x 10GE XFP
PIC 0		BUILTIN	BUILTIN	2x 10GE XFP
Xcvr 0	REV 01	740-014289	T07M71112	XFP-10G-SR
Xcvr 1	REV 02	740-014289	T08L85610	XFP-10G-SR
PIC 1		BUILTIN	BUILTIN	2x 10GE XFP
MIC 1	REV 22	750-028392	YM0053	3D 20x 1GE(LAN) SFP
PIC 2		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 0	REV 01	740-011613	AM0703S005B	SFP-SX
Xcvr 1	REV 01	740-011613	E07L01352	SFP-SX
PIC 3		BUILTIN	BUILTIN	10x 1GE(LAN) SFP
Xcvr 5	REV 01	740-013111	6500217	SFP-T
Xcvr 9	REV 02	740-013111	8499527	SFP-T
Fan Tray				Left Fan Tray

The PIC number for MIC 1 always starts from 2 (even if the first MIC is a 1X100GE CFP or a legacy MIC).

show chassis hardware (QFX3500 Switches)

user@switch> show chassis hardware

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis				QFX3500
Routing Engine 0		BUILTIN	BUILTIN	QFX Routing Engine
FPC 0	REV 04	750-044071	BBAR3902	QFX3500-48S4Q-AFI
CPU		BUILTIN	BUILTIN	FPC CPU
PIC 0		BUILTIN	BUILTIN	48x 10G-SFP+
PIC 1		BUILTIN	BUILTIN	15x 10G-SFP+
MGMT BRD	REV 02	750-044063	BBAR0398	QFX3500-MGMT-SFP-AFO
Xcvr 0	REV 01	740-011614	AC0946S0BD1	SFP-LX10
Xcvr 1	REV 02	740-013111	A281922	SFP-T
Power Supply 0	Rev 04	740-032091	UI00677	JPSU-650W-AC-AFI
Power Supply 1	REV 00	740-041741	VJ00162	JPSU-650W-AC-AFO
Fan Tray 0				QFX Fan Tray, Back to
Front Airflow				
Fan Tray 1				QFX Fan Tray, Back to
Front Airflow				
Fan Tray 2				QFX Fan Tray, Back to
Front Airflow				

show chassis hardware detail (QFX3500 Switches)

user@switch> show chassis hardware detail

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			JN000TEST5	QFX3500
Routing Engine 0		BUILTIN	BUILTIN	QFX Routing Engine
FPC 0	REV 05	750-036931	EE0823	QFX3500-48S4Q-AFI
CPU		BUILTIN	BUILTIN	FPC CPU
PIC 0		BUILTIN	BUILTIN	48x 10G-SFP+
Xcvr 0	REV 01	740-030589	S99E270079	SFP+-10G-LPBK
Xcvr 1	REV 01	740-030589	S9AK450099	SFP+-10G-LPBK
Xcvr 2	REV 01	740-030589	S99E270078	SFP+-10G-LPBK
Xcvr 3	REV 01	740-030589	S9AK450098	SFP+-10G-LPBK
Xcvr 4	REV 01	740-030589	S99E270075	SFP+-10G-LPBK
Xcvr 5	REV 01	740-030589	S9AK450093	SFP+-10G-LPBK
Xcvr 6	REV 01	740-030589	S9AK450097	SFP+-10G-LPBK

Xcvr 7	REV 01	740-030589	S9AK450095	SFP+-10G-LPBK
Xcvr 8	REV 01	740-030589	S99E270072	SFP+-10G-LPBK
Xcvr 9	REV 01	740-030589	S99E270073	SFP+-10G-LPBK
Xcvr 10	REV 01	740-030589	S99E270080	SFP+-10G-LPBK
Xcvr 11	REV 01	740-030589	S9AK450169	SFP+-10G-LPBK
Xcvr 12	REV 01	740-030589	S99E270076	SFP+-10G-LPBK
Xcvr 13	REV 01	740-030589	S9AK450167	SFP+-10G-LPBK
Xcvr 14	REV 01	740-030589	S9AK450170	SFP+-10G-LPBK
Xcvr 15	REV 01	740-030589	S9AK450166	SFP+-10G-LPBK
Xcvr 16	REV 01	740-030589	S9AK450092	SFP+-10G-LPBK
Xcvr 17	REV 01	740-030589	S9AK450163	SFP+-10G-LPBK
Xcvr 18	REV 01	740-030589	S9AK450094	SFP+-10G-LPBK
Xcvr 19	REV 01	740-030589	S9AK450100	SFP+-10G-LPBK
Xcvr 20	REV 01	740-030589	S9AK450168	SFP+-10G-LPBK
Xcvr 21	REV 01	740-030589	S9AK450165	SFP+-10G-LPBK
Xcvr 22	REV 01	740-030589	S9AK450073	SFP+-10G-LPBK
Xcvr 23	REV 01	740-030589	S9AK450164	SFP+-10G-LPBK
Xcvr 24	REV 01	740-030589	S9AK450074	SFP+-10G-LPBK
Xcvr 25	REV 01	740-030589	SA62270195	SFP+-10G-LPBK
Xcvr 26	REV 01	740-030589	S9AK450078	SFP+-10G-LPBK
Xcvr 27	REV 01	740-030589	S9AK450024	SFP+-10G-LPBK
Xcvr 28	REV 01	740-030589	S9AK450027	SFP+-10G-LPBK
Xcvr 29	REV 01	740-030589	S9AK450080	SFP+-10G-LPBK
Xcvr 30	REV 01	740-030589	S9AK450030	SFP+-10G-LPBK
Xcvr 31	REV 01	740-030589	S9AK450025	SFP+-10G-LPBK
Xcvr 32	REV 01	740-030589	S9AK450023	SFP+-10G-LPBK
Xcvr 33	REV 01	740-030589	S9AK450075	SFP+-10G-LPBK
Xcvr 34	REV 01	740-030589	S9AK450161	SFP+-10G-LPBK
Xcvr 35	REV 01	740-030589	S9AK450071	SFP+-10G-LPBK
Xcvr 36	REV 01	740-030589	S9AK450072	SFP+-10G-LPBK
Xcvr 37	REV 01	740-030589	S9AK450022	SFP+-10G-LPBK
Xcvr 38	REV 01	740-030589	S9AK450021	SFP+-10G-LPBK
Xcvr 39	REV 01	740-030589	S9AK450175	SFP+-10G-LPBK
Xcvr 40	REV 01	740-030589	S9AK450162	SFP+-10G-LPBK
Xcvr 41	REV 01	740-030589	S99E270074	SFP+-10G-LPBK
Xcvr 42	REV 01	740-030589	S9AK450174	SFP+-10G-LPBK
Xcvr 43	REV 01	740-030589	S9AK450077	SFP+-10G-LPBK
Xcvr 44	REV 01	740-030589	S9AK450076	SFP+-10G-LPBK
Xcvr 45	REV 01	740-030589	S9AK450026	SFP+-10G-LPBK
Xcvr 46	REV 01	740-030589	S9AK450079	SFP+-10G-LPBK
Xcvr 47	REV 01	740-030589	S9AK450029	SFP+-10G-LPBK
PIC 1		BUILTIN	BUILTIN	15x 10G-SFP+
Xcvr 1	REV 01	740-032986	QA170087	QSFP+-40G-SR4
Xcvr 4	REV 01	740-032986	QA360442	QSFP+-40G-SR4
Xcvr 8	REV 01	740-032986	QA170091	QSFP+-40G-SR4
Xcvr 12	REV 01	740-032986	QA170042	QSFP+-40G-SR4
MGMT BRD	REV 08	750-036946	EE0731	QFX3500-MB
Power Supply 0	Rev 04	740-032091	UI00690	QFX PS 650W AC
Power Supply 1	Rev 04	740-032091	UI00679	QFX PS 650W AC
Fan Tray 0				QFX Fan Tray
Fan Tray 1				QFX Fan Tray

show chassis hardware user@switch> **show chassis hardware models**

**models (QFX3500
Switches)**

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
Routing Engine 0		BUILTIN	BUILTIN	
FPC 0	REV 02	711-032234	EC4074	
Power Supply 0	PSMI 2C	11-d65800	--	

```

show chassis hardware clei-models (QFX3500 Switches) user@switch> show chassis hardware clei-models
Hardware inventory:
Item          Version  Part number  CLEI code      FRU model number
Routing Engine 0
FPC 0         REV 02    711-032234
Power Supply 0  PSMI 2C  11-d65800

show chassis hardware interconnect-device (QFabric Systems) user@switch> show chassis hardware interconnect-device interconnect1
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis       REV 07
Midplane      REV 07    750-021261  BH0208188289  QFX Midplane
CB 0          REV 07    750-021261  BH0208188289  QFXIC08-CB4S

show chassis hardware node-device (QFabric Systems) user@switch> show chassis hardware node-device node1
Routing Engine 0  BUILTIN  BUILTIN  QFX Routing Engine
node1            REV 05    711-032234  ED3694      QFX3500-48S4Q-AFI

CPU
PIC 0
Xcvr 8          REV 01    740-030658  AD0946A028B  SFP+-10G-USR
...

show chassis hardware (PTX5000 Packet Transport Switch) user@switch> show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis
Midplane      REV 03    711-031896  ABAC5589      Midplane-8S
FPM           REV 08    760-030647  EG1679        Front Panel Display
PDU 0         Rev 05    740-032019  ZE00006       DC Power Dist Unit
PSM 0         Rev 05    740-032022  ZJ00018       DC 12V Power Supply
PSM 1         Rev 04    740-032022  ZC00052       DC 12V Power Supply
PSM 2         Rev 04    740-032022  ZD00051       DC 12V Power Supply
PSM 3         Rev 05    740-032022  ZJ00060       DC 12V Power Supply
CCG 0         REV 04    750-030653  EG3703        Clock Generator
CCG 1         REV 04    750-030653  EG3698        Clock Generator
Routing Engine 0 REV 05    740-026942  P737A-002231  RE-DUO-2600
Routing Engine 1 REV 06    740-026942  P737A-002438  RE-DUO-2600
CB 0          REV 08    750-030625  EG5519        Control Board
CB 1          REV 08    750-030625  EG5516        Control Board
FPC 0         REV 18    750-036844  EJ3080        FPC
CPU           REV 12    711-030686  EJ3260        SNG PMB
FPC 2         REV 13    750-036844  EG5065        FPC
CPU           REV 09    711-030686  EG4082        SNG PMB
PIC 0         REV 14    750-031913  EG5127        24x 10GE(LAN) SFP+
Xcvr 0        REV 01    740-031980  143363A00240  SFP+-10G-SR
Xcvr 1        REV 01    740-031981  UK90PZ1       SFP+-10G-LR
Xcvr 2        REV 01    740-031980  AD1141A04XH  SFP+-10G-SR
Xcvr 3        REV 01    740-031981  UK90Q46       SFP+-10G-LR
Xcvr 4        REV 01    740-031980  AD1141A04X4  SFP+-10G-SR
Xcvr 6        REV 01    740-031980  B11H02560    SFP+-10G-SR
Xcvr 7        REV 01    740-031980  B11C01589    SFP+-10G-SR
Xcvr 8        REV 01    740-031980  AD1141A04XF  SFP+-10G-SR
Xcvr 10       REV 01    740-031980  123363A01094  SFP+-10G-SR
Xcvr 11       REV 01    740-031980  AK80LKF       SFP+-10G-SR
Xcvr 12       REV 01    740-031980  183363A01528  SFP+-10G-SR
Xcvr 14       REV 01    740-031980  193363A01079  SFP+-10G-SR
Xcvr 15       REV 01    740-031980  AK80MC8       SFP+-10G-SR
Xcvr 16       REV 01    740-031980  AJC0BHC       SFP+-10G-SR

```

Xcvr 19	REV 01	740-021309	J08D26856	SFP+-10G-LR
Xcvr 21	REV 01	740-031980	AK80KCT	SFP+-10G-SR
Xcvr 22	REV 01	740-031981	UK90PZL	SFP+-10G-LR
Xcvr 23	REV 01	740-031980	AK80N1V	SFP+-10G-SR
FPC 3	REV 13	750-036844	EG5074	FPC
CPU	REV 09	711-030686	EG4064	SNG PMB
PIC 1	REV 10	750-031903	EG0325	SNG Load
FPC 5	REV 06	750-036844	EH3198	FPC
CPU				
PIC 0	REV 14	750-031913	EG5134	24x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LBH	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11B03724	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80FMH	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11J00818	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	193363A00743	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	B11B06125	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	B11H02529	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	AK80LFB	SFP+-10G-SR
Xcvr 12	REV 01	740-031980	193363A01061	SFP+-10G-SR
Xcvr 15	REV 01	740-031980	B11J00687	SFP+-10G-SR
Xcvr 16	REV 01	740-031980	193363A00738	SFP+-10G-SR
Xcvr 18	REV 01	740-031980	AK80MQX	SFP+-10G-SR
Xcvr 19	REV 01	740-021309	J08C17257	SFP+-10G-LR
Xcvr 22	REV 01	740-031980	B11J00730	SFP+-10G-SR
Xcvr 23	REV 01	740-031980	AK80KEE	SFP+-10G-SR
PIC 1	REV 08	750-036710	EG3105	2x 40GE CFP
Xcvr 0	REV 01	740-034554	B260HLT	CFP-40G-LR4
Xcvr 1	REV 01	740-034554	B11C02847	CFP-40G-LR4
FPC 6	REV 18	750-036844	EJ4391	FPC
CPU	REV 12	711-030686	EJ3257	SNG PMB
FPC 7	REV 18	750-036844	EJ4382	FPC
CPU	REV 12	711-030686	EJ3238	SNG PMB
SPMB 0	REV 10	711-030686	EG5418	SNG PMB
SPMB 1	REV 09	711-030686	EG5373	SNG PMB
SIB 0	REV 07	750-030631	EG4858	SIB-I-8S
SIB 1	REV 07	750-030631	EG4872	SIB-I-8S
SIB 2	REV 07	750-030631	EG4866	SIB-I-8S
SIB 3	REV 07	750-030631	EG6011	SIB-I-8S
SIB 4	REV 07	750-030631	EG4907	SIB-I-8S
SIB 5	REV 07	750-030631	EG4879	SIB-I-8S
SIB 6	REV 07	750-030631	EG4864	SIB-I-8S
SIB 7	REV 07	750-030631	EG4899	SIB-I-8S
SIB 8	REV 07	750-030631	EG4880	SIB-I-8S
Fan Tray 0	REV 04	760-032784	EG1496	Vertical Fan Tray
Fan Tray 1	REV 04	760-030642	EG1335	Horizontal Fan Tray
Fan Tray 2	REV 02	760-030642	ED4952	Horizontal Fan Tray

show chassis hardware
clei-models (PTX5000
Packet Transport
Switch)

user@switch> show chassis hardware clei-models

Hardware inventory:

Item	Version	Part number	CLEI code	FRU model number
FPM	REV 08	760-030647	PROTOXCLEI	CRAFT-PTX5000-S
PDU 0	Rev 05	740-032019	IPUPAHLKAA	PWR-SAN-PDU-DC
PSM 0	Rev 05	740-032022	IPUPAHNKAA	PSM-PTX-DC-120-S
PSM 1	Rev 04	740-032022	032022XXXX	PWR-SAN-12-DC
PSM 2	Rev 04	740-032022	032022XXXX	PWR-SAN-12-DC
PSM 3	Rev 05	740-032022	IPUPAHNKAA	PSM-PTX-DC-120-S
CCG 0	REV 04	750-030653	PROTOXCLEI	CCG-PTX-S
CCG 1	REV 04	750-030653	PROTOXCLEI	CCG-PTX-S
Routing Engine 0	REV 05	740-026942		RE-DUO-C2600-16G-S
Routing Engine 1	REV 06	740-026942		RE-DUO-C2600-16G-S
CB 0	REV 08	750-030625	PROTOXCLEI	CB-PTX-S

CB 1	REV 08	750-030625	PROTOXCLEI	CB-PTX-S
FPC 0	REV 18	750-036844	PROTOXCLEI	FPC-PTX-P1-A
FPC 2	REV 13	750-036844	PROTOXCLEI	FPC-PTX-P1-A
PIC 0	REV 14	750-031913	PROTOXCLEI	P1-PTX-24-10GE-SFPP
FPC 3	REV 13	750-036844	PROTOXCLEI	FPC-PTX-P1-A
FPC 5				
PIC 0	REV 14	750-031913	PROTOXCLEI	P1-PTX-24-10GE-SFPP
FPC 6	REV 18	750-036844	PROTOXCLEI	FPC-PTX-P1-A
FPC 7	REV 18	750-036844	PROTOXCLEI	FPC-PTX-P1-A
SIB 0	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 1	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 2	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 3	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 4	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 5	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 6	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 7	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
SIB 8	REV 07	750-030631	PROTOXCLEI	SIB-I-PTX5008
Fan Tray 1	REV 04	760-030642	PROTOXCLEI	FAN-PTX-H-S

show chassis hardware detail (PTX5000 Packet Transport Switch)

```

user@switch> show chassis hardware detail
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               JN11D1FD7AJA  PTX5000
Midplane      REV 03   711-031896   ABAC5589      Midplane-8S
FPM           REV 08   760-030647   EG1679        Front Panel Display
PDU 0         Rev 05   740-032019   ZE00006       DC Power Dist Unit
PSM 0         Rev 05   740-032022   ZJ00018       DC 12V Power Supply
PSM 1         Rev 04   740-032022   ZC00052       DC 12V Power Supply
PSM 2         Rev 04   740-032022   ZD00051       DC 12V Power Supply
PSM 3         Rev 05   740-032022   ZJ00060       DC 12V Power Supply
CCG 0         REV 04   750-030653   EG3703        Clock Generator
CCG 1         REV 04   750-030653   EG3698        Clock Generator
Routing Engine 0 REV 05   740-026942   P737A-002231  RE-DUO-2600
  ad0 3823 MB SMART CF      201006190039C02DC02D Compact Flash
  ad1 62720 MB SMART Lite SATA Drive 2011042300CF4C6B4C6B Disk 1
Routing Engine 1 REV 06   740-026942   P737A-002438  RE-DUO-2600
  ad0 3823 MB SMART CF      20100619053455F055F0 Compact Flash
  ad1 62720 MB SMART Lite SATA Drive 20110423000AE8E7E8E7 Disk 1
CB 0          REV 08   750-030625   EG5519        Control Board
CB 1          REV 08   750-030625   EG5516        Control Board
FPC 0         REV 18   750-036844   EJ3080        FPC
CPU           REV 12   711-030686   EJ3260        SNG PMB
FPC 2         REV 13   750-036844   EG5065        FPC
CPU           REV 09   711-030686   EG4082        SNG PMB
PIC 0         REV 14   750-031913   EG5127        24x 10GE(LAN) SFP+
  Xcvr 0       REV 01   740-031980   143363A00240  SFP+-10G-SR
  Xcvr 1       REV 01   740-031981   UK90PZ1       SFP+-10G-LR
  Xcvr 2       REV 01   740-031980   AD1141A04XH   SFP+-10G-SR
  Xcvr 3       REV 01   740-031981   UK90Q46       SFP+-10G-LR
  Xcvr 4       REV 01   740-031980   AD1141A04X4   SFP+-10G-SR
  Xcvr 6       REV 01   740-031980   B11H02560     SFP+-10G-SR
  Xcvr 7       REV 01   740-031980   B11C01589     SFP+-10G-SR
  Xcvr 8       REV 01   740-031980   AD1141A04XF   SFP+-10G-SR
  Xcvr 10      REV 01   740-031980   123363A01094  SFP+-10G-SR
  Xcvr 11      REV 01   740-031980   AK80LKF       SFP+-10G-SR
  Xcvr 12      REV 01   740-031980   183363A01528  SFP+-10G-SR
  Xcvr 14      REV 01   740-031980   193363A01079  SFP+-10G-SR
  Xcvr 15      REV 01   740-031980   AK80MC8       SFP+-10G-SR
  Xcvr 16      REV 01   740-031980   AJCOBHC       SFP+-10G-SR
  Xcvr 19      REV 01   740-021309   J08D26856     SFP+-10G-LR

```

Xcvr 21	REV 01	740-031980	AK80KCT	SFP+-10G-SR
Xcvr 22	REV 01	740-031981	UK90PZL	SFP+-10G-LR
Xcvr 23	REV 01	740-031980	AK80N1V	SFP+-10G-SR
FPC 3	REV 13	750-036844	EG5074	FPC
CPU	REV 09	711-030686	EG4064	SNG PMB
PIC 1	REV 10	750-031903	EG0325	SNG Load
FPC 5	REV 06	750-036844	EH3198	FPC
CPU				
PIC 0	REV 14	750-031913	EG5134	24x 10GE(LAN) SFP+
Xcvr 0	REV 01	740-031980	AK80LBH	SFP+-10G-SR
Xcvr 1	REV 01	740-031980	B11B03724	SFP+-10G-SR
Xcvr 2	REV 01	740-031980	AK80FMH	SFP+-10G-SR
Xcvr 5	REV 01	740-031980	B11J00818	SFP+-10G-SR
Xcvr 6	REV 01	740-031980	193363A00743	SFP+-10G-SR
Xcvr 7	REV 01	740-031980	B11B06125	SFP+-10G-SR
Xcvr 10	REV 01	740-031980	B11H02529	SFP+-10G-SR
Xcvr 11	REV 01	740-031980	AK80LFB	SFP+-10G-SR
Xcvr 12	REV 01	740-031980	193363A01061	SFP+-10G-SR
Xcvr 15	REV 01	740-031980	B11J00687	SFP+-10G-SR
Xcvr 16	REV 01	740-031980	193363A00738	SFP+-10G-SR
Xcvr 18	REV 01	740-031980	AK80MQX	SFP+-10G-SR
Xcvr 19	REV 01	740-021309	J08C17257	SFP+-10G-LR
Xcvr 22	REV 01	740-031980	B11J00730	SFP+-10G-SR
Xcvr 23	REV 01	740-031980	AK80KEE	SFP+-10G-SR
PIC 1	REV 08	750-036710	EG3105	2x 40GE CFP
Xcvr 0	REV 01	740-034554	B260HLT	CFP-40G-LR4
Xcvr 1	REV 01	740-034554	B11C02847	CFP-40G-LR4
FPC 6	REV 18	750-036844	EJ4391	FPC
CPU	REV 12	711-030686	EJ3257	SNG PMB
FPC 7	REV 18	750-036844	EJ4382	FPC
CPU	REV 12	711-030686	EJ3238	SNG PMB
SPMB 0	REV 10	711-030686	EG5418	SNG PMB
SPMB 1	REV 09	711-030686	EG5373	SNG PMB
SIB 0	REV 07	750-030631	EG4858	SIB-I-8S
SIB 1	REV 07	750-030631	EG4872	SIB-I-8S
SIB 2	REV 07	750-030631	EG4866	SIB-I-8S
SIB 3	REV 07	750-030631	EG6011	SIB-I-8S
SIB 4	REV 07	750-030631	EG4907	SIB-I-8S
SIB 5	REV 07	750-030631	EG4879	SIB-I-8S
SIB 6	REV 07	750-030631	EG4864	SIB-I-8S
SIB 7	REV 07	750-030631	EG4899	SIB-I-8S
SIB 8	REV 07	750-030631	EG4880	SIB-I-8S
Fan Tray 0	REV 04	760-032784	EG1496	Vertical Fan Tray
Fan Tray 1	REV 04	760-030642	EG1335	Horizontal Fan Tray
Fan Tray 2	REV 02	760-030642	ED4952	Horizontal Fan Tray

show chassis hardware user@switch> **show chassis hardware models**

models (PTX5000

Packet Transport

Switch)

Hardware inventory:

Item	Version	Part number	Serial number	FRU model number
FPM	REV 08	760-030647	EG1679	CRAFT-PTX5000-S
PDU 0	Rev 05	740-032019	ZE00006	PWR-SAN-PDU-DC
PSM 0	Rev 05	740-032022	ZJ00018	PSM-PTX-DC-120-S
PSM 1	Rev 04	740-032022	ZC00052	PWR-SAN-12-DC
PSM 2	Rev 04	740-032022	ZD00051	PWR-SAN-12-DC
PSM 3	Rev 05	740-032022	ZJ00060	PSM-PTX-DC-120-S
CCG 0	REV 04	750-030653	EG3703	CCG-PTX-S
CCG 1	REV 04	750-030653	EG3698	CCG-PTX-S
Routing Engine 0	REV 05	740-026942	P737A-002231	RE-DUO-C2600-16G-S
Routing Engine 1	REV 06	740-026942	P737A-002438	RE-DUO-C2600-16G-S
CB 0	REV 08	750-030625	EG5519	CB-PTX-S
CB 1	REV 08	750-030625	EG5516	CB-PTX-S

FPC 0	REV 18	750-036844	EJ3080	FPC-PTX-P1-A
FPC 2	REV 13	750-036844	EG5065	FPC-PTX-P1-A
PIC 0	REV 14	750-031913	EG5127	P1-PTX-24-10GE-SFPP
FPC 3	REV 13	750-036844	EG5074	FPC-PTX-P1-A
FPC 5				
PIC 0	REV 14	750-031913	EG5134	P1-PTX-24-10GE-SFPP
FPC 6	REV 18	750-036844	EJ4391	FPC-PTX-P1-A
FPC 7	REV 18	750-036844	EJ4382	FPC-PTX-P1-A
SIB 0	REV 07	750-030631	EG4858	SIB-I-PTX5008
SIB 1	REV 07	750-030631	EG4872	SIB-I-PTX5008
SIB 2	REV 07	750-030631	EG4866	SIB-I-PTX5008
SIB 3	REV 07	750-030631	EG6011	SIB-I-PTX5008
SIB 4	REV 07	750-030631	EG4907	SIB-I-PTX5008
SIB 5	REV 07	750-030631	EG4879	SIB-I-PTX5008
SIB 6	REV 07	750-030631	EG4864	SIB-I-PTX5008
SIB 7	REV 07	750-030631	EG4899	SIB-I-PTX5008
SIB 8	REV 07	750-030631	EG4880	SIB-I-PTX5008
Fan Tray 1	REV 04	760-030642	EG1335	FAN-PTX-H-S

**show chassis hardware
extensive (PTX5000
Packet Transport
Switch)**

user@switch> show chassis hardware extensive

Hardware inventory:

Item	Version	Part number	Serial number	Description
.....				
PDU 0	Rev 04	740-032019	UE0003	DC Power Dist Unit
Jedec Code:	0x7fb0		EEPROM Version:	0x02
P/N:	740-032019		S/N:	S/N UE0003
Assembly ID:	0x043d		Assembly Version:	04.00
Date:	11-29-2010		Assembly Flags:	0x00
Version:	Rev 04		CLEI Code:	032022XXXX
ID:	DC Power Dist Unit		FRU Model Number:	PWR-SAN-PDU-DC
Board Information Record:				
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff				
I2C Hex Data:				
Address 0x00: 7f b0 02 ff 04 3d 04 00 52 65 76 20 30 34 00 00				
Address 0x10: 00 00 00 00 37 34 30 2d 30 33 32 30 31 39 00 00				
Address 0x20: 53 2f 4e 20 55 45 30 30 30 33 00 00 00 1d 0b 07				
Address 0x30: da ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff				
Address 0x40: ff ff ff ff 01 30 33 32 30 32 32 58 58 58 58 50				
Address 0x50: 57 52 2d 53 41 4e 2d 50 44 55 2d 44 43 00 00 00				
Address 0x60: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00				
Address 0x70: 00 00 00 a3 ff ff ff ff ff ff ff ff ff ff ff ff				
PSM 0	Rev 04	740-032022	YG00065	DC 12V Power Supply
Module				
Jedec Code:	0x7fb0		EEPROM Version:	0x02
P/N:	740-032022		S/N:	S/N YG00065
Assembly ID:	0x0440		Assembly Version:	04.00
Date:	07-30-2010		Assembly Flags:	0x00
Version:	Rev 04		CLEI Code:	032022XXXX
ID:	DC 12V Power Supply Module		FRU Model Number:	PWR-SAN-12-DC
Board Information Record:				
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff				
I2C Hex Data:				
Address 0x00: 7f b0 02 ff 04 40 04 00 52 65 76 20 30 34 00 00				
Address 0x10: 00 00 00 00 37 34 30 2d 30 33 32 30 32 32 00 00				
Address 0x20: 53 2f 4e 20 59 47 30 30 30 36 35 00 00 1e 07 07				
Address 0x30: da ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff				
Address 0x40: ff ff ff ff 01 30 33 32 30 32 32 58 58 58 58 50				
Address 0x50: 57 52 2d 53 41 4e 2d 31 32 2d 44 43 20 20 20 20				

```

Address 0x60: 20 20 20 20 20 20 01 00 ff ff ff ff ff ff ff ff
Address 0x70: ff ff ff 0c ff ff ff ff ff ff ff ff ff ff ff

```

**show chassis hardware
(MX Routers with
Media Services Blade
[MSB])**

```
user@switch> show chassis hardware
```

```
Hardware inventory:
```

Item	Version	Part number	Serial number	Description
Chassis			JN1100FB1AFB	MX480
Midplane	REV 05	710-017414	TR3310	MX480 Midplane
FPM Board	REV 02	710-017254	KG1872	Front Panel Display
PEM 2	Rev 02	740-017343	QCS0812A00N	DC Power Entry Module
PEM 3	Rev 02	740-017343	QCS0812A00U	DC Power Entry Module
Routing Engine 0	REV 07	740-015113	1000740938	RE-S-1300
CB 0	REV 03	710-021523	KF4630	MX SCB
FPC 1	REV 11	750-037207	ZW9726	AS-MCC
CPU	REV 04	711-038173	ZW4819	AS-MCC PMB
MIC 0	REV 06	750-037214	ZW3574	AS-MSC
PIC 0		BUILTIN	BUILTIN	AS-MSC
MIC 1	REV 00	750-037211		AS-MXC
PIC 2		BUILTIN	BUILTIN	AS-MXC

**show chassis hardware
extensive (MX Routers
with Media Services
Blade [MSB])**

```
user@switch> show chassis hardware extensive
```

```

FPC 1 REV 11 750-037207 ZW9726 AS-MCC
Jedec Code: 0x7fb0 EEPROM Version: 0x02
P/N: 750-037207 S/N: S/N ZW9726
Assembly ID: 0x0b37 Assembly Version: 01.11
Date: 02-17-2012 Assembly Flags: 0x00
Version: REV 11 CLEI Code: PROTOXCLEI
ID: AS-MCC FRU Model Number: 750-037207
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 37 01 0b 52 45 56 20 31 31 00 00
Address 0x10: 00 00 00 00 37 35 30 2d 30 33 37 32 30 37 00 00
Address 0x20: 53 2f 4e 20 5a 57 39 37 32 36 00 00 00 11 02 07
Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 01 50 52 4f 54 4f 58 43 4c 45 49 37
Address 0x50: 35 30 2d 30 33 37 32 30 37 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 31 31 00 ff ff ff ff ff ff ff
Address 0x70: ff ff ff 5e ff ff ff ff ff ff ff ff ff ff ff ff
CPU REV 04 711-038173 ZW4819 AS-MCC-PMB
Jedec Code: 0x7fb0 EEPROM Version: 0x02
P/N: 711-038173 S/N: S/N ZW4819
Assembly ID: 0x0b38 Assembly Version: 01.04
Date: 12-30-2011 Assembly Flags: 0x00
Version: REV 04
ID: AS-MCC PMB
Board Information Record:
Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
Address 0x00: 7f b0 02 ff 0b 38 01 04 52 45 56 20 30 34 00 00
Address 0x10: 00 00 00 00 37 31 31 2d 30 33 38 31 37 33 00 00
Address 0x20: 53 2f 4e 20 5a 57 34 38 31 39 00 00 00 1e 0c 07
Address 0x30: db ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
Address 0x40: ff ff ff ff 00 50 52 4f 54 4f 58 43 4c 45 49 37
Address 0x50: 31 31 2d 30 33 38 31 37 33 00 00 00 00 00 00 00
Address 0x60: 00 00 00 00 00 00 30 34 00 ff ff ff ff ff ff ff
Address 0x70: ff ff ff 60 00 00 00 00 00 00 00 00 00 00 00 00
MIC 0 REV 06 750-037214 ZW3574 AS-MSC
Jedec Code: 0x7fb0 EEPROM Version: 0x02
P/N: 750-037214 S/N: S/N ZW3574

```

```

Assembly ID: 0x0a44          Assembly Version: 01.06
Date:          02-19-2012    Assembly Flags: 0x00
Version:       REV 06        CLEI Code:      PROTOXCLEI
ID: AS-MS-C      FRU Model Number: 750-037214
Board Information Record:
  Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
  Address 0x00: 7f b0 02 ff 0a 44 01 06 52 45 56 20 30 36 00 00
  Address 0x10: 00 00 00 00 37 35 30 2d 30 33 37 32 31 34 00 00
  Address 0x20: 53 2f 4e 20 5a 57 33 35 37 34 00 00 00 13 02 07
  Address 0x30: dc ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x40: ff ff ff ff 01 50 52 4f 54 4f 58 43 4c 45 49 37
  Address 0x50: 35 30 2d 30 33 37 32 31 34 00 00 00 00 00 00 00
  Address 0x60: 00 00 00 00 00 00 30 36 00 ff ff ff ff ff ff ff
  Address 0x70: ff ff ff 60 c0 03 e5 f4 00 00 00 00 00 00 00 00
    PIC 0          BUILTIN      BUILTIN          AS-MS-C
MIC 1             REV 00      750-037211          AS-MXC
Jedec Code: 0x7fb0          EEPROM Version: 0x01
P/N: 750-037211
Assembly ID: 0x0a43          Assembly Version: 01.00
Date: 255-255-65535         Assembly Flags: 0x00
Version: REV 00
ID: AS-MXC
Board Information Record:
  Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
I2C Hex Data:
  Address 0x00: 7f b0 01 ff 0a 43 01 00 52 45 56 20 30 30 00 00
  Address 0x10: 00 00 00 00 37 35 30 2d 30 33 37 32 31 31 00 00
  Address 0x20: 00 00 00 00 00 00 00 00 00 00 00 00 00 ff ff ff
  Address 0x30: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x40: ff ff ff ff 00 ff ff ff ff ff ff ff ff ff ff ff
  Address 0x50: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x60: ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x70: ff ff ff ff c0 02 e6 6c 7f b0 02 ff 0a 44 01 06
    PIC 2          BUILTIN      BUILTIN          AS-MXC

```

show chassis lccs

Syntax	show chassis lccs
Release Information	Command introduced before Junos OS Release 7.4.
Description	(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, display the status of all T640 routers (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, display the status of all T1600 routers (or line-card chassis) connected to the TX Matrix Plus router.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • request chassis lcc on page 134 • Configuring Line-Card Upgrade Groups for Nonstop Software Upgrade (CLI Procedure) • fpc
List of Sample Output	show chassis lccs on page 564
Output Fields	Table 25 on page 564 lists the output fields for the show chassis lccs command. Output fields are listed in the approximate order in which they appear.

Table 25: show chassis lccs Output Fields

Field Name	Field Description
Slot	LCC slot number.
State	LCC status: <ul style="list-style-type: none"> • Online—LCC is online and running. • Offline—LCC is powered down. • Empty—No LCC is present.
Uptime	How long the LCC has been up and running.

Sample Output

```

show chassis lccs user@host> show chassis lccs
Slot  State                Uptime
0     Online                 3 minutes, 17 seconds
1     Empty
2     Online                 3 minutes, 23 seconds
3     Empty

```

show chassis location

Syntax	show chassis location
Syntax (TX Matrix Router)	show chassis location <fpc interface (by-name <i>name</i> by-slot fpc <i>number</i> lcc <i>number</i>) lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	show chassis location <fpc interface (by-name <i>name</i> by-slot fpc <i>number</i> lcc <i>number</i>) lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Router)	show chassis location <all-members> <local> <member <i>member-id</i> >
Syntax (QFX Series)	show chassis location <interconnect-device <i>name</i> > <node-device <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	Display the physical location of the chassis. This command can only be used on the master Routing Engine.
Options	<p>none—Display all information about the physical location of the chassis. On a TX Matrix router, display all information about the physical location of the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display all information about the physical location of the TX Matrix Plus router and its attached T1600 routers.</p> <p>all-members—(MX Series routers only) (Optional) Display the physical location of the chassis for all the member routers in the Virtual Chassis configuration.</p> <p>fpc—(TX Matrix and TX Matrix Plus routers only) (Optional) Display the physical location of all Flexible PIC Concentrators (FPCs).</p> <p>interconnect-device <i>name</i>—(QFabric systems only) (Optional) Display the physical location of the Interconnect device.</p> <p>interface by-name <i>name</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) Display the physical location of a specified interface name. On a TX Matrix router, this option displays the FPC number and T640 router (or line-card chassis) number associated with the specified interface. On a TX Matrix Plus router, this option displays the FPC number and T1600 router (or line-card chassis) number associated with the specified interface.</p> <p>interface by-slot fpc <i>number</i> lcc <i>number</i>—(TX Matrix and TX Matrix Plus router only) (Optional) On a TX Matrix router, display the global FPC number of an interface by</p>

specifying its local FPC number and T640 router (or line-card chassis) number. On a TX Matrix Plus router, display the global FPC number of an interface by specifying its local FPC number and T1600 router (or line-card chassis) number.

- The global FPC number is the FPC slot number when all the FPC slots in the routing matrix are considered: **0** through **31**. The local FPC number is the FPC slot number on a particular T640 router.
- For **fpc**, replace **number** with a value from **0** through **7**.
- For **lcc**, replace **number** with a value from **0** through **3**.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display the physical location of a specified T640 router (or line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, display the physical location of a specified T1600 router (or line-card chassis) that is connected to a TX Matrix Plus router. Replace **number** with a value from **0** through **3**.

local—(MX Series routers only) (Optional) Display the physical location of the chassis for the local Virtual Chassis member.

member member-id—(MX Series routers only) (Optional) Display the physical location of the chassis for the specified member of the Virtual Chassis configuration. Replace **member-id** with a value of **0** or **1**.

node-device name—(QFabric systems only) (Optional) Display the physical location of the Node device.

scc—(TX Matrix routers only) (Optional) Display the physical location of the TX Matrix router (or switch-card chassis).

sfc—(TX Matrix Plus routers only) (Optional) Display the physical location of the TX Matrix Plus router (or switch-fabric chassis).

Required Privilege Level view

List of Sample Output [show chassis location on page 567](#)
[show chassis location fpc \(TX Matrix Router\) on page 567](#)
[show chassis location interface by-slot \(TX Matrix Router\) on page 567](#)
[show chassis location fpc \(TX Matrix Plus Router\) on page 567](#)
[show chassis location interface by-slot \(TX Matrix Plus Router\) on page 567](#)
[show chassis location \(QFX3500 Switches\) on page 567](#)
[show chassis location \(QFabric Systems\) on page 568](#)

Output Fields [Table 26 on page 566](#) lists the output fields for the **show chassis location** command. Output fields are listed in the approximate order in which they appear.

Table 26: show chassis location Output Fields

Field Name	Field Description
country-code	Country code information.

Table 26: show chassis location Output Fields (*continued*)

Field Name	Field Description
postal-code	Postal code information.
Building	Building information.
Floor	Floor information.
Global FPC	Global FPC number. The FPC slot number, when all FPC slots in the routing matrix are considered. The range of values is 0 through 31 .
LCC	Line-card chassis number. On a TX Matrix router, the number of a particular T640 router connected to the TX Matrix router. On a TX Matrix Plus router, the number of a particular T1600 router connected to the TX Matrix Plus router.
Local FPC	Local FPC number. On a TX Matrix router, the FPC slot number on a particular T640 router. On a TX Matrix Plus router, the FPC slot number on a particular T1600 router.

Sample Output

```

show chassis location user@host> show chassis location
country-code: US
postal-code: 94404
Building: Building 2, Floor: 2

show chassis location user@host> show chassis location fpc
fpc (TX Matrix Router) Global FPC    LCC      Local FPC
                        17          2        1
                        21          2        5

show chassis location user@host> show chassis location interface by-slot fpc 1 lcc 1
interface by-slot      Global FPC: 9
(TX Matrix Router)

show chassis location user@host> show chassis location fpc
fpc (TX Matrix Plus   Global FPC    LCC      Local FPC
Router)              0          0        0
                      1          0        1

show chassis location user@host> show chassis location interface by-slot fpc 2 lcc 1
interface by-slot      Global FPC: 10
(TX Matrix Plus
Router)

show chassis location user@switch> show chassis location
(QFX3500 Switches) country-code: US
postal-code: 94404
Building: Building 2, Floor: 2

```

```
show chassis location      user@switch> show chassis location interconnect-device interconnect1
(QFabric Systems)         country-code: US
                           postal-code: 94404
                           Building: Building 2, Floor: 2
```

show chassis psd

Syntax	show chassis psd
Release Information	Command introduced in Junos OS Release 9.1.
Description	(Root System Domain [RSD] only) Display information about Protected System Domains (PSDs). A PSD is initially created by the RSD configuration. An RSD and PSDs are supported on a T320 or T640 router, or a T1600 routing node, or a TX Matrix Plus Platform that is interconnected with the JCS1200 platform.
Options	This command has no options.
Additional Information	For more information about PSDs, RSDs, and the JCS1200 platform, see the <i>Junos OS Protected System Domain Configuration Guide</i> .
Required Privilege Level	view
List of Sample Output	show chassis psd on page 569
Output Fields	Table 27 on page 569 lists the output fields for the show chassis psd command. Output fields are listed in the approximate order in which they appear.

Table 27: show chassis psd Output Fields

Field Name	Field Description
Slot Description	PSD identification.
State	PSD status: <ul style="list-style-type: none"> • Online—PSD is online and running. • Offline—PSD is powered down.
Uptime	Length of time that the PSD has been up and running.

Sample Output

```

show chassis psd {master}

user@host> show chassis psd
Slot Description      State      Uptime
1                    Online    12 hours, 19 minutes, 51 seconds
2                    Online    2 hours, 18 minutes, 17 seconds
3                    Online    12 hours, 19 minutes, 51 seconds

```

show chassis pic

Syntax	<code>show chassis pic fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i></code>
Syntax (TX Matrix and TX Matrix Plus Routers)	<code>show chassis pic fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i> <fcc <i>number</i>></code>
Syntax (MX Series Routers)	<code>show chassis pic fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i> <all-members> <local> <member <i>member-id</i>></code>
Syntax (MX2010 3D Universal Edge Routers)	<code>show chassis pic fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i></code>
Syntax (MX2020 3D Universal Edge Routers)	<code>show chassis pic fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i></code>
Syntax (QFX Series)	<code>show chassis pic <interconnect-device <i>name</i> (fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i>)> <node-device <i>name</i> pic-slot <i>slot-number</i>></code>
Syntax (ACX Series Universal Access Routers)	<code>show chassis pic fpc-slot <i>slot-number</i> pic-slot <i>slot-number</i></code>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Command introduced in Junos OS Release 11.1 for QFX Series.</p> <p>Command introduced in Junos OS Release 12.2 for ACX Series Universal Access Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers.</p> <p>Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.</p>
Description	Display status information about the PIC installed in the specified Flexible PIC Concentrator (FPC) and PIC slot.
Options	<p>fpc-slot <i>slot-number</i>—Display information about the PIC in this particular FPC slot:</p> <ul style="list-style-type: none"> On a TX Matrix router, if you specify the number of the T640 router by using the fcc <i>number</i> option (the recommended method), replace <i>slot-number</i> with a value from 0 through 7. Otherwise, replace <i>slot-number</i> with a value from 0 through 31. <p>Likewise, on a TX Matrix Plus router, if you specify the number of the T1600 router by using the fcc <i>number</i> option (the recommended method), replace <i>slot-number</i> with a value from 0 through 7. Otherwise, replace <i>slot-number</i> with a value from 0 through 31. For example, the following commands have the same result:</p> <pre> user@host> show chassis pic fpc-slot 1 fcc 1 pic-slot 1 user@host> show chassis pic fpc-slot 9 pic-slot 1 </pre>

- M120 routers only—Replace **slot-number** with a value from 0 through 5.
- MX80 routers only—Replace **slot-number** with a value from 0 through 1.
- MX240 routers only—Replace **slot-number** with a value from 0 through 2.
- MX480 routers only—Replace **slot-number** with a value from 0 through 5.
- MX960 routers only—Replace **slot-number** with a value from 0 through 11.
- MX2020 routers only—Replace **slot-number** with a value from 0 through 19.
- Other routers—Replace **slot-number** with a value from 0 through 7.
- EX Series switches:
 - EX3200 switches and EX4200 standalone switches—Replace **slot-number** with 0.
 - EX4200 switches in a Virtual Chassis configuration—Replace **slot-number** with a value from 0 through 9 (switch's member ID).
 - EX8208 switches—Replace **slot-number** with a value from 0 through 7 (line card).
 - EX8216 switches—Replace **slot-number** with a value from 0 through 15 (line card).
- QFX Series:
 - QFX3500 switches—Replace **slot-number** with 0. In the command output, FPC refers to a line card. The FPC number equals the slot number for the line card.
 - QFabric systems—Replace **slot-number** with any number between 0 and 15. In the command output, FPC refers to a line card. The FPC number equals the slot number for the line card.

all-members—(MX Series routers only) (Optional) Display PIC information for all member routers in the Virtual Chassis configuration.

interconnect-device name—(QFabric systems only) (Optional) Display PIC information for a specified Interconnect device.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display PIC information for a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display PIC information for a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display PIC information for the local Virtual Chassis member.

member member-id—(MX Series routers only) (Optional) Display PIC information for the specified member of the Virtual Chassis configuration. Replace **member-id** with a value of 0 or 1.

node-device *name*—(QFabric systems only) (Optional) Display PIC information for a specified Node device.

pic-slot *slot-number*—Display information about the PIC in this particular PIC slot. For routers, replace ***slot-number*** with a value from 0 through 3. For EX3200 and EX4200 switches, replace ***slot-number*** with 0 for built-in network interfaces and 1 for interfaces on uplink modules. For EX8208 and EX8216 switches, replace ***slot-number*** with 0. For the QFX3500 standalone switch and the QFabric system, replace ***slot-number*** with 0 or 1.

Required Privilege Level view

- Related Documentation**
- [request chassis pic on page 135](#)
 - [show chassis hardware on page 463](#)
 - Configuring the PIC Type
 - 100-Gigabit Ethernet PIC Overview

- List of Sample Output**
- [show chassis pic fpc-slot pic-slot on page 574](#)
 - [show chassis pic fpc-slot pic-slot \(PIC Offline\) on page 575](#)
 - [show chassis pic fpc-slot pic-slot \(FPC Offline\) on page 575](#)
 - [show chassis pic fpc-slot pic-slot \(FPC Not Present\) on page 575](#)
 - [show chassis pic fpc-slot pic-slot \(PIC Not Present\) on page 575](#)
 - [show chassis pic fpc-slot 3 pic-slot 0 \(M120 Router\) on page 575](#)
 - [show chassis pic fpc-slot pic-slot \(MX960 Router Bidirectional Optics\) on page 575](#)
 - [show chassis pic fpc-slot pic-slot \(MX480 Router with 100-Gigabit Ethernet MIC\) on page 575](#)
 - [show chassis pic fpc-slot pic-slot \(MX240, MX480, MX960 Routers with Application Services Modular Line Card\) on page 576](#)
 - [show chassis pic fpc-slot pic-slot \(MX2010 Router\) on page 576](#)
 - [show chassis pic fpc-slot pic-slot \(MX2020 Router\) on page 576](#)
 - [show chassis pic fpc-slot pic-slot \(T1600 Router with 100-Gigabit Ethernet PIC\) on page 576](#)
 - [show chassis pic fpc-slot pic-slot lcc \(TX Matrix Router\) on page 577](#)
 - [show chassis pic fpc-slot pic-slot lcc \(TX Matrix Plus Router\) on page 577](#)
 - [show chassis pic fpc-slot pic-slot \(Next-Generation SONET/SDH SFP\) on page 577](#)
 - [show chassis pic fpc-slot pic-slot \(12-Port T1/E1\) on page 577](#)
 - [show chassis pic fpc-slot 0 pic-slot 1 \(4x CHOC3 SONET CE SFP\) on page 577](#)
 - [show chassis pic fpc-slot 0 pic-slot 0 \(SONET/SDH OC3/STM1 \[Multi-Rate\] MIC with SFP\) on page 578](#)
 - [show chassis pic fpc-slot 3 pic-slot 0 \(8-port Channelized SONET/SDH OC3/STM1 \[Multi-Rate\] MIC with SFP\) on page 578](#)
 - [show chassis pic fpc-slot 5 pic-slot 0 \(4-port Channelized SONET/SDH OC3/STM1 \[Multi-Rate\] MIC with SFP\) on page 578](#)
 - [show chassis pic fpc-slot 1 pic-slot 0 \(1-port OC192/STM64 MIC with XFP\) on page 579](#)
 - [show chassis pic fpc-slot 1 pic-slot 2 \(8-port DS3/E3 MIC\) on page 579](#)
 - [show chassis pic fpc-slot pic-slot \(OTN\) on page 579](#)

[show chassis pic fpc-slot pic-slot \(QFX3500 Switch\) on page 579](#)
[show chassis pic interconnect-device fpc-slot pic-slot \(QFabric Systems\) on page 579](#)
[show chassis pic node-device fpc-slot pic-slot \(QFabric System\) on page 579](#)
[show chassis pic fpc-slot 0 pic-slot 1 \(ACX2000 Universal Access Router\) on page 580](#)
[show chassis pic FPC-slot 1 PIC-slot 0 \(MX Routers with Media Services Blade \[MSB\]\) on page 580](#)
[show chassis pic FPC slot 1, PIC slot 2 \(MX Routers with Media Services Blade \[MSB\]\) on page 580](#)

Output Fields Table 28 on page 573 lists the output fields for the **show chassis pic** command. Output fields are listed in the approximate order in which they appear.

Table 28: show chassis pic Output Fields

Field Name	Field Description
Type	PIC type. NOTE: On the 1-port OC192/STM64 MICs with the SDH framing mode, the type is displayed as MIC-3D-1STM64-XFP and with the SONET framing mode, the type is displayed as MIC-3D-1OC192-XFP . By default, the 1-port OC192/STM64 MICs displays the type as MIC-3D-1OC192-XFP .
ASIC type	Type of ASIC on the PIC.
State	Status of the PIC. State is displayed only when a PIC is in the slot. <ul style="list-style-type: none"> • Online— PIC is online and running. • Offline—PIC is powered down.
PIC version	PIC hardware version.
Uptime	How long the PIC has been online.
Package	(Multiservices PICs only) Services package supported: Layer-2 or Layer-3 .
Port Number	Port number for the PIC.
Cable Type	Type of cable connected to the port: LH , LX , or SX .
PIC Port Information (MX480 Router 100-Gigabit Ethernet CFP)	Port-level information for the PIC. <ul style="list-style-type: none"> • Port—Port number • Cable type—Type of optical transceiver installed. • Fiber type—Type of fiber. SM is single-mode. • Xcvr vendor—Transceiver vendor name. • Xcvr vendor part number—Transceiver vendor part number. • Wavelength—Wavelength of the transmitted signal. Uplinks and downlinks are always 1550 nm. There is a separate fiber for each direction

Table 28: show chassis pic Output Fields (*continued*)

Field Name	Field Description
PIC Port Information (MX960 Router Bidirectional Optics)	Port-level information for the PIC. <ul style="list-style-type: none"> • Port—Port number • Cable type—Type of small form-factor pluggable (SFP) optical transceiver installed. Uplink interfaces display -U. Down link interfaces display -D. • Fiber type—Type of fiber. SM is single-mode. • Xcvr vendor—Transceiver vendor name. • Xcvr vendor part number—Transceiver vendor part number. <ul style="list-style-type: none"> • BX10-10-km bidirectional optics. • BX40-40-km bidirectional optics. • SFP-LX-40-km SFP optics. • Wavelength—Wavelength of the transmitted signal. Uplinks are always 1310 nm. Downlinks are either 1490 nm or 1550 nm.
PIC Port Information (Next-Generation SONET/SDH SFP)	Port-level information for the next-generation SONET/SDH SFP PIC. <ul style="list-style-type: none"> • Port—Port number. • Cable type—Type of small form-factor pluggable (SFP) optical transceiver installed. • Fiber type—Type of fiber: SM (single-mode) or MM (multimode). • Xcvr vendor—Transceiver vendor name. • Xcvr vendor part number—Transceiver vendor part number. • Wavelength—Wavelength of the transmitted signal. Next-generation SONET/SDH SFPs use 1310 nm.
Multirate Mode	Rate-selectability status for the MIC: Enabled or Disabled .
Channelization	Indicates whether channelization is enabled or disabled on the DS3/E3 MIC.

Sample Output

```

show chassis pic fpc-slot pic-slot
user@host> show chassis pic fpc-slot 2 pic-slot 0
PIC fpc slot 2 pic slot 0 information:
  Type                10x 1GE(LAN), 1000 BASE
  ASIC type           H chip
  State               Online
  PIC version         1.1
  Uptime              1 day, 50 minutes, 58 seconds
PIC Port Information:
  Port      Cable      Xcvr      Xcvr Vendor
  Number    Type        Vendor Name  Part Number
  0         GIGE 1000EX  FINISAR CORP.  FTRJ8519P1BNL-J3
  1         GIGE 1000EX  FINISAR CORP.  FTRJ-8519-7D-JUN

```

```

show chassis pic fpc-slot pic-slot (PIC Offline) user@host> show chassis pic fpc-slot 1 pic-slot 0
PIC fpc slot 1 pic slot 0 information:
State Offline

show chassis pic fpc-slot pic-slot (FPC Offline) user@host> show chassis pic fpc-slot 1 pic-slot 0
FPC 1 is not online

show chassis pic fpc-slot pic-slot (FPC Not Present) user@host> show chassis pic fpc-slot 4 pic-slot 0
FPC slot 4 is empty

show chassis pic fpc-slot pic-slot (PIC Not Present) user@host> show chassis pic fpc-slot 5 pic-slot 2
FPC 5, PIC 2 is empty

show chassis pic fpc-slot 3 pic-slot 0 (M120 Router) user@host> show chassis pic fpc-slot 3 pic-slot 0
PC slot 3, PIC slot 0 information:
Type 2x G/E IQ, 1000 BASE
ASIC type IQ GE 2 VLAN-TAG FPGA
State Online
PIC version 1.16
Uptime 3 hours, 3 minutes

PIC Port Information:
Port Cable Xcvr Xcvr Vendor
Number Type Vendor Name Part Number
0 GIGE 1000SX FINISAR CORP. FTRJ8519P1BNL-J3
1 GIGE 1000SX FINISAR CORP. FTRJ-8519-7D-JUN

show chassis pic fpc-slot pic-slot (MX960 Router Bidirectional Optics) user@host> show chassis pic fpc-slot 4 pic-slot 1
FPC slot 4, PIC slot 1 information:
Type 10x 1GE(LAN)
State Online
PIC version 0.0
Uptime 18 days, 5 hours, 41 minutes, 54 seconds

PIC port information:
Port Cable type Fiber Xcvr vendor part number Wavelength
0 SFP-1000BASE-BX10-D SM SumitomoElectric SBP6H44-J3-BW-49 1490 nm
1 SFP-1000BASE-BX10-D SM SumitomoElectric SBP6H44-J3-BW-49 1490 nm
2 SFP-1000BASE-BX10-D SM SumitomoElectric SBP6H44-J3-BW-49 1490 nm
3 SFP-1000BASE-BX10-D SM OCP TRXBG1LXDBVM2-JW 1490 nm
4 SFP-1000BASE-BX10-D SM OCP TRXBG1LXDBVM2-JW 1490 nm
5 SFP-1000BASE-BX10-U SM SumitomoElectric SBP6H44-J3-BW-31 1310 nm
6 SFP-1000BASE-BX10-U SM SumitomoElectric SBP6H44-J3-BW-31 1310 nm
7 SFP-1000BASE-BX10-U SM OCP TRXBG1LXDBBMH-J1 1310 nm
8 SFP-1000BASE-BX10-U SM OCP TRXBG1LXDBBMH-J1 1310 nm
9 SFP-1000BASE-BX10-U SM SumitomoElectric SBP6H44-J3-BW-31 1310 nm

show chassis pic fpc-slot pic-slot (MX480 Router with 100-Gigabit Ethernet MIC) user@host> show chassis pic fpc-slot 1 pic-slot 2
FPC slot 1, PIC slot 2 information:
Type 1X100GE CFP
State Online
PIC version 2.10
Uptime 4 minutes, 48 seconds

PIC port information:

```

```

      Fiber
Port  Cable type      type  Xcvr vendor      part number      Wavelength
0      100GBASE LR4      SM    FINISAR CORP.    FTLC1181RDNS-J3  1310 nm

      Xcvr vendor
      firmware version
      1.8

show chassis pic fpc-slot 1 pic-slot 2
fpc-slot pic-slot
(MX240, MX480,
MX960 Routers with
Application Services
Modular Line Card)
user@host>show chassis pic fpc-slot 1 pic-slot 2
FPC slot 1, PIC slot 2 information:
Type                               AS-MXC
State                              Online
PIC version                        1.0
Uptime                             11 hours, 18 minutes, 3 seconds

show chassis pic fpc-slot 9 pic-slot 3
fpc-slot pic-slot
(MX2010 Router)
user@host>show chassis pic fpc-slot 9 pic-slot 3
FPC slot 9, PIC slot 3 information:
Type                               1X100GE CFP
State                              Online
PIC version                        0.0
Uptime                             14 hours, 51 seconds

show chassis pic fpc-slot 19 pic-slot 3
fpc-slot pic-slot
(MX2020 Router)
user@host>show chassis pic fpc-slot 19 pic-slot 3
FPC slot 19, PIC slot 3 information:
Type                               4x 10GE(LAN) SFP+
State                              Online
PIC version                        0.0
Uptime                             1 day, 11 hours, 26 minutes, 36 seconds

PIC port information:
      Fiber
      Xcvr vendor      Wave-   Xcvr
      Port Cable type  type  Xcvr vendor      part number      length
      Firmware
0      10GBASE SR      MM    SumitomoElectric  SPP5200SR-J6-M    850 nm    0.0
1      10GBASE SR      MM    SumitomoElectric  SPP5200SR-J6-M    850 nm    0.0
2      10GBASE SR      MM    SumitomoElectric  SPP5200SR-J6-M    850 nm    0.0
3      10GBASE SR      MM    SumitomoElectric  SPP5200SR-J6-M    850 nm    0.0

show chassis pic fpc-slot 3 pic-slot 1
fpc-slot pic-slot
(T1600 Router with
100-Gigabit Ethernet
PIC)
user@host> run show chassis pic fpc-slot 3 pic-slot 1
FPC slot 3, PIC slot 1 information:
Type                               100GE SLOT1
ASIC type                          Brooklyn 100GE FPGA
State                              Online
PIC version                        1.3
Uptime                             10 minutes, 44 seconds

PIC port information:
      Fiber
      Xcvr vendor      Wavelength
      Port Cable type  type  Xcvr vendor      part number
0      100GBASE LR4      SM    Opnext Inc.      TRC5E20ENFSF000F  1310 nm

```

```

show chassis pic fpc-slot pic-slot lcc
(TX Matrix Router)
user@host> show chassis pic fpc-slot 1 pic-slot 1 lcc 0
lcc0-re0:
-----
PIC fpc slot 1 pic slot 1 information:
  Type                4x OC-3 SONET, SMIR
  ASIC type            D chip
  State                Online
  PIC version          1.2
  Uptime               5 days, 2 hours, 12 minutes, 8 seconds

show chassis pic fpc-slot pic-slot lcc
(TX Matrix Plus Router)
user@host> show chassis pic pic-slot 0 fpc-slot 8
lcc0-re0:
-----
FPC slot 8, PIC slot 0 information:
  Type                1x 10GE(LAN/WAN)
  State                Online
  Uptime               2 hours, 46 minutes, 23 seconds

PIC port information:
  Port  Cable type      Fiber
                                type Xcvr vendor      part number      Wavelength
  0      10GBASE ZR      SM    Opnext Inc.      TRF7061BN-LF150  1550 nm
  0      10GBASE ZR      SM    FINISAR CORP.    FTRX-1811-3-J2   1550 nm

show chassis pic fpc-slot pic-slot
(Next-Generation SONET/SDH SFP)
user@host> show chassis pic fpc-slot 4 pic-slot 0
FPC slot 4, PIC slot 0 information:
  Type                4x OC-3 1x OC-12 SFP
  ASIC type            D FPGA
  State                Online
  PIC version          1.3
  Uptime               1 day, 50 minutes, 4 seconds

PIC port information:
  Port  Cable type      Fiber
                                type Xcvr vendor      Xcvr vendor      Wavelength
                                part number
  0      OC48 short reach SM    FINISAR CORP.    FTRJ1321P1BTL-J2 1310 nm
  1      OC3 short reach  MM    OCP              TRPA03MM3BAS-JE  1310 nm
  2      OC3 short reach  MM    OCP              TRXA03MM3BAS-JW  1310 nm
  3      OC12 inter reach SM    FINISAR CORP.    FTLF1322P1BTR    1310 nm

show chassis pic fpc-slot pic-slot
(12-Port T1/E1)
user@host> show chassis pic fpc-slot 0 pic-slot 3
FPC slot 0, PIC slot 3 information:
  Type                12x T1/E1 CE
  State                Online
  PIC version          1.1
  CPU load average     1 percent
  Interrupt load average 0 percent
  Total DRAM size      128 MB
  Memory buffer utilization 100 percent
  Memory heap utilization 4 percent
  Uptime               1 day, 22 hours, 28 minutes, 12 seconds
  Internal Clock Synchronization Normal

show chassis pic fpc-slot 0 pic-slot 1 (4x
CHOC3 SONET CE SFP)
user@host> show chassis pic fpc-slot 0 pic-slot 1
FPC slot 0, PIC slot 1 information:
  Type                4x CHOC3 SONET CE SFP
  State                Online
  PIC version          1.3

```

```

CPU load average          1 percent
Interrupt load average    0 percent
Total DRAM size           128 MB
Memory buffer utilization  99 percent
Memory heap utilization    4 percent
Uptime                    1 day, 22 hours, 55 minutes, 37 seconds
Internal Clock Synchronization Normal

```

PIC port information:

Port	Cable type	Fiber type	Xcvr vendor	Xcvr vendor part number	Wavelength
0	OC3 short reach	MM	AVAGO	HFBR-57E0P-JU2	n/a
1	OC3 short reach	MM	AVAGO	HFBR-57E0P-JU2	n/a
3	OC3 long reach	SM	OPNEXT INC	TRF5456AVLB314	1310 nm

```

show chassis pic
fpc-slot 0 pic-slot 0
(SONET/SDH
OC3/STM1
[Multi-Rate] MIC with
SFP)

```

user@host> show chassis pic fpc-slot 0 pic-slot 0

FPC slot 0, PIC slot 0 information:

```

Type                MIC-3D-80C30C12-40C48
State                Online
PIC version          1.8
Uptime               3 days, 22 hours, 3 minutes, 50 seconds

```

PIC port information:

Port	Cable type	Fiber type	Xcvr vendor	Xcvr vendor part number	Wavelength
1	OC12 inter reach	SM	FINISAR CORP	FTRJ1322P1BTR-J3	1310 nm
7	OC12 inter reach	SM	FINISAR CORP	FTRJ1322P1BTR-J3	1310 nm

Multirate Mode Enabled

```

show chassis pic
fpc-slot 3 pic-slot 0
(8-port Channelized
SONET/SDH
OC3/STM1
[Multi-Rate] MIC with
SFP)

```

user@host> show chassis pic fpc-slot 3 pic-slot 0

FPC slot 3, PIC slot 0 information:

```

Type                MIC-3D-8CHOC3-4CHOC12
State                Online
PIC version          1.9
Uptime               1 hour, 21 minutes, 24 seconds

```

PIC port information:

Port	Cable type	Fiber type	Xcvr vendor	Xcvr vendor part number	Wavelength
0	OC12 short reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J3	1310 nm
1	OC12 short reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J3	1310 nm
2	OC12 inter reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J2	1310 nm
4	OC12 short reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J3	1310 nm
5	OC12 short reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J3	1310 nm
6	OC12 short reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J3	1310 nm
7	OC12 short reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J3	1310 nm

```

show chassis pic
fpc-slot 5 pic-slot 0
(4-port Channelized
SONET/SDH
OC3/STM1
[Multi-Rate] MIC with
SFP)

```

user@host> show chassis pic fpc-slot 5 pic-slot 0

FPC slot 5, PIC slot 0 information:

```

Type                MIC-3D-4CHOC3-2CHOC12
State                Online
PIC version          1.9
Uptime               1 hour, 21 minutes

```

PIC port information:

Port	Cable type	Fiber type	Xcvr vendor	Xcvr vendor part number	Wavelength
1	OC12 inter reach	SM	FINISAR CORP.	FTRJ1322P1BTR-J3	1310 nm

```

2      OC12 inter reach SM  FINISAR CORP.      FTRJ1322P1BTR-J3  1310 nm
3      OC12 short reach  SM  FINISAR CORP.      FTRJ1322P1BTR-J3  1310 nm

```

show chassis pic fpc-slot 1 pic-slot 0
(1-port OC192/STM64 MIC with XFP)

```

user@host> show chassis pic fpc-slot 1 pic-slot 0
FPC slot 1, PIC slot 0 information:
  Type      MIC-3D-10C192-XFP
  State      Online
  PIC version 1.2
  Uptime     1 day, 11 hours, 4 minutes, 6 seconds

```

PIC port information:

Port	Cable type	Fiber type	Xcvr vendor	Xcvr vendor part number	Wavelength
0	OC192 short reach	n/a	FINISAR CORP.	FTLX1412M3BCL-J3	1310 nm

show chassis pic fpc-slot 1 pic-slot 2
(8-port DS3/E3 MIC)

```

user@host> show chassis pic fpc-slot 1 pic-slot 2
FPC slot 1, PIC slot 2 information:
  Type      MIC-3D-8DS3-E3
  State      Online
  PIC version 1.10
  Uptime     4 days, 1 hour, 29 minutes, 19 seconds
  Channelization Mode Disabled

```

show chassis pic fpc-slot pic-slot (OTN)

```

user@host> show chassis pic fpc-slot 5 pic-slot 0
PIC fpc slot 5 pic slot 0 information:
  Type      1x10GE(LAN),OTN
  ASIC type  H chip
  State      Online
  PIC version 1.0
  Uptime     5 minutes, 50 seconds

```

show chassis pic fpc-slot pic-slot (QFX3500 Switch)

```

user@switch> show chassis pic fpc-slot 0 pic-slot 0
FPC slot 0, PIC slot 0 information:
Type 48x 10G-SFP+ Builtin
State Online
Uptime 3 days, 3 hours, 5 minutes, 20 seconds

```

show chassis pic interconnect-device fpc-slot pic-slot (QFabric Systems)

```

user@switch> show chassis pic interconnect-device interconnect1 fpc-slot 9 pic-slot 0
FPC slot 9, PIC slot 0 information:
  Type      16x 40G-GE Builtin
  State      Online
  Uptime     2 hours, 47 minutes, 40 seconds

```

show chassis pic node-device fpc-slot pic-slot (QFabric System)

```

user@switch> show chassis pic node-device node1 pic-slot 0
FPC slot node1, PIC slot 0 information:
  Type      48x 10G-SFP+Builtin
  State      Online
  Uptime     2 hours, 52 minutes, 37 seconds

```

PIC port information:

Port	Cable type	Fiber type	Xcvr vendor	Xcvr vendor part number	Wavelength
0	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
1	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
2	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
3	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
4	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
5	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
6	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm

7	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
8	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
9	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
10	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
11	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
12	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
13	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
14	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
15	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
16	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
17	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
18	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
19	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
20	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
21	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
22	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
23	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
24	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
25	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
26	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
27	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
28	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
29	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
30	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
31	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
32	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
33	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
34	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
35	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
36	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
37	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
38	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
39	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
40	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
41	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
42	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
43	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
44	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
45	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
46	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm
47	10GBASE SR	MM	SumitomoElectric	SPP5101SR-J3	850 nm

**show chassis pic
fpc-slot 0 pic-slot 1
(ACX2000 Universal
Access Router)**

```
user@host> show chassis pic fpc-slot 0 pic-slot 1
FPC slot 0, PIC slot 1 information:
  Type                8x 1GE(LAN) RJ45 Built-in
  State                Online
  Uptime               6 days, 2 hours, 51 minutes, 11 seconds
```

**show chassis pic
FPC-slot 1 PIC-slot 0
(MX Routers with
Media Services Blade
[MSB])**

```
user@switch> show chassis pic fpc-slot 1 pic-slot 0
FPC slot 1, PIC slot 0 information:
  Type                AS-MSC
  State                Online
  PIC version          1.6
  Uptime               11 hours, 17 minutes, 56 seconds
```

**show chassis pic FPC
slot 1, PIC slot 2 (MX)**

```
user@switch> show chassis pic fpc-slot 1 pic-slot 2
Type                AS-MXC
State                Online
```

Routers with Media Services Blade [MSB])	PIC version	1.0
	Uptime	11 hours, 18 minutes, 3 seconds

show chassis routing-engine

Syntax	show chassis routing-engine <bios <i>slot</i> >
Syntax (EX Series Switches)	show chassis routing-engine < <i>slot</i> >
Syntax (T Series routers)	show chassis routing-engine <bios <i>slot</i> >
Syntax (TX Matrix Routers)	show chassis routing-engine <bios <i>slot</i> > <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Routers)	show chassis routing-engine <bios <i>slot</i> > <lcc <i>number</i> sfc <i>number</i> >
Syntax (QFX Series)	show chassis routing-engine <interconnect-device <i>name</i> > <node-device <i>name</i> >
Syntax (MX Series Routers)	show chassis routing-engine <bios <i>slot</i> > <all-members> <local> <member <i>member-id</i> >
Syntax (MX2010 3D Universal Edge Routers)	show chassis routing-engine <bios <i>slot</i> >
Syntax (MX2020 3D Universal Edge Routers)	show chassis routing-engine <bios <i>slot</i> >
Syntax (ACX Series Universal Access Routers)	show chassis routing-engine
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option introduced for the TX Matrix Plus router in Junos OS Release in 9.6. Command introduced in Junos OS Release 11.1 for QFX Series. Command introduced in Junos OS Release 12.2 for ACX Series Universal Access Routers. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.
Description	Display the status of the Routing Engine.

Options **none**—Display information about one or more Routing Engines. On a TX Matrix router, display information about all Routing Engines on the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display information about all Routing Engines on the TX Matrix Plus router and its attached T1600 routers.

all-members—(MX Series routers only) (Optional) Display Routing Engine information for all members of the Virtual Chassis configuration.

bios—(Optional) Display the (BIOS) firmware version.

interconnect-device *number*—(QFabric systems only) (Optional) Display Routing Engine information for a specified Interconnect device.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display Routing Engine information for a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display Routing Engine information for a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace ***number*** with a value from 0 through 3.

local—(MX Series routers only) (Optional) Display Routing Engine information for the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Display Routing Engine information for the specified member of the Virtual Chassis configuration. For an MX Series Virtual Chassis, replace ***member-id*** with a value of 0 or 1.

node-device *number*—(QFabric systems only) (Optional) Display Routing Engine information for a specified Node device.

scc—(TX Matrix routers only) (Optional) Display Routing Engine information for the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus routers only) (Optional) Display Routing Engine information for the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

slot—(Systems with multiple Routing Engines) (Optional) Display information for an individual Routing Engine. Replace ***slot*** with 0 or 1. For QFX3500 switches, there is only one Routing Engine, so you do not need to specify the slot number.

Required Privilege Level view

Related Documentation

- [request chassis routing-engine master on page 138](#)
- Configuring Routing Engine Redundancy
- Switching the Global Master and Backup Roles in a Virtual Chassis Configuration

List of Sample Output

- [show chassis routing-engine \(M5 Router\) on page 586](#)
- [show chassis routing-engine \(M10 Router\) on page 587](#)
- [show chassis routing-engine \(M20 Router\) on page 587](#)

[show chassis routing-engine \(M40 Router\) on page 588](#)
[show chassis routing-engine \(M120 Router\) on page 588](#)
[show chassis routing-engine \(M160 Router\) on page 589](#)
[show chassis routing-engine \(MX240 Router\) on page 589](#)
[show chassis routing-engine \(MX480 Router\) on page 590](#)
[show chassis routing-engine \(MX960 Router\) on page 590](#)
[show chassis routing-engine \(MX2010 Router\) on page 590](#)
[show chassis routing-engine \(MX2020 Router\) on page 591](#)
[show chassis routing-engine \(T320 router\) on page 592](#)
[show chassis routing-engine \(T640 router\) on page 593](#)
[show chassis routing-engine \(T1600 router\) on page 593](#)
[show chassis routing-engine \(T4000 router\) on page 594](#)
[show chassis routing-engine \(TX Matrix Router\) on page 595](#)
[show chassis routing-engine lcc \(TX Matrix Router\) on page 596](#)
[show chassis routing-engine bios \(TX Matrix Router\) on page 596](#)
[show chassis routing-engine \(TX Matrix Plus Router\) on page 596](#)
[show chassis routing-engine lcc \(TX Matrix Plus Router\) on page 598](#)
[show chassis routing-engine bios \(TX Matrix Plus Router\) on page 599](#)
[show chassis routing-engine \(QFX Series\) on page 599](#)
[show chassis routing-engine \(PTX Series Packet Transport Switch\) on page 599](#)
[show chassis routing-engine \(ACX2000 Universal Access Router\) on page 600](#)
[show chassis routing-engine \(ACX1000 Universal Access Router\) on page 600](#)

Output Fields [Table 29 on page 584](#) lists the output fields for the **show chassis routing-engine** command. Output fields are listed in the approximate order in which they appear.

Table 29: show chassis routing-engine Output Fields

Field Name	Field Description
Slot	(Systems with single and multiple Routing Engines) Slot number.
Current state	(Systems with multiple Routing Engines) Current state of the Routing Engine: Master , Backup , or Disabled .
Election priority	(Systems with multiple Routing Engines) Election priority for the Routing Engine: Master or Backup .
Temperature	Temperature of the air flowing past the Routing Engine.
CPU Temperature	Temperature of the CPU.
DRAM	Total DRAM available to the Routing Engine's processor.
Memory utilization	Percentage of Routing Engine memory being used.

Table 29: show chassis routing-engine Output Fields (*continued*)

Field Name	Field Description
CPU utilization	Information about the Routing Engine's CPU utilization: <ul style="list-style-type: none"> • User—Percentage of CPU time being used by user processes. • Background—Percentage of CPU time being used by background processes. • Kernel—Percentage of CPU time being used by kernel processes. • Interrupt—Percentage of CPU time being used by interrupts. • Idle—Percentage of CPU time that is idle.
Model	Routing Engine model number.
Serial ID	(Systems with multiple Routing Engines) Identification number of the Routing Engine in this slot.
Start time	Time at which the Routing Engine started running.
Uptime	How long the Routing Engine has been running.
Routing Engine BIOS Version	BIOS version being run by the Routing Engine.

Table 29: show chassis routing-engine Output Fields (*continued*)

Field Name	Field Description
Last reboot reason	<p>Reason for last reboot, including:</p> <ul style="list-style-type: none"> power cycle/failure—Halt of the Routing Engine using the halt command, powering down using the power button on the chassis or any other method (such as removal of the control board or Routing Engine), and then powering back the Routing Engine. A halt of the operating system also occurs if you enter the request system halt command. You can enter this command to halt the system operations on the chassis or specific Routing Engines. To restart the software, press any key on the keyboard. watchdog—Reboot due to a hardware watchdog. A watchdog is a hardware monitoring process that examines the health and performance of the router to enable the device to recover from failures. A watchdog checks for problems at certain intervals, and reboots the routing engine if a problem is encountered. reset-button reset—(Not available on the J Series router or EX Series switch) Reboot due to pressing of the reset button on the Routing Engine. power-button hard power off—Reboot due to pressing of the power button on the chassis. A powering down of the software also occurs if you enter the request system power-off command. You can enter this command to power down the chassis or specific Routing Engines; you can then restart the software. misc hardware reason—Reboot due to miscellaneous hardware reasons. thermal shutdown—Reboot due to the router or switch reaching a critical temperature at which point it is unsafe to continue operations. hard disk failure—Reboot due to a hard disk or solid-state drive (SSD) failure. reset from debugger—Reboot due to reset from the debugger. chassis control reset—Restart the chassis process that manages PICs, FPCs, and other hardware components. The chassis control module that runs the Routing Engine performs management and monitoring functions, and it provides a single access point for operational and maintenance functions. A reset of the chassis management process occurs when you enter the restart chassis-control command. bios auto recovery reset—Reboot due to a BIOS auto-recovery reset. could not be determined—Reboot due to an undetermined reason. Router rebooted after a normal shutdown—Reboot due to a normal shutdown. This reason is displayed if the Routing Engine is powered down by pushing and holding the online/offline button on the Routing Engine faceplate for 30 seconds, and then powered back. A reboot of the software also occurs if you enter the request system reboot command. You can enter this command to reboot the chassis or specific Routing Engines.
Load averages	Routing Engine load averages for the last 1, 5, and 15 minutes.

Sample Output

```

show chassis routing-engine (M5 Router) user@host> show chassis routing-engine
Routing Engine status:
  Temperature                25 degrees C / 77 degrees F
  DRAM                       768 MB
  Memory utilization          21 percent
  CPU utilization:
    User                      0 percent
    Background                0 percent
    Kernel                    0 percent
    Interrupt                  0 percent
    Idle                       100 percent

```

```

Model RE-2.0
Serial ID 31000007349bf701
Start time 2003-12-04 09:42:17 PST
Uptime 26 days, 1 hour, 12 minutes, 27 seconds
Last reboot reason Router rebooted after a normal shutdown
Load averages: 1 minute 5 minute 15 minute
                0.00      0.01      0.00

```

```

show chassis routing-engine
routing-engine (M10 Router)

```

```

user@host> show chassis routing-engine
Routing Engine status:
  Temperature 25 degrees C / 77 degrees F
  DRAM 768 MB
  Memory utilization 21 percent
  CPU utilization:
    User 0 percent
    Background 0 percent
    Kernel 0 percent
    Interrupt 0 percent
    Idle 100 percent
  Model RE-2.0
  Serial ID 31000007349bf701
  Start time 2003-12-04 09:42:17 PST
  Uptime 26 days, 1 hour, 12 minutes, 27 seconds
  Last reboot reason Router rebooted after a normal shutdown
  Load averages: 1 minute 5 minute 15 minute
                  0.00      0.01      0.00

```

```

show chassis routing-engine
routing-engine (M20 Router)

```

```

user@host> show chassis routing-engine
Routing Engine status:
  Slot 0:
    Current state Master
    Election priority Master (default)
    Temperature 29 degrees C / 84 degrees F
    DRAM 768 MB
    Memory utilization 20 percent
    CPU utilization:
      User 1 percent
      Background 0 percent
      Kernel 2 percent
      Interrupt 0 percent
      Idle 97 percent
    Model RE-2.0
    Serial ID 58000007348d9a01
    Start time 2003-12-30 07:05:47 PST
    Uptime 3 hours, 41 minutes, 14 seconds
    Last reboot reason Router rebooted after a normal shutdown
    Load averages: 1 minute 5 minute 15 minute
                    0.00      0.02      0.00

```

```

Routing Engine status:
  Slot 1:
    Current state Backup
    Election priority Backup (default)
    Temperature 29 degrees C / 84 degrees F
    DRAM 768 MB
    Memory utilization 0 percent
    CPU utilization:
      User 0 percent
      Background 0 percent
      Kernel 1 percent
      Interrupt 0 percent
      Idle 99 percent

```

```

Model RE-2.0
Serial ID d800000734745701
Start time 2003-06-17 16:37:33 PDT
Uptime 195 days, 18 hours, 47 minutes, 9 seconds
Last reboot reason Router rebooted after a normal shutdown

show chassis user@host> show chassis routing-engine
routing-engine (M40 Routing Engine status:
Router) Temperature 25 degrees C / 77 degrees F
DRAM 768 MB
Memory utilization 21 percent
CPU utilization:
  User 0 percent
  Background 0 percent
  Kernel 0 percent
  Interrupt 0 percent
  Idle 100 percent
Model RE-2.0
Serial ID 31000007349bf701
Start time 2003-12-04 09:42:17 PST
Uptime 26 days, 1 hour, 12 minutes, 27 seconds
Last reboot reason Router rebooted after a normal shutdown
Load averages: 1 minute 5 minute 15 minute
                0.00 0.01 0.00

show chassis user@host> show chassis routing-engine
routing-engine (M120 Routing Engine status:
Router) Slot 0:
  Current state Master
  Election priority Master (default)
  Temperature 46 degrees C / 114 degrees F
  CPU temperature 44 degrees C / 111 degrees F
  DRAM 2048 MB
  Memory utilization 18 percent
  CPU utilization:
    User 0 percent
    Background 0 percent
    Kernel 5 percent
    Interrupt 0 percent
    Idle 95 percent
  Model RE-A-1000
  Serial ID 1000621154
  Start time 2006-10-31 17:10:05 PST
  Uptime 14 minutes, 31 seconds
  Last reboot reason Router rebooted after a normal shutdown
  Load averages: 1 minute 5 minute 15 minute
                  0.02 0.07 0.07

Routing Engine status:
Slot 1:
  Current state Backup
  Election priority Backup (default)
  Temperature 45 degrees C / 113 degrees F
  CPU temperature 42 degrees C / 107 degrees F
  DRAM 2048 MB
  Memory utilization 15 percent
  CPU utilization:
    User 0 percent
    Background 0 percent
    Kernel 0 percent
    Interrupt 0 percent
    Idle 100 percent

```

```

Model RE-A-1000
Serial ID 1000621151
Start time 2006-10-31 17:10:04 PST
Uptime 14 minutes, 30 seconds
Last reboot reason Router rebooted after a normal shutdown

show chassis user@host> show chassis routing-engine
routing-engine (M160 Router) Routing Engine status:
Slot 0:
Current state Master
Election priority Master (default)
Temperature 43 degrees C / 109 degrees F
DRAM 2048 MB
Memory utilization 11 percent
CPU utilization:
User 1 percent
Background 0 percent
Kernel 2 percent
Interrupt 0 percent
Idle 97 percent
Model RE-3.0
Serial ID 210865700403
Start time 2003-12-23 12:25:55 PST
Uptime 6 days, 22 hours, 33 minutes, 24 seconds
Last reboot reason Router rebooted after a normal shutdown
Load averages: 1 minute 5 minute 15 minute
0.24 0.13 0.04

Routing Engine status:
Slot 1:
Current state Backup
Election priority Backup (default)
Temperature 40 degrees C / 104 degrees F
DRAM 2048 MB
Memory utilization 9 percent
CPU utilization:
User 0 percent
Background 0 percent
Kernel 0 percent
Interrupt 0 percent
Idle 100 percent
Model RE-3.0
Serial ID 210865700332
Start time 2003-12-23 12:25:55 PST
Uptime 6 days, 22 hours, 33 minutes, 21 seconds
Last reboot reason Router rebooted after a normal shutdown

show chassis user@host> show chassis routing-engine
routing-engine (MX240 Router) Routing Engine status:
Slot 0:
Current state Backup
Election priority Master (default)
Temperature 40 degrees C / 104 degrees F
CPU temperature 47 degrees C / 116 degrees F
DRAM 3584 MB
Memory utilization 7 percent
CPU utilization:
User 0 percent
Background 0 percent
Kernel 0 percent
Interrupt 0 percent
Idle 100 percent

```

Model	RE-S-2000
Serial ID	1000703522
Start time	2007-12-19 10:35:40 PST
Uptime	16 days, 3 hours, 15 minutes, 23 seconds
Last reboot reason	Router rebooted after a normal shutdown

**show chassis
routing-engine
(MX480 Router)**

user@host> show chassis routing-engine

Routing Engine status:

Slot 0:

Current state	Master
Election priority	Master (default)
Temperature	41 degrees C / 105 degrees F
CPU temperature	38 degrees C / 100 degrees F
DRAM	2048 MB
Memory utilization	13 percent
CPU utilization:	
User	0 percent
Background	0 percent
Kernel	2 percent
Interrupt	0 percent
Idle	98 percent

Model	RE-S-1300
Serial ID	1000697044
Start time	2008-01-04 06:46:08 PST
Uptime	8 hours, 17 minutes, 16 seconds
Last reboot reason	Router rebooted after a normal shutdown

**show chassis
routing-engine
(MX960 Router)**

user@host> show chassis routing-engine

Routing Engine status:

Slot 0:

Current state	Master
Election priority	Master (default)
Temperature	37 degrees C / 98 degrees F
CPU temperature	37 degrees C / 98 degrees F
DRAM	2048 MB
Memory utilization	18 percent
CPU utilization:	
User	0 percent
Background	0 percent
Kernel	4 percent
Interrupt	0 percent
Idle	96 percent

Model	RE-S-1300
Serial ID	1000617944
Start time	2006-10-26 12:37:13 PDT
Uptime	6 days, 4 hours, 59 minutes, 40 seconds
Last reboot reason	Router rebooted after a normal shutdown
Load averages:	1 minute 5 minute 15 minute
	0.16 0.08 0.02

**show chassis
routing-engine
(MX2010 Router)**

user@host> show chassis routing-engine

Routing Engine status:

Slot 0:

Current state	Master
Election priority	Master (default)
Temperature	3 degrees C / 37 degrees F
CPU temperature	3 degrees C / 37 degrees F
DRAM	17152 MB
Memory utilization	13 percent

```

CPU utilization:
  User          0 percent
  Background    0 percent
  Kernel        4 percent
  Interrupt     2 percent
  Idle          95 percent
Model          RE-S-1800x4
Serial ID      9009099704
Start time     2012-10-02 14:33:32 PDT
Uptime         14 hours, 39 minutes, 39 seconds
Last reboot reason Router rebooted after a normal shutdown.
Load averages: 1 minute 5 minute 15 minute
                  0.06      0.05      0.01

Routing Engine status:
Slot 1:
  Current state      Backup
  Election priority  Backup (default)
  Temperature        1 degrees C / 33 degrees F
  CPU temperature    2 degrees C / 35 degrees F
  DRAM               17152 MB
  Memory utilization 11 percent
  CPU utilization:
    User          0 percent
    Background    0 percent
    Kernel        0 percent
    Interrupt     0 percent
    Idle         100 percent
  Model          RE-S-1800x4
  Serial ID      9009099706
  Start time     2012-10-02 10:36:06 PDT
  Uptime         18 hours, 36 minutes, 57 seconds
  Last reboot reason Router rebooted after a normal shutdown.
  Load averages: 1 minute 5 minute 15 minute
                    0.01      0.00      0.00

show chassis routing-engine
(MX2020 Router) user@host> show chassis routing-engine

Routing Engine status:
Slot 0:
  Current state      Master
  Election priority  Master (default)
  Temperature        6 degrees C / 42 degrees F
  CPU temperature    6 degrees C / 42 degrees F
  DRAM               17152 MB
  Memory utilization 14 percent
  CPU utilization:
    User          1 percent
    Background    0 percent
    Kernel        7 percent
    Interrupt     2 percent
    Idle         91 percent
  Model          RE-S-1800x4
  Serial ID      9009089704
  Start time     2012-10-02 11:05:24 PDT
  Uptime         2 days, 15 hours, 49 minutes, 13 seconds
  Last reboot reason Router rebooted after a normal shutdown.
  Load averages: 1 minute 5 minute 15 minute
                    0.10      0.05      0.01

Routing Engine status:
Slot 1:
  Current state      Backup
  Election priority  Backup (default)

```

```

Temperature          7 degrees C / 44 degrees F
CPU temperature       5 degrees C / 41 degrees F
DRAM                 17152 MB
Memory utilization    12 percent
CPU utilization:
  User                0 percent
  Background          0 percent
  Kernel              0 percent
  Interrupt            0 percent
  Idle                99 percent
Model                RE-S-1800x4
Serial ID             9009094138
Start time            2012-10-02 11:09:57 PDT
Uptime                2 days, 15 hours, 44 minutes, 27 seconds
Last reboot reason    Router rebooted after a normal shutdown.
Load averages:        1 minute   5 minute   15 minute
                      0.00        0.00        0.00

```

**show chassis
routing-engine (T320
router)**

user@host> show chassis routing-engine

```

Slot 0:
  Current state          Master
  Election priority      Master (default)
  Temperature            51 degrees C / 123 degrees F
  CPU temperature        55 degrees C / 131 degrees F
  DRAM                   3584 MB
  Memory utilization     11 percent
  CPU utilization:
    User                 0 percent
    Background           0 percent
    Kernel               2 percent
    Interrupt            0 percent
    Idle                 97 percent
  Model                  RE-A-2000
  Serial ID              9009010618
  Start time             2012-10-10 01:24:05 PDT
  Uptime                 5 days, 10 hours, 49 minutes, 23 seconds
  Last reboot reason     0x1:power cycle/failure
  Load averages:        1 minute   5 minute   15 minute
                        0.00        0.05        0.04

```

Routing Engine status:

```

Slot 1:
  Current state          Backup
  Election priority      Backup (default)
  Temperature            45 degrees C / 113 degrees F
  CPU temperature        48 degrees C / 118 degrees F
  DRAM                   3584 MB
  Memory utilization     9 percent
  CPU utilization:
    User                 0 percent
    Background           0 percent
    Kernel               0 percent
    Interrupt            0 percent
    Idle                 100 percent
  Model                  RE-A-2000
  Serial ID              9009003642
  Start time             2012-10-10 01:24:04 PDT
  Uptime                 5 days, 10 hours, 49 minutes, 28 seconds
  Last reboot reason     0x1:power cycle/failure

```

```

show chassis routing-engine user@host> show chassis routing-engine
routing-engine (T640 router) Routing Engine status:
Slot 0:
  Current state           Master
  Election priority       Master (default)
  Temperature             50 degrees C / 122 degrees F
  CPU temperature         58 degrees C / 136 degrees F
  DRAM                    3584 MB
  Memory utilization      14 percent
  CPU utilization:
    User                  1 percent
    Background            0 percent
    Kernel                4 percent
    Interrupt             1 percent
    Idle                  95 percent
  Model                   RE-A-2000
  Serial ID               1000686556
  Start time              2012-10-10 01:24:02 PDT
  Uptime                  5 days, 10 hours, 50 minutes, 27 seconds
  Last reboot reason      0x1:power cycle/failure
  Load averages:         1 minute   5 minute   15 minute
                        1.24       0.33       0.12

Routing Engine status:
Slot 1:
  Current state           Backup
  Election priority       Backup (default)
  Temperature             44 degrees C / 111 degrees F
  CPU temperature         49 degrees C / 120 degrees F
  DRAM                    3584 MB
  Memory utilization      12 percent
  CPU utilization:
    User                  0 percent
    Background            0 percent
    Kernel                0 percent
    Interrupt             1 percent
    Idle                  99 percent
  Model                   RE-A-2000
  Serial ID               1000702739
  Start time              2012-10-10 01:24:02 PDT
  Uptime                  5 days, 10 hours, 50 minutes, 26 seconds
  Last reboot reason      0x1:power cycle/failure

show chassis routing-engine user@host> show chassis routing-engine
routing-engine (T1600 router) Routing Engine status:
Slot 0:
  Current state           Master
  Election priority       Master (default)
  Temperature             48 degrees C / 118 degrees F
  CPU temperature         58 degrees C / 136 degrees F
  DRAM                    3584 MB
  Memory utilization      13 percent
  CPU utilization:
    User                  0 percent
    Background            0 percent
    Kernel                3 percent
    Interrupt             1 percent
    Idle                  96 percent
  Model                   RE-A-2000
  Serial ID               1000704521
  Start time              2012-10-10 01:23:41 PDT
  Uptime                  5 days, 10 hours, 46 minutes, 56 seconds

```

```

Last reboot reason      0x1:power cycle/failure
Load averages:          1 minute   5 minute   15 minute
                        0.05        0.03        0.01

Routing Engine status:
Slot 1:
  Current state          Backup
  Election priority      Backup (default)
  Temperature            44 degrees C / 111 degrees F
  CPU temperature        48 degrees C / 118 degrees F
  DRAM                   3584 MB
  Memory utilization     12 percent
  CPU utilization:
    User                 0 percent
    Background           0 percent
    Kernel               0 percent
    Interrupt            0 percent
    Idle                 100 percent
  Model                  RE-A-2000
  Serial ID              9009006579
  Start time             2012-10-10 01:23:42 PDT
  Uptime                 5 days, 10 hours, 46 minutes, 54 seconds
  Last reboot reason     0x1:power cycle/failure

show chassis routing-engine
user@host> show chassis routing-engine
Routing Engine status:
Slot 0:
  Current state          Master
  Election priority      Master (default)
  Temperature            33 degrees C / 91 degrees F
  CPU temperature        50 degrees C / 122 degrees F
  DRAM                   8960 MB
  Memory utilization     18 percent
  CPU utilization:
    User                 0 percent
    Background           0 percent
    Kernel               4 percent
    Interrupt            1 percent
    Idle                 95 percent
  Model                  RE-DU0-1800
  Serial ID              P737F-002248
  Start time             2012-02-09 22:49:53 PST
  Uptime                 2 hours, 21 minutes, 35 seconds
  Last reboot reason     Router rebooted after a normal shutdown.
  Load averages:        1 minute   5 minute   15 minute
                        0.00        0.04        0.00

Routing Engine status:
Slot 1:
  Current state          Backup
  Election priority      Backup (default)
  Temperature            32 degrees C / 89 degrees F
  CPU temperature        46 degrees C / 114 degrees F
  DRAM                   8960 MB
  Memory utilization     24 percent
  CPU utilization:
    User                 0 percent
    Background           0 percent
    Kernel               0 percent
    Interrupt            0 percent
    Idle                 99 percent
  Model                  RE-DU0-1800
  Serial ID              P737F-002653

```

```

Start time          2012-02-08 20:12:51 PST
Uptime              1 day, 4 hours, 58 minutes, 28 seconds
Last reboot reason   Router rebooted after a normal shutdown.

```

**show chassis
routing-engine (TX
Matrix Router)**

```

user@host> show chassis routing-engine
scc-re0:

```

```

-----
Routing Engine status:
Slot 0:
  Current state          Master
  Election priority      Master (default)
  Temperature            34 degrees C / 93 degrees F
  CPU temperature        33 degrees C / 91 degrees F
  DRAM                   2048 MB
  Memory utilization     12 percent
  CPU utilization:
    User                  0 percent
    Background            0 percent
    Kernel                2 percent
    Interrupt             0 percent
    Idle                  98 percent
  Model                  RE-4.0
  Serial ID              P11123900153
  Start time             2004-08-05 18:42:05 PDT
  Uptime                  9 days, 22 hours, 49 minutes, 50 seconds
  Last reboot reason     Router rebooted after a normal shutdown
  Load averages:        1 minute   5 minute  15 minute
                        0.00        0.08    0.07

```

```

1cc0-re0:

```

```

-----
Routing Engine status:
Slot 0:
  Current state          Master
  Election priority      Master (default)
  Temperature            33 degrees C / 91 degrees F
  CPU temperature        30 degrees C / 86 degrees F
  DRAM                   2048 MB
  Memory utilization     12 percent
  CPU utilization:
    User                  0 percent
    Background            0 percent
    Kernel                1 percent
    Interrupt             0 percent
    Idle                  98 percent
  Model                  RE-3.0
  Serial ID              210865700363
  Start time             2004-08-05 18:42:05 PDT
  Uptime                  9 days, 22 hours, 48 minutes, 20 seconds
  Last reboot reason     Router rebooted after a normal shutdown
  Load averages:        1 minute   5 minute  15 minute
                        0.00        0.02    0.00

```

```

1cc2-re0:

```

```

-----
Routing Engine status:
Slot 0:
  Current state          Master
  Election priority      Master (default)
  Temperature            34 degrees C / 93 degrees F
  CPU temperature        35 degrees C / 95 degrees F

```

```

DRAM                2048 MB
Memory utilization   12 percent
CPU utilization:
  User               0 percent
  Background         0 percent
  Kernel             2 percent
  Interrupt          0 percent
  Idle               98 percent
Model               RE-4.0
Serial ID            P11123900126
Start time           2004-08-05 18:42:05 PDT
Uptime               9 days, 22 hours, 49 minutes, 4 seconds
Last reboot reason    Router rebooted after a normal shutdown
Load averages:       1 minute   5 minute   15 minute
                      0.01      0.01      0.0

```

show chassis routing-engine lcc (TX Matrix Router)

```

user@host> show chassis routing-engine 0 lcc 0
lcc0-re0:
-----

```

```

Routing Engine status:
Slot 0:
  Current state           Master
  Election priority       Master (default)
  Temperature             33 degrees C / 91 degrees F
  CPU temperature         30 degrees C / 86 degrees F
  DRAM                    2048 MB
  Memory utilization      12 percent
  CPU utilization:
    User                  0 percent
    Background            0 percent
    Kernel                1 percent
    Interrupt             0 percent
    Idle                  98 percent
  Model                   RE-3.0
  Serial ID               210865700363
  Start time              2004-08-05 18:42:05 PDT
  Uptime                  7 days, 22 hours, 49 minutes, 6 seconds
  Last reboot reason      Router rebooted after a normal shutdown
  Load averages:         1 minute   5 minute   15 minute
                          0.00      0.00      0.00

```

show chassis routing-engine bios (TX Matrix Router)

```

user@host> show chassis routing-engine bios
scc-re0:
-----

```

```

Routing Engine BIOS Version: V1.0.0
lcc0-re0:
-----
Routing Engine BIOS Version: V1.0.17
lcc2-re0:
-----
Routing Engine BIOS Version: V1.0.0

```

show chassis routing-engine (TX Matrix Plus Router)

```

user@host> show chassis routing-engine
sfc0-re0:
-----

```

```

Routing Engine status:
Slot 0:
  Current state           Master
  Election priority       Master (default)
  Temperature             27 degrees C / 80 degrees F

```

```

CPU temperature          42 degrees C / 107 degrees F
DRAM                    3327 MB
Memory utilization       12 percent
CPU utilization:
  User                   0 percent
  Background             0 percent
  Kernel                 2 percent
  Interrupt              0 percent
  Idle                   98 percent
Model                   RE-TXP-SFC
Serial ID                737A-1024
Start time              2009-05-11 17:39:49 PDT
Uptime                  3 hours, 45 minutes, 25 seconds
Last reboot reason      Router rebooted after a normal shutdown.
Load averages:          1 minute   5 minute  15 minute
                        0.00       0.00    0.00

```

Routing Engine status:

Slot 1:

```

Current state           Backup
Election priority       Backup (default)
Temperature             29 degrees C / 84 degrees F
CPU temperature         43 degrees C / 109 degrees F
DRAM                   3327 MB
Memory utilization      11 percent
CPU utilization:
  User                   0 percent
  Background             0 percent
  Kernel                 0 percent
  Interrupt              0 percent
  Idle                   100 percent
Model                   RE-TXP-SFC
Serial ID                737A-1024
Start time              2009-05-11 17:08:54 PDT
Uptime                  4 hours, 16 minutes, 52 seconds
Last reboot reason      0x1:power cycle/failure

```

lcc0-re0:

Routing Engine status:

Slot 0:

```

Current state           Master
Election priority       Master (default)
Temperature             30 degrees C / 86 degrees F
CPU temperature         43 degrees C / 109 degrees F
DRAM                   3327 MB
Memory utilization      9 percent
CPU utilization:
  User                   0 percent
  Background             0 percent
  Kernel                 2 percent
  Interrupt              0 percent
  Idle                   98 percent
Model                   RE-TXP-LCC
Serial ID                737F-1024
Start time              2009-05-11 17:40:32 PDT
Uptime                  3 hours, 44 minutes, 51 seconds
Last reboot reason      Router rebooted after a normal shutdown.
Load averages:          1 minute   5 minute  15 minute
                        0.00       0.00    0.00

```

Routing Engine status:

Slot 1:

```

Current state          Backup
Election priority      Backup (default)
Temperature            30 degrees C / 86 degrees F
CPU temperature        43 degrees C / 109 degrees F
DRAM                  3327 MB
Memory utilization     9 percent
CPU utilization:
  User                 0 percent
  Background           0 percent
  Kernel               0 percent
  Interrupt            0 percent
  Idle                 100 percent
Model                 RE-TXP-LCC
Serial ID              737F-1024
Start time             2009-05-06 17:31:32 PDT
Uptime                 5 days, 3 hours, 54 minutes, 19 seconds
Last reboot reason     Router rebooted after a normal shutdown.

```

**show chassis
routing-engine lcc (TX
Matrix Plus Router)**

```

user@host> show chassis routing-engine 0 lcc 0
lcc0-re0:

```

Routing Engine status:

Slot 0:

```

Current state          Master
Election priority      Master (default)
Temperature            30 degrees C / 86 degrees F
CPU temperature        43 degrees C / 109 degrees F
DRAM                  3327 MB
Memory utilization     9 percent
CPU utilization:
  User                 0 percent
  Background           0 percent
  Kernel               2 percent
  Interrupt            0 percent
  Idle                 98 percent
Model                 RE-TXP-LCC
Serial ID              737F-1024
Start time             2009-05-11 17:40:32 PDT
Uptime                 3 hours, 45 minutes, 26 seconds
Last reboot reason     Router rebooted after a normal shutdown.
Load averages:         1 minute   5 minute   15 minute
                       0.00       0.00       0.00

```

Routing Engine status:

Slot 1:

```

Current state          Backup
Election priority      Backup (default)
Temperature            30 degrees C / 86 degrees F
CPU temperature        43 degrees C / 109 degrees F
DRAM                  3327 MB
Memory utilization     9 percent
CPU utilization:
  User                 0 percent
  Background           0 percent
  Kernel               0 percent
  Interrupt            0 percent
  Idle                 100 percent
Model                 RE-TXP-LCC
Serial ID              737F-1024
Start time             2009-05-06 17:31:32 PDT
Uptime                 5 days, 3 hours, 54 minutes, 59 seconds
Last reboot reason     Router rebooted after a normal shutdown.

```

**show chassis
routing-engine bios
(TX Matrix Plus
Router)**

```
user@host> show chassis routing-engine bios
sfc0-re0:
```

```
-----
Routing Engine BIOS Version: V0.0.Z
```

```
lcc0-re0:
```

```
-----
Routing Engine BIOS Version: V0.0.N
```

**show chassis
routing-engine (QFX
Series)**

```
user@switch> show chassis routing-engine
Routing Engine status:
Slot 0:
Current state Master
Election priority Master (default)
DRAM 2820 MB
Memory utilization 49 percent
CPU utilization:
User 1 percent
Background 0 percent
Kernel 1 percent
Interrupt 0 percent
Idle 97 percent
Model QFX3500-48S4Q
Serial ID S/N ED3709
Uptime 3 days, 4 hours, 29 minutes, 42 seconds
Last reboot reason 0x200:chassis control reset
Load averages: 1 minute 5 minute 15 minute
0.37 0.26 0.19
```

**show chassis
routing-engine (PTX
Series Packet
Transport Switch)**

```
user@switch> show chassis routing-engine
Routing Engine status:
Slot 0:
Current state           Master
Election priority       Master (default)
Temperature             60 degrees C / 140 degrees F
CPU temperature         76 degrees C / 168 degrees F
DRAM                   17152 MB
Memory utilization      11 percent
CPU utilization:
  User                  0 percent
  Background            0 percent
  Kernel                4 percent
  Interrupt             0 percent
  Idle                  95 percent
Model                   RE-DU0-2600
Serial ID               P737A-002231
Start time              2011-12-21 16:54:37 PST
Uptime                  25 minutes, 44 seconds
Last reboot reason      Router rebooted after a normal shutdown.
Load averages:          1 minute 5 minute 15 minute
                        0.01      0.02      0.06
```

```
Routing Engine status:
```

```
Slot 1:
```

```
Current state           Backup
Election priority       Backup (default)
Temperature             50 degrees C / 122 degrees F
CPU temperature         64 degrees C / 147 degrees F
DRAM                   17152 MB
Memory utilization      10 percent
CPU utilization:
```

```

User                0 percent
Background          0 percent
Kernel              0 percent
Interrupt            0 percent
Idle                99 percent
Model               RE-DUO-2600
Serial ID            P737A-002438
Start time           2011-12-21 16:52:26 PST
Uptime               27 minutes, 49 seconds
Last reboot reason   Router rebooted after a normal shutdown.

```

```

show chassis routing-engine user@host> show chassis routing-engine
(ACX2000 Universal Routing Engine status:
Access Router) Temperature          53 degrees C / 127 degrees F
                  DRAM              1536 MB
                  Memory utilization 25 percent
                  CPU utilization:
                    User              0 percent
                    Background         0 percent
                    Kernel             0 percent
                    Interrupt          1 percent
                    Idle               99 percent
                  Model              RE-ACX-2000
                  Start time          2012-05-09 00:57:07 PDT
                  Uptime              5 days, 3 hours, 16 minutes, 15 seconds
                  Last reboot reason   Router rebooted after a normal shutdown.
                  Load averages:      1 minute  5 minute 15 minute
                                      0.00      0.03   0.05

```

```

show chassis routing-engine user@host> show chassis routing-engine
(ACX1000 Universal Routing Engine status:
Access Router) Temperature          36 degrees C / 96 degrees F
                  DRAM              768 MB
                  Memory utilization 50 percent
                  CPU utilization:
                    User              3 percent
                    Background         0 percent
                    Kernel             6 percent
                    Interrupt          0 percent
                    Idle               91 percent
                  Model              RE-ACX-1000
                  Start time          2012-05-10 07:12:23 PDT
                  Uptime              4 days, 10 hours, 46 minutes, 53 seconds
                  Last reboot reason   Router rebooted after a normal shutdown.
                  Load averages:      1 minute  5 minute 15 minute
                                      0.00      0.00   0.00

```

show chassis sibs

Syntax	show chassis sibs
Syntax (TX Matrix Router)	show chassis sibs <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	show chassis sibs <lcc <i>number</i> sfc <i>number</i> >
Syntax (PTX Series Packet Transport Switches)	show chassis sibs <detail> <slot>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 12.1 for the PTX Series Packet Transport Switches.</p> <p>sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>detail and sib-slot options introduced for the PTX Packet Transport Switch in Junos OS Release 12.1</p>
Description	(M320 and T Series routers only) Display Switch Interface Boards (SIBs) status information.
Options	<p>none—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, display the SIB status for the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display the SIB status for the TX Matrix Plus router and its attached T1600 routers.</p> <p>detail—(PTX Series) (Optional) Display detailed SIB status information.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus router only) (Optional) On a TX Matrix router, display SIB status information for a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display SIB status information for a specified T1600 router that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>scc—(TX Matrix routers only) (Optional) Display SIB status information for the TX Matrix router (or switch-card chassis).</p> <p>sfc <i>number</i>—(TX Matrix Plus routers only) (Optional) Display SIB status information for the TX Matrix Plus router (or switch-fabric chassis). Replace <i>number</i> with 0.</p> <p>slot—(PTX Series) (Optional) Display status information about the SIB in the specified slot only. The range of values is 0 through 8.</p>
Required Privilege Level	view

- Related Documentation**
- [request chassis sib on page 143](#)
 - [show chassis spmb sibs on page 616](#)
 - [show chassis environment sib on page 288](#)
 - Monitoring the SIBs
 - M320 SIB Description

- List of Sample Output**
- [show chassis sibs \(T640 Router\) on page 604](#)
 - [show chassis sibs \(T4000 Router\) on page 604](#)
 - [show chassis sibs \(TX Matrix Router\) on page 605](#)
 - [show chassis sibs \(T1600 Router\) on page 605](#)
 - [show chassis sibs \(TX Matrix Plus Router\) on page 605](#)
 - [show chassis sibs sfc \(TX Matrix Plus Router\) on page 606](#)
 - [show chassis sibs lcc \(TX Matrix Plus Router\) on page 607](#)
 - [show chassis sibs \(M320 Router\) on page 607](#)
 - [show chassis sibs \(PTX Series\) on page 607](#)
 - [show chassis sibs \(PTX Series\) on page 607](#)

- Output Fields** Table 30 on page 602 lists the output fields for the **show chassis sibs** command. Output fields are listed in the approximate order in which they appear.

Table 30: show chassis sibs Output Fields

Field Name	Field Description
Slot	SIB slot number.
Type	(TX Matrix Plus router only) SIB type.
Uptime	How long the SIB has been up and running.
State	<p>SIB status:</p> <ul style="list-style-type: none"> • Activating—SIB is coming online; this is a transitional state. • Deactivating—SIB is going offline; this is a transitional state. • Connected—SIBs on a T1600 router are connected and trained but are either not online or are spare, because the plane on the TX Matrix Plus router (or switch-fabric chassis) is still offline. • Disconnected—SIBs on all T640 routers on the TX Matrix router (or switch-card chassis) are in the Disconnected state, because a SIB on the SCC has gone offline. Likewise, SIBs on all T1600 routers on the TX Matrix Plus router (or switch-fabric chassis) are in the Disconnected state, because a SIB on the SFC has gone offline. • Online—SIB is operational and running. • Offline—SIB is powered down. <p>NOTE: If a SIB transitions to the Offline state, the command displays an appropriate reason in the output. For instance, if the SIB is taken offline using the request chassis sib command, the show chassis sibs command displays --- Offlined by cli command --- in the output.</p>

Table 30: show chassis sibs Output Fields (*continued*)

Field Name	Field Description
	<ul style="list-style-type: none"> • Spare—SIB is redundant and will move to active state if one of the working SIBs fails to pass traffic. <p>NOTE: Spare does not apply to PTX Series Packet Transport Switches, as there are no spare SIBs.</p> <ul style="list-style-type: none"> • Empty—No SIB is present. • Fault—SIB is in an alarmed state in which the SIB's plane is not operational for one of the following reasons: <ul style="list-style-type: none"> • Onboard fabric ASIC is not operational. • Fiber-optic connector faults. • FPC connector faults. • SIB midplane connector faults. • Check—SIB is in an alarmed state due to link errors or destination errors. A SIB can transition to the Check state from the online or spare state. The Check state can be caused by the following reasons: <ul style="list-style-type: none"> • Unsupported FPC installed on a router. • SIB not inserted properly (such as bent pins). • Destination errors are detected on the SIB. In this case, the Packet Forwarding Engine stops using the SIB to send traffic to the affected destination Packet Forwarding Engine. When a Packet Forwarding Engine cannot be reached on that plane or SIB, a destination error is reported against that SIB. <p>NOTE: For SIBs in the Check state, the output displays some additional information:</p> <ul style="list-style-type: none"> • In Junos OS Release 9.6 and later, the Check state message shows the number of Packet Forwarding Engines in the plane having destination errors. For example, Check (10 destination errors) indicates 10 Packet Forwarding Engines cannot be reached on that particular SIB. If there are no destination errors, and if the SIB transitions to the Check state because of link errors only, the Check state message shows Check (0 destination errors). • In Junos OS Release 9.5 and earlier, the Check state message shows Check (destination errors) if there are Packet Forwarding Engines with destination errors in this plane. However, it does not show the number of Packet Forwarding Engines having destination errors. If there are no destination errors and if the SIB transitions to the Check state because of link errors only, the Check state message shows Check (no destination errors). <p>If the SIB is in a Check state, because of destination errors, the CLI displays an additional line in the output, use "show chassis fabric fpcs" and "show chassis fabric sibs" for more details.</p> <ul style="list-style-type: none"> • Link errors are detected on the channel between the SIB and a Packet Forwarding Engine. Link errors can be detected at initialization time or runtime: <ul style="list-style-type: none"> • Link errors caused by a link training failure at initialization time—The Packet Forwarding Engine does not use the SIB to send traffic. The show chassis fabric fpcs command shows Plane disabled as status for this link.

Table 30: show chassis sibs Output Fields (*continued*)

Field Name	Field Description
	<ul style="list-style-type: none"> Link errors caused by CRC errors detected at runtime—The Packet Forwarding Engine continues to use the SIB to send traffic. The show chassis fabric fpcs command shows Link error as the status for this link. <p>NOTE: The Check state does not apply to PTX Series Packet Transport Switches.</p> <ul style="list-style-type: none"> SFC Error—If an F13 SIB on the TX Matrix Plus router (SFC) transitions to the Fault state (for instance, because of link errors), and then if an LCC SIB (connected to the F13 SIB) comes online, the LCC SIB transitions to the SFC Error state. This state indicates that the F13 SIB to which the LCC SIB is connected has errors. <p>NOTE: The Connected, Disconnected, and SFC Error states are only applicable to the SIBs on an LCC.</p> <ul style="list-style-type: none"> Invalid—The specific SIB slot is not valid for 4-LCC chassis configuration. See the <i>TX Matrix Plus Hardware Guide</i> for more information about the supported SIB slots. <p>NOTE: The Invalid state is applicable to TX Matrix Plus routers only.</p>
Fabric links	<p>Indicates status of fabric links on the SIB.</p> <ul style="list-style-type: none"> Active—All Fabric links on SIB are active. Errors detected on the SIB's Fabric links, if any, are reported in the Errors column. Unused—All Fabric links on the SIB are not used for fabric traffic.
Errors	<p>Indicates if there is any error on the SIB.</p> <ul style="list-style-type: none"> None—No errors Link Errors—Fabric link errors were found on SIB RX link. Cell drops—Fabric cell drops were found on the SIB ASIC. Link Errors, Cell drops—Both Link errors and cell drops were detected on at least one of the SIB's Fabric links.

Sample Output

```

show chassis sibs (T640 Router) user@host> show chassis sibs
Slot State Uptime
0 Empty
1 Offline --- Offlined by cli command ---
2 Check (21 destination errors) 1 day, 1 hour, 32 minutes, 55 seconds
3 Check (0 destination errors) 1 day, 1 hour, 32 minutes, 45 seconds
4 Empty

use "show chassis fabric fpcs" and "show chassis fabric sibs" for more details

show chassis sibs (T4000 Router) user@host> show chassis sibs
Slot State Uptime
0 Spare
1 Online 3 hours, 48 minutes, 38 seconds

```

```

2    Online                               3 hours, 48 minutes, 22 seconds
3    Online                               3 hours, 48 minutes, 5 seconds
4    Online                               3 hours, 47 minutes, 49 seconds

```

**show chassis sibs (TX
Matrix Router)**

```

user@host> show chassis sibs
scc-re0:

```

```

-----
Slot  State                      Uptime
0      Empty
1      Empty
2      Offline                    --- Offlined by cli command ---
3      Offline
4      Online                      7 days, 21 hours, 50 minutes, 4 seconds
lcc0-re0:
-----
Slot  State                      Uptime
0      Offline                    --- Offlined by cli command ---
1      Empty
2      Check (21 destination errors)  1 day, 1 hour, 32 minutes, 55 seconds
3      Check (0 destination errors)  1 day, 1 hour, 32 minutes, 45 seconds
4      Empty

```

use "show chassis fabric fpcs" and "show chassis fabric sibs" for more details

**show chassis sibs
(T1600 Router)**

```

user@host> show chassis sibs

```

```

Slot
Slot  State                      Uptime
0      Check (destination errors)  2 hours, 23 minutes, 2 seconds
1      Offline                    --- Offlined by cli command ---
2      Check (destination errors)  2 hours, 23 minutes, 3 seconds
3      Check (destination errors)  2 hours, 23 minutes, 3 seconds
4      Check (destination errors)  2 hours, 23 minutes, 3 seconds

```

use "show chassis fabric fpcs" and "show chassis fabric sibs" for more details

**show chassis sibs (TX
Matrix Plus Router)**

```

user@host> show chassis sibs
sfc0-re0:

```

```

-----
Slot  State                      Type      Uptime
0      Offline                    SIB F13   --- Offlined by cli command ---
1      Online                     SIB F13   4 hours, 1 minute, 39 seconds
2      Invalid
3      Empty
4      Empty
5      Invalid
6      Empty
7      Empty
8      Empty
9      Empty
10     Invalid
11     Empty
12     Empty
13     Invalid
14     Invalid
15     Invalid
0/0    Online                     SIB F2S   4 hours, 2 minutes, 17 seconds
0/2    Online                     SIB F2S   4 hours, 2 minutes, 15 seconds
0/4    Online                     SIB F2S   4 hours, 2 minutes, 14 seconds
0/6    Online                     SIB F2S   4 hours, 2 minutes, 13 seconds

```

1/0	Online	SIB F2S	4 hours, 2 minutes, 25 seconds
1/2	Online	SIB F2S	4 hours, 2 minutes, 24 seconds
1/4	Online	SIB F2S	4 hours, 2 minutes, 23 seconds
1/6	Online	SIB F2S	4 hours, 2 minutes, 22 seconds
2/0	Online	SIB F2S	4 hours, 2 minutes, 20 seconds
2/2	Online	SIB F2S	4 hours, 2 minutes, 19 seconds
2/4	Online	SIB F2S	4 hours, 2 minutes, 18 seconds
2/6	Empty		
3/0	Empty		
3/2	Empty		
3/4	Empty		
3/6	Empty		
4/0	Empty		
4/2	Empty		
4/4	Empty		
4/6	Empty		

lcc0-re0:

Slot	State	Uptime
0	Check (destination errors)	2 hours, 23 minutes, 2 seconds
1	Offline	--- Offlined by cli command ---
2	Check (destination errors)	2 hours, 23 minutes, 3 seconds
3	Check (destination errors)	2 hours, 23 minutes, 3 seconds
4	Check (destination errors)	2 hours, 23 minutes, 3 seconds

use "show chassis fabric fpcs" and "show chassis fabric sibs" for more details

show chassis sibs sfc
(TX Matrix Plus
Router)

user@host> show chassis sibs sfc 0
sfc0-re0:

Slot	State	Type	Uptime
0	Online	SIB F13	4 hours, 15 minutes, 29 seconds
1	Offline		--- Offlined by cli command ---
2	Invalid		
3	Empty		
4	Empty		
5	Invalid		
6	Empty		
7	Empty		
8	Empty		
9	Empty		
10	Invalid		
11	Empty		
12	Empty		
13	Invalid		
14	Invalid		
15	Invalid		
0/0	Online	SIB F2S	4 hours, 15 minutes, 50 seconds
0/2	Online	SIB F2S	4 hours, 15 minutes, 48 seconds
0/4	Online	SIB F2S	4 hours, 15 minutes, 47 seconds
0/6	Online	SIB F2S	4 hours, 15 minutes, 46 seconds
1/0	Online	SIB F2S	4 hours, 15 minutes, 58 seconds
1/2	Online	SIB F2S	4 hours, 15 minutes, 57 seconds
1/4	Online	SIB F2S	4 hours, 15 minutes, 56 seconds
1/6	Online	SIB F2S	4 hours, 15 minutes, 55 seconds
2/0	Online	SIB F2S	4 hours, 15 minutes, 53 seconds
2/2	Online	SIB F2S	4 hours, 15 minutes, 52 seconds
2/4	Online	SIB F2S	4 hours, 15 minutes, 51 seconds
2/6	Empty		
3/0	Empty		

```

3/2  Empty
3/4  Empty
3/6  Empty
4/0  Empty
4/2  Empty
4/4  Empty
4/6  Empty

```

show chassis sibs lcc user@host> **show chassis sibs lcc 0**
(TX Matrix Plus lcc0-re0:
Router)

```

-----
Slot  State                Uptime
0      SFC error            3 seconds
1      Offline              --- Offlined by cli command ---
2      Empty
3      Online               1 hour, 18 minutes, 18 seconds
4      Online               1 hour, 18 minutes, 3 seconds

```

show chassis sibs user@host> **show chassis sibs**
(M320 Router)

```

0      Online               1 hour, 18 minutes, 3 seconds
1      Offline              --- Offlined by cli command ---
2      Online               1 hour, 18 minutes, 18 seconds
3      Online               1 hour, 18 minutes, 3 seconds

```

show chassis sibs user@host> **show chassis sibs**
(PTX Series)

```

Slot  State      Fabric links      Errors
0      Online      Active            None
1      Online      Active            Link Errors
2      Online      Active            None
3      Online      Active            Cell drops
4      Offline      Unused           None
5      Online      Active            None
6      Online      Active            None
7      Online      Active            None
8      Online      Active            None

```

show chassis sibs user@host> **show chassis sibs detail**
(PTX Series) Slot 4 information

```

State                Offline
Reason               Offlined by cli command
Fabric links          Unused
Errors                None

```

show chassis spmb

Syntax	show chassis spmb
Syntax (T4000 Routers)	show chassis spmb <sibs>
Syntax (TX Matrix Routers)	show chassis spmb <sibs> <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Routers)	show chassis spmb <sibs> <lcc <i>number</i> sfc <i>number</i> >
Release Information	Command introduced before Junos OS Release 7.4. sibs option introduced for the T1600 and TX Matrix Plus routers in Junos OS Release 9.6. Command introduced in Junos OS Release 12.3 for MX2020 3D Universal Edge Routers. Command introduced in Junos OS Release 12.3 for MX2010 3D Universal Edge Routers.
Description	(T Series routers, MX2010 and MX2020 routers only) Display Switch Processor Mezzanine Board (SPMB) status information.
Options	<p>none—(TX Matrix, TX Matrix Plus, MX2010, and MX2020 routers only) On a TX Matrix router, display SPMB status for the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display SPMB status for the TX Matrix Plus router and its attached T1600 routers. On MX2010 and MX2020 routers, display the SPMB status for the routers.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display information about the SPMB on a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display information about the SPMB on a specified T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>scc—(TX Matrix routers only) (Optional) Display information about the SPMB on the TX Matrix router (or switch-card chassis).</p> <p>sfc <i>number</i>—(TX Matrix Plus routers only) (Optional) Display information about the SPMB on the TX Matrix Plus router (or switch-fabric chassis). Replace <i>number</i> with 0.</p> <p>sibs—(TX Matrix and TX Matrix Plus routers only) (Optional) Display information about the SIBS on the TX Matrix router (or switch-card chassis) or TX Matrix Plus routers (or switch-fabric chassis). The sibs option has the following sub-options:</p> <p>lcc <i>number</i> (TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display information about the SIBs on a specified T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display information about the SIBS on a specified T1600 router (or line-card chassis) that</p>

is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

scc number—(TX Matrix routers only) (Optional) Display information about the SIBs on the TX Matrix router (or switch-card chassis). Replace **number** with 0.

sfc number—(TX Matrix Plus routers only) (Optional) Display information about the SIBs on the TX Matrix Plus router (or switch-fabric chassis). Replace **number** with 0.

Required Privilege Level view

Related Documentation

- [request chassis sib on page 143](#)
- [request chassis spmb restart on page 145](#)
- [show chassis spmb sibs on page 616](#)

List of Sample Output

- [show chassis spmb on page 610](#)
- [show chassis spmb \(MX2010 Router\) on page 610](#)
- [show chassis spmb \(MX2020 Router\) on page 610](#)
- [show chassis spmb \(T4000 Router\) on page 611](#)
- [show chassis spmb lcc \(TX Matrix Router\) on page 611](#)
- [show chassis spmb scc \(TX Matrix Router\) on page 611](#)
- [show chassis spmb \(T1600 Router\) on page 611](#)
- [show chassis spmb sibs \(T1600 Router\) on page 612](#)
- [show chassis spmb \(TX Matrix Plus Router\) on page 612](#)
- [show chassis spmb lcc \(TX Matrix Plus Router\) on page 613](#)
- [show chassis spmb scc \(TX Matrix Plus Router\) on page 614](#)
- [show chassis spmb sibs \(TX Matrix Plus Router\) on page 614](#)

Output Fields Table 31 on page 609 lists the output fields for the **show chassis spmb** command. Output fields are listed in the approximate order in which they appear.

Table 31: show chassis spmb Output Fields

Field Name	Field Description
Slot	SPMB slot number: 0 or 1.
State	SPMB status: <ul style="list-style-type: none"> • Online—SPMB is operational and running. • Offline—SPMB is powered down.
Total CPU Utilization (%)	Total percentage of CPU being used by the SPMB processor.
Interrupt CPU Utilization (%)	Of the total CPU being used by the SPMB processor, the percentage being used for interrupts.

Table 31: show chassis spmb Output Fields (*continued*)

Field Name	Field Description
Memory Heap Utilization (%)	Percentage of heap space (dynamic memory) being used by the FPC processor. If this number exceeds 80 percent, there may be a software problem (memory leak).
Buffer Utilization (%)	Percentage of buffer space being used by the SPMB processor for buffering internal messages.
Start time	Time at which the SPMB last came online.
Uptime	How long the SPMB has been up and running.

Sample Output

```

show chassis spmb user@host> show chassis spmb
Slot 0 information:
  State Online
  Total CPU Utilization 1%
  Interrupt CPU Utilization 0%
  Memory Heap Utilization 0%
  Buffer Utilization 40%
  Start time: 2001-08-27 14:05:04 PDT
  Uptime: 46 minutes, 36 seconds

show chassis spmb user@host> show chassis spmb
(MX2010 Router) Slot 0 information:
  State Online
  Total CPU Utilization 12%
  Interrupt CPU Utilization 0%
  Memory Heap Utilization 1%
  Buffer Utilization 22%
  Start time: 2012-10-04 15:34:29 PDT
  Uptime: 7 hours, 10 minutes, 15 seconds
Slot 1 information:
  State Online - Standby
  Total CPU Utilization 1%
  Interrupt CPU Utilization 0%
  Memory Heap Utilization 0%
  Buffer Utilization 22%
  Start time: 2012-10-02 14:34:54 PDT
  Uptime: 2 days, 8 hours, 9 minutes, 50 seconds

show chassis spmb user@host> show chassis spmb
(MX2020 Router) Slot 0 information:
  State Online
  Total CPU Utilization 100%
  Interrupt CPU Utilization 0%
  Memory Heap Utilization 3%
  Buffer Utilization 22%
  Start time: 2012-10-03 14:58:26 PDT
  Uptime: 1 day, 12 hours, 16 minutes, 14 seconds
Slot 1 information:
  State Online - Standby
  Total CPU Utilization 0%
  Interrupt CPU Utilization 0%
  Memory Heap Utilization 0%

```

```

Buffer Utilization          22%
Start time:                 2012-10-03 14:58:27 PDT
Uptime:                     1 day, 12 hours, 16 minutes, 13 seconds

show chassis spmb user@host> show chassis spmb
(T4000 Router)

Slot 0 information:
State                       Online
Total CPU Utilization       18%
Interrupt CPU Utilization    0%
Memory Heap Utilization     0%
Buffer Utilization          22%
Start time:                 2012-02-09 22:51:09 PST
Uptime:                     2 hours, 25 minutes, 45 seconds

Slot 1 information:
State                       Online - Standby
Total CPU Utilization       0%
Interrupt CPU Utilization    0%
Memory Heap Utilization     0%
Buffer Utilization          22%
Start time:                 2012-02-09 22:51:10 PST
Uptime:                     2 hours, 25 minutes, 44 seconds

show chassis spmb lcc user@host> show chassis spmb lcc 0
(TX Matrix Router) lcc0-re0:
-----
Slot 0 information:
State                       Online
Total CPU Utilization       0%
Interrupt CPU Utilization    0%
Memory Heap Utilization     0%
Buffer Utilization          42%
Start time:                 2004-08-05 18:43:38 PDT
Uptime:                     8 days, 55 minutes, 52 seconds

show chassis spmb scc user@host> show chassis spmb scc
(TX Matrix Router) scc-re0:
-----
Slot 0 information:
State                       Online
Total CPU Utilization       1%
Interrupt CPU Utilization    0%
Memory Heap Utilization     0%
Buffer Utilization          42%
Start time:                 2004-08-05 18:43:37 PDT
Uptime:                     8 days, 1 hour, 6 minutes, 51 seconds

show chassis spmb user@host> show chassis spmb
(T1600 Router)

Slot 0 information:
State                       Online
Total CPU Utilization       2%
Interrupt CPU Utilization    0%
Memory Heap Utilization     0%
Buffer Utilization          24%
Start time:                 2009-05-07 22:34:03 PDT
Uptime:                     3 days, 4 hours, 14 minutes, 33 seconds

Slot 1 information:
State                       Online - Standby
Total CPU Utilization       0%
Interrupt CPU Utilization    0%

```

```

Memory Heap Utilization      0%
Buffer Utilization           24%
Start time:                  2009-05-07 22:34:02 PDT
Uptime:                      3 days, 4 hours, 14 minutes, 34 seconds

```

**show chassis spmb
sibs (T1600 Router)**

```

user@host> show chassis spmb sibs
Slot  State                Uptime
0      Check                3 days, 4 hours, 11 minutes, 59 seconds
1      Disconnected          3 days, 4 hours, 12 minutes, 36 seconds
2      Disconnected          3 days, 4 hours, 12 minutes, 26 seconds
3      Disconnected          3 days, 4 hours, 12 minutes, 17 seconds
4      Disconnected          3 days, 4 hours, 12 minutes, 8 seconds

```

**show chassis spmb
(TX Matrix Plus
Router)**

```

user@host> show chassis spmb
sfc0-re0:
-----
Slot 0 information:
State                Online
Total CPU Utilization 84%
Interrupt CPU Utilization 0%
Memory Heap Utilization 0%
Buffer Utilization    24%
Start time:          2009-05-11 01:25:20 PDT
Uptime:              46 minutes, 6 seconds
Slot 1 information:
State                Online - Standby
Total CPU Utilization 0%
Interrupt CPU Utilization 0%
Memory Heap Utilization 0%
Buffer Utilization    24%
Start time:          2009-05-11 01:25:20 PDT
Uptime:              46 minutes, 6 seconds

```

```

lcc0-re1:
-----
Slot 0 information:
State                Online - Standby
Total CPU Utilization 0%
Interrupt CPU Utilization 0%
Memory Heap Utilization 0%
Buffer Utilization    24%
Start time:          2009-05-11 01:25:09 PDT
Uptime:              46 minutes, 24 seconds
Slot 1 information:
State                Online
Total CPU Utilization 5%
Interrupt CPU Utilization 0%
Memory Heap Utilization 0%
Buffer Utilization    24%
Start time:          2009-05-11 01:25:08 PDT
Uptime:              46 minutes, 25 seconds

```

```

lcc1-re1:
-----
Slot 0 information:
State                Online - Standby
Total CPU Utilization 1%
Interrupt CPU Utilization 0%
Memory Heap Utilization 0%
Buffer Utilization    24%
Start time:          2009-05-11 01:25:09 PDT

```

```

Uptime:                               46 minutes, 24 seconds
Slot 1 information:
  State                               Online
  Total CPU Utilization                5%
  Interrupt CPU Utilization            0%
  Memory Heap Utilization              0%
  Buffer Utilization                   24%
  Start time:                         2009-05-11 01:25:10 PDT
  Uptime:                             46 minutes, 23 seconds

```

```
lcc2-re1:
```

```

-----
Slot 0 information:
  State                               Online - Standby
  Total CPU Utilization                0%
  Interrupt CPU Utilization            0%
  Memory Heap Utilization              0%
  Buffer Utilization                   24%
  Start time:                         2009-05-11 01:25:08 PDT
  Uptime:                             46 minutes, 25 seconds
Slot 1 information:
  State                               Online
  Total CPU Utilization                5%
  Interrupt CPU Utilization            0%
  Memory Heap Utilization              0%
  Buffer Utilization                   24%
  Start time:                         2009-05-11 01:25:10 PDT
  Uptime:                             46 minutes, 23 seconds

```

```
lcc3-re1:
```

```

-----
Slot 0 information:
  State                               Online - Standby
  Total CPU Utilization                1%
  Interrupt CPU Utilization            0%
  Memory Heap Utilization              0%
  Buffer Utilization                   24%
  Start time:                         2009-05-11 01:25:10 PDT
  Uptime:                             46 minutes, 23 seconds
Slot 1 information:
  State                               Online
  Total CPU Utilization                5%
  Interrupt CPU Utilization            0%
  Memory Heap Utilization              0%
  Buffer Utilization                   24%
  Start time:                         2009-05-11 01:25:09 PDT
  Uptime:                             46 minutes, 24 seconds

```

```

show chassis spmb lcc
(TX Matrix Plus
Router)

```

```

user@host> show chassis spmb lcc 2
lcc2-re1:

```

```

-----
Slot 0 information:
  State                               Online - Standby
  Total CPU Utilization                0%
  Interrupt CPU Utilization            0%
  Memory Heap Utilization              0%
  Buffer Utilization                   24%
  Start time:                         2009-05-11 01:25:08 PDT
  Uptime:                             45 minutes, 18 seconds
Slot 1 information:
  State                               Online

```

```

Total CPU Utilization      6%
Interrupt CPU Utilization  0%
Memory Heap Utilization    0%
Buffer Utilization         24%
Start time:                2009-05-11 01:25:10 PDT
Uptime:                    45 minutes, 16 seconds

```

show chassis spmb scc
(TX Matrix Plus
Router)

```

user@host> show chassis spmb sfc 0
sfc0-re0:

```

```

-----
Slot 0 information:
  State                Online
  Total CPU Utilization 87%
  Interrupt CPU Utilization 0%
  Memory Heap Utilization 0%
  Buffer Utilization     24%
  Start time:           2009-05-11 01:25:20 PDT
  Uptime:                43 minutes, 32 seconds

Slot 1 information:
  State                Online - Standby
  Total CPU Utilization 0%
  Interrupt CPU Utilization 0%
  Memory Heap Utilization 0%
  Buffer Utilization     24%
  Start time:           2009-05-11 01:25:20 PDT
  Uptime:                43 minutes, 32 seconds

```

show chassis spmb
sibs (TX Matrix Plus
Router)

```

user@host> show chassis spmb sibs
sfc0-re0:

```

```

-----
Slot  State                Type                Uptime
0      Online              SIB F13           1 hour, 18 minutes, 54 seconds
1      Online              SIB F13           1 hour, 18 minutes, 45 seconds
2      Invalid
3      Online              SIB F13           1 hour, 20 minutes, 21 seconds
4      Online              SIB F13           1 hour, 20 minutes, 18 seconds
5      Invalid
6      Online              SIB F13           1 hour, 19 minutes, 51 seconds
7      Fault               SIB F13
8      Online              SIB F13           1 hour, 19 minutes, 17 seconds
9      Online              SIB F13           1 hour, 19 minutes, 13 seconds
10     Invalid
11     Online              SIB F13           1 hour, 17 minutes, 54 seconds
12     Online              SIB F13           1 hour, 17 minutes, 51 seconds
13     Invalid
14     Invalid
15     Invalid
0/0    Online              SIB F2S           1 hour, 18 minutes, 52 seconds
0/2    Online              SIB F2S           1 hour, 18 minutes, 51 seconds
0/4    Online              SIB F2S           1 hour, 18 minutes, 49 seconds
0/6    Online              SIB F2S           1 hour, 18 minutes, 48 seconds
1/0    Online              SIB F2S           1 hour, 20 minutes, 16 seconds
1/2    Online              SIB F2S           1 hour, 20 minutes, 15 seconds
1/4    Online              SIB F2S           1 hour, 20 minutes, 14 seconds
1/6    Online              SIB F2S           1 hour, 20 minutes, 13 seconds
2/0    Online              SIB F2S           1 hour, 19 minutes, 48 seconds
2/2    Online              SIB F2S           1 hour, 19 minutes, 47 seconds
2/4    Online              SIB F2S           1 hour, 19 minutes, 46 seconds
2/6    Online              SIB F2S           1 hour, 19 minutes, 44 seconds
3/0    Online              SIB F2S           1 hour, 19 minutes, 24 seconds
3/2    Online              SIB F2S           1 hour, 19 minutes, 22 seconds

```

3/4	Online	SIB F2S	1 hour, 19 minutes, 21 seconds
3/6	Online	SIB F2S	1 hour, 19 minutes, 20 seconds
4/0	Online	SIB F2S	1 hour, 18 minutes, 2 seconds
4/2	Online	SIB F2S	1 hour, 18 minutes
4/4	Online	SIB F2S	1 hour, 17 minutes, 58 seconds
4/6	Online	SIB F2S	1 hour, 17 minutes, 58 seconds

lcc0-re1:

Slot	State	Uptime
0	Online	1 hour, 18 minutes, 58 seconds
1	Online	1 hour, 20 minutes, 25 seconds
2	Fault	
3	Online	1 hour, 18 minutes, 30 seconds
4	Online	1 hour, 18 minutes, 28 seconds

lcc1-re1:

Slot	State	Uptime
0	Online	1 hour, 18 minutes, 58 seconds
1	Online	1 hour, 20 minutes, 26 seconds
2	Fault	
3	Online	1 hour, 18 minutes, 22 seconds
4	Online	1 hour, 18 minutes, 20 seconds

lcc2-re1:

Slot	State	Uptime
0	Online	1 hour, 18 minutes, 19 seconds
1	Online	1 hour, 20 minutes, 25 seconds
2	Fault	
3	Online	1 hour, 18 minutes, 17 seconds
4	Online	1 hour, 18 minutes, 15 seconds

lcc3-re1:

Slot	State	Uptime
0	Online	1 hour, 18 minutes, 27 seconds
1	Online	1 hour, 20 minutes, 24 seconds
2	Fault	
3	Online	1 hour, 18 minutes, 25 seconds
4	Online	1 hour, 18 minutes, 23 seconds

show chassis spmb sibs

Syntax	show chassis spmb sibs
Syntax (TX Matrix Router)	show chassis spmb sibs <lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	show chassis spmb sibs <lcc <i>number</i> sfc <i>number</i> >
Release Information	Command introduced before Junos OS Release 7.4. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.
Description	(T Series routers only) Display Switch Processor Mezzanine Board (SPMB) Switch Interface Board (SIB) status information.
Options	<p>none—(TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, display the SIB status for the TX Matrix router and its attached T640 routers. On a TX Matrix Plus router, display the SIB status for the TX Matrix Plus router and its attached T1600 routers.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display SIB status information for a specified T640 router (or line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, display SIB status information for a specified T1600 router (or line-card chassis) that is connected to a TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>scc—(TX Matrix router only) (Optional) Display SIB status information for the TX Matrix router (or switch-card chassis).</p> <p>sfc—(TX Matrix Plus router only) (Optional) Display SIB status information for the TX Matrix Plus router (or switch-fabric chassis).</p>
Additional Information	On a T Series router, you can use either this command or the show chassis sibs command to produce the same output. The show chassis sibs command is supported on the M320 router and on the T Series routers.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show chassis sibs on page 601• request chassis sib on page 143• request chassis spmb restart on page 145
List of Sample Output	show chassis spmb sibs (T320 Router) on page 617 show chassis-spmb-sibs (T1600 Router) on page 618 show chassis spmb sibs (T4000 Router) on page 618 show chassis spmb sibs (TX Matrix Router) on page 618

- [show chassis spmb sibs lcc \(TX Matrix Router\) on page 618](#)
- [show chassis spmb sibs scc \(TX Matrix Router\) on page 618](#)
- [show chassis spmb sibs \(TX Matrix Plus Router\) on page 618](#)
- [show chassis spmb sibs sfc \(TX Matrix Plus Router\) on page 619](#)

Output Fields Table 32 on page 617 lists the output fields for the **show chassis spmb sibs** command. Output fields are listed in the approximate order in which they appear.

Table 32: show chassis spmb sibs Output Fields

Field Name	Field Description
Slot	<p>SIB slot number:</p> <ul style="list-style-type: none">T640 router, T1600 router or TX Matrix router—0 through 4TX Matrix Plus router:<ul style="list-style-type: none">TXP-F13 SIB Slots—0 through 16TXP-F2S SIB Slots —0 – 4/[0 2 4 6]T320 router—0 through 2
State	<p>SIB status:</p> <ul style="list-style-type: none">Disconnected—SIBs on all T640 routers on the TX Matrix router (or switch-card chassis) are in the Disconnected state, because a SIB on the SCC has gone offline. Likewise, SIBs on all T1600 routers on the TX Matrix Plus router (or switch-fabric chassis) are in the Disconnected state, because a SIB on the SFC has gone offline.Online—SPMB is operational and running.Offline—SPMB is powered down.Spare—SIB is redundant and will move to active state if one of the working SIBs fail to pass traffic.Empty—No SPMB is present.Fault—SIB is in alarmed state where the SIB's plane is not operational for the following reasons:<ul style="list-style-type: none">On-board F-chip is not operational.Fiber optic connector faults.FPC connector faults.SIB midplane connector faults.Check—SIB is in alarmed state where the SIB's plane is partially operational for the following reasons:<ul style="list-style-type: none">SIB is not inserted properly.Two or more links between the SIB and PFE fails.
Uptime	How long the SIB has been up and running.

Sample Output

```
show chassis spmb sibs (T320 Router) user@host> show chassis spmb sibs
Slot State
0 Spare
```

```

1    Online
2    Online

show chassis-spmbsibs (T1600 Router) user@host> show chassis spmb sibs
Slot State
0     Spare
1     Online
2     Empty
3     Online
4     Offline

show chassis spmb sibs (T4000 Router) user@host> show chassis spmb sibs
Slot State Uptime
0     Spare
1     Online 2 hours, 28 minutes, 13 seconds
2     Online 2 hours, 27 minutes, 57 seconds
3     Online 2 hours, 27 minutes, 40 seconds
4     Online 2 hours, 27 minutes, 24 seconds

show chassis spmb sibs (TX Matrix Router) user@host> show chassis spmb sibs
Slot State
0     Online
1     Online
2     Empty
3     Online
4     Offline

show chassis spmb sibs lcc (TX Matrix Router) user@host> show chassis spmb sibs lcc 0
lcc0-re0:
-----
Slot State Uptime
0     Empty
1     Empty
2     Empty
3     Disconnected 8 days, 48 minutes, 58 seconds
4     Online 8 days, 48 minutes, 57 seconds

show chassis spmb sibs scc (TX Matrix Router) user@host> show chassis spmb sibs scc
scc-re0:
-----
Slot State Uptime
0     Empty
1     Empty
2     Empty
3     Offline
4     Online 8 days, 54 minutes, 1 second

show chassis spmb sibs (TX Matrix Plus Router) user@host> show chassis spmb sibs
sfc0-re0:
-----
Slot State Type Uptime
0     Online SIB F13 1 hour, 52 minutes, 55 seconds
1     Empty
2     Invalid
3     Online SIB F13 1 hour, 53 minutes, 3 seconds
4     Empty
5     Invalid
6     Empty

```

```

 7   Empty
 8   Empty
 9   Empty
10   Invalid
11   Empty
12   Empty
13   Invalid
14   Invalid
15   Invalid
0/0  Online      SIB F2S      1 hour, 53 minutes, 2 seconds
0/2  Online      SIB F2S      1 hour, 53 minutes, 1 second
0/4  Online      SIB F2S      1 hour, 52 minutes, 59 seconds
0/6  Online      SIB F2S      1 hour, 52 minutes, 58 seconds
1/0  Online      SIB F2S      1 hour, 53 minutes, 10 seconds
1/2  Online      SIB F2S      1 hour, 53 minutes, 8 seconds
1/4  Online      SIB F2S      1 hour, 53 minutes, 7 seconds
1/6  Online      SIB F2S      1 hour, 53 minutes, 6 seconds
2/0  Empty
2/2  Empty
2/4  Empty
2/6  Empty
3/0  Empty
3/2  Empty
3/4  Empty
3/6  Empty
4/0  Empty
4/2  Empty
4/4  Empty
4/6  Empty

```

lcc0-re0:

```

-----
Slot  State      Uptime
 0   Online      1 hour, 53 minutes, 1 second
 1   Online      1 hour, 53 minutes, 3 seconds
 2   Empty
 3   Empty
 4   Empty

```

lcc1-re1:

```

-----
Slot  State      Uptime
 0   Online      1 hour, 47 minutes, 13 seconds
 1   Online      1 hour, 47 minutes, 15 seconds
 2   Empty
 3   Empty
 4   Empty

```

**show chassis spmb
sibs sfc (TX Matrix
Plus Router)**

```

user@host> show chassis spmb sibs sfc 0
sfc0-re0:

```

```

-----
Slot 0 information:
  State      Online
  Total CPU Utilization      16%
  Interrupt CPU Utilization    0%
  Memory Heap Utilization     0%
  Buffer Utilization          24%
  Start time:      2009-06-17 20:59:47 PDT
  Uptime:          1 hour, 56 minutes, 30 seconds
Slot 1 information:
  State      Online - Standby

```

Total CPU Utilization	0%
Interrupt CPU Utilization	0%
Memory Heap Utilization	0%
Buffer Utilization	24%
Start time:	2009-06-17 20:59:48 PDT
Uptime:	1 hour, 56 minutes, 29 seconds

CHAPTER 13

Miscellaneous System Software Commands

request routing-engine login

Syntax	request routing-engine login (backup master other-routing-engine re0 re1)
Syntax (Root System Domain)	request routing-engine login (backup (psd <i>n</i> rsd) master (psd <i>n</i> rsd) other-routing-engine re0 (psd <i>n</i> rsd) re1 (psd <i>n</i> rsd))
Syntax (TX Matrix Router)	request routing-engine login (backup master other-routing-engine re0 re1) <lcc <i>number</i> > <scc <i>number</i> >
Syntax (TX Matrix Plus Router)	request routing-engine login (backup master other-routing-engine re0 re1) <lcc <i>number</i> > <sfc <i>number</i> >
Syntax (MX Series Router)	request routing-engine login (backup master other-routing-engine re0 re1) <all-members> <local> <member <i>member-id</i> >
Release Information	Command introduced before Junos OS Release 7.4. psd and rsd options added in Junos OS Release 9.1. These options are available from the Root System Domain (RSD). An RSD is supported on a T320 router or T640 or T1600 router that is interconnected with the JCS1200 platform. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.
Description	On a router with two Routing Engines, specify a tty connection for login.
Options	<p>backup—Log in to the backup Routing Engine.</p> <p>lcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, log in to a specific T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, log in to a specific T1600 router (or line-card chassis) that is connected to the TX Matrix router. Replace <i>number</i> with a value from 0 through 3.</p> <p>master—Log in to the master Routing Engine.</p> <p>other-routing-engine—Log in to the other Routing Engine.</p> <p>psd <i>n</i>—(RSD only) Log in to the specified Protected System Domain (PSD). Replace <i>n</i> with a value from 1 to 31. A PSD is accessible from a T320 router or a T640 or T1600 router that is interconnected with the JCS1200 platform. When you log in to a PSD, you are required to provide user authentication.</p> <p>re0—Log in to the Routing Engine in slot 0.</p> <p>re1—Log in to the Routing Engine in slot 1.</p> <p>all-members—(MX Series routers only) (Optional) Log in to all members of the Virtual Chassis configuration.</p>

local—(MX Series routers only) (Optional) Log in to the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Log in to the specified member of the Virtual Chassis configuration. Replace *member-id* with a value of 0 or 1.

rsd—(RSD only) Log in to the RSD (as opposed to a PSD). A T320 router or a T640 or T1600 router that is interconnected with the JCS1200 platform can be configured as an RSD.

sfc *number*—(TX Matrix Plus routers only) Log in to the specified Routing Engine on the TX Matrix Plus router (or switch-fabric chassis):

- **backup**—Log in to the backup Routing Engine.
- **master**—Log in to the master Routing Engine.
- **re0**—Log in to the Routing Engine in slot 0.
- **re1**—Log in to the Routing Engine in slot 1.

Additional Information For more information about PSDs, RSDs, and the JCS1200 platform, see the *Junos OS Protected System Domain Configuration Guide*.

Required Privilege Level maintenance

List of Sample Output [request routing-engine login other-routing-engine on page 623](#)
[request routing-engine login psd on page 623](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```

request routing-engine login other-routing-engine
user@host> request routing-engine login other-routing-engine
--- JUNOS 7.2-20050217.0 built 2005-02-17 08:12:50 UTC

request routing-engine login psd
{master}
user@host> request routing-engine login psd 1 re0
€login: regress
Password:

--- JUNOS 9.1-20080321.0 built 2008-03-21 05:43:06 UTC
% cli
user@psd1>
```

request system reboot

Syntax	request system reboot <at <i>time</i> > <both-routing-engines> <in <i>minutes</i> > <media (compact-flash disk removable-compact-flash usb)> <message " <i>text</i> "> <other-routing-engine>
Syntax (EX Series Switches)	request system reboot <all-members> <at <i>time</i> > <both-routing-engines> <in <i>minutes</i> > <local> <media (external internal)> <member <i>member-id</i> > <message " <i>text</i> "> <other-routing-engine> <slice <i>slice</i> >
Syntax (TX Matrix Router)	request system reboot <all-chassis all-lcc lcc <i>number</i> scc> <at <i>time</i> > <both-routing-engines> <in <i>minutes</i> > <media (compact-flash disk)> <message " <i>text</i> "> <other-routing-engine>
Syntax (TX Matrix Plus Router)	request system reboot <all-chassis all-lcc lcc <i>number</i> sfc <i>number</i> > <at <i>time</i> > <both-routing-engines> <in <i>minutes</i> > <media (compact-flash disk)> <message " <i>text</i> "> <other-routing-engine> <partition (1 2 alternate)>
Syntax (MX Series Router)	request system reboot <all-members> <at <i>time</i> > <both-routing-engines> <in <i>minutes</i> > <local> <media (external internal)> <member <i>member-id</i> > <message " <i>text</i> "> <other-routing-engine>
Release Information	Command introduced before Junos OS Release 7.4.

Option **other-routing-engine** introduced in Junos OS Release 8.0.

Command introduced in Junos OS Release 9.0 for EX Series switches.

Option **sfc** introduced for the TX Matrix Plus router in Junos OS Release 9.6.

Option **both-routing-engines** introduced in Junos OS Release 12.1.

Description Reboot the software.

Options **none**—Reboot the software immediately.

all-chassis—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router or TX Matrix Plus router, reboot all routers connected to the TX Matrix or TX Matrix Plus router, respectively.

all-lcc—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router or TX Matrix Plus router, reboot all line card chassis connected to the TX Matrix or TX Matrix Plus router, respectively.

all-members—(EX4200 switches and MX Series routers only) (Optional) Reboot the software on all members of the Virtual Chassis configuration.

at time—(Optional) Time at which to reboot the software, specified in one of the following ways:

- **now**—Stop or reboot the software immediately. This is the default.
- **+minutes**—Number of minutes from now to reboot the software.
- **yymmddhhmm**—Absolute time at which to reboot the software, specified as year, month, day, hour, and minute.
- **hh:mm**—Absolute time on the current day at which to stop the software, specified in 24-hour time.

both-routing-engines—(Optional) Reboot both Routing Engines at the same time.

in minutes—(Optional) Number of minutes from now to reboot the software. This option is an alias for the **at +minutes** option.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router or TX Matrix Plus router, the number of a specified line card chassis connected to the TX Matrix or TX Matrix Plus router, respectively. Replace **number** with a value from 0 through 3.

local—(EX4200 switches and MX Series routers only) (Optional) Reboot the software on the local Virtual Chassis member.

media (compact-flash | disk | removable-compact-flash | usb)—(Optional) Boot medium for next boot. (The options **removable-compact-flash** and **usb** pertain to the J Series routers only.)

media (external | internal)—(EX Series switches and MX Series routers only) (Optional) Reboot the boot media:

- **external**—Reboot the external mass storage device.

- **internal**—Reboot the internal flash device.

member *member-id*—(EX4200 switches and MX Series routers only) (Optional) Reboot the software on the specified member of the Virtual Chassis configuration. For EX4200 switches, replace *member-id* with a value from 0 through 9. For an MX Series Virtual Chassis, replace *member-id* with a value of 0 or 1.

message "*text*"—(Optional) Message to display to all system users before stopping or rebooting the software.

other-routing-engine—(Optional) Reboot the other Routing Engine from which the command is issued. For example, if you issue the command from the master Routing Engine, the backup Routing Engine is rebooted. Similarly, if you issue the command from the backup Routing Engine, the master Routing Engine is rebooted.

partition—(TX Matrix Plus routers only) (Optional) Reboot using the specified partition on the boot media. This option has the following suboptions:

- **1**—Reboot from partition 1.
- **2**—Reboot from partition 2.
- **alternate**—Reboot from the alternate partition.

scc—(TX Matrix routers only) (Optional) Reboot the Routing Engine on the TX Matrix switch-card chassis. If you issue the command from re0, re0 is rebooted. If you issue the command from re1, re1 is rebooted.

sfc *number*—(TX Matrix Plus routers only) (Optional) Reboot the Routing Engine on the TX Matrix Plus switch-fabric chassis. If you issue the command from re0, re0 is rebooted. If you issue the command from re1, re1 is rebooted. Replace *number* with 0.

slice *slice*—(EX Series switches only) (Optional) Reboot a partition on the boot media. This option has the following suboptions:

- **1**—Power off partition 1.
- **2**—Power off partition 2.
- **alternate**—Reboot from the alternate partition.

Additional Information Reboot requests are recorded in the system log files, which you can view with the **show log** command (see show log). Also, the names of any running processes that are scheduled to be shut down are changed. You can view the process names with the **show system processes** command (see show system processes).

On a TX Matrix or TX Matrix Plus router, if you issue the **request system reboot** command on the master Routing Engine, all the master Routing Engines connected to the routing matrix are rebooted. If you issue this command on the backup Routing Engine, all the backup Routing Engines connected to the routing matrix are rebooted.



NOTE: Before issuing the `request system reboot` command on a TX Matrix Plus router with no options or the `all-chassis`, `all-lcc`, `lcc number`, or `sfc` options, verify that master Routing Engine for all routers in the routing matrix are in the same slot number. If the master Routing Engine for a line-card chassis is in a different slot number than the master Routing Engine for a TX Matrix Plus router, the line-card chassis might become logically disconnected from the routing matrix after the `request system reboot` command.



NOTE: To reboot a router that has two Routing Engines, reboot the backup Routing Engine (if you have upgraded it) first, and then reboot the master Routing Engine.

Required Privilege Level maintenance

Related Documentation

- [clear system reboot](#)
- [request system halt](#)
- [request system reboot](#)
- [Rebooting and Halting a QFX Series Product](#)

List of Sample Output

- [request system reboot on page 627](#)
- [request system reboot \(at 2300\) on page 627](#)
- [request system reboot \(in 2 Hours\) on page 627](#)
- [request system reboot \(Immediately\) on page 628](#)
- [request system reboot \(at 1:20 AM\) on page 628](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system reboot

```
user@host> request system reboot
Reboot the system ? [yes,no] (no)
```

request system reboot (at 2300)

```
user@host> request system reboot at 2300 message ?Maintenance time!?
Reboot the system ? [yes,no] (no) yes

shutdown: [pid 186]
*** System shutdown message from root@berry.network.net ***
System going down at 23:00
```

request system reboot (in 2 Hours)

The following example, which assumes that the time is 5 PM (17:00), illustrates three different ways to request the system to reboot in two hours:

```
user@host> request system reboot at +120
user@host> request system reboot in 120
```

	<code>user@host> request system reboot at 19:00</code>
request system reboot (Immediately)	<code>user@host> request system reboot at now</code>
request system reboot (at 1:20 AM)	<p>To reboot the system at 1:20 AM, enter the following command. Because 1:20 AM is the next day, you must specify the absolute time.</p> <p><code>user@host> request system reboot at 06060120</code></p> <p><code>request system reboot at 120</code></p> <p>Reboot the system at 120? [yes,no] (no) yes</p>

request system snapshot

Syntax	request system snapshot <partition>
Syntax (ACX Series Routers)	request system snapshot <media <i>type</i> > <partition>
Syntax (EX Series Switches)	request system snapshot <all-members local member <i>member-id</i> > <media <i>type</i> > <partition> <re0 re1 routing-engine <i>routing-engine-id</i> > <slice alternate>
Syntax (J Series Routers)	request system snapshot <as-primary> <config-size <i>size</i> > <data-size <i>size</i> > <factory> <media <i>type</i> > <partition> <root-size <i>size</i> > <swap-size <i>size</i> >
Syntax (MX Series Routers)	request system snapshot <all-members> <local> <member <i>member-id</i> > <partition>
Syntax (TX Matrix Routers)	request system snapshot <all-chassis all-lcc lcc <i>number</i> scc> <partition>
Syntax (TX Matrix Plus Routers)	request system snapshot <all-chassis all-lcc lcc <i>number</i> sfc <i>number</i> > <partition>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 10.0 for EX Series switches.
Description	<ul style="list-style-type: none"> On the router, back up the currently running and active file system partitions to standby partitions that are not running. Specifically, the root file system (/) is backed up to /altroot, and /config is backed up to /altconfig. The root and /config file systems are on the router's flash drive, and the /altroot and /altconfig file systems are on the router's hard drive. On the switch, take a snapshot of the files currently used to run the switch—the complete contents of the root (/), /altroot, /config, /var, and /var-tmp directories, which include the running Junos OS, the active configuration, and log files.



CAUTION: After you run the `request system snapshot` command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

Options The specific options available depend upon the router or switch:

none—Back up the currently running software as follows:

- On the router, back up the currently running and active file system partitions to standby partitions that are not running. Specifically, the root file system (/) is backed up to `/altroot`, and `/config` is backed up to `/altconfig`. The root and `/config` file systems are on the router's flash drive, and the `/altroot` and `/altconfig` file systems are on the router's hard drive.
- On the switch, take a snapshot of the files currently used to run the switch and copy them to the media that the switch did not boot from. If the switch is booted from internal media, the snapshot is copied to external (USB) media. If the switch is booted from external (USB) media, the snapshot is copied to internal media.
- If the snapshot destination is external media but a USB flash drive is not connected, an error message is displayed.
- If the automatic snapshot procedure is already in progress, the command returns the following error: **Snapshot already in progress. Cannot start manual snapshot.** For additional information about the automatic snapshot feature, see *Understanding Resilient Dual-Root Partitions on Switches*.

all-chassis | all-lcc | lcc *number* —(TX Matrix and TX Matrix Plus router only) (Optional)

- **all-chassis**—On a TX Matrix router, archive data and executable areas for all Routing Engines in the chassis. On a TX Matrix Plus router, archive data and executable areas for all Routing Engines in the chassis.
- **all-lcc**—On a TX Matrix router, archive data and executable areas for all T640 routers (or line-card chassis) connected to a TX Matrix router. On a TX Matrix Plus router, archive data and executable areas for all T1600 routers (or line-card chassis) connected to a TX Matrix Plus router.
- **lcc *number***—On a TX Matrix router, archive data and executable areas for a specific T640 router (or line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, archive data and executable areas for a specific T1600 router (or line-card chassis) that is connected to a TX Matrix Plus router. Replace *number* with a value from 0 through 3.

all-members | local | member *member-id*—(EX Series Virtual Chassis and MX Series routers only) (Optional) Specify where to place the snapshot (archive data and executable areas) in a Virtual Chassis:

- **all-members**—Create a snapshot (archive data and executable areas) for all members of the Virtual Chassis.

- **local**—Create a snapshot (archive data and executable areas) on the member of the Virtual Chassis that you are currently logged into.
- **member *member-id***—Create a snapshot (archive data and executable areas) for the specified member of the Virtual Chassis.

as-primary—(J Series routers only) (Optional) Create a snapshot that can be used to replace the medium in the primary compact flash drive. This option can be used on the removable compact flash only. The option copies the default files that were loaded on the primary compact flash drive when it was shipped from the factory, plus the rescue configuration if one has been set. This option is useful if you have multiple routers and want to use the same software and configuration on each router. After a boot device is created as a primary compact flash drive, it can operate in only a primary compact flash drive slot. This option causes the boot medium to be partitioned.

config-size *size*—(J Series routers only) (Optional) Specify the size of the config partition, in megabytes. The default value is **10** percent of physical memory on the boot partition. The config partition is mounted on **/config**, and the configuration files are stored in this partition. This option causes the boot medium to be partitioned.

data-size *size*—(J Series routers only) (Optional) Specify the size of the data partition, in megabytes. The default value is **0** MB. The data partition is mounted on **/data**. This space is not used by the router, and can be used for extra storage. This option causes the boot medium to be partitioned.

factory—(J Series routers only) (Optional) Copy only default files that were loaded on the primary compact flash drive when it was shipped from the factory, plus the rescue configuration if one has been set. After the boot medium is created with the factory option, it can operate in only the primary compact flash drive.

media *type*—(J Series routers and EX Series switches only)(Optional) Specify the boot device the software is copied to:

- **compact-flash**—Copy software to the primary compact flash drive.
- **external**—(EX Series switches only) Copy software to an external mass storage device, such as a USB flash drive. If a USB drive is not connected, the switch displays an error message.
- **internal**—(EX Series switches only) Copy software to an internal flash drive.
- **removable-compact-flash**—Copy software to the removable compact flash drive.
- **usb**—(ACX Series, M320, T640, MX960, and J Series routers only) Copy software to the device connected to the USB port.

partition—(Optional) Repartition the flash drive before a snapshot occurs. If the partition table on the flash drive is corrupted, the **request system snapshot** command fails and reports errors. The partition option is supported only for restoring the software image from the hard drive to the flash drive.

(Routers only) You cannot issue the **request system snapshot** command when you enable flash disk mirroring. We recommend that you disable flash disk mirroring when you upgrade or downgrade the software. For more information, see the Junos OS System Basics Configuration Guide.

(EX Series switches only) If the snapshot destination is the media that the switch did not boot from, you must use the **partition** option.

re0 | re1 | routing-engine routing-engine-id—(EX6200 and EX8200 switches only) Specify where to place the snapshot in a redundant Routing Engine configuration.

- **re0**—Create a snapshot on Routing Engine 0.
- **re1**—Create a snapshot on Routing Engine 1.
- **routing-engine routing-engine-id**—Create a snapshot on the specified Routing Engine.

root-size size—(J Series routers only) (Optional) Specify the size of the root partition, in megabytes. The default value is one-third of the physical memory minus the config, data, and swap partitions. The root partition is mounted on / and does not include configuration files. This option causes the boot medium to be partitioned.

slice alternate—(EX Series switches only) (Optional) Take a snapshot of the active root partition and copy it onto the alternate slice on the boot media.

scc—(TX Matrix routers only) (Optional) Archive data and executable areas for a TX Matrix router (or switch-card chassis).

sfc number—(TX Matrix Plus routers only) (Optional) Archive data and executable areas for a TX Matrix Plus router (or switch-fabric chassis). Replace *number* with 0.

swap-size size—(J Series router only) (Optional) Specify the size of the swap partition, in megabytes. The default value is one-third of the physical memory on a boot medium larger than 128 MB, or 0 MB on a smaller boot device. The swap partition is used for swap files and software failure memory snapshots. Software failure memory snapshots are saved to the boot medium only if it is specified as the dump device in the system dump-device configuration hierarchy. This option causes the boot medium to be partitioned.

Additional Information

- (Routers only) Before upgrading the software on the router, when you have a known stable system, issue the **request system snapshot** command to back up the software, including the configuration, to the **/altroot** and **/altconfig** file systems. After you have upgraded the software on the router and are satisfied that the new packages are successfully installed and running, issue the **request system snapshot** command again to back up the new software to the **/altroot** and **/altconfig** file systems.
- (Routers only) You cannot issue the **request system snapshot** command when you enable flash disk mirroring. We recommend that you disable flash disk mirroring when you upgrade or downgrade the software. For more information, see the Junos OS System Basics Configuration Guide

- (TX Matrix and TX Matrix Plus routers only) On a routing matrix, if you issue the **request system snapshot** command on the master Routing Engine, all the master Routing Engines connected to the routing matrix are backed up. If you issue this command on the backup Routing Engine, all the backup Routing Engines connected to the routing matrix are backed up.

Required Privilege Level maintenance

Related Documentation

- [show system snapshot on page 682](#)
- show system auto-snapshot

List of Sample Output

[request system snapshot \(Routers\) on page 633](#)
[request system snapshot \(EX Series Switches\) on page 633](#)
[request system snapshot \(When the Partition Flag Is On\) on page 633](#)
[request system snapshot \(When Mirroring Is Enabled\) on page 634](#)
[request system snapshot all-lcc \(Routing Matrix\) on page 634](#)
[request system snapshot all-members \(Virtual Chassis\) on page 634](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request system snapshot (Routers) user@host> request system snapshot
umount: /altroot: not currently mounted
Copying / to /altroot.. (this may take a few minutes)
umount: /altconfig: not currently mounted
Copying /config to /altconfig.. (this may take a few minutes)

The following filesystems were archived: / /config

request system snapshot (EX Series Switches) user@switch> request system snapshot partition
Clearing current label...
Partitioning external media (/dev/da1) ...
Partitions on snapshot:

    Partition Mountpoint Size Snapshot argument
    s1a      /altroot    179M none
    s2a      /          180M none
    s3d      /var/tmp    361M none
    s3e      /var       121M none
    s4d      /config     60M  none
Copying '/dev/da0s1a' to '/dev/da1s1a' .. (this may take a few minutes)
Copying '/dev/da0s2a' to '/dev/da1s2a' .. (this may take a few minutes)
Copying '/dev/da0s3d' to '/dev/da1s3d' .. (this may take a few minutes)
Copying '/dev/da0s3e' to '/dev/da1s3e' .. (this may take a few minutes)
Copying '/dev/da0s4d' to '/dev/da1s4d' .. (this may take a few minutes)
The following filesystems were archived: /altroot / /var/tmp /var /config

request system snapshot (When the Partition Flag Is On) user@host> request system snapshot partition
Performing preliminary partition checks ...
Partitioning ad0 ...
umount: /altroot: not currently mounted
Copying / to /altroot.. (this may take a few minutes)
```

The following filesystems were archived: / /config

**request system
snapshot (When
Mirroring Is Enabled)**

```
user@host> request system snapshot
Snapshot is not possible since mirror-flash-on-disk is configured.
```

**request system
snapshot all-lcc
(Routing Matrix)**

```
user@host> request system snapshot all-lcc
lcc0-re0:
-----
Copying '/' to '/altroot' .. (this may take a few minutes)
Copying '/config' to '/altconfig' .. (this may take a few minutes)
The following filesystems were archived: / /config

lcc2-re0:
-----
Copying '/' to '/altroot' .. (this may take a few minutes)
Copying '/config' to '/altconfig' .. (this may take a few minutes)
The following filesystems were archived: / /config
```

**request system
snapshot all-members
(Virtual Chassis)**

```
user@switch> request system snapshot all-members media internal
fpc0:
-----
Copying '/dev/da0s2a' to '/dev/da0s1a' .. (this may take a few minutes)
The following filesystems were archived: /

fpc1:
-----
Copying '/dev/da0s2a' to '/dev/da0s1a' .. (this may take a few minutes)
The following filesystems were archived: /

fpc2:
-----
Copying '/dev/da0s2a' to '/dev/da0s1a' .. (this may take a few minutes)
The following filesystems were archived: /

fpc3:
-----
Copying '/dev/da0s2a' to '/dev/da0s1a' .. (this may take a few minutes)
The following filesystems were archived: /

fpc4:
-----
Copying '/dev/da0s2a' to '/dev/da0s1a' .. (this may take a few minutes)
The following filesystems were archived: /

fpc5:
-----
Copying '/dev/da0s2a' to '/dev/da0s1a' .. (this may take a few minutes)
The following filesystems were archived: /
```

request system software add

Syntax	<pre>request system software add <i>package-name</i> <best-effort-load> <delay-restart> <force> <no-copy> <no-validate> <re0 re1> <reboot> <set [<i>package-name package-name</i>]> <unlink> <validate></pre>
Syntax (EX Series Switches)	<pre>request system software add <i>package-name</i> <best-effort-load> <delay-restart> <force> <no-copy> <no-validate> <re0 re1> <reboot> <set [<i>package-name package-name</i>]> <validate></pre>
Syntax (TX Matrix Router)	<pre>request system software add <i>package-name</i> <best-effort-load> <delay-restart> <force> <lcc <i>number</i> scc> <no-copy> <no-validate> <re0 re1> <reboot> <set [<i>package-name package-name</i>]> <unlink> <validate></pre>
Syntax (TX Matrix Plus Router)	<pre>request system software add <i>package-name</i> <best-effort-load> <delay-restart> <force> <lcc <i>number</i> sfc <i>number</i>> <no-copy> <no-validate> <re0 re1> <reboot> <set [<i>package-name package-name</i>]> <unlink> <validate></pre>
Syntax (MX Series Router)	<pre>request system software add <i>package-name</i> <best-effort-load> <delay-restart></pre>

```
<force>
<member member-id>
<no-copy>
<no-validate>
<re0 | re1>
<reboot>
<set [package-name package-name]>
<unlink>
<validate>
```

Syntax (QFX Series) `request system software add package-name`
`<best-effort-load>`
`<component all>`
`<delay-restart>`
`<force>`
`<no-copy>`
`<no-validate>`
`<partition>`
`<reboot>`
`<unlink>`
`<validate>`

Release Information Command introduced before Junos OS Release 7.4.
best-effort-load and **unlink** options added in Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.
sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.
Command introduced in Junos OS Release 11.1 for the QFX Series.
set [*package-name package-name*] option added in Junos OS Release 11.1 for EX Series switches.
set [*package-name package-name*] option added in Junos OS Release 12.2 for M Series, MX Series, T Series routers, and Branch SRX Series Services Gateways.



NOTE: On EX Series switches, the **set [*package-name package-name*]** option allows you to install only two software packages on a mixed EX4200 and EX4500 Virtual Chassis, whereas, on M Series, MX Series, T Series routers, and Branch SRX Series Services Gateways, the **set [*package-name package-name*]** option allows you to install multiple software packages and software add-on packages at the same time.

Description Install a software package or bundle on the router or switch.

Options ***package-name***—Location from which the software package or bundle is to be installed.
For example:

- ***/var/tmp/package-name***—For a software package or bundle that is being installed from a local directory on the router or switch.
- ***protocol://hostname/pathname/package-name***—For a software package or bundle that is to be downloaded and installed from a remote location. Replace ***protocol*** with one of the following:

- **ftp**—File Transfer Protocol.
Use **ftp://hostname/pathname/package-name**. To specify authentication credentials, use **ftp://<username>:<password>@hostname/pathname/package-name**. To have the system prompt you for the password, specify **prompt** in place of the password. If a password is required, and you do not specify the password or **prompt**, an error message is displayed.
- **http**—Hypertext Transfer Protocol.
Use **http://hostname/pathname/package-name**. To specify authentication credentials, use **http://<username>:<password>@hostname/pathname/package-name**. If a password is required and you omit it, you are prompted for it.
- **scp**—Secure copy (available only for Canada and U.S. version).
Use **scp://hostname/pathname/package-name**. To specify authentication credentials, use **scp://<username>:<password>@hostname/pathname/package-name**.



NOTE:

- The **pathname** in the protocol is the relative path to the user's home directory on the remote system and not the root directory.
- Do not use the **scp** protocol in the **request system software add** command to download and install a software package or bundle from a remote location. The previous statement does not apply to the QFabric switch. The software upgrade is handled by the MGD process which does not support **scp**.
Use the **file copy** command to copy the software package or bundle from the remote location to the **/var/tmp** directory on the hard disk:
file copy scp://source/package-name /var/tmp
Then install the software package or bundle using the **request system software add** command:
request system software add /var/tmp/package-name
- On a J Series Services Router, when you install the software from a remote location, the package is removed at the earliest opportunity in order to make room for the installation to be completed. If you copy the software to a local directory on the router and then install the new package, use the **unlink** option to achieve the same effect and allow the installation to be completed.

best-effort-load—(Optional) Activate a partial load and treat parsing errors as warnings instead of errors.

component all—(QFabric systems only) (Optional) Install software package on all of the QFabric components.

delay-restart—(Optional) Install a software package or bundle, but do not restart software processes.

force—(Optional) Force the addition of the software package or bundle (ignore warnings).

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) In a routing matrix based on the TX Matrix router, install a software package or bundle on a T640 router (or line-card chassis) that is connected to the TX Matrix router. In a routing matrix based on the TX Matrix Plus router, install a software package or bundle on a T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace *number* with a value from 0 through 3.

member *member-id*—(MX Series routers only) (Optional) Install a software package on the specified Virtual Chassis member. Replace *member-id* with a value of 0 or 1.

partition—(QFX3500 switches only) (Optional) Format and repartition the media before installation.

scc—(TX Matrix routers only) (Optional) Install a software package or bundle on a Routing Engine on a TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus routers only) (Optional) Install a software package or bundle on a Routing Engine on a TX Matrix Plus router (or switch-fabric chassis). Replace *number* with 0.

no-copy—(Optional) Install a software package or bundle, but do not save copies of the package or bundle files.

no-validate—(Optional) When loading a software package or bundle with a different release, suppress the default behavior of the **validate** option.

re0 | re1—(Optional) On routers or switches that support dual or redundant Routing Engines, load a software package or bundle on the Routing Engine in slot 0 (**re0**) or the Routing Engine in slot 1 (**re1**).

reboot—(Optional) After adding the software package or bundle, reboot the system. On a QFabric switch, the software installation is not complete until you reboot the component for which you have installed the software.

set [*package-name package-name*]—(Mixed EX4200 and EX4500 Virtual Chassis only) (Optional) Install two software packages—a package for an EX4200 switch and the same release of the package for an EX4500 switch—to upgrade all member switches in a mixed EX4200 and EX4500 Virtual Chassis.

set [*package-name package-name*]—(M Series, MX Series, T Series routers, and Branch SRX Series Services Gateways only) (Optional) Install multiple software packages and software add-on packages at the same time.

unlink—(Optional) On J Series Services Routers, this option ensures that the software package is removed at the earliest opportunity in order to make room for the installation to be completed. On M Series, T Series, and MX Series routers, use the

unlink option to remove the software package from this directory after a successful upgrade is completed.

validate—(Optional) Validate the software package or bundle against the current configuration as a prerequisite to adding the software package or bundle. This is the default behavior when the software package or bundle being added is a different release.

Additional Information



NOTE: The **request system snapshot** command is currently not supported on the QFabric system. Also, you cannot add or install multiple packages on a QFabric system.

Before upgrading the software on the router or switch, when you have a known stable system, issue the **request system snapshot** command to back up the software, including the configuration, to the **/altroot** and **/altconfig** file systems. After you have upgraded the software on the router or switch and are satisfied that the new package or bundle is successfully installed and running, issue the **request system snapshot** command again to back up the new software to the **/altroot** and **/altconfig** file systems.

After you run the **request system snapshot** command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

If you are upgrading more than one package at the same time, delete the operating system package, **jkern**, last. Add the operating system package, **jkern**, first and the routing software package, **jroute**, last. If you are upgrading all packages at once, delete and add them in the following order:

```
user@host> request system software add /var/tmp/jbase
user@host> request system software add /var/tmp/jkern
user@host> request system software add /var/tmp/jpfe
user@host> request system software add /var/tmp/jdocs
user@host> request system software add /var/tmp/jroute
user@host> request system software add /var/tmp/jcrypto
```

By default, when you issue the **request system software add package-name** command on a TX Matrix master Routing Engine, all the T640 master Routing Engines that are connected to it are upgraded to the same version of software. If you issue the same command on the TX Matrix backup Routing Engine, all the T640 backup Routing Engines that are connected to it are upgraded to the same version of software.

Likewise, when you issue the **request system software add package-name** command on a TX Matrix Plus master Routing Engine, all the T1600 master Routing Engines that are connected to it are upgraded to the same version of software. If you issue the same command on the TX Matrix Plus backup Routing Engine, all the T1600 backup Routing Engines that are connected to it are upgraded to the same version of software.

Required Privilege Level maintenance

- Related Documentation**
- [request system software delete on page 642](#)
 - [request system software rollback on page 645](#)
 - [request system storage cleanup on page 652](#)
 - Upgrading Software on a QFX3500 Switch
 - Upgrading Software on a QFabric System

- List of Sample Output**
- [request system software add validate on page 640](#)
 - [request system software add \(Mixed EX4200 and EX4500 Virtual Chassis\) on page 641](#)
 - [request system software add component all \(QFabric Systems\) on page 641](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request system software add validate user@host> request system software add validate /var/tmp/jinstall-7.2R1.7-domestic-signed.tgz
Checking compatibility with configuration
Initializing...
Using jbase-7.1R2.2
Using /var/tmp/jinstall-7.2R1.7-domestic-signed.tgz
Verified jinstall-7.2R1.7-domestic.tgz signed by PackageProduction_7_2_0
Using /var/validate/tmp/jinstall-signed/jinstall-7.2R1.7-domestic.tgz
Using /var/validate/tmp/jinstall/jbundle-7.2R1.7-domestic.tgz
Checking jbundle requirements on /
Using /var/validate/tmp/jbundle/jbase-7.2R1.7.tgz
Using /var/validate/tmp/jbundle/jkernel-7.2R1.7.tgz
Using /var/validate/tmp/jbundle/jcrypto-7.2R1.7.tgz
Using /var/validate/tmp/jbundle/jpfe-7.2R1.7.tgz
Using /var/validate/tmp/jbundle/jdocs-7.2R1.7.tgz
Using /var/validate/tmp/jbundle/jroute-7.2R1.7.tgz
Validating against /config/juniper.conf.gz
mgd: commit complete
Validation succeeded
Validating against /config/rescue.conf.gz
mgd: commit complete
Validation succeeded
Installing package '/var/tmp/jinstall-7.2R1.7-domestic-signed.tgz' ...
Verified jinstall-7.2R1.7-domestic.tgz signed by PackageProduction_7_2_0
Adding jinstall...

WARNING: This package will load JUNOS 7.2R1.7 software.
WARNING: It will save JUNOS configuration files, and SSH keys
WARNING: (if configured), but erase all other files and information
WARNING: stored on this machine. It will attempt to preserve dumps
WARNING: and log files, but this can not be guaranteed. This is the
WARNING: pre-installation stage and all the software is loaded when
WARNING: you reboot the system.

Saving the config files ...
Installing the bootstrap installer ...


WARNING: A REBOOT IS REQUIRED TO LOAD THIS SOFTWARE CORRECTLY. Use the
WARNING: 'request system reboot' command when software installation is
WARNING: complete. To abort the installation, do not reboot your system,
WARNING: instead use the 'request system software delete jinstall'
WARNING: command as soon as this operation completes.
```

```
Saving package file in /var/sw/pkg/jinstall-7.2R1.7-domestic-signed.tgz ...  
Saving state for rollback ...
```

Sample Output

```
request system      user@switch> request system software add set  
software add (Mixed [/var/tmp/jinstall-ex-4200-11.1R1.1-domestic-signed.tgz  
EX4200 and EX4500  /var/tmp/jinstall-ex-4500-11.1R1.1-domestic-signed.tgz]  
Virtual Chassis)   ...  
  
request system      user@switch> request system software add /pbdata/packages/jinstall-qfabric-12.2X50-D1.3.rpm  
software add        component all  
component all       ...  
(QFabric Systems)
```

request system software delete

Syntax	<code>request system software delete <i>software-package</i></code> <code><force></code> <code><reboot></code> <code><set [<i>package-name package-name</i>]></code>
Syntax (TX Matrix Router)	<code>request system software delete <i>software-package</i></code> <code><force></code> <code><lcc <i>number</i> scc></code> <code><reboot></code> <code><set [<i>package-name package-name</i>]></code>
Syntax (TX Matrix Plus Router)	<code>request system software delete <i>software-package</i></code> <code><force></code> <code><lcc <i>number</i> sfc <i>number</i>></code> <code><reboot></code> <code><set [<i>package-name package-name</i>]></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Option sfc introduced for the TX Matrix Plus router in Junos OS Release 9.6. Command introduced in Junos OS Release 11.1 for the QFX Series. Option set [<i>package-name package-name</i>] added in Junos OS Release 12.2 for M Series, MX Series, T Series routers, and Branch SRX Services Gateways. Option reboot introduced in Junos OS Release 12.3.
Description	Remove a software package or bundle from the router or switch.
<div><div>CAUTION: Before removing a software package or bundle, make sure that you have already placed the new software package or bundle that you intend to load onto the router or switch.</div></div>	
Options	<i>software-package</i> —Software package or bundle name. You can delete any or all of the following software bundles or packages: <ul style="list-style-type: none">• jbase—(Optional) Junos base software suite• jcrypto—(Optional, in domestic version only) Junos security software• jdocs—(Optional) Junos online documentation file• jkernel—(Optional) Junos kernel software suite• jpfe—(Optional) Junos Packet Forwarding Engine support• jroute—(Optional) Junos routing software suite• junos—(Optional) Junos base software



NOTE: On EX Series switches, some of the package names are different than those listed. To see the list of packages that you can delete on an EX Series switch, enter the command **show system software**.

force—(Optional) Ignore warnings and force removal of the software.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, remove an extension or upgrade package from a specific T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, remove an extension or upgrade package from a specific T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

reboot—As of Junos OS 12.3 and greater, automatically reboot upon completing the **request system software delete** command.

scc—(TX Matrix routers only) (Optional) Remove an extension or upgrade package from the TX Matrix router (or switch-card chassis).

set [package-name package-name]—(M Series, MX Series, T Series routers, and Branch SRX Series Services Gateways only) (Optional) Install multiple software packages or software add-on packages at the same time.

sfc number—(TX Matrix Plus routers only) (Optional) Remove an extension or upgrade package from the TX Matrix Plus router (or switch-fabric chassis). Replace **number** with 0.

Additional Information Before upgrading the software on the router or switch, when you have a known stable system, issue the **request system snapshot** command to back up the software, including the configuration, to the /altroot and /altconfig file systems (on routers) or the /, /altroot, /config, /var, and /var/tmp file systems (on switches). After you have upgraded the software on the router or switch and are satisfied that the new packages are successfully installed and running, issue the **request system snapshot** command again to back up the new software to the /altroot and /altconfig file systems (on routers) or the /, /altroot, /config, /var, and /var/tmp file systems (on switches). After you run the **request system snapshot** command, you cannot return to the previous version of the software, because the running and backup copies of the software are identical.

Required Privilege Level maintenance

Related Documentation

- [request system software add on page 635](#)
- [request system software rollback on page 645](#)
- [request system software validate on page 649](#)

List of Sample Output [request system software delete jdocs on page 644](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system software delete jdocs The following example displays the system software packages before and after the **jdocs** package is deleted through the **request system software delete** command:

```
user@host> show system software
Information for jbase:
```

```
Comment:
JUNOS Base OS Software Suite [7.2R1.7]
```

```
Information for jcrypto:
```

```
Comment:
JUNOS Crypto Software Suite [7.2R1.7]
```

```
Information for jdocs:
```

```
Comment:
JUNOS Online Documentation [7.2R1.7]
```

```
Information for jkernel:
```

```
Comment:
JUNOS Kernel Software Suite [7.2R1.7]
```

```
...
```

```
user@host> request system software delete jdocs
Removing package 'jdocs' ...
```

```
user@host> show system software
Information for jbase:
```

```
Comment:
JUNOS Base OS Software Suite [7.2R1.7]
```

```
Information for jcrypto:
```

```
Comment:
JUNOS Crypto Software Suite [7.2R1.7]
```

```
Information for jkernel:
```

```
Comment:
JUNOS Kernel Software Suite [7.2R1.7]
```

```
...
```

request system software rollback

Syntax	request system software rollback
Syntax (EX Series Switches)	request system software rollback <all-members> <local> <member <i>member-id</i> > <reboot>
Syntax (TX Matrix Router)	request system software rollback <lcc <i>number</i> scc> <reboot>
Syntax (TX Matrix Plus Router)	request system software rollback <lcc <i>number</i> sfc <i>number</i> > <reboot>
Syntax (MX Series Router)	request system software rollback <all-members> <local> <member <i>member-id</i> > <reboot>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>Option sfc introduced for the TX Matrix Plus router in Junos OS Release 9.6.</p> <p>Command introduced in Junos OS Release 11.1 for the QFX Series.</p> <p>Command behavior changed in Junos OS Release 12.1.</p> <p>Option reboot introduced in Junos OS Release 12.3.</p>
Description	<p>For all versions of Junos OS up to and including Junos OS 11.4, revert to the software that was loaded at the last successful request system software add command.</p> <p>As of Junos OS 12.1 and greater, revert to the last known good state before the most recent request system software (add delete) command. For example, using rollback in Junos OS 12.1 after using request system software add restores the system to a known good state prior to using the add command. Similarly, using rollback in Junos OS 12.1 after using request system software delete restores the system to a known good state prior to using the delete command.</p> <p>A software rollback fails if any required package (or a jbundle package containing the required package) cannot be found in <code>/var/sw/pkg</code>.</p> <p><i>Additional Information</i></p> <ul style="list-style-type: none"> On M Series and T Series routers, if request system software add <jinstall> reboot was used for the previous installation, then request system software rollback has no effect. In this case, use jinstall to reinstall the required package.

- On M Series and T Series routers, if **request system software add <sdk1>** was used for the previous installation, then **request system software rollback** removes the last installed SDK package (**sdk1** in this example).
- On SRX Series devices with dual root systems, when **request system software rollback** is run, the system switches to the alternate root. Each root can have a different version of Junos OS. Rollback takes each root back to the previously installed image.

Options **all-members**—(EX4200 switches and MX Series routers only) (Optional) Attempt to roll back to the previous set of packages on all members of the Virtual Chassis configuration.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, attempt to roll back to the previous set of packages on a T640 router (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, attempt to roll back to the previous set of packages on a T1600 router (or line-card chassis) connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

local—(EX4200 switches and MX Series routers only) (Optional) Attempt to roll back to the previous set of packages on the local Virtual Chassis member.

member member-id—(EX4200 switches and MX Series routers only) (Optional) Attempt to roll back to the previous set of packages on the specified member of the Virtual Chassis configuration. For EX4200 switches, replace **member-id** with a value from 0 through 9. For an MX Series Virtual Chassis, replace **member-id** with a value of 0 or 1.

none—For all versions of Junos OS up to and including Junos OS 11.4, revert to the set of software as of the last successful **request system software add**. As of Junos OS 12.1 and greater, revert to the last known good state before the most recent **request system software (add | delete)** command.

reboot—As of Junos OS 12.3 and greater, automatically reboot upon completing the **request system software rollback** command.

scc—(TX Matrix routers only) (Optional) Attempt to roll back to the previous set of packages on the TX Matrix router (or switch-card chassis).

sfc number—(TX Matrix Plus routers only) (Optional) Attempt to roll back to the previous set of packages on the TX Matrix Plus router (or switch-fabric chassis). Replace **number** with 0.

Required Privilege Level maintenance

Related Documentation

- [request system software abort](#)
- [request system software add on page 635](#)
- [request system software delete on page 642](#)

- [request system software validate on page 649](#)
- request system configuration rescue delete
- request system configuration rescue save

List of Sample Output [request system software rollback on page 648](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request system software rollback user@host> request system software rollback
Verified SHA1 checksum of ./jbase-7.2R1.7.tgz
Verified SHA1 checksum of ./jdocs-7.2R1.7.tgz
Verified SHA1 checksum of ./jroute-7.2R1.7.tgz
Installing package './jbase-7.2R1.7.tgz' ...
Available space: 35495 require: 7335
Installing package './jdocs-7.2R1.7.tgz' ...
Available space: 35339 require: 3497
Installing package './jroute-7.2R1.7.tgz' ...
Available space: 35238 require: 6976
NOTICE: uncommitted changes have been saved in
/var/db/config/juniper.conf.pre-install
Reloading /config/juniper.conf.gz ...
Activating /config/juniper.conf.gz ...
mgd: commit complete
Restarting mgd ...
Restarting aprobed ...
Restarting apsd ...
Restarting cosd ...
Restarting fsad ...
Restarting fud ...
Restarting gcdrd ...
Restarting ilmid ...
Restarting irsd ...
Restarting l2tpd ...
Restarting mib2d ...
Restarting nasd ...
Restarting pppoed ...
Restarting rdd ...
Restarting rmopd ...
Restarting rtspd ...
Restarting sampled ...
Restarting serviced ...
Restarting snmpd ...
Restarting spd ...
Restarting vrrpd ...

WARNING: cli has been replaced by an updated version:
CLI release 7.2R1.7 built by builder on 2005-04-22 02:03:44 UTC
Restart cli using the new version ? [yes,no] (yes) yes

Restarting cli ...
user@host
```

request system software validate

Syntax	request system software validate <i>package-name</i> <set [<i>package-name package-name</i>]>
Syntax (TX Matrix Router)	request system software validate <i>package-name</i> <fcc <i>number</i> scc> <set [<i>package-name package-name</i>]>
Syntax (TX Matrix Plus Router)	request system software validate <i>package-name</i> <fcc <i>number</i> sfc <i>number</i> > <set [<i>package-name package-name</i>]>
Syntax (MX Series Router)	request system software validate <i>package-name</i> <member <i>member-id</i> > <set [<i>package-name package-name</i>]>
Release Information	Command introduced before Junos OS Release 7.4. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6. Command introduced in Junos OS Release 11.1 for the QFX Series. set [<i>package-name package-name</i>] option added in Junos OS Release 12.2 for M Series, MX Series, T Series routers, and Branch SRX Series Services Gateways.
Description	Validate candidate software against the current configuration of the router.
Options	<p>fcc <i>number</i>—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, validate the software bundle or package on a specific T640 router (or line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, validate the software bundle or package on a specific T1600 router (or line-card chassis) that is connected to the TX Matrix Plus router. Replace <i>number</i> with a value from 0 through 3.</p> <p>member <i>member-id</i>—(MX Series routers only) (Optional) Validate the software bundle or package on the specified member of the Virtual Chassis configuration. For an MX Series Virtual Chassis, replace <i>member-id</i> with a value of 0 or 1.</p> <p><i>package-name</i>—Name of the software bundle or package to test.</p> <p>scc—(TX Matrix routers only) (Optional) Validate the software bundle or package for the TX Matrix router (or switch-card chassis).</p> <p>set [<i>package-name package-name</i>]—(M Series, MX Series, T Series routers, and Branch SRX Series Services Gateways only) (Optional) Install multiple software packages or software add-on packages at the same time.</p> <p>sfc <i>number</i>—(TX Matrix Plus routers only) (Optional) Validate the software bundle or package for the TX Matrix Plus router (or switch-fabric chassis).</p>
Additional Information	By default, when you issue the request system software validate command on a TX Matrix master Routing Engine, all the T640 master Routing Engines that are connected to it are validated. If you issue the same command on the TX Matrix backup Routing Engine, all

the T640 backup Routing Engines that are connected to it are upgraded to the same version of software.

Likewise, if you issue the **request system software validate** command on a TX Matrix Plus master Routing Engine, all the T1600 master Routing Engines that are connected to it are validated. If you issue the same command on a TX Matrix Plus backup Routing Engine, all the T1600 backup Routing Engines that are connected to it are upgraded to the same version of software.

Required Privilege Level maintenance

Related Documentation

- request system software abort
- [request system software add on page 635](#)
- [request system software delete on page 642](#)
- [request system software rollback on page 645](#)

List of Sample Output [request system software validate \(Successful Case\) on page 650](#)
[request system software validate \(Failure Case\) on page 650](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
request system software validate (Successful Case) user@host> request system software validate /var/sw/pkg/jbundle-5.3I20020124_0520_sjg.tgz
Checking compatibility with configuration
Initializing...
Using /packages/jbase-5.3I20020122_1901_sjg
Using /var/sw/pkg/jbundle-5.3I20020124_0520_sjg.tgz
Using /var/chroot/var/tmp/jbundle/jbase-5.3I20020124_0520_sjg.tgz
Using /var/chroot/var/tmp/jbundle/jkernel-5.3I20020124_0520_sjg.tgz
Using /var/chroot/var/tmp/jbundle/jcrypto-5.3I20020124_0520_sjg.tgz
Using /var/chroot/var/tmp/jbundle/jpfe-5.3I20020124_0520_sjg.tgz
Using /var/chroot/var/tmp/jbundle/jdocs-5.3I20020124_0520_sjg.tgz
Using /var/chroot/var/tmp/jbundle/jroute-5.3I20020124_0520_sjg.tgz
Validating against /config/juniper.conf.gz
mgd: commit complete

WARNING: cli has been replaced by an updated version:
CLI release 5.3I0 built by sjg on 2002-01-24 05:23:53 UTC
Restart cli using the new version ? [yes,no] (yes)

request system software validate (Failure Case) user@host> request system software validate 6.3/
Pushing bundle to lcc0-re0
error: Failed to transfer package to lcc0-re0

user@host> request system software validate test
Pushing bundle to lcc0-re0
Pushing bundle to lcc2-re0

lcc0-re0:
gzip: stdin: not in gzip format
```

```
tar: child returned status 1  
ERROR: Not a valid package: /var/tmp/test
```

request system storage cleanup

Syntax	request system storage cleanup <dry-run>
Syntax (EX Series Switches)	request system storage cleanup <all-members> <dry-run> <local> <member <i>member-id</i> >
Syntax (MX Series Router)	request system storage cleanup <all-members> <dry-run> <local> <member <i>member-id</i> >
Syntax (QFX Series)	request system storage cleanup <component (<i>serial number</i> <i>UUID</i> all)> <director-group <i>name</i> > <dry-run> <infrastructure <i>name</i> > <interconnect-device <i>name</i> > <name-tag <i>name-tag</i> > <node-group <i>name</i> > <prune> <qfabric (component <i>name</i>) dry-run name-tag repository> <repository (core log)>
Release Information	Command introduced in Junos OS Release 7.4. dry-run option introduced in Junos OS Release 7.6. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	Free storage space on the router or switch by rotating log files and proposing a list of files for deletion. User input is required for file deletion. On a QFabric system, you can delete debug files located on individual devices or on the entire QFabric system.
Options	all-members —(EX4200 switches and MX Series routers only) (Optional) Delete files on all members of the Virtual Chassis configuration. component (<i>UUID</i> <i>serial number</i> all) —(QFabric systems only) (Optional) Delete files located on individual QFabric system devices or on the entire QFabric system. director-group <i>name</i> —(QFabric systems only) (Optional) Delete files on the Director group. dry-run —(Optional) List files proposed for deletion (without deleting them). infrastructure <i>name</i> —(QFabric systems only) (Optional) Delete files on the fabric control Routing Engine and fabric manager Routing Engine.

	<p>interconnect-device <i>name</i>—(QFabric systems only) (Optional) Delete files on the Interconnect device.</p> <p>local—(EX4200 switches and MX Series routers only) (Optional) Delete files on the local Virtual Chassis member.</p> <p>member <i>member-id</i>—(EX4200 switches and MX Series routers only) (Optional) Delete files on the specified member of the Virtual Chassis configuration. For EX4200 switches, replace <i>member-id</i> with a value from 0 through 9. For an MX Series Virtual Chassis, replace <i>member-id</i> with a value of 0 or 1.</p> <p>name-tag <i>name-tag</i>—(QFabric systems only) (Optional) Delete debug files that match a specific regular expression.</p> <p>node-group <i>name</i>—(QFabric systems only) (Optional) Delete files on the Node group.</p> <p>prune—(QFabric systems only) (Optional) Delete debug files located in either the core or log debug repositories of a QFabric system device.</p> <p>qfabric component <i>name</i>—(QFabric systems only) (Optional) Delete debug files located in the debug repositories of a QFabric system device.</p> <p>repository (<i>core</i> <i>log</i>)—(QFabric systems only) (Optional) Specify the repository on the QFabric system device for which you want to delete debug files.</p>
Additional Information	If logging is configured and being used, the dry-run option rotates the log files. In that case, the output displays the message “Currently rotating log files, please wait.” If no logging is currently under way, the output displays only a list of files to delete.
Required Privilege Level	maintenance
List of Sample Output	<p>request system storage cleanup dry-run on page 654</p> <p>request system storage cleanup on page 655</p> <p>request system storage cleanup director-group (QFabric Systems) on page 655</p> <p>request system storage cleanup infrastructure device-name (QFabric Systems) on page 657</p> <p>request system storage cleanup interconnect-device device-name (QFabric Systems) on page 657</p> <p>request system storage cleanup node-group group-name (QFabric Systems) on page 659</p> <p>request system storage cleanup qfabric component device-name (QFabric Systems) on page 659</p> <p>request system storage cleanup qfabric component device-name repository core (QFabric Systems) on page 660</p> <p>request system storage cleanup qfabric component all (QFabric Systems) on page 660</p>
Output Fields	Table 33 on page 654 describes the output fields for the request system storage cleanup command. Output fields are listed in the approximate order in which they appear.

Table 33: request system storage cleanup Output Fields

Field Name	Field Description
List of files to delete:	Shows list of files available for deletion.
Size	Size of the core-dump file.
Date	Last core-dump file modification date and time.
Name	Name of the core-dump file.
Directory to delete:	Shows list of directories available for deletion.
Repository scope:	Repository where core-dump files and log files are stored. The core-dump files are located in the core repository, and the log files are located in the log repository. The default Repository scope is shared since both the core and log repositories are shared by all of the QFabric system devices.
Repository head:	Name of the top-level repository location.
Repository name:	Name of the repository: core or log .
Creating list of debug artifacts to be removed under:	Shows location of files available for deletion.
List of debug artifacts to be removed under:	Shows list of files available for deletion.

Sample Output

```
request system storage cleanup dry-run
user@host> request system storage cleanup dry-run
Currently rotating log files, please wait.
This operation can take up to a minute.
```

List of files to delete:

Size	Date	Name
11.4K	Mar 8 15:00	/var/log/messages.1.gz
7245B	Feb 5 15:00	/var/log/messages.3.gz
11.8K	Feb 22 13:00	/var/log/messages.2.gz
3926B	Mar 16 13:57	/var/log/messages.0.gz
3962B	Feb 22 12:47	/var/log/sampled.1.gz
4146B	Mar 8 12:20	/var/log/sampled.0.gz
4708B	Dec 21 11:39	/var/log/sampled.2.gz
7068B	Jan 16 18:00	/var/log/messages.4.gz
13.7K	Dec 27 22:00	/var/log/messages.5.gz
890B	Feb 22 17:22	/var/tmp/sampled.pkts
65.8M	Oct 26 09:10	/var/sw/pkg/jinstall-7.4R1.7-export-signed.tgz
63.1M	Oct 26 09:13	/var/sw/pkg/jbundle-7.4R1.7.tgz

```
request system user@host> request system storage cleanup
storage cleanup Currently rotating log files, please wait.
                  This operation can take up to a minute.
```

List of files to delete:

	Size	Date	Name
	11.4K	Mar 8 15:00	/var/log/messages.1.gz
	7245B	Feb 5 15:00	/var/log/messages.3.gz
	11.8K	Feb 22 13:00	/var/log/messages.2.gz
	3926B	Mar 16 13:57	/var/log/messages.0.gz
	11.6K	Mar 8 15:00	/var/log/messages.5.gz
	7254B	Feb 5 15:00	/var/log/messages.6.gz
	12.9K	Feb 22 13:00	/var/log/messages.8.gz
	3726B	Mar 16 13:57	/var/log/messages.7.gz
	3962B	Feb 22 12:47	/var/log/sampled.1.gz
	4146B	Mar 8 12:20	/var/log/sampled.0.gz
	4708B	Dec 21 11:39	/var/log/sampled.2.gz
	7068B	Jan 16 18:00	/var/log/messages.4.gz
	13.7K	Dec 27 22:00	/var/log/messages.5.gz
	890B	Feb 22 17:22	/var/tmp/sampled.pkts
	65.8M	Oct 26 09:10	/var/sw/pkg/jinstall-7.4R1.7-export-signed.tgz
	63.1M	Oct 26 09:13	/var/sw/pkg/jbundle-7.4R1.7.tgz

Delete these files ? [yes,no] (yes)

```
request system user@switch> request system storage cleanup director-group
storage cleanup List of files to delete:
director-group
```

(QFabric Systems)

	Size	Date	Name
	4.0K	2011-11-07 05:16:29	/tmp/2064.sfcauth
	4.0K	2011-11-07 05:07:34	/tmp/30804.sfcauth
	4.0K	2011-11-07 04:13:41	/tmp/26792.sfcauth
	4.0K	2011-11-07 04:13:39	/tmp/26432.sfcauth
	0	2011-11-07 07:45:40	/tmp/cluster_cleanup.log
	1.3M	2011-11-07 07:39:11	/tmp/cn_monitor.20111107-052401.log
	4.0K	2011-11-07 07:36:29	/tmp/clustat.28019.log
	4.0K	2011-11-07 07:36:29	/tmp/clustat_x.28019.log
	9.6M	2011-11-07 05:30:24	/tmp/sfc.2.log
	4.0K	2011-11-07 05:28:11	/tmp/mgd-init.1320672491.log
	248K	2011-11-07 05:19:24	/tmp/cn_monitor.20111107-045111.log
	4.0K	2011-11-07 05:17:18	/tmp/clustat.3401.log
	4.0K	2011-11-07 05:17:18	/tmp/clustat_x.3401.log
	8.0K	2011-11-07 04:58:25	/tmp/mgd-init.1320670633.log
	0	2011-11-07 04:54:01	/tmp/mysql_db_install_5.1.37.log
	4.0K	2011-11-07 04:52:08	/tmp/cn_send.log
	0	2011-11-07 04:52:00	/tmp/init_eth0.log
	4.0K	2011-11-07 04:49:35	/tmp/install_interfaces.sh.log
	4.0K	2011-11-07 04:48:15	/tmp/bootstrap.sh.log
	160K	2011-11-07 04:47:43	/tmp/bootstrap_cleanup.log
	38M	2011-11-07 04:42:42	/tmp/cn_monitor.20111104-110308.log
	4.0K	2011-11-07 04:38:47	/tmp/clustat.30913.log
	4.0K	2011-11-07 04:38:47	/tmp/clustat_x.30913.log
	4.0K	2011-11-07 04:38:03	/tmp/dcf_upgrade.sh.remove.log
	4.0K	2011-11-07 04:38:03	/tmp/peer_update.log
	4.0K	2011-11-07 04:38:02	/tmp/dcf_upgrade.log
	4.0K	2011-11-07 04:38:02	/tmp/perl_mark_upgrade.log
	8.0K	2011-11-07 04:13:42	/tmp/install_dcf_rpm.log
	4.0K	2011-11-07 04:13:06	/tmp/00_cleanup.sh.1320667986.log
	0	2011-11-07 04:13:06	/tmp/ccif_patch_4410_4450.sh.1320667986.log
	4.0K	2011-11-07 04:13:06	/tmp/dcf-tools.sh.1320667986.log

```

0      2011-11-07 04:13:06 /tmp/initial.sh.1320667986.log
0      2011-11-07 04:13:06 /tmp/inventory.sh.1320667986.log
4.0K   2011-11-07 04:13:06 /tmp/qf-db.sh.1320667986.log
4.0K   2011-11-07 04:13:06 /tmp/sfc.sh.1320667986.log
8.0K   2011-11-07 04:13:05 /tmp/jinstall-qfabric.log
8.0K   2011-11-04 11:10:24 /tmp/mgd-init.1320430192.log
4.0K   2011-11-04 11:07:03 /tmp/mysql_dcf_db_install.log
8.0K   2011-11-04 10:55:07 /tmp/ccif_patch_4410_4450.sh.1320429307.log
8.0K   2011-11-04 10:55:07 /tmp/initial.sh.1320429307.log
4.0K   2011-11-04 10:55:07 /tmp/inventory.sh.1320429307.log
8.0K   2011-11-04 10:55:07 /tmp/sfc.sh.1320429307.log
4.0K   2011-11-04 10:54:09 /tmp/ks-script-Ax0tz5.log
4.0K   2011-11-07 04:13:06 /tmp//sfc.sh.1320667986.log
8.0K   2011-11-04 10:55:07 /tmp//sfc.sh.1320429307.log

```

Directory to delete:

```
45M    2011-11-08 10:57:43 /tmp/sfc-captures
```

List of files to delete:

	Size	Date	Name
4.0K	2011-11-08 05:47:47	/tmp/5713.sfcauth	
4.0K	2011-11-08 05:14:32	/tmp/14494.sfcauth	
4.0K	2011-11-08 05:11:47	/tmp/9978.sfcauth	
4.0K	2011-11-08 05:09:37	/tmp/6128.sfcauth	
4.0K	2011-11-08 05:04:28	/tmp/29703.sfcauth	
4.0K	2011-11-07 11:59:10	/tmp/7811.sfcauth	
4.0K	2011-11-07 11:36:08	/tmp/32415.sfcauth	
4.0K	2011-11-07 11:30:30	/tmp/22406.sfcauth	
4.0K	2011-11-07 11:24:37	/tmp/12131.sfcauth	
4.0K	2011-11-07 10:48:42	/tmp/12687.sfcauth	
4.0K	2011-11-07 09:27:20	/tmp/31082.sfcauth	
4.0K	2011-11-07 07:33:58	/tmp/14633.sfcauth	
4.0K	2011-11-07 05:08:25	/tmp/15447.sfcauth	
4.0K	2011-11-07 04:12:29	/tmp/26874.sfcauth	
4.0K	2011-11-07 04:12:27	/tmp/26713.sfcauth	
4.0K	2011-11-07 03:49:17	/tmp/17691.sfcauth	
4.0K	2011-11-05 01:32:23	/tmp/5716.sfcauth	
4.0K	2011-11-07 08:00:17	/tmp/sfcsnmpd.log	
4.0K	2011-11-07 07:57:50	/tmp/cluster_cleanup.log	
824K	2011-11-07 07:38:37	/tmp/cn_monitor.20111107-053643.log	
4.0K	2011-11-07 07:36:30	/tmp/clustat.18399.log	
4.0K	2011-11-07 07:36:30	/tmp/clustat_x.18399.log	
4.0K	2011-11-07 07:35:47	/tmp/command_lock.log	
4.0K	2011-11-07 05:39:54	/tmp/mgd-init.1320673194.log	
92K	2011-11-07 05:19:25	/tmp/cn_monitor.20111107-050412.log	
4.0K	2011-11-07 05:17:20	/tmp/clustat.30115.log	
4.0K	2011-11-07 05:17:20	/tmp/clustat_x.30115.log	
8.0K	2011-11-07 05:08:07	/tmp/mgd-init.1320671241.log	
4.0K	2011-11-07 05:04:57	/tmp/cn_send.log	
0	2011-11-07 05:04:52	/tmp/init_eth0.log	
4.0K	2011-11-07 05:02:38	/tmp/install_interfaces.sh.log	
4.0K	2011-11-07 05:01:19	/tmp/bootstrap.sh.log	
160K	2011-11-07 05:00:47	/tmp/bootstrap_cleanup.log	
28M	2011-11-07 04:42:27	/tmp/cn_monitor.20111104-112954.log	
4.0K	2011-11-07 04:38:49	/tmp/clustat.6780.log	
4.0K	2011-11-07 04:38:49	/tmp/clustat_x.6780.log	
4.0K	2011-11-07 04:38:05	/tmp/issue_event.log	
4.0K	2011-11-07 04:38:05	/tmp/peer_upgrade_reboot.log	
12K	2011-11-07 04:38:05	/tmp/primary_update.log	
4.0K	2011-11-07 04:38:04	/tmp/DCF_upgrade.sh.remove.log	

```

4.0K 2011-11-07 04:38:04 /tmp/peer_rexec_upgrade.log
4.0K 2011-11-07 04:13:42 /tmp/peer_install_dcf_rpm.log
4.0K 2011-11-07 04:11:57 /tmp/DCF-tools.sh.1320667917.log
0 2011-11-07 04:11:57 /tmp/initial.sh.1320667917.log
0 2011-11-07 04:11:57 /tmp/inventory.sh.1320667917.log
4.0K 2011-11-07 04:11:57 /tmp/qf-db.sh.1320667917.log
4.0K 2011-11-07 04:11:57 /tmp/sfc.sh.1320667917.log
4.0K 2011-11-07 04:11:56 /tmp/00_cleanup.sh.1320667916.log
0 2011-11-07 04:11:56 /tmp/ccif_patch_4410_4450.sh.1320667916.log
8.0K 2011-11-07 04:11:56 /tmp/jinstall-qfabric.log
4.0K 2011-11-07 04:11:33 /tmp/DCF_upgrade.log
8.0K 2011-11-04 11:53:12 /tmp/mgd-init.1320432782.log
8.0K 2011-11-04 11:06:17 /tmp/ccif_patch_4410_4450.sh.1320429977.log
8.0K 2011-11-04 11:06:17 /tmp/initial.sh.1320429977.log
4.0K 2011-11-04 11:06:17 /tmp/inventory.sh.1320429977.log
8.0K 2011-11-04 11:06:17 /tmp/sfc.sh.1320429977.log
4.0K 2011-11-04 11:05:19 /tmp/ks-script-_tnWeb.log
4.0K 2011-11-07 04:11:57 /tmp//sfc.sh.1320667917.log
8.0K 2011-11-04 11:06:17 /tmp//sfc.sh.1320429977.log

```

Directory to delete:

```
49M 2011-11-08 10:45:20 /tmp/sfc-captures
```

**request system
storage cleanup
infrastructure
device-name (QFabric
Systems)**

```
user@switch> request system storage cleanup infrastructure FC-0
re0:
```

List of files to delete:

Size	Date	Name
139B	Nov 8 19:03	/var/log/default-log-messages.0.gz
5602B	Nov 8 19:03	/var/log/messages.0.gz
28.4K	Nov 8 10:15	/var/log/messages.1.gz
35.2K	Nov 7 13:45	/var/log/messages.2.gz
207B	Nov 7 16:02	/var/log/wtmp.0.gz
27B	Nov 7 12:14	/var/log/wtmp.1.gz
184.4M	Nov 7 12:16	/var/sw/pkg/jinstall-dc-re-11.3I20111104_1216_dc-builder-domestic-signed.tgz
124.0K	Nov 7 15:59	/var/tmp/gres-tp/env.dat
0B	Nov 7 12:57	/var/tmp/gres-tp/lock
155B	Nov 7 16:02	/var/tmp/krt_gencfg_filter.txt
0B	Nov 7 12:35	/var/tmp/last_ccif_update
1217B	Nov 7 12:15	/var/tmp/loader.conf.preinstall
184.4M	Nov 6 07:11	/var/tmp/mchassis-install.tgz
10.8M	Nov 7 12:16	/var/tmp/preinstall/bootstrap-install-11.3I20111104_1216_dc-builder.tar
57.4K	Nov 7 12:16	/var/tmp/preinstall/configs-11.3I20111104_1216_dc-builder.tgz
259B	Nov 7 12:16	/var/tmp/preinstall/install.conf
734.3K	Nov 4 13:46	/var/tmp/preinstall/jboot-dc-re-11.3I20111104_1216_dc-builder.tgz
177.8M	Nov 7 12:16	/var/tmp/preinstall/jbundle-dc-re-11.3I20111104_1216_dc-builder-domestic.tgz
124B	Nov 7 12:15	/var/tmp/preinstall/metatags
1217B	Nov 7 12:16	/var/tmp/preinstall_boot_loader.conf
0B	Nov 7 16:02	/var/tmp/rtbdb/if-rtbdb

**request system
storage cleanup
interconnect-device**

```
user@switch> request system storage cleanup interconnect IC-WS001
re1:
```

device-name (QFabric Systems) List of files to delete:

	Size	Date	Name
11B	Nov 7	15:55	/var/jail/tmp/alarmd.ts
128B	Nov 8	19:06	/var/log/default-log-messages.0.gz
9965B	Nov 8	19:06	/var/log/messages.0.gz
15.8K	Nov 8	12:30	/var/log/messages.1.gz
15.8K	Nov 8	11:00	/var/log/messages.2.gz
15.7K	Nov 8	07:30	/var/log/messages.3.gz
15.8K	Nov 8	04:00	/var/log/messages.4.gz
15.7K	Nov 8	00:30	/var/log/messages.5.gz
18.7K	Nov 7	21:00	/var/log/messages.6.gz
17.6K	Nov 7	19:00	/var/log/messages.7.gz
58.3K	Nov 7	16:00	/var/log/messages.8.gz
20.3K	Nov 7	15:15	/var/log/messages.9.gz
90B	Nov 7	15:41	/var/log/wtmp.0.gz
57B	Nov 7	12:41	/var/log/wtmp.1.gz
124.0K	Nov 7	15:42	/var/tmp/gres-tp/env.dat
0B	Nov 7	12:40	/var/tmp/gres-tp/lock
0B	Nov 7	12:41	/var/tmp/if-rtssdb/env.lock
12.0K	Nov 7	15:41	/var/tmp/if-rtssdb/env.mem
132.0K	Nov 7	15:55	/var/tmp/if-rtssdb/shm_usr1.mem
2688.0K	Nov 7	15:41	/var/tmp/if-rtssdb/shm_usr2.mem
2048.0K	Nov 7	15:41	/var/tmp/if-rtssdb/trace.mem
730B	Nov 7	19:57	/var/tmp/juniper.conf+.gz
155B	Nov 7	15:53	/var/tmp/krt_gencfg_filter.txt
0B	Nov 7	15:41	/var/tmp/rtssdb/if-rtssdb

re0:

List of files to delete:

	Size	Date	Name
11B	Nov 7	15:55	/var/jail/tmp/alarmd.ts
121B	Nov 8	19:06	/var/log/default-log-messages.0.gz
16.7K	Nov 8	19:06	/var/log/messages.0.gz
22.2K	Nov 8	17:45	/var/log/messages.1.gz
18.4K	Nov 8	17:00	/var/log/messages.2.gz
21.6K	Nov 8	16:00	/var/log/messages.3.gz
17.9K	Nov 8	14:30	/var/log/messages.4.gz
19.4K	Nov 8	13:30	/var/log/messages.5.gz
18.2K	Nov 8	12:30	/var/log/messages.6.gz
20.4K	Nov 8	11:30	/var/log/messages.7.gz
21.4K	Nov 8	10:15	/var/log/messages.8.gz
21.0K	Nov 8	09:00	/var/log/messages.9.gz
19.9K	Nov 8	08:13	/var/log/snmp-traps.0.gz
203B	Nov 8	15:36	/var/log/wtmp.0.gz
57B	Nov 7	12:41	/var/log/wtmp.1.gz
124.0K	Nov 7	15:42	/var/tmp/gres-tp/env.dat
0B	Nov 7	12:40	/var/tmp/gres-tp/lock
0B	Nov 7	12:41	/var/tmp/if-rtssdb/env.lock
12.0K	Nov 7	15:41	/var/tmp/if-rtssdb/env.mem
132.0K	Nov 7	15:55	/var/tmp/if-rtssdb/shm_usr1.mem
2688.0K	Nov 7	15:41	/var/tmp/if-rtssdb/shm_usr2.mem
2048.0K	Nov 7	15:41	/var/tmp/if-rtssdb/trace.mem
727B	Nov 7	15:54	/var/tmp/juniper.conf+.gz
155B	Nov 7	15:55	/var/tmp/krt_gencfg_filter.txt
0B	Nov 7	15:41	/var/tmp/rtssdb/if-rtssdb

```

request system user@switch> request system storage cleanup node-group NW-NG-0
storage cleanup BBAK0372:
node-group -----
group-name (QFabric Systems) List of files to delete:

      Size Date      Name
126B Nov  8 19:07 /var/log/default-log-messages.0.gz
179B Nov  7 13:32 /var/log/install.0.gz
22.9K Nov  8 19:07 /var/log/messages.0.gz
26.5K Nov  8 17:30 /var/log/messages.1.gz
20.5K Nov  8 13:15 /var/log/messages.2.gz
33.2K Nov  7 17:45 /var/log/messages.3.gz
35.5K Nov  7 15:45 /var/log/messages.4.gz
339B Nov  8 17:10 /var/log/wtmp.0.gz
58B Nov  7 12:40 /var/log/wtmp.1.gz
124.0K Nov  8 17:08 /var/tmp/gres-tp/env.dat
0B Nov  7 12:39 /var/tmp/gres-tp/lock
0B Nov  7 12:59 /var/tmp/if-rtbdb/env.lock
12.0K Nov  8 17:09 /var/tmp/if-rtbdb/env.mem
2688.0K Nov  8 17:09 /var/tmp/if-rtbdb/shm_usr1.mem
132.0K Nov  8 17:09 /var/tmp/if-rtbdb/shm_usr2.mem
2048.0K Nov  8 17:09 /var/tmp/if-rtbdb/trace.mem
1082B Nov  8 17:09 /var/tmp/juniper.conf+.gz
155B Nov  7 17:39 /var/tmp/krt_gencfg_filter.txt
0B Nov  8 17:09 /var/tmp/rtbdb/if-rtbdb

EE3093:
-----

List of files to delete:

      Size Date      Name
11B Nov  8 17:33 /var/jail/tmp/alarmd.ts
119B Nov  8 19:08 /var/log/default-log-messages.0.gz
180B Nov  7 17:41 /var/log/install.0.gz
178B Nov  7 13:32 /var/log/install.1.gz
2739B Nov  8 19:08 /var/log/messages.0.gz
29.8K Nov  8 18:45 /var/log/messages.1.gz
31.8K Nov  8 17:15 /var/log/messages.2.gz
20.6K Nov  8 16:00 /var/log/messages.3.gz
15.4K Nov  8 10:15 /var/log/messages.4.gz
15.4K Nov  8 02:15 /var/log/messages.5.gz
25.5K Nov  7 20:45 /var/log/messages.6.gz
48.0K Nov  7 17:45 /var/log/messages.7.gz
32.8K Nov  7 13:45 /var/log/messages.8.gz
684B Nov  8 17:02 /var/log/wtmp.0.gz
58B Nov  7 12:40 /var/log/wtmp.1.gz
124.0K Nov  7 17:34 /var/tmp/gres-tp/env.dat
0B Nov  7 12:40 /var/tmp/gres-tp/lock
0B Nov  7 12:59 /var/tmp/if-rtbdb/env.lock
12.0K Nov  7 17:39 /var/tmp/if-rtbdb/env.mem
2688.0K Nov  7 17:39 /var/tmp/if-rtbdb/shm_usr1.mem
132.0K Nov  7 17:40 /var/tmp/if-rtbdb/shm_usr2.mem
2048.0K Nov  7 17:39 /var/tmp/if-rtbdb/trace.mem
155B Nov  7 17:40 /var/tmp/krt_gencfg_filter.txt
0B Nov  7 17:39 /var/tmp/rtbdb/if-rtbdb

request system user@switch> request system storage cleanup qfabric component A0001/YA0197
storage cleanup Repository type: regular
Repository head: /pbstorage

```

```

qfabric component      Creating list of debug artifacts to be removed under:
device-name (QFabric  /pbstorage/rdumps/A0001/YA0197
Systems)              Removing debug artifacts ... (press control C to abort)
                      Removing /pbstorage/rdumps/A0001/YA0197/cosd.core.0.0.05162011123308.gz ... done
                      Removing /pbstorage/rdumps/A0001/YA0197/cosd.core.1.0.05162011123614.gz ... done
                      Removing /pbstorage/rdumps/A0001/YA0197/cosd.core.2.0.05162011123920.gz ... done
                      Removing /pbstorage/rdumps/A0001/YA0197/livekcore.05132011163930.gz ... done
                      Removing /pbstorage/rdumps/A0001/YA0197/tnetd.core.0.1057.05162011124500.gz ...
                      done
                      Removing /pbstorage/rdumps/A0001/YA0197/vmcore.05132011120528.gz ... done
                      Removing /pbstorage/rdumps/A0001/YA0197/vmcore.kz ... done
                      Creating list of debug artifacts to be removed under: /pbstorage/rlogs/A0001/YA0197
                      Removing debug artifacts ... (press control C to abort)
                      Removing /pbstorage/rlogs/A0001/YA0197/kdumpinfo.05132011120528 ... done
                      Removing /pbstorage/rlogs/A0001/YA0197/kernel.tarball.0.1039.05122011234415.tgz
                      ... done
                      Removing /pbstorage/rlogs/A0001/YA0197/kernel.tarball.1.1039.05132011175544.tgz
                      ... done
                      Removing /pbstorage/rlogs/A0001/YA0197/tnetd.tarball.0.1057.05162011175453.tgz
                      ... done

request system        user@switch> request system storage cleanup qfabric component EE3093 repository core
storage cleanup       Repository scope: shared
qfabric component     Repository head: /pbdata/export
device-name           Repository name: core
repository core       Creating list of debug artifacts to be removed under: /pbdata/export/rdumps/EE3093
(QFabric Systems)    NOTE: core repository under /pbdata/export/rdumps/EE3093 empty

request system        user@switch> request system storage cleanup qfabric component all
storage cleanup       Repository scope: shared
qfabric component all Repository head: /pbdata/export
(QFabric Systems)    Creating list of debug artifacts to be removed under: /pbdata/export/rdumps
NOTE: core repository under /pbdata/export/rdumps/all empty
Creating list of debug artifacts to be removed under: /pbdata/export/rlogs
List of debug artifacts to clean up ... (press control C to abort)
/pbdata/export/rlogs/73747cd8-0710-11e1-b6a4-00e081c5297e/install-11072011125819.log
/pbdata/export/rlogs/77116f18-0710-11e1-a2a0-00e081c5297e/install-11072011125819.log
/pbdata/export/rlogs/BBAK0372/install-11072011121538.log
/pbdata/export/rlogs/BBAK0394/install-11072011121532.log
/pbdata/export/rlogs/EE3093/install-11072011121536.log
/pbdata/export/rlogs/WS001/YN5999/install-11072011121644.log
/pbdata/export/rlogs/WS001/YW3803/install-11072011122429.log
/pbdata/export/rlogs/cd78871a-0710-11e1-878e-00e081c5297e/install-11072011125932.log
/pbdata/export/rlogs/d0afdale-0710-11e1-a1d0-00e081c5297e/install-11072011125930.log
/pbdata/export/rlogs/d0afdale-0710-11e1-a1d0-00e081c5297e/install-11072011133211.log
/pbdata/export/rlogs/d0afdale-0710-11e1-a1d0-00e081c5297e/install-11072011155302.log
/pbdata/export/rlogs/d31ab7a6-0710-11e1-ad1b-00e081c5297e/install-11072011125931.log
/pbdata/export/rlogs/d4d0f254-0710-11e1-90c3-00e081c5297e/install-11072011125932.log

```

restart

Syntax	<pre>restart <adaptive-services ancpd-service application-identification audit-process auto-configuration captive-portal-content-delivery ce-l2tp-service chassis-control class-of-service clksyncd-service database-replication datapath-trace-service dhcp-service diameter-service disk-monitoring dynamic-flow-capture ecc-error-logging ethernet-connectivity-fault-management ethernet-link-fault-management event-processing firewall general-authentication-service gracefully iccp-service idp-policy immediately interface-control ipsec-key-management kernel-replication l2-learning l2cpd-service l2tp-service l2tp-universal-edge lacp license-service link-management local-policy-decision-function mac-validation mib-process mobile-ip mountd-service mpls-traceroute mspd multicast-snooping named-service nfsd-service packet-triggered-subscribers peer-selection-service pgcp-service pgm pic-services-logging pki-service ppp ppp-service pppoe protected-system-domain-service redundancy-interface-process remote-operations root-system-domain-service routing <logical-system <i>logical-system-name</i>> sampling sbc-configuration-process sdk-service service-deployment services services pgcp gateway <i>gateway-name</i> snmp soft static-subscribers statistics-service subscriber-management subscriber-management-helper tunnel-oamd usb-control vrrp web-management> <gracefully immediately soft></pre>
Syntax (ACX Series Routers)	<pre>restart <adaptive-services audit-process auto-configuration autoinstallation chassis-control class-of-service clksyncd-service database-replication dhcp-service diameter-service disk-monitoring dynamic-flow-capture ethernet-connectivity-fault-management ethernet-link-fault-management event-processing firewall general-authentication-service gracefully immediately interface-control ipsec-key-management l2-learning lacp link-management mib-process mobile-ip mountd-service mpls-traceroute mspd named-service nfsd-service pgm pki-service ppp pppoe redundancy-interface-process remote-operations routing sampling sdk-service secure-neighbor-discovery service-deployment services snmp soft statistics-service subscriber-management subscriber-management-helper tunnel-oamd vrrp></pre>
Syntax (EX Series Switches)	<pre>restart <autoinstallation chassis-control class-of-service database-replication dhcp dhcp-service diameter-service dot1x-protocol ethernet-link-fault-management ethernet-switching event-processing firewall general-authentication-service interface-control kernel-replication l2-learning lacp license-service link-management lldpd-service mib-process mountd-service multicast-snooping pgm redundancy-interface-process remote-operations routing secure-neighbor-discovery service-deployment sflow-service snmp vrrp web-management></pre>
Syntax (Routing Matrix)	<pre>restart <adaptive-services audit-process chassis-control class-of-service disk-monitoring dynamic-flow-capture ecc-error-logging event-processing firewall interface-control ipsec-key-management kernel-replication l2-learning l2tp-service lacp link-management mib-process pgm pic-services-logging ppp pppoe redundancy-interface-process remote-operations routing <logical-system <i>logical-system-name</i>> sampling service-deployment snmp> <all all-lcc lcc <i>number</i>></pre>

	<gracefully immediately soft>
Syntax (J Series Routing Platform)	<p>restart</p> <p><adaptive-services audit-process chassis-control class-of-service dhcp dialer-services dlsw event-processing firewall interface-control ipsec-key-management isdn-signaling l2-learning l2tp-service mib-process network-access-service pgm ppp pppoe remote-operations routing <logical-system <i>logical-system-name</i>> sampling service-deployment snmp usb-control web-management></p> <p><gracefully immediately soft></p>
Syntax (TX Matrix Routers)	<p>restart</p> <p><adaptive-services audit-process chassis-control class-of-service dhcp-service diameter-service disk-monitoring dynamic-flow-capture ecc-error-logging event-processing firewall interface-control ipsec-key-management kernel-replication l2-learning l2tp-service lacp link-management mib-process pgm pic-services-logging ppp pppoe redundancy-interface-process remote-operations routing <logical-system <i>logical-system-name</i>> sampling service-deployment snmp statistics-service></p> <p><all-chassis all-lcc lcc <i>number</i> scc></p> <p><gracefully immediately soft></p>
Syntax (TX Matrix Plus Routers)	<p>restart</p> <p><adaptive-services audit-process chassis-control class-of-service dhcp-service diameter-service disk-monitoring dynamic-flow-capture ecc-error-logging event-processing firewall interface-control ipsec-key-management kernel-replication l2-learning l2tp-service lacp link-management mib-process pgm pic-services-logging ppp pppoe redundancy-interface-process remote-operations routing <logical-system <i>logical-system-name</i>> sampling service-deployment snmp statistics-service></p> <p><all-chassis all-lcc all-sfc lcc <i>number</i> sfc <i>number</i>></p> <p><gracefully immediately soft></p>
Syntax (MX Series Routers)	<p>restart</p> <p><adaptive-services ancpd-service application-identification audit-process auto-configuration captive-portal-content-delivery ce-l2tp-service chassis-control class-of-service clksyncd-service database-replication datapath-trace-service dhcp-service diameter-service disk-monitoring dynamic-flow-capture ecc-error-logging ethernet-connectivity-fault-management ethernet-link-fault-management event-processing firewall general-authentication-service gracefully iccp-service idp-policy immediately interface-control ipsec-key-management kernel-replication l2-learning l2cpd-service l2tp-service l2tp-universal-edge lacp license-service link-management local-policy-decision-function mac-validation mib-process mobile-ip mounstd-service mpls-traceroute mspd multicast-snooping named-service nfsd-service packet-triggered-subscribers peer-selection-service pgcp-service pgm pic-services-logging pki-service ppp ppp-service pppoe protected-system-domain-service redundancy-interface-process remote-operations root-system-domain-service routing routing <logical-system <i>logical-system-name</i>> sampling sbc-configuration-process sdk-service service-deployment services services pgcp gateway <i>gateway-name</i> snmp soft static-subscribers statistics-service subscriber-management subscriber-management-helper tunnel-oamd usb-control vrrp web-management></p> <p><all-members></p> <p><gracefully immediately soft></p> <p><local></p> <p><member <i>member-id</i>></p>

Syntax (J Series Routers)	<pre>restart <adaptive-services audit-process chassis-control class-of-service dhcp dhcp-service dialer-services diameter-service dlsr event-processing firewall interface-control ipsec-key-management isdn-signaling l2ald l2-learning l2tp-service mib-process network-access-service pgm ppp pppoe remote-operations routing <logical-system logical-system-name> sampling service-deployment snmp usb-control web-management> <gracefully immediately soft></pre>
Syntax (QFX Series)	<pre>restart <adaptive-services audit-process chassis-control class-of-service dialer-services diameter-service dlsr ethernet-connectivity event-processing fibre-channel firewall general-authentication-service igmp-host-services interface-control ipsec-key-management isdn-signaling l2ald l2-learning l2tp-service mib-process named-service network-access-service nstrace-process pgm ppp pppoe redundancy-interface-process remote-operations logical-system-name> routing sampling secure-neighbor-discovery service-deployment snmp usb-control web-management> <gracefully immediately soft></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for the QFX Series. Command introduced in Junos OS Release 12.2 for ACX Series routers. Options added:</p> <ul style="list-style-type: none"> • dynamic-flow-capture in Junos OS Release 7.4. • dlsr in Junos OS Release 7.5. • event-processing in Junos OS Release 7.5. • ppp in Junos OS Release 7.5. • l2ald in Junos OS Release 8.0. • link-management in Release 8.0. • pgcp-service in Junos OS Release 8.4. • sbc-configuration-process in Junos OS Release 9.5. • services pgcp gateway in Junos OS Release 9.6. • sfc and all-sfc for the TX Matrix Router in Junos OS Release 9.6.
Description	Restart a Junos OS process.
	
<p>CAUTION: Never restart a software process unless instructed to do so by a customer support engineer. A restart might cause the router or switch to drop calls and interrupt transmission, resulting in possible loss of data.</p>	
Options	none—Same as gracefully .

- adaptive-services**—(Optional) Restart the configuration management process that manages the configuration for stateful firewall, Network Address Translation (NAT), intrusion detection services (IDS), and IP Security (IPsec) services on the Adaptive Services PIC.
- all-chassis**—(TX Matrix and TX Matrix Plus routers only) (Optional) Restart the software process on all chassis.
- all-lcc**—(TX Matrix and TX Matrix Plus routers only) (Optional) For a TX Matrix router, restart the software process on all T640 routers connected to the TX Matrix router. For a TX Matrix Plus router, restart the software process on all T1600 routers connected to the TX Matrix Plus router.
- all-members**—(MX Series routers only) (Optional) Restart the software process for all members of the Virtual Chassis configuration.
- all-sfc**—(TX Matrix Plus routers only) (Optional) For a TX Matrix Plus router, restart the software processes for the TX Matrix Plus router (or switch-fabric chassis).
- ancpd-service**—(Optional) Restart the Access Node Control Protocol (ANCP) process, which works with a special Internet Group Management Protocol (IGMP) session to collect outgoing interface mapping events in a scalable manner.
- application-identification**—(Optional) Restart the process that identifies an application using intrusion detection and prevention (IDP) to allow or deny traffic based on applications running on standard or nonstandard ports.
- audit-process**—(Optional) Restart the RADIUS accounting process that gathers statistical data that can be used for general network monitoring, analyzing, and tracking usage patterns, for billing a user based on the amount of time or type of services accessed.
- auto-configuration**—(Optional) Restart the Interface Auto-Configuration process.
- autoinstallation**—(EX Series switches only) (Optional) Restart the autoinstallation process.
- captive-portal-content-delivery**—(Optional) Restart the HTTP redirect service by specifying the location to which a subscriber's initial Web browser session is redirected, enabling initial provisioning and service selection for the subscriber.
- ce-l2tp-service**—(M10, M10i, M7i, and MX Series routers only) (Optional) Restart the Universal Edge Layer 2 Tunneling Protocol (L2TP) process, which establishes L2TP tunnels and Point-to-Point Protocol (PPP) sessions through L2TP tunnels.
- chassis-control**—(Optional) Restart the chassis management process.
- class-of-service**—(Optional) Restart the class-of-service (CoS) process, which controls the router's or switch's CoS configuration.
- clksyncd-service**—(Optional) Restart the external clock synchronization process, which uses synchronous Ethernet (SyncE).

database-replication—(EX Series switches and MX Series routers only) (Optional) Restart the database replication process.

datapath-trace-service—(Optional) Restart the packet path tracing process.

dhcp—(J Series routers and EX Series switches only) (Optional) Restart the software process for a Dynamic Host Configuration Protocol (DHCP) server. A DHCP server allocates network IP addresses and delivers configuration settings to client hosts without user intervention.

dhcp-service—(Optional) Restart the Dynamic Host Configuration Protocol process.

dialer-services—(J Series routers and EX Series switches only) (Optional) Restart the ISDN dial-out process.

diameter-service—(Optional) Restart the diameter process.

disk-monitoring—(Optional) Restart disk monitoring, which checks the health of the hard disk drive on the Routing Engine.

dls—(J Series routers and QFX Series only) (Optional) Restart the data link switching (DLSw) service.

dot1x-protocol—(EX Series switches only) (Optional) Restart the port-based network access control process.

dynamic-flow-capture—(Optional) Restart the dynamic flow capture (DFC) process, which controls DFC configurations on Monitoring Services III PICs.

ecc-error-logging—(Optional) Restart the error checking and correction (ECC) process, which logs ECC parity errors in memory on the Routing Engine.

ethernet-connectivity-fault-management—(Optional) Restart the process that provides IEEE 802.1ag Operation, Administration, and Management (OAM) connectivity fault management (CFM) database information for CFM maintenance association end points (MEPs) in a CFM session.

ethernet-link-fault-management—(EX Series switches and MX Series routers only) (Optional) Restart the process that provides the OAM link fault management (LFM) information for Ethernet interfaces.

ethernet-switching—(EX Series switches only) (Optional) Restart the Ethernet switching process.

event-processing—(Optional) Restart the event process (eventd).

fibre-channel—(QFX Series only) (Optional) Restart the Fibre Channel process.

firewall—(Optional) Restart the firewall management process, which manages the firewall configuration and enables accepting or rejecting packets that are transiting an interface on a router or switch.

general-authentication-service—(EX Series switches and MX Series routers only) (Optional) Restart the general authentication process.

gracefully—(Optional) Restart the software process.

iccp-service—(Optional) Restart the Inter-Chassis Communication Protocol (ICCP) process.

idp-policy—(Optional) Restart the intrusion detection and prevention (IDP) protocol process.

immediately—(Optional) Immediately restart the software process.

interface-control—(Optional) Restart the interface process, which controls the router's or switch's physical interface devices and logical interfaces.

ipsec-key-management—(Optional) Restart the IPsec key management process.

isdn-signaling—(J Series routers and QFX Series only) (Optional) Restart the ISDN signaling process, which initiates ISDN connections.

kernel-replication—(Optional) Restart the kernel replication process, which replicates the state of the backup Routing Engine when graceful Routing Engine switchover (GRES) is configured.

l2-learning—(Optional) Restart the Layer 2 address flooding and learning process.

l2cpd-service—(Optional) Restart the Layer 2 Control Protocol process, which enables features such as Layer 2 protocol tunneling and nonstop bridging.

l2tp-service—(M10, M10i, M7i, and MX Series routers only) (Optional) Restart the Layer 2 Tunneling Protocol (L2TP) process, which sets up client services for establishing Point-to-Point Protocol (PPP) tunnels across a network and negotiating Multilink PPP if it is implemented.

l2tp-universal-edge—(MX Series routers only) (Optional) Restart the L2TP process, which establishes L2TP tunnels and PPP sessions through L2TP tunnels.

lACP—(Optional) Restart the Link Aggregation Control Protocol (LACP) process. LACP provides a standardized means for exchanging information between partner systems on a link to allow their link aggregation control instances to reach agreement on the identity of the LAG to which the link belongs, and then to move the link to that LAG, and to enable the transmission and reception processes for the link to function in an orderly manner.

lcc number—(TX Matrix and TX Matrix Plus routers only) (Optional) For a TX Matrix router, restart the software process for a specific T640 router that is connected to the TX Matrix router. For a TX Matrix Plus router, restart the software process for a specific T1600 router that is connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

license-service—(EX Series switches only) (Optional) Restart the feature license management process.

link-management— (TX Matrix and TX Matrix Plus routers and EX Series switches only) (Optional) Restart the Link Management Protocol (LMP) process, which establishes and maintains LMP control channels.

lldpd-service— (EX Series switches only) (Optional) Restart the Link Layer Discovery Protocol (LLDP) process.

local— (MX Series routers only) (Optional) Restart the software process for the local Virtual Chassis member.

local-policy-decision-function— (Optional) Restart the process for the Local Policy Decision Function, which regulates collection of statistics related to applications and application groups and tracking of information about dynamic subscribers and static interfaces.

mac-validation— (Optional) Restart the Media Access Control (MAC) validation process, which configures MAC address validation for subscriber interfaces created on demux interfaces in dynamic profiles on MX Series routers.

member *member-id*— (MX Series routers only) (Optional) Restart the software process for a specific member of the Virtual Chassis configuration. Replace *member-id* with a value of 0 or 1.

mib-process— (Optional) Restart the Management Information Base (MIB) version II process, which provides the router's MIB II agent.

mobile-ip— (Optional) Restart the Mobile IP process, which configures Junos OS Mobile IP features.

mountd-service— (EX Series switches and MX Series routers only) (Optional) Restart the service for NFS mount requests.

mpls-traceroute— (Optional) Restart the MPLS Periodic Traceroute process.

mspd— (Optional) Restart the Multiservice process.

multicast-snooping— (EX Series switches and MX Series routers only) (Optional) Restart the multicast snooping process, which makes Layer 2 devices, such as VLAN switches, aware of Layer 3 information, such as the media access control (MAC) addresses of members of a multicast group.

named-service— (Optional) Restart the DNS Server process, which is used by a router or a switch to resolve hostnames into addresses.

network-access-service— (J Series routers and QFX Series only) (Optional) Restart the network access process, which provides the router's Challenge Handshake Authentication Protocol (CHAP) authentication service.

nfds-service— (Optional) Restart the Remote NFS Server process, which provides remote file access for applications that need NFS-based transport.

packet-triggered-subscribers—(Optional) Restart the packet-triggered subscribers and policy control (PTSP) process, which allows the application of policies to dynamic subscribers that are controlled by a subscriber termination device.

peer-selection-service—(Optional) Restart the Peer Selection Service process.

pgcp-service—(Optional) Restart the pgcpd service process running on the Routing Engine. This option does not restart pgcpd processes running on mobile station PICs. To restart pgcpd processes running on mobile station PICs, use the **services pgcp gateway** option.

pgm—(Optional) Restart the process that implements the Pragmatic General Multicast (PGM) protocol for assisting in the reliable delivery of multicast packets.

pic-services-logging—(Optional) Restart the logging process for some PICs. With this process, also known as fsad (the file system access daemon), PICs send special logging information to the Routing Engine for archiving on the hard disk.

pki-service—(Optional) Restart the PKI Service process.

ppp—(Optional) Restart the Point-to-Point Protocol (PPP) process, which is the encapsulation protocol process for transporting IP traffic across point-to-point links.

ppp-service—(Optional) Restart the Universal Edge PPP process, which is the encapsulation protocol process for transporting IP traffic across Universal Edge routers.

pppoe—(Optional) Restart the Point-to-Point Protocol over Ethernet (PPPoE) process, which combines PPP that typically runs over broadband connections with the Ethernet link-layer protocol that allows users to connect to a network of hosts over a bridge or access concentrator.

protected-system-domain-service—(Optional) Restart the Protected System Domain (PSD) process.

redundancy-interface-process—(Optional) Restart the ASP redundancy process.

remote-operations—(Optional) Restart the remote operations process, which provides the ping and traceroute MIBs.

root-system-domain-service—(Optional) Restart the Root System Domain (RSD) service.

routing—(ACX Series routers, QFX Series, EX Series switches, and MX Series routers only) (Optional) Restart the routing protocol process.

routing <logical-system *logical-system-name*>—(Optional) Restart the routing protocol process, which controls the routing protocols that run on the router or switch and maintains the routing tables. Optionally, restart the routing protocol process for the specified logical system only.

sampling—(Optional) Restart the sampling process, which performs packet sampling based on particular input interfaces and various fields in the packet header.

sbc-configuration-process—(Optional) Restart the session border controller (SBC) process of the border signaling gateway (BSG).

scc—(TX Matrix routers only) (Optional) Restart the software process on the TX Matrix router (or switch-card chassis).

sdk-service—(Optional) Restart the SDK Service process, which runs on the Routing Engine and is responsible for communications between the SDK application and Junos OS. Although the SDK Service process is present on the router, it is turned off by default.

secure-neighbor-discovery—(QFX Series, EX Series switches, and MX Series routers only) (Optional) Restart the secure Neighbor Discovery Protocol (NDP) process, which provides support for protecting NDP messages.

sfc number—(TX Matrix Plus routers only) (Optional) Restart the software process on the TX Matrix Plus router (or switch-fabric chassis). Replace **number** with **0**.

service-deployment—(Optional) Restart the service deployment process, which enables Junos OS to work with the Session and Resource Control (SRC) software.

services—(Optional) Restart a service.

services pgcp gateway gateway-name—(Optional) Restart the pgcpd process for a specific border gateway function (BGF) running on an MS-PIC. This option does not restart the pgcpd process running on the Routing Engine. To restart the pgcpd process on the Routing Engine, use the **pgcp-service** option.

sflow-service—(EX Series switches only) (Optional) Restart the flow sampling (sFlow technology) process.

snmp—(Optional) Restart the SNMP process, which enables the monitoring of network devices from a central location and provides the router's or switch's SNMP master agent.

soft—(Optional) Reread and reactivate the configuration without completely restarting the software processes. For example, BGP peers stay up and the routing table stays constant. Omitting this option results in a graceful restart of the software process.

static-subscribers—(Optional) Restart the static subscribers process, which associates subscribers with statically configured interfaces and provides dynamic service activation and activation for these subscribers.

statistics-service—(Optional) Restart the process that manages the Packet Forwarding Engine statistics.

subscriber-management—(Optional) Restart the Subscriber Management process.

subscriber-management-helper—(Optional) Restart the Subscriber Management Helper process.

tunnel-oamd—(Optional) Restart the Tunnel OAM process, which enables the Operations, Administration, and Maintenance of Layer 2 tunneled networks. Layer 2 protocol

tunneling (L2PT) allows service providers to send Layer 2 PDUs across the provider's cloud and deliver them to Juniper Networks EX Series Ethernet Switches that are not part of the local broadcast domain.

usb-control—(J Series routers and MX Series routers only) (Optional) Restart the USB control process.

vrrp—(ACX Series routers, EX Series switches, and MX Series routers only) (Optional) Restart the Virtual Router Redundancy Protocol (VRRP) process, which enables hosts on a LAN to make use of redundant routing platforms on that LAN without requiring more than the static configuration of a single default route on the hosts.

web-management—(J Series routers, QFX Series, EX Series switches, and MX Series routers only) (Optional) Restart the Web management process.

Required Privilege Level

reset

Related Documentation

- Overview of Junos OS CLI Operational Mode Commands

List of Sample Output [restart interfaces on page 670](#)

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

```
restart interfaces  user@host> restart interfaces
                   interfaces process terminated
                   interfaces process restarted
```

show system commit

Syntax	show system commit
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	Display the system commit history and any pending commit operation.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear system commit
List of Sample Output	show system commit on page 672 show system commit (At a Particular Time) on page 672 show system commit (At the Next Reboot) on page 672 show system commit (Rollback Pending) on page 672 show system commit (QFX Series) on page 672
Output Fields	Table 34 on page 671 describes the output fields for the show system commit command. Output fields are listed in the approximate order in which they appear.

Table 34: show system commit Output Fields

Field Name	Field Description
Commit history	Displays the last 50 commit operations listed, most recent to first. The identifier rescue designates a configuration created for recovery using the request system configuration rescue save command.
Timestamp	Date and time of the commit operation.
Username	User who executed the commit operation.
Commit method	Method used to execute the commit operation: <ul style="list-style-type: none"> cli—CLI interactive user performed the commit operation. Junos XML protocol—Junos XML protocol client performed the commit operation. synchronize—The commit synchronize command was performed on the other Routing Engine. snmp—An SNMP set request caused the commit operation. button—A button on the router or switch was pressed to commit a rescue configuration for recovery. autoinstall—A configuration obtained through autoinstallation was committed. other—When there is no login name associated with the session, the values for user and client default to root and other. For example, during a reboot after package installation, mgd commits the configuration as a system commit, and there is no login associated with the commit.

Sample Output

```
show system commit user@host> show system commit
0 2003-07-28 19:14:04 PDT by root via other
1 2003-07-25 22:01:36 PDT by regress via cli
2 2003-07-25 22:01:32 PDT by regress via cli
3 2003-07-25 21:30:13 PDT by root via button
4 2003-07-25 13:46:48 PDT by regress via cli
5 2003-07-25 05:33:21 PDT by root via autoinstall
...
rescue 2002-05-10 15:32:03 PDT by root via other

show system commit user@host> show system commit
(At a Particular Time) commit requested by root via cli at Tue May 7 15:59:00 2002

show system commit user@host> show system commit
(At the Next Reboot) commit requested by root via cli at reboot

show system commit user@host> show system commit
(Rollback Pending) 0 2005-01-05 15:00:37 PST by root via cli commit confirmed, rollback in 3mins

show system commit user@switch> show system commit
(QFX Series) 0 2011-11-25 19:17:49 PST by root via cli
```

show system configuration archival

Syntax show system configuration archival

Release Information Introduced in Junos OS Release 7.6.
Command introduced in Junos OS Release 9.0 for EX Series switches.
Command introduced in Junos OS Release 11.1 for the QFX Series.

Description Display directory and number of files queued for archival transfer.



.....
NOTE: The [edit system configuration] hierarchy is not available on QFabric systems.
.....

Options This command has no options.

Required Privilege Level maintenance

List of Sample Output [show system configuration archival on page 673](#)

Sample Output

```
show system configuration archival    user@host> show system configuration archival  
                                     /var/transfer/config/:  
total 8
```

show system configuration rescue

Syntax show system configuration rescue

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.
Command introduced in Junos OS Release 11.1 for the QFX Series.

Description Display a rescue configuration, if one exists.



NOTE: The [edit system configuration] hierarchy is not available on QFabric systems.

Options This command has no options.

Required Privilege Level maintenance

Related Documentation • [show system configuration archival on page 673](#)

List of Sample Output [show system configuration rescue on page 674](#)

Sample Output

```
show system configuration rescue user@switch> show system configuration rescue
version "7.3"; groups {
  global {
    system {
      host-name router1;
      domain-name customer.net;
      domain-search [ customer.net ];
      backup-router 192.168.124.254;
      name-server {
        172.17.28.11;
        172.17.28.101;
        172.17.28.100;
        172.17.28.10;
      }
      login {
        user regress {
          uid 928;
          class ;
          shell csh;
          authentication {
            encrypted-password "$1$kPU..$w.4FGRAGanJ8U4Yq6sbj7."; ##
SECRET-DATA
          }
        }
      }
    }
  }
  services {
    ftp;
    rlogin;
```

```
.....  
    }  
    }  
    }  
    rsh;  
    telnet;
```

show system directory-usage

Syntax	show system directory-usage <depth <i>number</i> > <path>
Syntax (EX Series)	show system directory-usage <all-members> <depth <i>number</i> > <local> <member <i>member-id</i> > <path>
Syntax (TX Matrix Router)	show system directory-usage <all-chassis all-lcc lcc <i>number</i> scc> <depth <i>number</i> > <path>
Syntax (TX Matrix Plus Router)	show system directory-usage <all-chassis all-lcc lcc <i>number</i> sfc <i>number</i> > <depth <i>number</i> > <path>
Syntax (MX Series Router)	show system directory-usage <all-members> <depth <i>number</i> > <local> <member <i>member-id</i> > <path>
Syntax (QFX Series)	show system directory-usage <depth <i>number</i> > <path> <infrastructure <i>name</i> > <interconnect-device <i>name</i> > <node-group <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	Display directory usage information.
Options	none —Display all directory usage information. all-chassis —(TX Matrix and TX Matrix Plus routers only) (Optional) Display directory usage information about all the T640 routers (in a routing matrix based on a TX Matrix router) or T1600 routers (in a routing matrix based on a TX Matrix Plus router) in the chassis.

all-lcc—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display directory information for all T640 routers (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, display directory information for all T1600 routers (or line-card chassis) connected to the TX Matrix Plus router.

all-members—(EX4200 switches and MX Series routers only) (Optional) Display directory information for all members of the Virtual Chassis configuration.

depth *number*—(Optional) Depth of the directory to traverse. This option is useful when you want to limit the output shown for a large file system.

infrastructure *name*— (QFabric systems only) (Optional) Display directory information for the fabric control Routing Engines and fabric manager Routing Engines.

interconnect-device *name*— (QFabric systems only) (Optional) Display directory information for the Interconnect device.

node-group *name*— (QFabric systems only) (Optional) Display directory information for the Node group.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display directory information for a specific T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, display directory information for a specific T1600 router that is connected to the TX Matrix Plus router. Replace ***number*** with a value from 0 through 3.

local—(EX4200 switches and MX Series routers only) (Optional) Display directory information for the local Virtual Chassis member.

member *member-id*—(EX4200 switches and MX Series routers only) (Optional) Display directory information for the specified member of the Virtual Chassis configuration. For EX4200 switches, replace ***member-id*** with a value from 0 through 9. For an MX Series Virtual Chassis, replace ***member-id*** with a value of 0 or 1.

path—(Optional) Path or root directory to traverse.

scc—(TX Matrix router only) (Optional) Display directory information for the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus router only) (Optional) Display directory information for the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

Required Privilege Level view

List of Sample Output [show system directory-usage scc \(TX Matrix Router\) on page 679](#)
[show system directory-usage sfc \(TX Matrix Plus Router\) on page 679](#)
[show system directory-usage \(QFX3500 Switch\) on page 679](#)

Output Fields [Table 35 on page 678](#) describes the output fields for the **show system directory-usage** command. Output fields are listed in the approximate order in which they appear.

Table 35: show system directory-usage Output Fields

Field Name	Field Description
<i>bytes</i>	Number of bytes used by files in a directory.
<i>directory-name</i>	Name of the directory.

Sample Output

```

show system user@host> show system directory-usage /var/tmp scc
directory-usage scc /var/tmp
(TX Matrix Router) 1.0K /var/tmp/vi.recover
2.0K /var/tmp/instmp.tPMk8u
1.0K /var/tmp/install
/var/tmp/instmp.GUMpur
4.8M /var/tmp/instmp.GUMpur/packages
6.4M /var/tmp/troy1
297M /var/tmp/dsw
/var/tmp/pkg_tmp.2073
83K /var/tmp/pkg_tmp.2073/bin
/var/tmp/instmp.oMIDb1
89K /var/tmp/instmp.oMIDb1/bin
/var/tmp/instmp.byhMjR
4.6M /var/tmp/instmp.byhMjR/packages
/var/tmp/instmp.6fqHF3
1.7M /var/tmp/instmp.6fqHF3/packages
/var/tmp/instmp.mljECe
4.6M /var/tmp/instmp.mljECe/packages

```

```

show system user@switch> show system directory-usage /var/tmp sfc 0
directory-usage sfc sfc0-re0:
(TX Matrix Plus -----
Router) /var/tmp
46K /var/tmp/gres-tp
/var/tmp/sec-download
2.0K /var/tmp/sec-download/sub-download
2.0K /var/tmp/vi.recover
2.0K /var/tmp/install
795M /var/tmp/cores
766K /var/tmp/pr440594

```

```

show system user@switch> show system directory-usage
directory-usage /var/tmp
(QFX3500 Switch) 30K /var/tmp/gres-tp
2.0K /var/tmp/rtsdb
2.0K /var/tmp/vi.recover
2.0K /var/tmp/install
2.0K /var/tmp/pics

```

show system rollback

Syntax `show system rollback number`
`<compare number>`

Release Information Command introduced before Junos OS Release 7.4.
 Command introduced in Junos OS Release 9.0 for EX Series switches.
 Command introduced in Junos OS Release 11.1 for the QFX Series.

Description Display the contents of a previously committed configuration, or the differences between two previously committed configurations.



NOTE: The `show system rollback` command is a purely operational mode command and cannot be issued with `run` from the configuration mode.

Options *number*—Number of a configuration to view. The output displays the configuration. The range of values is 0 through 49.

compare number—(Optional) Number of another previously committed (rollback) configuration to compare to rollback *number*. The output displays the differences between the two configurations. The range of values is 0 through 49.

Required Privilege Level view


List of Sample Output [show system rollback compare on page 680](#)

Sample Output

```
show system rollback compare user@host> show system rollback 3 compare 1
[edit]
+ interfaces {
+   ge-1/1/1 {
+     unit 0 {
+       family inet {
+         filter {
+           input mf_plp;
+         }
+         address 14.1.1.1/30;
+       }
+     }
+   }
+   ge-1/2/1 {
+     unit 0 {
+       family inet {
+         filter {
+           input mf_plp;
+         }
+         address 13.1.1.1/30;
+       }
+     }
+   }
+ }
```

```
+    ge-1/3/0 {  
+        unit 0 {  
+            family inet {  
+                filter {  
+                    input mf_plp;  
+                }  
+                address 12.1.1.1/30;  
+            }  
+        }  
+    }  
+}
```

show system snapshot

Syntax	show system snapshot
Syntax (EX Series Switches)	show system snapshot <all-members local member <i>member-id</i> > <media (external internal)>
Release Information	Command introduced in Junos OS Release 7.6. Command introduced in Junos OS Release 10.0 for EX Series switches.
Description	<p>Display information about the backup software:</p> <ul style="list-style-type: none"> On the routers, display information about the backup software, which is located in the /altroot, and /altconfig file systems or on the alternate media. On the switches, display information about the backup of the root file system (/) and directories /altroot, /config, /var, and /var/tmp, which are located either on an external USB flash drive or in internal flash memory.
	<div>  <p>NOTE: To back up software, use the request system snapshot command.</p> </div>
Options	<p>none—Display information about the backup software.</p> <p>all-members local member <i>member-id</i>—(EX Series switch Virtual Chassis only) (Optional) Display the snapshot in a Virtual Chassis:</p> <ul style="list-style-type: none"> all-members—Display the snapshot for all members of the Virtual Chassis. local—Display the snapshot on the member of the Virtual Chassis that you are currently logged into. member <i>member-id</i>—Display the snapshot for the specified member of the Virtual Chassis. <p>media (external internal)—(EX Series switch only) (Optional) Display the destination media location for the snapshot. The external option specifies the snapshot on an external mass storage device, such as a USB flash drive. The internal option specifies the snapshot on an internal memory source, such as internal flash memory. If no additional options are specified, the command displays the snapshot stored in both slices.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> request system snapshot on page 629
List of Sample Output	show system snapshot (Router) on page 683

[show system snapshot media external \(Switch\) on page 683](#)

[show system snapshot media internal \(Switch\) on page 683](#)

Output Fields [Table 36 on page 683](#) lists the output fields for the **show system snapshot** command. Output fields are listed in the approximate order in which they appear.

Table 36: show system snapshot Output Fields

Field Name	Field Description
Creation date	Date and time of the last snapshot.
JUNOS version on snapshot	Junos OS release number of individual software packages.

Sample Output

**show system snapshot
(Router)**

```
user@host> show system snapshot
Information for snapshot on hard-disk
Creation date: Oct 5 13:53:29 2005
JUNOS version on snapshot:
  jbase : 7.3R2.5
  jcrypto: 7.3R2.5
  jdocs : 7.3R2.5
  jkernel: 7.3R2.5
  jpfe : M40-7.3R2.5
  jroute : 7.3R2.5
```

**show system snapshot
media external
(Switch)**

```
user@switch> show system snapshot media external
Information for snapshot on      external (/dev/dals1a) (backup)
Creation date: Mar 19 03:37:18 2012
JUNOS version on snapshot:
  jbase : ex-12.1I20120111_0048_user
  jcrypto-ex: 12.1I20120111_0048_user
  jdocs-ex: 12.1I20120111_0048_user
  jroute-ex: 12.1I20120111_0048_user
  jswitch-ex: 12.1I20120111_0048_user
  jweb-ex: 12.1I20120111_0048_user
Information for snapshot on      external (/dev/dals2a) (primary)
Creation date: Mar 19 03:38:25 2012
JUNOS version on snapshot:
  jbase : ex-12.2I20120305_2240_user
  jcrypto-ex: 12.2I20120305_2240_user
  jdocs-ex: 12.2I20120305_2240_user
  jroute-ex: 12.2I20120305_2240_user
  jswitch-ex: 12.2I20120305_2240_user
  jweb-ex: 12.2I20120305_2240_user
```

**show system snapshot
media internal
(Switch)**

```
user@switch> show system snapshot media internal
Information for snapshot on internal (/dev/da0s1a) (backup)
Creation date: Mar 14 05:01:02 2011
JUNOS version on snapshot:
  jbase : 11.1R1.9
  jcrypto-ex: 11.1R1.9
  jdocs-ex: 11.1R1.9
  jkernel-ex: 11.1R1.9
  jroute-ex: 11.1R1.9
```

```
jswitch-ex: 11.1R1.9
jweb-ex: 11.1R1.9
jpfe-ex42x: 11.1R1.9
Information for snapshot on internal (/dev/da0s2a) (primary)
Creation date: Mar 30 08:46:27 2011
JUNOS version on snapshot:
jbase : 11.2-20110330.0
jcrypto-ex: 11.2-20110330.0
jdocs-ex: 11.2-20110330.0
jkernel-ex: 11.2-20110330.0
jroute-ex: 11.2-20110330.0
jswitch-ex: 11.2-20110330.0
jweb-ex: 11.2-20110330.0
jpfe-ex42x: 11.2-20110330.0
```

show system storage

Syntax	show system storage <detail>
Syntax (EX Series Switches)	show system storage <detail> <all-members> <local> <member <i>member-id</i> >
Syntax (TX Matrix Router)	show system storage <detail> <all-chassis all-lcc lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	show system storage <detail> <all-chassis all-lcc lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Router)	show system storage <detail> <all-members> <local> <member <i>member-id</i> >
Syntax (QFX Series)	show system storage <detail> <infrastructure <i>name</i> > <interconnect-device <i>name</i> > <node-group <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option introduced for the TX Matrix Plus router in JUNOS Release 9.6. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	Display statistics about the amount of free disk space in the router's or switch's file systems.
Options	<p>none—Display standard information about the amount of free disk space in the router's or switch's file systems.</p> <p>detail—(Optional) Display detailed output.</p> <p>all-chassis—(TX Matrix and TX Matrix Plus routers only) (Optional) Display system storage statistics for all the routers in the chassis.</p> <p>all-lcc—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display system storage statistics for all T640 routers (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, display system storage statistics for all T1600 routers (or line-card chassis) connected to the TX Matrix Plus router.</p>

all-members—(EX4200 switches and MX Series routers only) (Optional) Display system storage statistics for all members of the Virtual Chassis configuration.

infrastructure *name*—(QFabric systems only) (Optional) Display system storage statistics for the fabric control Routing Engines or fabric manager Routing Engines.

interconnect-device *name*—(QFabric systems only) (Optional) Display system storage statistics for the Interconnect device.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display system storage statistics for a specific T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, display system storage statistics for a specific T1600 router that is connected to the TX Matrix Plus router. Replace ***number*** with a value from 0 through 3.

local—(EX4200 switches and MX Series routers only) (Optional) Display system storage statistics for the local Virtual Chassis member.

member *member-id*—(EX4200 switches and MX Series routers only) (Optional) Display system storage statistics for the specified member of the Virtual Chassis configuration. For EX4200 switches, replace ***member-id*** with a value from 0 through 9. For an MX Series Virtual Chassis, replace ***member-id*** with a value of 0 or 1.

node-group *name*—(QFabric systems only) (Optional) Display system storage statistics for the Node group.

scc—(TX Matrix routers only) (Optional) Display system storage statistics for the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus routers only) (Optional) Display system storage statistics for the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

Additional Information By default, when you issue the **show system storage** command on a TX Matrix or TX Matrix Plus master Routing Engine, the command is broadcast to all the T640 (in a routing matrix based on a TX Matrix router) or T1600 (in a routing matrix based on a TX Matrix Plus router) master Routing Engines connected to it. Likewise, if you issue the same command on the TX Matrix or TX Matrix Plus backup Routing Engine, the command is broadcast to all the T640 (in a routing matrix based on a TX Matrix router) or T1600 (in a routing matrix based on a TX Matrix Plus router) backup Routing Engines that are connected to it.

Required Privilege Level view

List of Sample Output [show system storage on page 687](#)
[show system storage \(TX Matrix Plus Router\) on page 687](#)
[show system storage \(QFX3500 Switch\) on page 689](#)

Output Fields [Table 37 on page 687](#) describes the output fields for the **show system storage** command. Output fields are listed in the approximate order in which they appear.

Table 37: show system storage Output Fields

Field Name	Field Description
Filesystem	Name of the filesystem.
Size	Size of the filesystem.
Used	Amount of space used in the filesystem.
Avail	Amount of space available in the filesystem.
Capacity	Percentage of the filesystem space that is being used.
Mounted on	Directory in which the filesystem is mounted.

Sample Output

show system storage

```
user@host> show system storage
Filesystem      Size      Used      Avail  Capacity  Mounted on
/dev/ad0s1a      77M       37M       34M     52%      /
devfs            16K       16K       0B     100%     /dev/
/dev/vn0         12M       12M       0B     100%     /packages/mnt/jbase
/dev/vn1         39M       39M       0B     100%
/packages/mnt/jkernel-7.2R1.7
/dev/vn2         12M       12M       0B     100%
/packages/mnt/jpfe-M40-7.2R1.7
/dev/vn3         2.3M      2.3M      0B     100%
/packages/mnt/jdocs-7.2R1.7
/dev/vn4         14M       14M       0B     100%
/packages/mnt/jroute-7.2R1.7
/dev/vn5         4.5M      4.5M      0B     100%
/packages/mnt/jcrypto-7.2R1.7
mfs:172         1.5G      4.0K      1.3G     0%      /tmp
/dev/ad0s1e      12M       20K       11M     0%      /config
procfs          4.0K      4.0K      0B     100%     /proc
/dev/ad1s1f      9.4G      4.9G      3.7G     57%     /var
```

show system storage
(TX Matrix Plus
Router)

```
user@host> show system storage
sfc0-re0:
-----
Filesystem      Size      Used      Avail  Capacity  Mounted on
/dev/ad0s1a      3.4G      178M      2.9G     6%      /
devfs            1.0K      1.0K      0B     100%     /dev
devfs            1.0K      1.0K      0B     100%     /dev/
/dev/md0         33M       33M       0B     100%     /packages/mnt/jbase
/dev/md1         216M      216M      0B     100%
/packages/mnt/jkernel-9.6-20090519.0
/dev/md2         66M       66M       0B     100%
/packages/mnt/jpfe-T-9.6-20090519.0
/dev/md3         4.1M      4.1M      0B     100%
/packages/mnt/jdocs-9.6-20090519.0
/dev/md4         57M       57M       0B     100%
/packages/mnt/jroute-9.6-20090519.0
/dev/md5         15M       15M       0B     100%
/packages/mnt/jcrypto-9.6-20090519.0
/dev/md6         34M       34M       0B     100%
```

/packages/mnt/jpfe-common-9.6-20090519.0					
/dev/md7	2.0G	10.0K	1.8G	0%	/tmp
/dev/md8	2.0G	1.0M	1.8G	0%	/mfs
/dev/ad0s1e	383M	82K	352M	0%	/config
procfs	4.0K	4.0K	0B	100%	/proc
/dev/ad1s1f	52G	7.5G	40G	16%	/var
lcc0-re0:					
Filesystem	Size	Used	Avail	Capacity	Mounted on
/dev/ad0s1a	3.4G	178M	2.9G	6%	/
devfs	1.0K	1.0K	0B	100%	/dev
devfs	1.0K	1.0K	0B	100%	/dev/
/dev/md0	33M	33M	0B	100%	/packages/mnt/jbase
/dev/md1	216M	216M	0B	100%	
/packages/mnt/jkernel-9.6-20090519.0					
/dev/md2	66M	66M	0B	100%	
/packages/mnt/jpfe-T-9.6-20090519.0					
/dev/md3	4.1M	4.1M	0B	100%	
/packages/mnt/jdocs-9.6-20090519.0					
/dev/md4	57M	57M	0B	100%	
/packages/mnt/jroute-9.6-20090519.0					
/dev/md5	15M	15M	0B	100%	
/packages/mnt/jcrypto-9.6-20090519.0					
/dev/md6	34M	34M	0B	100%	
/packages/mnt/jpfe-common-9.6-20090519.0					
/dev/md7	2.0G	10.0K	1.8G	0%	/tmp
/dev/md8	2.0G	540K	1.8G	0%	/mfs
/dev/ad0s1e	383M	88K	352M	0%	/config
procfs	4.0K	4.0K	0B	100%	/proc
/dev/ad1s1f	52G	6.3G	41G	13%	/var
lcc1-re0:					
Filesystem	Size	Used	Avail	Capacity	Mounted on
/dev/ad0s1a	3.4G	178M	2.9G	6%	/
devfs	1.0K	1.0K	0B	100%	/dev
devfs	1.0K	1.0K	0B	100%	/dev/
/dev/md0	33M	33M	0B	100%	/packages/mnt/jbase
/dev/md1	216M	216M	0B	100%	
/packages/mnt/jkernel-9.6-20090519.0					
/dev/md2	66M	66M	0B	100%	
/packages/mnt/jpfe-T-9.6-20090519.0					
/dev/md3	4.1M	4.1M	0B	100%	
/packages/mnt/jdocs-9.6-20090519.0					
/dev/md4	57M	57M	0B	100%	
/packages/mnt/jroute-9.6-20090519.0					
/dev/md5	15M	15M	0B	100%	
/packages/mnt/jcrypto-9.6-20090519.0					
/dev/md6	34M	34M	0B	100%	
/packages/mnt/jpfe-common-9.6-20090519.0					
/dev/md7	2.0G	10.0K	1.8G	0%	/tmp
/dev/md8	2.0G	540K	1.8G	0%	/mfs
/dev/ad0s1e	383M	88K	352M	0%	/config
procfs	4.0K	4.0K	0B	100%	/proc
/dev/ad1s1f	23G	13G	7.7G	64%	/var
lcc2-re0:					
Filesystem	Size	Used	Avail	Capacity	Mounted on
/dev/ad0s1a	3.4G	178M	2.9G	6%	/

```

devfs          1.0K      1.0K      0B      100% /dev
devfs          1.0K      1.0K      0B      100% /dev/
/dev/md0       33M       33M      0B      100% /packages/mnt/jbase
/dev/md1       216M      216M      0B      100%
/packages/mnt/jkernel-9.6-20090519.0
/dev/md2        66M       66M      0B      100%
/packages/mnt/jpfe-T-9.6-20090519.0
/dev/md3        4.1M       4.1M      0B      100%
/packages/mnt/jdocs-9.6-20090519.0
/dev/md4        57M       57M      0B      100%
/packages/mnt/jroute-9.6-20090519.0
/dev/md5        15M       15M      0B      100%
/packages/mnt/jcrypto-9.6-20090519.0
/dev/md6        34M       34M      0B      100%
/packages/mnt/jpfe-common-9.6-20090519.0
/dev/md7        2.0G       10.0K     1.8G      0% /tmp
/dev/md8        2.0G       540K     1.8G      0% /mfs
/dev/ad0s1e     383M       64K     352M      0% /config
procfs         4.0K       4.0K      0B      100% /proc
/dev/ad1s1f     23G        3.7G     17G      18% /var

```

```
lcc3-re0:
```

```

-----
Filesystem      Size      Used      Avail  Capacity  Mounted on
/dev/ad0s1a     3.4G      178M     2.9G      6% /
devfs           1.0K      1.0K      0B      100% /dev
devfs           1.0K      1.0K      0B      100% /dev/
/dev/md0       33M       33M      0B      100% /packages/mnt/jbase
/dev/md1       216M      216M      0B      100%
/packages/mnt/jkernel-9.6-20090519.0
/dev/md2        66M       66M      0B      100%
/packages/mnt/jpfe-T-9.6-20090519.0
/dev/md3        4.1M       4.1M      0B      100%
/packages/mnt/jdocs-9.6-20090519.0
/dev/md4        57M       57M      0B      100%
/packages/mnt/jroute-9.6-20090519.0
/dev/md5        15M       15M      0B      100%
/packages/mnt/jcrypto-9.6-20090519.0
/dev/md6        34M       34M      0B      100%
/packages/mnt/jpfe-common-9.6-20090519.0
/dev/md7        2.0G       10.0K     1.8G      0% /tmp
/dev/md8        2.0G       540K     1.8G      0% /mfs
/dev/ad0s1e     383M       34K     352M      0% /config
procfs         4.0K       4.0K      0B      100% /proc
/dev/ad1s1f     23G        18G     3.5G      84% /var

```

show system storage
(QFX3500 Switch)

```

user@switch> show system storage
Filesystem      Size      Used      Avail  Capacity  Mounted on
/dev/da0s2a     343M      192M     123M      61% /
devfs           1.0K      1.0K      0B      100% /dev
/dev/md0       119M      119M      0B      100% /packages/mnt/jbase
/dev/md1       513M      513M      0B      100%
/packages/mnt/jkernel-qfx-11.1R1.5
/dev/md2        37M       37M      0B      100%
/packages/mnt/jpfe-qfx-e9xxx-11.1R1.5
/dev/md3        6.0M       6.0M      0B      100%
/packages/mnt/jdocs-qfx-11.1R1.5
/dev/md4       216M      216M      0B      100%
/packages/mnt/jroute-qfx-11.1R1.5
/dev/md5        59M       59M      0B      100%
/packages/mnt/jcrypto-qfx-11.1R1,5

```

/dev/md6	85M	85M	0B	100%	
/packages/mnt/jswitch-qfx-11.1R1.5					
/dev/md7	63M	8.0K	58M	0%	/tmp
/dev/da0s2f	228M	14M	196M	7%	/var
/dev/da0s3d	590M	3.0M	540M	1%	/var/tmp
/dev/da0s3e	104M	162K	95M	0%	/config
procfs	4.0K	4.0K	0B	100%	/proc

show system switchover

Syntax	show system switchover
Syntax (TX Matrix Router)	show system switchover <all-chassis all-lcc lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	show system switchover <all-chassis all-lcc lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Router)	show system switchover <all-members> <local> <member <i>member-id</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option introduced for the TX Matrix Plus router in Junos OS Release 9.6.
Description	Display whether graceful Routing Engine switchover is configured, the state of the kernel replication (ready or synchronizing), any replication errors, and whether the primary and standby Routing Engines are using compatible versions of the kernel database.



NOTE: Issue the `show system switchover` command *only* on the backup Routing Engine. This command is *not* supported on the master Routing Engine, because the kernel-replication process daemon does not run on the master Routing Engine. This process runs only on the backup Routing Engine.

Beginning Junos OS Release 9.6, the `show system switchover` command has been deprecated on the master Routing Engine on all routers other than a TX Matrix (switch-card chassis) or a TX Matrix Plus (switch-fabric chassis) router.

However, in a routing matrix, if you issue the `show system switchover` command on the master Routing Engine of the TX Matrix router (or switch-card chassis), the CLI displays graceful switchover information for the master Routing Engine of the T640 routers (or line-card chassis) in the routing matrix. Likewise, if you issue the `show system switchover` command on the master Routing Engine of a TX Matrix Plus router (or switch-fabric chassis), the CLI displays output for the master Routing Engine of T1600 routers (or line-card chassis) in the routing matrix.

Options **all-chassis**—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display graceful Routing Engine switchover information for all Routing Engines on the TX Matrix router and the T640 routers configured in the routing matrix. On a TX Matrix Plus router, display graceful Routing Engine switchover information for all

Routing Engines on the TX Matrix Plus router and the T1600 routers configured in the routing matrix.

all-lcc—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display graceful Routing Engine switchover information for all T640 routers (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, display graceful Routing Engine switchover information for all T1600 routers (or line-card chassis) connected to the TX Matrix Plus router.

all-members—(MX Series routers only) (Optional) Display graceful Routing Engine switchover information for all Routing Engines on all members of the Virtual Chassis configuration.

lcc *number*—(TX Matrix and TX Matrix Plus router only) (Optional) On a TX Matrix router, display graceful Routing Engine switchover information for a specific T640 router (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, display graceful Routing Engine switchover information for a specific T1600 router (or line-card chassis) connected to the TX Matrix Plus router. Replace ***number*** with 0.

local—(MX Series routers only) (Optional) Display graceful Routing Engines switchover information for all Routing Engines on the local Virtual Chassis member.

member *member-id*—(MX Series routers only) (Optional) Display graceful Routing Engine switchover information for all Routing Engines on the specified member of the Virtual Chassis configuration. Replace ***member-id*** with a value of 0 or 1.

scc—(TX Matrix router only) (Optional) Display graceful Routing Engine switchover information for the TX Matrix router (or switch-card chassis).

sfc—(TX Matrix Plus router only) (Optional) Display graceful Routing Engine switchover information for the TX Matrix Plus router (or switch-fabric chassis).

Additional Information If you issue the **show system switchover** command on a TX Matrix backup Routing Engine, the command is broadcast to all the T640 backup Routing Engines that are connected to it.

Likewise, if you issue the **show system switchover** command on a TX Matrix Plus backup Routing Engine, the command is broadcast to all the T1600 backup Routing Engines that are connected to it.

If you issue the **show system switchover** command on the active Routing Engine in the master router of an MX Series Virtual Chassis, the router displays an error message that graceful Routing Engine switchover (GRES) is not enabled on this member.

Required Privilege Level view

List of Sample Output [show system switchover \(Backup Routing Engine\) on page 693](#)
[show system switchover all-lcc \(Routing Matrix\) on page 693](#)

Output Fields Table 38 on page 693 describes the output fields for the **show system switchover** command. Output fields are listed in the approximate order in which they appear.

Table 38: show system switchover Output Fields

Field Name	Field Description
Graceful switchover	Display graceful Routing Engine switchover status: <ul style="list-style-type: none"> • On—Indicates graceful-switchover is specified for the routing-options configuration command. • Off—Indicates graceful-switchover is not specified for the routing-options configuration command.
Configuration database	State of the configuration database: <ul style="list-style-type: none"> • Ready—Configuration database has synchronized. • Synchronizing—Configuration database is synchronizing. Displayed when there are updates within the last 5 seconds. • Synchronize failed—Configuration database synchronize process failed.
Kernel database	State of the kernel database: <ul style="list-style-type: none"> • Ready—Kernel database has synchronized. • Synchronizing—Kernel database is synchronizing. Displayed when there are updates within the last 5 seconds. • Version incompatible—The primary and standby Routing Engines are running incompatible kernel database versions. • Replication error—An error occurred when the state was replicated from the primary Routing Engine. Inspect /var/log/ksyncd for possible causes, or notify Juniper Networks customer support.
Peer state	Routing Engine peer state: <ul style="list-style-type: none"> • Steady State—Peer completed switchover transition. • Peer Connected—Peer in switchover transition.

Sample Output

```

show system      user@host> show system switchover
switchover (Backup
Routing Engine)  Graceful switchover: On
                  Configuration database: Ready
                  Kernel database: Ready
                  Peer state: Steady State

```

```

show system      user@host> show system switchover all-lcc
switchover all-lcc
(Routing Matrix)  lcc0-re0:
                  -----
                  Multichassis replication: On
                  Configuration database: Ready
                  Kernel database: Ready
                  Peer state: Steady State
                  lcc2-re0:
                  -----
                  Multichassis replication: On
                  Configuration database: Ready
                  Kernel database: Ready
                  Peer state: Steady State

```


show system uptime

Syntax	show system uptime
Syntax (EX Series Switches)	show system uptime <all-members> <local> <member <i>member-id</i> >
Syntax (QFX Series)	show system uptime <director-group <i>name</i> > <infrastructure <i>name</i> > <interconnect-device <i>name</i> > <node-group <i>name</i> >
Syntax (TX Matrix Router)	show system uptime <all-chassis all-lcc lcc <i>number</i> scc>
Syntax (TX Matrix Plus Router)	show system uptime <detail> <all-chassis all-lcc lcc <i>number</i> sfc <i>number</i> >
Syntax (MX Series Router)	show system uptime <all-members> <invoke-on> <local> <member <i>member-id</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. sfc option introduced for the TX Matrix Plus router in JUNOS Release 9.6. Command introduced in Junos OS Release 11.1 for the QFX Series.
Description	Display the current time and information about how long the router or switch, router or switch software, and routing protocols have been running.
Options	<p>none—Show time since the system rebooted and processes started.</p> <p>all-chassis—(TX Matrix and TX Matrix Plus routers only) (Optional) Show time since the system rebooted and processes started on all the routers in the chassis.</p> <p>all-lcc—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, show time since the system rebooted and processes started for all T640 routers (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, show time since the system rebooted and processes started for all T1600 routers (or line-card chassis) connected to the TX Matrix Plus router.</p> <p>all-members—(EX4200 switches and MX Series routers only) (Optional) Show time since the system rebooted and processes started on all members of the Virtual Chassis configuration.</p>

director-group *name*—(QFabric systems only) (Optional) Show time since the system rebooted and processes started on the Director group.

infrastructure *name*—(QFabric systems only) (Optional) Show time since the system rebooted and processes started on the fabric control Routing Engine and fabric manager Routing Engine.

interconnect-device *name*—(QFabric systems only) (Optional) Show time since the system rebooted and processes started on the Interconnect device.

invoke-on—(MX Series routers only) (Optional) Display the time since the system rebooted and processes started on the master Routing Engine, backup Routing Engine, or both, on a router with two Routing Engines.

lcc *number*—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, show time since the system rebooted and processes started for a specific T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, show time since the system rebooted and processes started for a specific T1600 router that is connected to the TX Matrix Plus router. Replace ***number*** with a value from 0 through 3.

local—(EX4200 switches and MX Series routers only) (Optional) Show time since the system rebooted and processes started on the local Virtual Chassis member.

member *member-id*—(EX4200 switches and MX Series routers only) (Optional) Show time since the system rebooted and processes started on the specified member of the Virtual Chassis configuration. For EX4200 switches, replace ***member-id*** with a value from 0 through 9. For an MX Series Virtual Chassis, replace ***member-id*** with a value of 0 or 1.

node-group *name*—(QFabric systems only) (Optional) Show time since the system rebooted and processes started on the Node group.

scc—(TX Matrix routers only) (Optional) Show time since the system rebooted and processes started for the TX Matrix router (or switch-card chassis).

sfc *number*—(TX Matrix Plus routers only) (Optional) Show time since the system rebooted and processes started for the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

Additional Information By default, when you issue the **show system uptime** command on a TX Matrix or TX Matrix Plus master Routing Engine, the command is broadcast to all the T640 (in a routing matrix based on a TX Matrix router) or T1600 (in a routing matrix based on a TX Matrix Plus router) master Routing Engines connected to it. Likewise, if you issue the same command on the TX Matrix or TX Matrix Plus backup Routing Engine, the command is broadcast to all the T640 (in a routing matrix based on a TX Matrix router) or T1600 (in a routing matrix based on a TX Matrix Plus router) backup Routing Engines that are connected to it.

Required Privilege Level view

- Related Documentation**
- Monitoring System Process Information
 - Monitoring System Properties
 - 10-Gigabit Ethernet LAN/WAN PIC with XFP (T640 Router)

List of Sample Output

[show system uptime on page 697](#)
[show system uptime all-lcc \(TX Matrix Router\) on page 697](#)
[show system uptime all-lcc \(TX Matrix Plus Router\) on page 698](#)
[show system uptime \(QFX Series\) on page 698](#)

Output Fields [Table 39 on page 697](#) describes the output fields for the **show system uptime** command. Output fields are listed in the approximate order in which they appear.

Table 39: show system uptime Output Fields

Field Name	Field Description
Current time	Current system time in UTC.
System booted	Date and time when the Routing Engine on the router or switch was last booted and how long it has been running.
Protocols started	Date and time when the routing protocols were last started and how long they have been running.
Last configured	Date and time when a configuration was last committed. Also shows the name of the user who issued the last commit command.
time and up	Current time, in the local time zone, and how long the router or switch has been operational.
users	Number of users logged in to the router or switch.
load averages	Load averages for the last 1 minute, 5 minutes, and 15 minutes.

Sample Output

```

show system uptime  user@host> show system uptime
Current time:      1998-10-13 19:45:47 UTC
System booted:    1998-10-12 20:51:41 UTC (22:54:06 ago)
Protocols started: 1998-10-13 19:33:45 UTC (00:12:02 ago)
Last configured:  1998-10-13 19:33:45 UTC (00:12:02 ago) by abc
12:45PM up 22:54, 2 users, load averages: 0.07, 0.02, 0.01

```

```

show system uptime  user@host> show system uptime all-lcc
all-lcc (TX Matrix  lcc0-re0:
Router)            -----
Current time: 2004-09-13 09:55:35 PDT
System booted: 2004-09-13 03:13:55 PDT (06:41:40 ago)
Last configured: 2004-09-13 03:17:48 PDT (06:37:47 ago) by root
9:55AM PDT up 6:42, 1 user, load averages: 0.02, 0.03, 0.00
lcc2-re0:
-----
Current time: 2004-09-13 09:55:35 PDT
System booted: 2004-09-12 03:23:43 PDT (1d 06:31 ago)

```

```
Last configured: 2004-09-13 03:05:36 PDT (06:49:59 ago) by root
9:55AM PDT up 1 day, 6:32, 1 user, load averages: 0.02, 0.01, 0.00
```

show system uptime
all-lcc (TX Matrix Plus
Router)

```
user@host> show system uptime all-lcc
sfc0-re0:
```

```
-----
Current time: 2009-05-25 00:24:30 PDT
System booted: 2009-05-24 06:39:33 PDT (17:44:57 ago)
Protocols started: 2009-05-24 06:40:30 PDT (17:44:00 ago)
Last configured: 2009-05-24 06:33:27 PDT (17:51:03 ago) by gregdo
12:24AM up 17:45, 2 users, load averages: 0.07, 0.05, 0.01
```

```
lcc0-re0:
```

```
-----
Current time: 2009-05-25 00:24:30 PDT
System booted: 2009-05-24 06:39:46 PDT (17:44:44 ago)
error: the routing subsystem is not running
Last configured: 2009-05-24 06:40:47 PDT (17:43:43 ago) by root
12:24AM up 17:45, 0 users, load averages: 0.00, 0.00, 0.00
```

```
lcc1-re0:
```

```
-----
Current time: 2009-05-25 00:24:30 PDT
System booted: 2009-05-24 06:39:38 PDT (17:44:52 ago)
error: the routing subsystem is not running
Last configured: 2009-05-24 06:40:18 PDT (17:44:12 ago) by root
12:24AM up 17:45, 0 users, load averages: 0.00, 0.00, 0.00
```

```
lcc2-re0:
```

```
-----
Current time: 2009-05-25 00:24:30 PDT
System booted: 2009-05-24 06:39:48 PDT (17:44:42 ago)
error: the routing subsystem is not running
Last configured: 2009-05-24 06:40:44 PDT (17:43:46 ago) by root
12:24AM up 17:45, 0 users, load averages: 0.00, 0.00, 0.00
```

```
lcc3-re0:
```

```
-----
Current time: 2009-05-25 00:24:30 PDT
System booted: 2009-05-24 06:39:44 PDT (17:44:46 ago)
error: the routing subsystem is not running
Last configured: 2009-05-24 06:40:08 PDT (17:44:22 ago) by root
12:24AM up 17:45, 0 users, load averages: 0.00, 0.00, 0.00
```

show system uptime
(QFX Series)

```
user@switch> show system uptime
Current time: 2010-08-27 03:12:30 PDT
System booted: 2010-08-13 17:11:54 PDT (1w6d 10:00 ago)
Protocols started: 2010-08-13 17:13:56 PDT (1w6d 09:58 ago)
Last configured: 2010-08-26 05:54:00 PDT (21:18:30 ago) by regress
3:12AM up 13 days, 10:01, 3 users, load averages: 0.00, 0.00, 0.00
```

show version invoke-on

Syntax	show version invoke-on (all-routing-engines other-routing-engine)
Syntax (MX Series Router)	show version invoke-on (all-routing-engines other-routing-engine) <all-members> <local> <member <i>member-id</i> >
Release Information	Command introduced before JUNOS Release 7.4.
Description	Display the hostname and version information about the software running on a router with two Routing Engines.
Options	<p>all-routing-engines—Display the hostnames and version information about the software running on all master and backup Routing Engines on a routing matrix based on the TX Matrix or TX Matrix Plus router or on a router that has dual Routing Engines.</p> <p>other-routing-engine—Display the hostnames and version information about the software running on the other Routing Engine. For example, if you issue this command on the master Routing Engine on an M320 router, the JUNOS Software displays the hostname and version information on the backup Routing Engine. On a routing matrix based on the TX Matrix or TX Matrix Plus router, if you issue this command on the TX Matrix or TX Matrix Plus router's master Routing Engine, the JUNOS Software displays all the hostnames and version information on all the backup Routing Engines.</p> <p>all-members—(MX Series routers only) (Optional) Display the hostnames and version information about the software running on all master and backup Routing Engines on all members of the Virtual Chassis configuration. Specify the all-members option before the invoke-on keyword.</p> <p>local—(MX Series routers only) (Optional) Display the hostnames and version information about the software running on all master and backup Routing Engines on the local Virtual Chassis member. Specify the local option before the invoke-on keyword.</p> <p>member <i>member-id</i>—(MX Series routers only) (Optional) Display the hostnames and version information about the software running on all master and backup Routing Engines on the specified member of the Virtual Chassis configuration. Replace <i>member-id</i> with a value of 0 or 1. Specify the member <i>member-id</i> option before the invoke-on keyword.</p>
Required Privilege Level	view
List of Sample Output	show version invoke-on all-routing-engines (TX Matrix Router) on page 700 show version invoke-on other-routing-engine (TX Matrix Router) on page 702 show version invoke-on all-routing-engines (TX Matrix Plus Router) on page 703 show version invoke-on other-routing-engine (TX Matrix Plus Router) on page 708

Sample Output

```
show version invoke-on all-routing-engines
all-routing-engines (TX Matrix Router) user@host> show version invoke-on all-routing-engines
scc-re0:
-----
Hostname: bob
Model: TX Matrix
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
JUNOS Support Tools Package [7.1-20041025.1]

scc-re1:
-----
Hostname: bob1
Model: TX Matrix
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
JUNOS Support Tools Package [7.1-20041025.1]

lcc0-re0:
-----
Hostname: cas
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]

lcc0-re1:
-----
Hostname: cas1-lcc0
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]

lcc1-re0:
-----
Hostname: jas
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
```

```
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
```

```
lcc1-re1:
```

```
-----
Hostname: jas1
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
```

```
lcc2-re0:
```

```
-----
Hostname: dew
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
```

```
lcc2-re1:
```

```
-----
Hostname: dew1
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
```

```
lcc3-re0:
```

```
-----
Hostname: wa
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
```

```
lcc3-re1:
```

```
-----
Hostname: wa1
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041025.1]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
```

```

JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]

show version user@host> show version invoke-on other-routing-engine
invoke-on scc-re1:
other-routing-engine -----
(TX Matrix Router)
Hostname: bob1
Model: TX Matrix
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
JUNOS Support Tools Package [7.1-20041025.1]

lcc0-re1:
-----
Hostname: cas1-lcc0
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
lcc1-re1:
-----
Hostname: jas1
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]

lcc2-re1:
-----
Hostname: dew1
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041024.0]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]
JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]
lcc3-re1:
-----
Hostname: wa1
Model: t640
JUNOS Base OS boot [7.1-20041024.0]
JUNOS Base OS Software Suite [7.1-20041025.1]
JUNOS Kernel Software Suite [7.1-20041024.0]
JUNOS Packet Forwarding Engine Support (T-Series) [7.1-20041024.0]
JUNOS Routing Software Suite [7.1-20041024.0]

```

```

JUNOS Online Documentation [7.1-20041024.0]
JUNOS Crypto Software Suite [7.1-20041024.0]

show version user@host> show version invoke-on all-routing-engines
invoke-on sfc0-re0:
all-routing-engines -----
(TX Matrix Plus
Router)
Hostname: aj
Model: txp
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]

lcc0-re0:
-----
Hostname: lj
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]

lcc1-re0:
-----
Hostname: mj
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]

```

JUNOS IDP Services [9.6-20090519.0]
 JUNOS Routing Software Suite [9.6-20090519.0]

lcc2-re0:

 Hostname: pj
 Model: t1600
 JUNOS Base OS boot [9.6-20090519.0]
 JUNOS Base OS Software Suite [9.6-20090519.0]
 JUNOS Kernel Software Suite [9.6-20090519.0]
 JUNOS Crypto Software Suite [9.6-20090519.0]
 JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
 JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
 JUNOS Online Documentation [9.6-20090519.0]
 JUNOS Voice Services Container package [9.6-20090519.0]
 JUNOS Border Gateway Function package [9.6-20090519.0]
 JUNOS Services AACL Container package [9.6-20090519.0]
 JUNOS Services LL-PDF Container package [9.6-20090519.0]
 JUNOS Services Stateful Firewall [9.6-20090519.0]
 JUNOS AppId Services [9.6-20090519.0]
 JUNOS IDP Services [9.6-20090519.0]
 JUNOS Routing Software Suite [9.6-20090519.0]

lcc3-re0:

 Hostname: tj
 Model: t1600
 JUNOS Base OS boot [9.6-20090519.0]
 JUNOS Base OS Software Suite [9.6-20090519.0]
 JUNOS Kernel Software Suite [9.6-20090519.0]
 JUNOS Crypto Software Suite [9.6-20090519.0]
 JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
 JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
 JUNOS Online Documentation [9.6-20090519.0]
 JUNOS Voice Services Container package [9.6-20090519.0]
 JUNOS Border Gateway Function package [9.6-20090519.0]
 JUNOS Services AACL Container package [9.6-20090519.0]
 JUNOS Services LL-PDF Container package [9.6-20090519.0]
 JUNOS Services Stateful Firewall [9.6-20090519.0]
 JUNOS AppId Services [9.6-20090519.0]
 JUNOS IDP Services [9.6-20090519.0]
 JUNOS Routing Software Suite [9.6-20090519.0]

sfc0-re1:

 Hostname: aj1
 Model: txp
 JUNOS Base OS boot [9.6-20090519.0]
 JUNOS Base OS Software Suite [9.6-20090519.0]
 JUNOS Kernel Software Suite [9.6-20090519.0]
 JUNOS Crypto Software Suite [9.6-20090519.0]
 JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
 JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
 JUNOS Online Documentation [9.6-20090519.0]
 JUNOS Voice Services Container package [9.6-20090519.0]
 JUNOS Border Gateway Function package [9.6-20090519.0]
 JUNOS Services AACL Container package [9.6-20090519.0]
 JUNOS Services LL-PDF Container package [9.6-20090519.0]
 JUNOS Services Stateful Firewall [9.6-20090519.0]
 JUNOS AppId Services [9.6-20090519.0]
 JUNOS IDP Services [9.6-20090519.0]

JUNOS Routing Software Suite [9.6-20090519.0]

lcc0-re1:

```
-----
Hostname: ljl
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc1-re1:

```
-----
Hostname: mjl
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc2-re1:

```
-----
Hostname: pj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc3-re1:

Hostname: tj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]

lcc0-re0:

Hostname: lj
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]

lcc0-re1:

Hostname: lj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]

```
lcc1-re0:
```

```
-----
Hostname: mj
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

```
lcc1-re1:
```

```
-----
Hostname: mj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

```
lcc2-re0:
```

```
-----
Hostname: pj
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

```
lcc2-re1:
```

```
-----  
Hostname: pj1  
Model: t1600  
JUNOS Base OS boot [9.6-20090519.0]  
JUNOS Base OS Software Suite [9.6-20090519.0]  
JUNOS Kernel Software Suite [9.6-20090519.0]  
JUNOS Crypto Software Suite [9.6-20090519.0]  
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]  
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]  
JUNOS Online Documentation [9.6-20090519.0]  
JUNOS Voice Services Container package [9.6-20090519.0]  
JUNOS Border Gateway Function package [9.6-20090519.0]  
JUNOS Services AACL Container package [9.6-20090519.0]  
JUNOS Services LL-PDF Container package [9.6-20090519.0]  
JUNOS Services Stateful Firewall [9.6-20090519.0]  
JUNOS AppId Services [9.6-20090519.0]  
JUNOS IDP Services [9.6-20090519.0]  
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc3-re0:

```
-----  
Hostname: tj  
Model: t1600  
JUNOS Base OS boot [9.6-20090519.0]  
JUNOS Base OS Software Suite [9.6-20090519.0]  
JUNOS Kernel Software Suite [9.6-20090519.0]  
JUNOS Crypto Software Suite [9.6-20090519.0]  
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]  
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]  
JUNOS Online Documentation [9.6-20090519.0]  
JUNOS Voice Services Container package [9.6-20090519.0]  
JUNOS Border Gateway Function package [9.6-20090519.0]  
JUNOS Services AACL Container package [9.6-20090519.0]  
JUNOS Services LL-PDF Container package [9.6-20090519.0]  
JUNOS Services Stateful Firewall [9.6-20090519.0]  
JUNOS AppId Services [9.6-20090519.0]  
JUNOS IDP Services [9.6-20090519.0]  
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc3-re1:

```
-----  
Hostname: tj1  
Model: t1600  
JUNOS Base OS boot [9.6-20090519.0]  
JUNOS Base OS Software Suite [9.6-20090519.0]  
JUNOS Kernel Software Suite [9.6-20090519.0]  
JUNOS Crypto Software Suite [9.6-20090519.0]  
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]  
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]  
JUNOS Online Documentation [9.6-20090519.0]  
JUNOS Voice Services Container package [9.6-20090519.0]  
JUNOS Border Gateway Function package [9.6-20090519.0]  
JUNOS Services AACL Container package [9.6-20090519.0]  
JUNOS Services LL-PDF Container package [9.6-20090519.0]  
JUNOS Services Stateful Firewall [9.6-20090519.0]  
JUNOS AppId Services [9.6-20090519.0]  
JUNOS IDP Services [9.6-20090519.0]  
JUNOS Routing Software Suite [9.6-20090519.0]
```

```
show version      user@host> show version invoke-on other-routing-engine  
invoke-on
```

other-routing-engine
(TX Matrix Plus
Router)

sfc0-re1:

```
-----
Hostname: aj1
Model: txp
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc0-re1:

```
-----
Hostname: lj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc1-re1:

```
-----
Hostname: mj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc2-re1:

```
-----
Hostname: pj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

lcc3-re1:

```
-----
Hostname: tj1
Model: t1600
JUNOS Base OS boot [9.6-20090519.0]
JUNOS Base OS Software Suite [9.6-20090519.0]
JUNOS Kernel Software Suite [9.6-20090519.0]
JUNOS Crypto Software Suite [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (M/T Common) [9.6-20090519.0]
JUNOS Packet Forwarding Engine Support (T-Series) [9.6-20090519.0]
JUNOS Online Documentation [9.6-20090519.0]
JUNOS Voice Services Container package [9.6-20090519.0]
JUNOS Border Gateway Function package [9.6-20090519.0]
JUNOS Services AACL Container package [9.6-20090519.0]
JUNOS Services LL-PDF Container package [9.6-20090519.0]
JUNOS Services Stateful Firewall [9.6-20090519.0]
JUNOS AppId Services [9.6-20090519.0]
JUNOS IDP Services [9.6-20090519.0]
JUNOS Routing Software Suite [9.6-20090519.0]
```

PART 6

Configuration Statements

- [Miscellaneous Chassis Statements on page 713](#)
- [Miscellaneous LCC-Specific Chassis Statements on page 721](#)
- [Miscellaneous FPC-Specific Chassis Statements on page 725](#)
- [Miscellaneous PIC-Specific Chassis Statements on page 727](#)
- [Miscellaneous System Statements on page 737](#)
- [Miscellaneous Syslog-Specific System Statements on page 749](#)

CHAPTER 14

Miscellaneous Chassis Statements

alarm (chassis)

Syntax	<pre> alarm { interface-type { alarm-name (ignore red yellow); } } relay input { port port-number { mode (close open); trigger (ignore red yellow); } } output { port port-number { input-relay input-relay; mode (close open); temperature; } } </pre>
Hierarchy Level	<p>[edit chassis], [edit chassis interconnect-device <i>name</i>], [edit chassis node-group <i>name</i>]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 11.1 for the QFX Series. Statement introduced in Junos OS Release 12.3 for the ACX Series Routers.</p>
Description	<p>Configure the chassis alarms and whether they trigger a red or yellow alarm, or whether they are ignored. Red alarm conditions light the RED ALARM LED on either the router's craft interface or the switch's LCD screen and trigger an audible alarm if one is connected to the contact on the craft interface or LCD screen. Yellow alarm conditions light the YELLOW ALARM LED on either the router's craft interface or the switch's LCD screen and trigger an audible alarm if one is connected to the craft interface or LCD screen.</p> <p>To configure more than one alarm, include multiple alarm-name lines.</p>
Options	<p>alarm-name—Alarm condition. For a list of conditions, see System-Wide Alarms and Alarms for Each Interface Type.</p> <p>ignore—The specified alarm condition does not set off any alarm.</p> <p>interface-type—Type of interface on which you are configuring the alarm: atm, ethernet, sonet, or t3.</p> <p>red—The specified alarm condition sets off a red alarm.</p> <p>yellow—The specified alarm condition sets off a yellow alarm.</p>

Required Privilege interface—To view this statement in the configuration.
Level interface-control—To add this statement to the configuration.

Related Documentation

- Understanding Alarms
- Chassis Conditions That Trigger Alarms
- Chassis Alarm Messages on a QFX3500 Device
- Interface Alarm Messages
- User-Defined Alarm Relay Overview

lcc

```

Syntax  lcc number {
        fpc slot-number {
            pic pic-number {
                atm-cell-relay-accumulation;
                atm-l2circuit-mode (cell | aal5 | trunk trunk);
                framing (sdh | sonet);
                idle-cell-format {
                    itu-t;
                    payload-pattern payload-pattern-byte;
                }
                max-queues-per-interface (8 | 4);
                no-concatenate;
                no-mcast-replication;
            }
        }
        online-expected;
        offline;
    }
    q-pic-large-buffer {
        large-scale;
    }
}

```

Hierarchy Level [edit chassis]

Release Information Statement introduced before Junos OS Release 7.4.

Description Configure a T640 router (on a routing matrix based on a TX Matrix router) or a T1600 router (on a routing matrix based on a TX Matrix Plus router).

Options *number*—Specify a T640 router or a T1600 on a routing matrix.

Range: 0 through 3

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- TX Matrix Router and T640 Router Configuration Overview
- Using the Junos OS to Configure a T640 Router Within a Routing Matrix
- TX Matrix Plus Router and T1600 Router Configuration Overview
- Using the Junos OS to Configure a T1600 Router Within a Routing Matrix
- *TX Matrix Router Hardware Guide*
- *TX Matrix Plus Router Hardware Guide*

lcc

Syntax	<code>lcc number fpcs [slot-numbers];</code>
Hierarchy Level	[edit chassis system-domains protected-system-domains psdn]
Release Information	Statement introduced in Junos OS Release 11.4.
Description	Assign Flexible PIC Concentrators (FPCs) to a Protected System Domain (PSD).
Options	<p><i>number</i>—Specify a T Matrix Plus on a routing matrix. Range: 0 through 3</p> <p><i>slot-numbers</i>—Slot numbers for the FPCs to be assigned to the PSD. Range: For Junos OS Release 11.4, supported values are 0 through 7.</p>
Required Privilege Level	<p>view-level—To view this statement in the configuration.</p> <p>control-level—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">Configuring an RSD and Creating PSDs

redundancy

Syntax

```
redundancy {  
  cfeb slot (always | preferred);  
  failover {  
    on-disk-failure;  
    on-loss-of-keepalives;  
  }  
  feb {  
    redundancy-group group-name {  
      description description;  
      feb slot-number (backup | primary);  
      no-auto-failover;  
    }  
  }  
  graceful-switchover;  
  keepalive-time seconds;  
  routing-engine slot-number (backup | disabled | master);  
  sfm slot-number (always | preferred);  
  ssb slot-number (always | preferred);  
}
```

Hierarchy Level [edit chassis]

Release Information Statement introduced before Junos OS Release 7.4.

Description Configure redundancy options.

Options The statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
interface-control—To add this statement to the configuration.

Related Documentation

- Chassis Redundancy Hierarchy
- Configuring Routing Engine Redundancy
- Configuring CFEB Redundancy on the M10i Router
- Configuring FEB Redundancy on the M120 Router
- Configuring SFM Redundancy on M40e and M160 Routers
- Configuring SSB Redundancy on the M20 Router

routing-engine (Chassis)

Syntax	<pre>routing-engine { on-disk-failure { disk-failure-action (halt reboot); } }</pre>
Hierarchy Level	[edit chassis]
Release Information	Statement introduced before Junos OS Release 7.4. The disk-failure-action statement added in Junos OS Release 9.0.
Description	Configure a Routing Engine to halt or reboot automatically when a hard disk error occurs. A hard disk error may cause a Routing Engine to enter a state in which it responds to local pings and interfaces remain up, but no other processes are responding. Rebooting or halting prevents this.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">Configuring the Junos OS to Enable a Routing Engine to Reboot on Hard Disk ErrorsJunos High Availability Configuration Guide

CHAPTER 15

Miscellaneous LCC-Specific Chassis Statements

fpc (TX Matrix and TX Matrix Plus Routers)

Syntax `fpc slot-number {
 pic pic-number {
 atm-cell-relay-accumulation;
 atm-l2circuit-mode (cell | aal5 | trunk trunk);
 framing (sdh | sonet);
 idle-cell-format {
 itu-t;
 payload-pattern payload-pattern-byte;
 }
 max-queues-per-interface (8 | 4);
 no-concatenate;
 no-mcast-replication;
 q-pic-large-buffer (large-scale | small-scale);
 }
 }`

Hierarchy Level [edit chassis `lcc number`]

Release Information Statement introduced before Junos OS Release 7.4.

Description On a TX Matrix or TX Matrix Plus router, configure properties for the PICs in individual FPCs.

Options *slot-number*—Slot number in which the FPC is installed.
Range: 0 through 7

The remaining statements are explained separately.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

Related Documentation

- TX Matrix Router and T640 Router Configuration Overview
- TX Matrix Plus Router and T1600 Router Configuration Overview
- Configuring the Junos OS to Enable SONET/SDH Framing for SONET/SDH PICs
- TX Matrix Router Chassis and Interface Names
- TX Matrix Plus Router Chassis and Interface Names

offline

Syntax	offline;
Hierarchy Level	[edit chassis lcc number]
Release Information	Statement introduced before Junos OS Release 7.4.
Description	(Routing matrix based on the TX Matrix and TX Matrix Plus routers only) On a TX Matrix router, configure a T640 router so that it is not part of the routing matrix. On a TX Matrix Plus router, configure a T1600 router so that it is not part of the routing matrix.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • online-expected on page 724 • TX Matrix Router and T640 Router Configuration Overview • TX Matrix Plus Router and T1600 Router Configuration Overview • Configuring the Junos OS to Enable the TX Matrix Router to Generate an Alarm If a T640 Router Stays Offline • Configuring the Junos OS to Enable the TX Matrix Plus Router to Generate an Alarm If a T1600 Router Stays Offline

online-expected

Syntax	online-expected;
Hierarchy Level	[edit chassis lcc number]
Release Information	Statement introduced before Junos OS Release 7.4.
Description	(TX Matrix and TX Matrix Plus routing matrix only) On a TX Matrix router, configure a T640 router so that if it does not come online, an alarm is sent to the TX Matrix router. On a TX Matrix Plus router, configure a T1600 router so that if it does not come online, an alarm is sent to the TX Matrix Plus router.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• TX Matrix Router and T640 Router Configuration Overview• TX Matrix Plus Router and T1600 Router Configuration Overview• Configuring the Junos OS to Enable the TX Matrix Router to Generate an Alarm If a T640 Router Stays Offline• Configuring the Junos OS to Enable the TX Matrix Plus Router to Generate an Alarm If a T1600 Router Stays Offline• offline on page 723

Miscellaneous FPC-Specific Chassis Statements

pic (TX Matrix and TX Matrix Plus Routers)

Syntax	<pre> pic <i>pic-number</i> { atm-cell-relay-accumulation; atm-l2circuit-mode (cell aal5 trunk <i>trunk</i>); framing (sdh sonet); idle-cell-format { itu-t; payload-pattern <i>payload-pattern-byte</i>; } max-queues-per-interface (8 4); no-concatenate; no-mcast-replication; q-pic-large-buffer (large-scale small-scale); } </pre>
Hierarchy Level	[edit chassis lcc <i>number</i> fpc <i>slot-number</i>]
Release Information	Statement introduced before Junos OS Release 7.4.
Description	On a TX Matrix or TX Matrix Plus router, configure properties for an individual PIC.
Options	<p><i>pic-number</i>—Slot number in which the PIC is installed.</p> <p>Range: 0 through 3</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> • TX Matrix Router and T640 Router Configuration Overview • TX Matrix Plus Router and T1600 Router Configuration Overview • Configuring the Junos OS to Enable SONET/SDH Framing for SONET/SDH PICs

power

Syntax	<code>power (off on);</code>
Hierarchy Level	<code>[edit chassis fpc slot-number]</code>
Release Information	Statement introduced before Junos OS Release 7.4.
Description	Configure the Flexible PIC Concentrator (FPC) to stay offline or to come online automatically.
Default	<code>on</code>
Options	<p><code>off</code>—Take the FPC offline, and configure it to stay offline, as, for example, after a system reboot.</p> <p><code>on</code>—Bring the FPC online, and configure it to come online automatically, as, for example, after a system reboot.</p>
Required Privilege Level	<p><code>interface</code>—To view this statement in the configuration.</p> <p><code>interface-control</code>—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">Configuring the Junos OS to Make a Flexible PIC Concentrator Stay Offline

Miscellaneous PIC-Specific Chassis Statements


aggregate-ports

Syntax	<code>aggregate-ports;</code>
Hierarchy Level	<code>[edit chassis fpc slot-number pic pic-number]</code>
Release Information	Statement introduced in Junos OS Release 8.1.
Description	For T Series routers only, specify OC768-over-OC192 mode on the 4-port OC192C PIC. Four OC192 links are aggregated into one OC768 link with one logical interface.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • [OBSOLETE]Specifying OC768-over-OC192 Mode

atm-cell-relay-accumulation

Syntax	<code>atm-cell-relay-accumulation;</code>
Hierarchy Level	<code>[edit chassis fpc slot-number pic pic-number]</code> , <code>[edit chassis lcc number fpc slot-number pic pic-number]</code> (Routing Matrix)
Release Information	Statement introduced before Junos OS Release 7.4.
Description	Configure an Asynchronous Transfer Mode (ATM) Physical Interface Card (PIC) in cell-relay accumulation mode.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> • Configuring the Junos OS to Use ATM Cell-Relay Accumulation Mode on an ATM1 PIC

atm-l2circuit-mode

Syntax	atm-l2circuit-mode (cell aal5 trunk <i>trunk</i>);
Hierarchy Level	[edit chassis fpc <i>slot-number</i> pic <i>pic-number</i>], [edit chassis lcc <i>number</i> fpc <i>slot-number</i> pic <i>pic-number</i>] (Routing Matrix)
Release Information	Statement introduced before Junos OS Release 7.4.
Description	Configure the ATM2 intelligent queuing (IQ) Layer 2 circuit transport mode.
Default	aal5
Options	<p>aal5—Tunnel a stream of ATM cells encoded with ATM Adaptation Layer (AAL5) over an IP Multiprotocol Label Switching (MPLS) backbone.</p> <p>cell—Tunnel a stream of ATM cells over an IP MPLS backbone.</p> <p>trunk <i>trunk</i>—Transport ATM cells over an MPLS core network that is implemented on some other vendor switches. Trunk mode can be UNI or NNI.</p>
	<div> NOTE: To determine which vendors support Layer 2 circuit trunk mode, contact Juniper Networks Customer Support.</div>
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">Configuring the Junos OS to Enable ATM2 Intelligent Queuing Layer 2 Circuit Transport Mode

framing

Syntax	<code>framing (sdh sonet);</code>
Hierarchy Level	<code>[edit chassis fpc slot-number pic pic-number]</code> , <code>[edit chassis lcc number fpc slot-number pic pic-number]</code> (Routing Matrix)
Release Information	Statement introduced before Junos OS Release 7.4.
Description	On SONET/SDH PICs only, configure the framing type.
Default	<code>sonet</code>
Options	<code>sdh</code> —SDH framing. <code>sonet</code> —SONET framing.
Required Privilege Level	<code>interface</code> —To view this statement in the configuration. <code>interface-control</code> —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> Configuring the Junos OS to Enable SONET/SDH Framing for SONET/SDH PICs

idle-cell-format

Syntax	<pre>idle-cell-format { itu-t; payload-pattern <i>payload-pattern-byte</i>; }</pre>
Hierarchy Level	<code>[edit chassis fpc slot-number pic pic-number idle-cell-format]</code> , <code>[edit chassis lcc number fpc slot-number pic pic-number idle-cell-format]</code> (Routing Matrix)
Release Information	Statement introduced before Junos OS Release 7.4.
Description	For ATM2 PICs only, configure the format of the idle cell header and payload bytes.
Options	<code>itu-t</code> —Configure the idle cell header to use the International Telecommunications Union (ITU-T) standard of 0x00000001. Default: (4 bytes): 0x00000000 <code>payload-pattern-byte</code> —Configure the idle cell payload pattern. The payload pattern byte can range from 0x00 through 0xff. Default: cell payload (48 bytes)
Required Privilege Level	<code>interface</code> —To view this statement in the configuration. <code>interface-control</code> —To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> Configuring the Junos OS to Enable Idle Cell Format and Payload Patterns for ATM Devices

max-queues-per-interface

Syntax	max-queues-per-interface (8 4);
Hierarchy Level	[edit chassis fpc <i>slot-number</i> pic <i>pic-number</i>], [edit chassis lcc <i>number</i> fpc <i>slot-number</i> pic <i>pic-number</i>] (Routing Matrix)
Release Information	Statement introduced before Junos OS Release 7.4. Support for TX Matrix and TX Matrix Plus added in Junos OS Release 9.6. On MX Series routers, configure eight egress queues on Trio MPC/MIC interfaces.
Description	On M320, T320, T640 , TX Matrix, and TX Matrix Plus routers, configure eight egress queues on IQ interfaces. On MX Series routers, configure eight egress queues on Trio MPC/MIC interfaces.
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Configuring the Junos OS to Support Eight Queues on IQ Interfaces for T Series and M320 Routers• Configuring Up to 16 Forwarding Classes• Enabling Eight Queues on ATM Interfaces• Configuring the Maximum Number of Queues for Trio MPC/MIC Interfaces

no-concatenate

Syntax	no-concatenate;
Hierarchy Level	[edit chassis fpc <i>slot-number</i> pic <i>pic-number</i>], [edit chassis lcc <i>number</i> fpc <i>slot-number</i> pic <i>pic-number</i>] (Routing Matrix)
Release Information	Statement introduced before Junos OS Release 7.4.
Description	<p>Do not concatenate (multiplex) the output of a SONET/SDH PIC (an interface with a name <i>so-fpc/pic/port</i>).</p> <p>When configuring and displaying information about interfaces that are operating in channelized mode, you must specify the channel number in the interface name (<i>physical:channel</i>); for example, <i>so-2/2/0:0</i> and <i>so-2/2/0:1</i>.</p> <p>On SONET OC48 interfaces that are configured for channelized (multiplexed) mode, the bytes e1-quiet and bytes f1 options in the sonet-options statement have no effect. The bytes f2, bytes z3, bytes z4, and path-trace options work correctly on channel 0. They work in the transmit direction only on channels 1, 2, and 3.</p>
Default	Output is concatenated (multiplexed).
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> Configuring the Junos OS to Enable a SONET PIC to Operate in Channelized (Multiplexed) Mode

port (Chassis)

Syntax	port <i>port-number</i> ;
Hierarchy Level	[edit chassis fpc <i>slot-number</i> pic <i>pic-number</i> ct3]
Release Information	Statement introduced before Junos OS Release 7.4.
Description	Configure the channelized T3 port number on the PIC.
Options	<i>port-number</i> —Port number. Range: 0 through 1
Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none"> Configuring the Junos OS to Support Channelized DS3-to-DS0 Naming for Channel Groups and Time Slots

q-pic-large-buffer

Syntax	q-pic-large-buffer (large-scale small-scale);
Hierarchy Level	[edit chassis fpc slot-number pic pic-number] [edit chassis lcc number fpc slot-number pic pic-number (Routing Matrix)]
Release Information	Statement introduced in Junos OS Release 7.4. Support for TX Matrix and TX Matrix Plus hierarchy added in Junos OS Release 9.6.
Description	Configure delay buffers.



NOTE: When you commit the configuration after including the **q-pic-large-buffer** statement for a PIC, the Junos OS temporarily takes the PIC offline and brings it back online before the new configuration is activated and becomes the current operational configuration.

Default **small-scale**

Options **large-scale**—(Optional) Set the average packet size used to calculate the number of notification queue entries in the IQ PIC to 256 bytes. Useful for slower interfaces (T1, E1, and NxDS0 interfaces configured on Channelized IQ PICs and Gigabit Ethernet VLANs configured on Gigabit Ethernet IQ PICs).

small-scale—(Optional) Set the average packet size used to calculate the number of notification queue entries in the IQ PIC to 40 bytes.




NOTE: You cannot configure the **large-scale** and the **small-scale** options on MX Series routers. Include only the **q-pic-large-buffer** statement to enable the large delay buffer size on Enhanced Queuing DPCs on MX Series routers.

Required Privilege Level interface—To view this statement in the configuration.
 interface-control—To add this statement to the configuration.

Related Documentation

- Configuring the Junos OS to Enable Larger Delay Buffers for T1, E1, and DS0 Interfaces Configured on Channelized IQ PICs
- Configuring Schedulers

red-buffer-occupancy

Syntax	red-buffer-occupancy { weighted-averaged [instant-usage-weight-exponent <i>exponent-value</i>] ; }
Hierarchy Level	[edit chassis fpc <i>slot-number</i> pic <i>pic-number</i>], [edit chassis lcc <i>number</i> fpc <i>slot-number</i> pic <i>pic-number</i>]
Release Information	Statement introduced in Junos OS Release 8.3.
Description	Configure the IQ PIC to base random early detection (RED) queue management on a <i>simple moving average</i> buffer occupancy calculation. If you do not include this statement, the IQ PIC bases RED on an <i>instantaneous</i> buffer occupancy value. As an option, you can specify that the IQ PIC bases RED on a <i>weighted moving average</i> of buffer occupancy values.
Options	<p>weighted-averaged—Configure the IQ PIC to base RED processing on a simple moving average of instantaneous buffer occupancy values instead of an instantaneous buffer occupancy.</p> <p>instant-usage-weight-exponent <i>exponent-value</i>—(Optional) Specify the integer to be used as the negative exponent of 2 to express a weight value. The PIC performs weighted RED (WRED) by based on a calculation of average buffer occupancy that applies the specified weight value to the instantaneous buffer occupancy and then factors the weighted value into the calculation of average buffer occupancy. Valid exponent range is from 1 through 31 (weight values from 2^{-1} through 2^{-31}). If you do not specify this option, the default exponent value is 0, which results in a weight value of $2^0 = 1$. With a weight value of 1, the calculation of weighted average buffer occupancy yields the same value as the simple average buffer occupancy.</p>
<div>  <p>NOTE: You can specify an exponent value greater than 31, and the value displays in the output of show commands. However, the PIC replaces the out-of-range value with the <i>operational</i> value of 31, which results in a weight value of $2^{-31} = 1 / 2^{31} = 0.0000000004656612873077392578125$.</p> </div>	
Required Privilege Level	<p>interface—To view this statement in the configuration.</p> <p>interface-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> Configuring Weighted RED Buffer Occupancy Example: Configuring Weighted RED Buffer Occupancy

traffic-manager

Syntax

```
traffic-manager {
    egress-shaping-overhead number;
    ingress-shaping-overhead number;
    mode {
        egress-only;
        ingress-and-egress;
        session-shaping;
    }
}
```

Hierarchy Level [edit chassis fpc *slot-number* pic *pic-number*],
[edit chassis lcc *number* fpc *slot-number* pic *pic-number*] (Routing Matrix)

Release Information Statement introduced in Junos OS Release 8.3.

Description Enable CoS queueing, scheduling, and shaping.



NOTE: Junos OS does not support **ingress-and-egress** mode on label-switched interfaces (LSI) configured with VPLS .

Options **egress-shaping-overhead *number***—When traffic management (queueing and scheduling) is configured on the egress side, the number of CoS shaping overhead bytes to add to the packets on the egress interface.

Replace ***number*** with a value from **-63** through **192** bytes.



NOTE: The L2 headers (DA/SA + VLAN tags) are automatically a part of the shaping calculation.

ingress-shaping-overhead *number*—When L2TP session shaping is configured, the number of CoS shaping overhead bytes to add to the packets on the ingress side of the L2TP tunnel to determine the shaped session packet length.

When session shaping is not configured and traffic management (queueing and scheduling) is configured on the ingress side, the number of CoS shaping overhead bytes to add to the packets on the ingress interface.

Replace ***number*** with a value from **-63** through **192** bytes.

mode—Configure CoS traffic manager mode of operation. This option has the following suboptions:

- **egress-only**—Enable CoS queuing and scheduling on the egress side for the PIC that houses the interface. This is the default mode for an Enhanced Queueing (EQ) DPC on MX Series routers.



NOTE: If ingress packet drops are observed at a high rate for an IQ2 or IQ2E PIC, configure the `traffic-manager` statement to work in the **egress-only** mode.

- **ingress-and-egress**—Enable CoS queuing and scheduling on both the egress and ingress sides for the PIC. This is the default mode for IQ2 and IQ2E PICs on M Series and T Series routers.



NOTE:

- For EQ DPCs, you must configure the `traffic-manager` statement with **ingress-and-egress** mode to enable ingress CoS on the EQ DPC.
 - EQ DPCs have 250 ms of buffering, with only egress queuing (default mode). When **ingress-and-egress** is configured, the buffer is partitioned as 50 ms for the ingress direction and 200 ms for the egress direction.
- **session-shaping**—(M10i and M120 routers only) Configure the IQ2 PIC mode for session-aware traffic shaping to enable L2TP session shaping.

Required Privilege Level	interface—To view this statement in the configuration. interface-control—To add this statement to the configuration.
---------------------------------	---

Miscellaneous System Statements

backup-router

Syntax	<code>backup-router <i>address</i> <destination <i>destination-address</i>>;</code>
Hierarchy Level	[edit system]
Release Information	Statement introduced before Junos OS Release 7.4.
Description	Set a default router (running IP version 4 [IPv4]) to use while the local router (running IPv4) is booting and if the routing protocol processes fail to start. The Junos OS removes the route to this router as soon as the software starts.
Options	<p><i>address</i>—Address of the default router.</p> <p><i>destination destination-address</i>—(Optional) Destination address that is reachable through the backup router. You can include this option to achieve network reachability while loading, configuring, and recovering the router, but without the risk of installing a default route in the forwarding table.</p> <p>Default: All hosts (default route) are reachable through the backup router.</p>
Required Privilege Level	<p>system—To view this statement in the configuration.</p> <p>system-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none">• Configuring a Backup Router

host-name

Syntax	<code>host-name <i>hostname</i>;</code>
Hierarchy Level	[edit system]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.
Description	Set the hostname of the router or switch.
Options	<i>hostname</i> —Name of the router or switch.
Required Privilege Level	system—To view this statement in the configuration. system-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">Configuring the Hostname of the Router or Switch

location (System)

Syntax	<pre>location { altitude <i>feet</i>; building <i>name</i>; country-code <i>code</i>; floor <i>number</i>; hcoord <i>horizontal-coordinate</i>; lata <i>service-area</i>; latitude <i>degrees</i>; longitude <i>degrees</i>; npa-nxx <i>number</i>; postal-code <i>postal-code</i>; rack <i>number</i>; vcoord <i>vertical-coordinate</i>; }</pre>
Hierarchy Level	[edit system]
Release Information	<p>Statement introduced before Junos OS Release 7.4.</p> <p>Statement introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Configure the system location in various formats.
Options	<p>altitude <i>feet</i>—Number of feet above sea level.</p> <p>building <i>name</i>—Name of building. The name of the building can be 1 to 28 characters in length. If the string contains spaces, enclose it in quotation marks (" ").</p> <p>country-code <i>code</i>—Two-letter country code.</p> <p>floor <i>number</i>—Floor in the building.</p> <p>hcoord <i>horizontal-coordinate</i>—Bellcore Horizontal Coordinate.</p> <p>lata <i>service-area</i>—Long-distance service area.</p> <p>latitude <i>degrees</i>—Latitude in degree format.</p> <p>longitude <i>degrees</i>—Longitude in degree format.</p> <p>npa-nxx <i>number</i>—First six digits of the phone number (area code and exchange).</p> <p>postal-code <i>postal-code</i>—Postal code.</p> <p>rack <i>number</i>—Rack number.</p> <p>vcoord <i>vertical-coordinate</i>—Bellcore Vertical Coordinate.</p>
Required Privilege Level	<p>system—To view this statement in the configuration.</p> <p>system-control—To add this statement to the configuration.</p>

- Related Documentation**
- [Configuring the Physical Location of the Router or Switch](#)

scripts

```

Syntax  scripts {
        commit {
            allow-transients;
            direct-access;
            file filename {
                checksum (md5 | sha-256 | sha1) hash;
                optional;
                refresh;
                refresh-from url;
                source url;
            }
            max-datasize
            refresh;
            refresh-from url;
            traceoptions {
                file <filename> <files number> <size size> <world-readable | no-world-readable>;
                flag flag;
                no-remote-trace;
            }
        }
        op {
            file filename {
                arguments {
                    argument-name {
                        description descriptive-text;
                    }
                }
                checksum (md5 | sha-256 | sha1) hash;
                command filename-alias;
                description descriptive-text;
                max-datasize
                refresh;
                refresh-from url;
                source url;
            }
            no-allow-url
            refresh;
            refresh-from url;
            traceoptions {
                file <filename> <files number> <size size> <world-readable | no-world-readable>;
                flag flag;
                no-remote-trace;
            }
        }
    }

```

Hierarchy Level [edit system]

Release Information Statement introduced in Junos OS Release 7.4.
Statement introduced in Junos OS Release 11.1 for the QFX Series.

Description For Junos OS commit or op scripts, configure scripting mechanisms.



NOTE: The `traceoptions` statement is not supported on QFabric systems.

Options	The statements are explained separately.
Required Privilege Level	maintenance—To view this statement in the configuration. maintenance-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Storing and Enabling Scripts

syslog (System)

```

Syntax  syslog {
        archive {
            (binary-data| no-binary-data);
            files number;
            size maximum-file-size;
            start-time "YYYY-MM-DD.hh:mm";
            transfer-interval minutes;
            (world-readable | no-world-readable);
        }
        console {
            facility severity;
        }
        file filename {
            facility severity;
            explicit-priority;
            match "regular-expression";
            archive {
                (binary-data| no-binary-data);
                files number;
                size maximum-file-size;
                start-time "YYYY-MM-DD.hh:mm";
                transfer-interval minutes;
                (world-readable | no-world-readable);
            }
            structured-data {
                brief;
            }
        }
        host (hostname | other-routing-engine | scc-master) {
            facility severity;
            explicit-priority;
            facility-override facility;
            log-prefix string;
            match "regular-expression";
            source-address source-address;
            structured-data {
                brief;
            }
            port port number;
        }
        log-rotate-frequency frequency;
        source-address source-address;
        time-format (millisecond | year | year millisecond);
        user (username | *) {
            facility severity;
            match "regular-expression";
        }
    }

```

Hierarchy Level [edit logical-systems *logical-system-name* system],
[edit system]

Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.1 for the QFX Series. Support at the [edit logical-systems <i>logical-system-name</i> system] hierarchy level introduced in Junos OS Release 11.4.
Description	Configure the types of system log messages to log to files, a remote destination, user terminals, or the system console. The remaining statements are explained separately.
Required Privilege Level	system—To view this statement in the configuration. system-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">• Junos OS System Log Configuration Overview• <i>Junos OS System Log Messages Reference</i>• Overview of Single-Chassis System Logging Configuration

time-zone

Syntax	<code>time-zone (GMT <i>hour-offset</i> <i>time-zone</i>);</code>
Hierarchy Level	[edit system]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. GMT <i>hour-offset</i> option added in Junos OS Release 7.4.
Description	Set the local time zone. To have the time zone change take effect for all processes running on the router or switch, you must reboot the router or switch.
Default	UTC
Options	<p>GMT <i>hour-offset</i>—Set the time zone relative to UTC time.</p> <p>Range: –14 through +12</p> <p>Default: 0</p> <p><i>time-zone</i>—Specify the time zone as UTC, which is the default time zone, or as a string such as PDT (Pacific Daylight Time), or use one of the following continents and major cities:</p> <p>Africa/Abidjan, Africa/Accra, Africa/Addis_Ababa, Africa/Algiers, Africa/Asmera, Africa/Bamako, Africa/Bangui, Africa/Banjul, Africa/Bissau, Africa/Blantyre, Africa/Brazzaville, Africa/Bujumbura, Africa/Cairo, Africa/Casablanca, Africa/Ceuta, Africa/Conakry, Africa/Dakar, Africa/Dar_es_Salaam, Africa/Djibouti, Africa/Douala, Africa/El_Aaiun, Africa/Freetown, Africa/Gaborone, Africa/Harare, Africa/Johannesburg, Africa/Kampala, Africa/Khartoum, Africa/Kigali, Africa/Kinshasa, Africa/Lagos, Africa/Libreville, Africa/Lome, Africa/Luanda, Africa/Lubumbashi, Africa/Lusaka, Africa/Malabo, Africa/Maputo, Africa/Maseru, Africa/Mbabane, Africa/Mogadishu, Africa/Monrovia, Africa/Nairobi, Africa/Ndjamena, Africa/Niamey, Africa/Nouakchott, Africa/Ouagadougou, Africa/Porto-Novo, Africa/Sao_Tome, Africa/Timbuktu, Africa/Tripoli, Africa/Tunis, Africa/Windhoek</p> <p>America/Adak, America/Anchorage, America/Anguilla, America/Antigua, America/Aruba, America/Asuncion, America/Barbados, America/Belize, America/Bogota, America/Boise, America/Buenos_Aires, America/Caracas, America/Catamarca, America/Cayenne, America/Cayman, America/Chicago, America/Cordoba, America/Costa_Rica, America/Cuiaba, America/Curacao, America/Dawson, America/Dawson_Creek, America/Denver, America/Detroit, America/Dominica, America/Edmonton, America/El_Salvador, America/Ensenada, America/Fortaleza, America/Glace_Bay, America/Godthab, America/Goose_Bay, America/Grand_Turk, America/Grenada, America/Guadeloupe, America/Guatemala, America/Guayaquil, America/Guyana, America/Halifax, America/Havana, America/Indiana/Knox, America/Indiana/Marengo, America/Indiana/Vevay, America/Indianapolis, America/Inuvik, America/Iqaluit, America/Jamaica, America/Jujuy, America/Juneau, America/La_Paz, America/Lima, America/Los_Angeles, America/Louisville, America/Maceio, America/Managua, America/Manaus, America/Martinique, America/Mazatlan, America/Mendoza, America/Menominee, America/Mexico_City, America/Miquelon, America/Montevideo, America/Montreal, America/Montserrat, America/Nassau, America/New_York, America/Nipigon, America/Nome, America/Noronha, America/Panama, America/Pangnirtung, America/Paramaribo, America/Phoenix, America/Port-au-Prince,</p>

America/Port_of_Spain, America/Porto_Acre, America/Puerto_Rico, America/Rainy_River, America/Rankin_Inlet, America/Regina, America/Rosario, America/Santiago, America/Santo_Domingo, America/Sao_Paulo, America/Scoresbysund, America/Shiprock, America/St_Johns, America/St_Kitts, America/St_Lucia, America/St_Thomas, America/St_Vincent, America/Swift_Current, America/Tegucigalpa, America/Thule, America/Thunder_Bay, America/Tijuana, America/Tortola, America/Vancouver, America/Whitehorse, America/Winnipeg, America/Yakutat, America/Yellowknife

Antarctica/Casey, Antarctica/DumontDURville, Antarctica/Mawson, Antarctica/McMurdo, Antarctica/Palmer, Antarctica/South_Pole

Arctic/Longyearbyen

Asia/Aden, Asia/Alma-Ata, Asia/Amman, Asia/Anadyr, Asia/Aqtau, Asia/Aqtobe, Asia/Ashkhabad, Asia/Baghdad, Asia/Bahrain, Asia/Baku, Asia/Bangkok, Asia/Beirut, Asia/Bishkek, Asia/Brunei, Asia/Calcutta, Asia/Chungking, Asia/Colombo, Asia/Dacca, Asia/Damascus, Asia/Dubai, Asia/Dushanbe, Asia/Gaza, Asia/Harbin, Asia/Hong_Kong, Asia/Irkutsk, Asia/Ishigaki, Asia/Jakarta, Asia/Jayapura, Asia/Jerusalem, Asia/Kabul, Asia/Kamchatka, Asia/Karachi, Asia/Kashgar, Asia/Katmandu, Asia/Krasnoyarsk, Asia/Kuala_Lumpur, Asia/Kuching, Asia/Kuwait, Asia/Macao, Asia/Magadan, Asia/Manila, Asia/Muscat, Asia/Nicosia, Asia/Novosibirsk, Asia/Omsk, Asia/Phnom_Penh, Asia/Pyongyang, Asia/Qatar, Asia/Rangoon, Asia/Riyadh, Asia/Saigon, Asia/Seoul, Asia/Shanghai, Asia/Singapore, Asia/Taipei, Asia/Tashkent, Asia/Tbilisi, Asia/Tehran, Asia/Thimbu, Asia/Tokyo, Asia/Ujung_Pandang, Asia/Ulan_Bator, Asia/Urumqi, Asia/Vientiane, Asia/Vladivostok, Asia/Yakutsk, Asia/Yekaterinburg, Asia/Yerevan

Atlantic/Azores, Atlantic/Bermuda, Atlantic/Canary, Atlantic/Cape_Verde, Atlantic/Faeroe, Atlantic/Jan_Mayen, Atlantic/Madeira, Atlantic/Reykjavik, Atlantic/South_Georgia, Atlantic/St_Helena, Atlantic/Stanley

Australia/Adelaide, Australia/Brisbane, Australia/Broken_Hill, Australia/Darwin, Australia/Hobart, Australia/Lindeman, Australia/Lord_Howe, Australia/Melbourne, Australia/Perth, Australia/Sydney

Europe/Amsterdam, Europe/Andorra, Europe/Athens, Europe/Belfast, Europe/Belgrade, Europe/Berlin, Europe/Bratislava, Europe/Brussels, Europe/Bucharest, Europe/Budapest, Europe/Chisinau, Europe/Copenhagen, Europe/Dublin, Europe/Gibraltar, Europe/Helsinki, Europe/Istanbul, Europe/Kaliningrad, Europe/Kiev, Europe/Lisbon, Europe/Ljubljana, Europe/London, Europe/Luxembourg, Europe/Madrid, Europe/Malta, Europe/Minsk, Europe/Monaco, Europe/Moscow, Europe/Oslo, Europe/Paris, Europe/Prague, Europe/Riga, Europe/Rome, Europe/Samara, Europe/San_Marino, Europe/Sarajevo, Europe/Simferopol, Europe/Skopje, Europe/Sofia, Europe/Stockholm, Europe/Tallinn, Europe/Tirane, Europe/Vaduz, Europe/Vatican, Europe/Vienna, Europe/Vilnius, Europe/Warsaw, Europe/Zagreb, Europe/Zurich

Indian/Antananarivo, Indian/Chagos, Indian/Christmas, Indian/Cocos, Indian/Comoro, Indian/Kerguelen, Indian/Mahe, Indian/Maldives, Indian/Mauritius, Indian/Mayotte, Indian/Reunion

Pacific/Apia, Pacific/Auckland, Pacific/Chatham, Pacific/Easter, Pacific/Efate, Pacific/Enderbury, Pacific/Fakaofu, Pacific/Fiji, Pacific/Funafuti, Pacific/Galapagos, Pacific/Gambier, Pacific/Guadalcanal, Pacific/Guam, Pacific/Honolulu, Pacific/Johnston, Pacific/Kiritimati, Pacific/Kosrae, Pacific/Kwajalein, Pacific/Majuro, Pacific/Marquesas, Pacific/Midway, Pacific/Nauru, Pacific/Niue, Pacific/Norfolk, Pacific/Noumea, Pacific/Pago_Pago, Pacific/Palau, Pacific/Pitcairn, Pacific/Ponape, Pacific/Port_Moresby, Pacific/Rarotonga, Pacific/Saipan, Pacific/Tahiti, Pacific/Tarawa, Pacific/Tongatapu, Pacific/Truk, Pacific/Wake, Pacific/Wallis, Pacific/Yap

Required Privilege system—To view this statement in the configuration.
Level system-control—To add this statement to the configuration.

- Related Documentation**
- [Modifying the Default Time Zone for a Router or Switch Running Junos OS](#)
 - [System Management Configuration Statements](#)

CHAPTER 19

Miscellaneous Syslog-Specific System Statements

file (System Logging)

Syntax	<pre>file <i>filename</i> { <i>facility severity</i>; archive { files <i>number</i>; size <i>size</i>; (no-world-readable world-readable); } explicit-priority; match "<i>regular-expression</i>"; structured-data { brief; } }</pre>
Hierarchy Level	[edit system syslog]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.1 for the QFX Series.
Description	Configure the logging of system messages to a file.
Options	<p>facility—Class of messages to log. To specify multiple classes, include multiple facility severity statements. For a list of the facilities, see Junos OS System Logging Facilities and Message Severity Levels.</p> <p>file filename—File in the <code>/var/log</code> directory in which to log messages from the specified facility. To log messages to more than one file, include more than one file statement.</p> <p>severity—Severity of the messages that belong to the facility specified by the paired facility name. Messages with severities of the specified level and higher are logged. For a list of the severities, see Junos OS System Logging Facilities and Message Severity Levels.</p> <p>The remaining statements are explained separately.</p>
Required Privilege Level	system—To view this statement in the configuration. system-control—To add this statement to the configuration.
Related Documentation	<ul style="list-style-type: none">Directing System Log Messages to a Log File<i>Junos OS System Log Messages Reference</i>

host (System)

Syntax	<pre> host (hostname other-routing-engine) { facility severity; explicit-priority; facility-override facility; log-prefix string; match "regular-expression"; source-address source-address; structured-data { brief; } } </pre>
QFX Series	<pre> host (hostname { facility severity; explicit-priority; facility-override facility; log-prefix string; match "regular-expression"; port; source-address source-address; } </pre>
TX Matrix Router and EX Series Switches	<pre> host (hostname other-routing-engine scc-master) { facility severity; explicit-priority; facility-override facility; log-prefix string; match "regular-expression"; port; source-address source-address; } </pre>
TX Matrix Plus Router	<pre> host (hostname other-routing-engine sfc0-master) { facility severity; explicit-priority; facility-override facility; log-prefix string; match "regular-expression"; port; source-address source-address; } </pre>
Hierarchy Level	[edit logical-systems <i>logical-system-name</i> system syslog], [edit system syslog]
Release Information	Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches. Statement introduced in Junos OS Release 11.1 for the QFX Series.
Description	Configure the logging of system messages to a remote destination.

Options *facility*—Class of messages to log. To specify multiple classes, include multiple *facility severity* statements. For a list of the facilities, see Junos OS System Logging Facilities and Message Severity Levels.

hostname—IPv4 address, IPv6 address, or fully qualified hostname of the remote machine to which to direct messages. To direct messages to multiple remote machines, include a **host** statement for each one.

other-routing-engine—Direct messages to the other Routing Engine on a router or switch with two Routing Engines installed and operational.



NOTE: The **other-routing-engine** option is not applicable to the QFX Series.

port—Port number of the remote syslog server that can be modified.

scc-master—(TX Matrix routers only) On a T640 router that is part of a routing matrix, direct messages to the TX Matrix router.

severity—Severity of the messages that belong to the facility specified by the paired *facility* name. Messages with severities of the specified level and higher are logged. For a list of the severities, see Junos OS System Logging Facilities and Message Severity Levels.

sfc0-master—(TX Matrix Plus routers only) On a T1600 router that is part of a routing matrix, direct messages to the TX Matrix Plus router.

The remaining statements are explained separately.

Required Privilege Level	system—To view this statement in the configuration. system-control—To add this statement to the configuration.
---------------------------------	---

- | | |
|------------------------------|--|
| Related Documentation | <ul style="list-style-type: none">• Directing System Log Messages to a Remote Machine or the Other Routing Engine• Directing Messages to a Remote Destination from the Routing Matrix Based on the TX Matrix Router• Directing Messages to a Remote Destination from the Routing Matrix Based on a TX Matrix Plus Router• <i>Junos OS System Log Messages Reference</i> |
|------------------------------|--|

source-address (NTP, RADIUS, System Logging, or TACACS+)

Syntax	<code>source-address <i>source-address</i>;</code>
Hierarchy Level	<p>[edit system accounting destination radius server <i>server-address</i>], [edit system accounting destination tacplus server <i>server-address</i>], [edit system ntp], [edit system radius-server <i>server-address</i>], [edit system syslog], [edit system tacplus-server <i>server-address</i>]</p>
Release Information	<p>Statement introduced before Junos OS Release 7.4. Statement introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Specify a source address for each configured TACACS+ server, RADIUS server, NTP server, or the source address to record in system log messages that are directed to a remote machine.
Options	<p><i>source-address</i>—A valid IP address configured on one of the router or switch interfaces. For system logging, the address is recorded as the message source in messages sent to the remote machines specified in all host <i>hostname</i> statements at the [edit system syslog] hierarchy level, but not for messages directed to the other Routing Engine or to the TX Matrix router or TX Matrix Plus router in a routing matrix based on a TX Matrix router or TX Matrix Plus router.</p>
Required Privilege Level	<p>system—To view this statement in the configuration. system-control—To add this statement to the configuration.</p>
Related Documentation	<ul style="list-style-type: none"> Configuring RADIUS Authentication Synchronizing and Coordinating Time Distribution Using NTP Specifying an Alternative Source Address for System Log Messages

