Junos® OS for EX Series Ethernet Switches

System Basics on EX9200 Switches

Release
13.3

Published: 2014-06-11

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

Junos® OS for EX Series Ethernet Switches System Basics on EX9200 Switches
Release 13.3

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

List of Tables

About the Documentation

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:

- EX Series

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.xsl;
       }
     }
   }
   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.xsl; }
   ```

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 xi 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.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page xi 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**

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

Convention	Description	Examples
`Fixed-width text like this`	Represents output that appears on the terminal screen.	`user@host>` **show chassis alarms** `No alarms currently active`
Italic text like this	• Introduces or emphasizes important new terms. • Identifies guide names. • Identifies RFC and Internet draft titles.	• A policy *term* is a named structure that defines match conditions and actions. • *Junos OS CLI User Guide* • RFC 1997, *BGP Communities Attribute*
Italic text like this	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** *domain-name*
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	• 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)	Encloses 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** **(*string1* | *string2* | *string3*)**
# (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)	Encloses a variable for which you can substitute one or more values.	**community name members [** *community-ids* **]**

Indention and braces ({ })	Identifies a level in the configuration hierarchy.	[edit]
		routing-options {
		static {
		route default {
		nexthop *address*;
		retain;
		}
		}
		}

; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
GUI Conventions		
Bold text like this	Represents graphical user interface (GUI) items you click or select.	• In the Logical Interfaces box, select **All Interfaces**. • To cancel the configuration, click **Cancel**.

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

Convention	Description	Examples
> (bold right angle bracket)	Separates levels in a hierarchy of menu 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 provide feedback by using either of the following methods:

- Online feedback rating system—On any page at the Juniper Networks Technical Documentation site at http://www.juniper.net/techpubs/index.html, simply click the stars to rate the content, and use the pop-up form to provide us with information about your experience. Alternately, you can use the online feedback form at https://www.juniper.net/cgi-bin/docbugreport/.
- E-mail—Send your comments to **techpubs-comments@juniper.net**. Include the document or topic name, URL or page number, and software 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: http://kb.juniper.net/InfoCenter/
- 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

CHAPTER 1

Installation Overview

Junos OS Package Names

You upgrade the Juniper Networks Junos operating system (Junos OS) on a Juniper Networks EX Series Ethernet Switch by copying a software package to your switch or another system on your local network, then install the new software package on the switch.

Two versions of a Junos OS image-a controlled version that supports Media Access Control Security (MACsec) and a domestic version that does not support MACsec-are available for EX Series switches. A domestic version of Junos OS is available for all EX Series switches; a controlled version of Junos OS is only available for EX Series switches on Junos OS releases that support MACsec. The domestic version of Junos OS on EX Series switches can be used on any switch in any geography. The controlled version of Junos OS contains encryption and is not available to customers in all geographies.

NOTE: The controlled version of Junos OS contains encryption and is, therefore, not available to customers in all geographies. The export and re-export of the controlled version of Junos OS is strictly controlled under United States export laws. The export, import, and use of the controlled version of Junos OS is also subject to controls imposed under the laws of other countries.

If you have questions about acquiring the controlled version of Junos OS in your country, contact the Juniper Networks Trade Compliance group at compliance_helpdesk@juniper.net.

NOTE: The domestic version of Junos OS on EX Series switches is intended for use on any switch in any worldwide location.

For most Junos packages on other Juniper Networks products, the domestic package is used for products installed in the United States and Canada only while an export package is used for products installed in any worldwide location.

domestic-signed indicates the domestic software package.

A domestic software package name is in the following format:

***package-name-m.nZx.y*-domestic-signed.tgz**

A controlled software package name is in the following format:

***package-name-m.nZx.y*-controlled-signed.tgz**

where:

- ***package-name*** is the name of the package—for example, **jinstall-ex-4200**.
- ***m.n*** is the software release, with ***m*** representing the major release number and *n* representing the minor release number—for example, **9.5**.
- ***Z*** indicates the type of software release, where **R** indicates released software and **B** indicates beta-level software.
- ***x.y*** represents the version of the major software release (*x*) and an internal tracking number (*y*)—for example, **1.6**.
- **domestic-signed** indicates the domestic software package.
- **controlled-signed** indicates the controlled software package.

A sample EX Series software domestic package name is:

```
jinstall-ex-4200-9.5R1.6-domestic-signed.tgz
```

A sample EX Series controlled package name is:

```
jinstall-ex-4200-13.2X50-D15.3-controlled-signed.tgz
```

Related Documentation

- *Installing Software on EX Series Switches (J-Web Procedure)*
- *Installing Software on an EX Series Switch with a Single Routing Engine (CLI Procedure)*
- *Installing Software on an EX Series Switch with Redundant Routing Engines (CLI Procedure)*
- Downloading Software Packages from Juniper Networks on page 15
- *Understanding Software Installation on EX Series Switches*

CHAPTER 2

Licenses Overview

Understanding Software Licenses for EX Series Switches

To enable and use some of the Juniper Networks operating system (Junos OS) features, you must purchase, install, and manage separate software licenses. If the switch has the appropriate software license, you can configure and use these features.

The Junos OS feature license (that is, the purchased authorization code) is universal. However, to conform to Junos OS feature licensing requirements, you must install a unique license key (a combination of the authorization code and the switch's serial number) on each switch.

For a Virtual Chassis deployment, two license keys are recommended for redundancy—one for the device in the master role and the other for the device in the backup role:

- In an EX8200 Virtual Chassis, the devices in the master and backup roles are always XRE200 External Routing Engines.
- In all other Virtual Chassis, the devices in the master and backup roles are switches.

You do not need additional license keys for Virtual Chassis member switches that are in the linecard role or for the redundant Routing Engine (RE) modules or the redundant Switch Fabric and Routing Engine (SRE) modules in an EX8200 member switch.

This topic describes:

Purchasing a Software Feature License

The following sections list features that require separate licenses. To purchase a software license, contact your Juniper Networks sales representative (http://www.juniper.net/us/en/contact-us/sales-offices). You will be asked to supply the chassis serial number of your switch; you can obtain the serial number by running the **show chassis hardware** command.

NOTE: You are required to provide the 12-digit serial number when purchasing a license for an XRE200 External Routing Engine in an EX8200 Virtual Chassis.

The serial number listed on the XRE200 External Routing Engine serial ID label is 16 digits long. Use the last 12 digits of the 16-digit serial number to purchase the license.

You can use the **show chassis hardware** command output to display the 12-digit serial number of the XRE200 External Routing Engine.

Features Requiring a License on EX2200 Switches

For EX2200 switches, the following features can be added to basic Junos OS by installing an enhanced feature license (EFL):

- Bidirectional Forwarding Detection (BFD)
- Connectivity fault management (IEEE 802.1ag)
- IGMP (Internet Group Management Protocol) version 1 (IGMPv1), IGMPv2, and IGMPv3
- OSPFv1/v2 (with four active interfaces)
- Protocol Independent Multicast (PIM) dense mode, PIM source-specific mode, PIM sparse mode
- Q-in-Q tunneling (IEEE 802.1ad)
- Real-time performance monitoring (RPM)
- Virtual Router
- Virtual Router Redundancy Protocol (VRRP)

Table 3 on page 6 lists the EFLs that you can purchase for EX2200 switch models. If you have the license, you can run all of the enhanced software features mentioned above on your EX2200 switch.

Table 3: Junos OS EFL Part Number on EX2200 Switches

Switch Model	EFL Part Number
EX2200-C-12P-2G EX2200-C-12T-2G	EX-12-EFL

Table 3: Junos OS EFL Part Number on EX2200 Switches *(continued)*

Switch Model	EFL Part Number
EX2200-24T-4G EX2200-24P-4G EX2200-24T-DC-4G	EX-24-EFL
EX2200-48T-4G EX2200-48P-4G	EX-48-EFL

Features Requiring a License on EX3300 Switches

Two types of licenses are available on EX3300 switches: enhanced feature licenses (EFLs) and advanced feature licenses (AFLs).

To use the following features on the EX3300 switches, you must install an EFL:

- Bidirectional Forwarding Detection (BFD)
- IGMP (Internet Group Management Protocol) version 1 (IGMPv1), IGMPv2, and IGMPv3
- IPv6 routing protocols: Multicast Listener Discovery version 1 and 2 (MLD v1/v2), OSPFv3, PIM multicast, VRRPv6, virtual router support for unicast and filter-based forwarding (FBF)
- OSPFv1/v2
- Protocol Independent Multicast (PIM) dense mode, PIM source-specific mode, PIM sparse mode
- Q-in-Q tunneling (IEEE 802.1ad)
- Virtual Router
- Virtual Router Redundancy Protocol (VRRP)

Table 4 on page 7 lists the EFLs that you can purchase for EX3300 switch models. If you have the license, you can run all of the enhanced software features mentioned above on your EX3300 switch.

Table 4: Junos OS EFL Part Number on EX3300 Switches

Switch Model	EFL Part Number
EX3300-24T EX3300-24P EX3300-24T-DC	EX-24-EFL
EX3300-48T EX3300-48T-BF EX3300-48P	EX-48-EFL

To use the following feature on EX3300 switches, you must install an AFL:

- Border Gateway Protocol (BGP) and multiprotocol BGP (MBGP)

- IPv6 routing protocols: IPv6 BGP and IPv6 for MBGP
- Virtual routing and forwarding (VRF) BGP

Table 5 on page 8 lists the AFLs that you can purchase for EX3300 switch models. For EX3300 switches, you must purchase and install a corresponding EFL along with the AFL to enable the advanced license features. If you have both these licenses, you can run all of the advanced software features mentioned above on your EX3300 switch.

Table 5: Junos OS AFL Part Number on EX3300 Switches

Switch Model	AFL Part Number
EX3300-24T EX3300-24P EX3300-24T-DC	EX-24-AFL
EX3300-48T EX3300-48T-BF EX3300-48P	EX-48-AFL

Features Requiring a License on EX4300 Switches

Two types of licenses are available on EX4300 switches: enhanced feature licenses (EFLs) and advanced feature licenses (AFLs).

To use the following features on the EX4300 switches, you must install an EFL:

- Bidirectional Forwarding Detection (BFD)
- Connectivity fault management (IEEE 802.1ag)
- IGMP (Internet Group Management Protocol) version 1 (IGMPv1), IGMPv2, and IGMPv3
- Multicast Source Discovery Protocol (MSDP)
- OSPFv2/v3
- Protocol Independent Multicast (PIM) dense mode, PIM source-specific mode, PIM sparse mode
- Real-time perfomance monitoring (RPM)
- RIPng (RIP next generation)
- Unicast reverse-path forwarding (RPF)
- Virtual Router
- Virtual Router Redundancy Protocol (VRRP)

Table 6 on page 9 lists the EFLs that you can purchase for EX4300 switch models. If you have the license, you can run all of the enhanced software features mentioned above on your EX4300 switch.

Table 6: Junos OS EFL Part Number on EX4300 Switches

Switch Model	EFL Part Number
EX4300-24T EX4300-24P	EX4300-24-EFL
EX4300-48P EX4300-48T EX4300-48T-AFI EX4300-48T-DC EX4300-48T-DC-AFI	EX4300-48-EFL
EX4300-32F EX4300-32F-DC	EX4300-32F-EFL

To use the following features on EX4300 switches, you must install an AFL:

- Border Gateway Protocol (BGP) and multiprotocol BGP (MBGP)
- Intermediate System-to-Intermediate System (IS-IS)

Table 7 on page 9 lists the AFLs that you can purchase for EX4300 switch models. For EX4300 switches, you must purchase and install a corresponding EFL along with the AFL to enable the advanced license features. If you have both these licenses, you can run all of the advanced software features mentioned above on your EX4300 switch.

Table 7: Junos OS AFL Part Number on EX4300 Switches

Switch Model	AFL Part Number
EX4300-24T EX4300-24P	EX4300-24-AFL
EX4300-48P EX4300-48T EX4300-48T-AFI EX4300-48T-DC EX4300-48T-DC-AFI	EX4300-48-AFL
EX4300-32F EX4300-32F-DC	EX4300-32F-AFL

You must download a MACsec feature license to enable MACsec. The MACsec feature license is an independent feature license; the enhanced feature licenses (EFLs) or advanced feature licenses (AFLs) that must be purchased to enable some features on EX Series switches cannot be purchased to enable MACsec.

To purchase a feature license for MACsec, contact your Juniper Networks sales representative (http://www.juniper.net/us/en/contact-us/sales-offices). The Juniper sales representative will provide you with a feature license file and a license key.

MACsec is supported on EX4300 switches.

Features Requiring a License on EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, and EX9200 Switches

To use the following features on EX3200, EX4200, EX4500, EX4550, EX8200, and EX9200 switches, you must install an advanced feature license (AFL):

- Border Gateway Protocol (BGP) and multiprotocol BGP (MBGP)
- Intermediate System-to-Intermediate System (IS-IS)
- IPv6 routing protocols: IS-IS for IPv6, IPv6 BGP, IPv6 for MBGP
- Logical systems (available only on EX9200 switches)
- MPLS with RSVP-based label-switched paths (LSPs) and MPLS-based circuit cross-connects (CCCs) (Not supported on EX9200 switches)

To use the following features on Juniper Networks EX6200 Ethernet Switches, you must install an advanced feature license (AFL):

- Border Gateway Protocol (BGP)
- Intermediate System-to-Intermediate System (IS-IS)
- IPv6 routing protocols: IS-IS for IPv6, IPv6 BGP

Table 8 on page 10 lists the AFLs that you can purchase for EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, and EX9200 switches. If you have the license, you can run all of the advanced software features mentioned above on your EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, or EX9200 switch.

Table 8: Junos OS AFL Part Number on EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, and EX9200 Switches

Switch Model	AFL Part Number
EX3200-24P EX3200-24T EX4200-24F EX4200-24P EX4200-24PX EX4200-24T	EX-24-AFL
EX3200-48P EX3200-48T EX4200-48F EX4200-48P EX4200-48PX EX4200-48T	EX-48-AFL
EX4500-40F-BF EX4500-40F-BF-C EX4500-40F-FB EX4500-40F-FB-C	EX-48-AFL
EX4550	EX4550-AFL

Table 8: Junos OS AFL Part Number on EX3200, EX4200, EX4500, EX4550, EX6200, EX8200, and EX9200 Switches *(continued)*

Switch Model	AFL Part Number
EX6210	EX6210-AFL
EX8208	EX8208-AFL
EX8216	EX8216-AFL
EX-XRE200	EX-XRE200-AFL
EX9204	EX9204-AFL
EX9208	EX9208-AFL
EX9214	EX9214-AFL

You must download a MACsec feature license to enable MACsec. The MACsec feature license is an independent feature license; the enhanced feature licenses (EFLs) or advanced feature licenses (AFLs) that must be purchased to enable some features on EX Series switches cannot be purchased to enable MACsec.

To purchase a feature license for MACsec, contact your Juniper Networks sales representative (http://www.juniper.net/us/en/contact-us/sales-offices). The Juniper sales representative will provide you with a feature license file and a license key.

MACsec is currently supported on EX4200 and EX4550 switches.

License Warning Messages

For using features that require a license, you must install and configure a license key. To obtain a license key, use the contact information provided in your certificate.

If you have not purchased the AFL or EFL and installed the license key, you receive warnings when you try to commit the configuration:

```
[edit protocols]
  'bgp'
    warning: requires 'bgp' license
error: commit failed: (statements constraint check failed)
```

The system generates system log (**syslog**) alarm messages notifying you that the feature requires a license—for example:

```
Sep  3 05:59:11   craftd[806]:  Minor alarm set, BGP Routing Protocol usage
requires a license
Sep  3 05:59:11   alarmd[805]: Alarm set: License color=YELLOW, class=CHASSIS,
reason=BGP Routing Protocol usage requires a license
Sep  3 05:59:11   alarmd[805]: LICENSE_EXPIRED: License for feature bgp(47) expired
```

Output of the **show system alarms** command displays the active alarms:

```
user@switch> show system alarms
```

```
1 alarm currently active
Alarm time              Class  Description
2009-09-03 06:00:11 UTC  Minor  BGP Routing Protocol usage requires a license
```

Related Documentation

- *Managing Licenses for the EX Series Switch (CLI Procedure)*
- *Managing Licenses for the EX Series Switch (J-Web Procedure)*
- *Monitoring Licenses for the EX Series Switch*
- *License Key Components for the EX Series Switch*
- *EX Series Switch Software Features Overview*

PART 2

Configuration

CHAPTER 3

Junos OS Packages

Downloading Software Packages from Juniper Networks

You can download Junos OS packages from the Juniper Networks website to upgrade software on your EX Series switch.

Before you begin to download software upgrades, ensure that you have a Juniper Networks Web account and a valid support contract. To obtain an account, complete the registration form at the Juniper Networks website: https://www.juniper.net/registration/Register.jsp.

To download software upgrades from Juniper Networks:

1. Using a Web browser, follow the links to the download URL on the Juniper Networks webpage. For EX Series, there are not separate software packages for Canada the U.S. and other locations. Therefore, select **Canada and U.S. Version** regardless of your location:
   - https://www.juniper.net/support/downloads/junos.html
2. Log in to the Juniper Networks authentication system using the username (generally your e-mail address) and password supplied by Juniper Networks representatives.
3. Using the J-Web interface or the CLI, select the appropriate software package for your application. See "Junos OS Package Names" on page 3.
4. Download the software to a local host or to an internal software distribution site.

Related Documentation

- *Installing Software on EX Series Switches (J-Web Procedure)*
- *Installing Software on an EX Series Switch with a Single Routing Engine (CLI Procedure)*
- *Understanding Software Installation on EX Series Switches*

CHAPTER 4

Statement Hierarchies

[edit accounting-options] Hierarchy Level

```
accounting-options {
  class-usage-profile profile-name {
    destination-classes {
      destination-class-name;
    }
    file filename;
    interval minutes;
    source-classes {
      source-class-name;
    }
  }
  file filename {
    archive-sites {
      site-name;
```



```
    }
    files number;
    nonpersistent;
    size bytes;
    start-time time;
    transfer-interval minutes;
  }
  filter-profile profile-name {
    counters {
      counter-name;
    }
    file filename;
    interval minutes;
  }
  interface-profile profile-name {
    fields {
      input-bytes;
      input-errors;
      input-multicast;
      input-packets;
      input-unicast;
      output-bytes;
      output-errors;
      output-multicast;
      output-packets;
      output-unicast;
      rpf-check-bytes;
      rpf-check-packets;
      rpf-check6-bytes;
      rpf-check6-packets;
      unsupported-protocol;
    }
    file filename;
    interval minutes;
  }
  mib-profile profile-name {
    file filename;
    interval minutes;
    object-names {
      mib-object-name;
    }
    operation (get | get-next | walk);
  }
  policy-decision-statistics-profile profile-name {
    application-aware-access-list-fields {
      address;
      application;
      application-group;
      input-bytes;
      input-interface;
      input-packets;
      mask;
      output-bytes;
      output-packets;
      subscriber-name;
      timestamp;
```

```
        vrf-name;
      }
      file filename;
    }
    routing-engine-profile profile-name {
      fields {
        field-name;
      }
      file filename;
      interval minutes;
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit chassis] Hierarchy Level

```
chassis {
  aggregated-devices {
    ethernet {
      device-count number;
      lacp {
        link-protection {
          non-revertive;
        }
        system-priority;
      }
    }
    sonet {
      device-count number;
    }
    maximum-links maximum-links-limit;
  }
  alarm {
    ds1 {
      ais (ignore | red | yellow);
      ylw (ignore | red | yellow);
    }
    ethernet {
      link-down (ignore | red | yellow);
    }
    integrated-services {
      failure (ignore | red | yellow);
    }
    management-ethernet {
      link-down (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;
          }
        }
      serial {
        cts-absent (ignore | red | yellow);
        dcd-absent (ignore | red | yellow);
        dsr-absent (ignore | red | yellow);
        loss-of-rx-clock (ignore | red | yellow);
        loss-of-tx-clock (ignore | red | yellow);
        tm-absent (ignore | red | yellow);
      }
      services {
        hw-down (ignore | red | yellow);
        linkdown (ignore | red | yellow);
        pic-hold-reset (ignore | red | yellow);
        pic-reset (ignore | red | yellow);
        rx-errors (ignore | red | yellow);
        sw-down (ignore | red | yellow);
        tx-errors (ignore | red | yellow);
      }
      sonet {
        (ais-l | ais-p | ber-sd | ber-sf | locd | lol | lop-p | los | pll | plm-p | rfi-l | rfl-p | uneq-p)
          (ignore | red | yellow);
      }
      t3 {
        (ais | exz | ferf | idle | lcv | lof | los | pll | ylw) (ignore | red | yellow);
      }
    }
    cluster {
      control-link-recovery;
        control-ports {
        fpc slot-number port port-number;
      }
      heartbeat-interval milliseconds;
      heartbeat-threshold number;
      redundancy-group {
        ... the redundancy-group subhierarchy appears at the end of the [edit chassis cluster]
          hierarchy ...
      }
    reth-count number;
      traceoptions {
        file <filename > <files number> <match regular-expression> <size maximum-file-size>
          <world-readable | no-world-readable>;
        flag flag;
        level severity;
        no-remote-trace;
      }
      redundancy-group group-number {
        gratuitous-arp-count number;
        hold-down-interval seconds;
        interface-monitor {
          interface-name weight number;
```

```
        }
        ip-monitoring {
            family {
                inet {
                    ipv4-address {
                        interface reth index.logical-unit-number secondary-ip-address ipv4-address;
                        weight number;
                    }
                }
            }
            global-threshold number;
            global-weight number;
            retry-count count;
            retry-interval interval;
        }
        node node-number priority priority-number;
        preempt;
    }
config-button {
    no-clear;
    no-rescue;
}
container-devices {
    device-count number;
}
craft-lockout;
disable-power-management;
disk-partition partition-name (/config |/var) {
    level (full | high) {
        free-space threshold-value (mb | percent);
    }
}
enhanced-policer;
extended-statistics;
fabric {
    degraded {
        action-fpc-restart-disable;
        degraded-fabric-detection-enable
        degraded-fpc-bad-plane-threshold number-bad-planes;
        }
    redundancy-mode (increased-bandwidth | redundant);
}
filter;
fpc slot-number {
    ... the fpc subhierarchy appears after the main [edit chassis] hierarchy ...
}
fpc-feb-connectivity {
    fpc slot-number feb (slot-number | none);
}
fpc-resync;
fru-poweron-sequence sequence;
lcc index {
    ... the lcc subhierarchy appears after the main [edit chassis] hierarchy ...
}
maximum-ecmp value;
memory-enhanced {
```

```
    filter;
    route;
    vpn-label;
}
network-services (ethernet | enhanced-ethernet | ip | enhanced-ip);
(packet-scheduling | no-packet-scheduling);
pem {
    minimum number;
}
policer-drop-probability-low;
ppp-subscriber-services (disable | enable);
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);
}
route-localization {
    inet (chassis);
    inet6;
}
routing-engine {
    bios {
        no-auto-upgrade;
    }
    on-disk-failure disk-failure-action (halt | reboot);
}
sfm slot-number {
    power off;
}
sib {
    minimum number;
}
(source-route | no-source-route);
state [
    cb-upgrade [on | off];
}
synchronization {  # for M Series and T Series routers
    primary (external-a | external-b);
    secondary (external-a | external-b);
    signal-type (e1 | t1);
    switching-mode (non-revertive | revertive);
    transmitter-enable;
```

```
    validation-interval seconds;
    y-cable-line-termination;
  }
  synchronization {  # for MX80 and MX240 routers
    clock-mode (auto-select | free-run);
    esmc-transmit {
      interfaces (all | interface-name);
    }
    hold-interval {
      configuration-change seconds;
      restart seconds;
      switchover seconds;
    }
    network-option (option-1 | option-2);
    quality-mode-enable;
    selection-mode (configured-quality|received-quality);
    source {
      (external-a | external-b) {
        priority number;
        quality-level (prc | prs |sec | smc | ssu-a | ssu-b | st2 | st3 | st3e | st4 | stu | tnc);
        request (force-switch | lockout);
      }
      interfaces interface-name {
        priority number;
        quality-level (prc | prs |sec | smc | ssu-a | ssu-b | st2 | st3 | st3e | st4 | stu | tnc);
        request (force-switch | lockout);
        wait-to-restore minutes;
      }
    }
    switchover-mode (revertive | non-revertive);
  }
  synchronization {  # for ACX Series routers
    clock-mode (auto-select | free-run);
    esmc-transmit {
      interfaces (all | interface-name);
    }
    hold-interval {
      configuration-change seconds;
      restart seconds;
      switchover seconds;
    }
    network-option (option-1 | option-2);
    quality-mode-enable;
    selection-mode (configured-quality | received-quality);
    source {
      (bits | gps) {
        priority number;
        quality-level (prc | prs |sec | smc | ssu-a | ssu-b | st2 | st3 | st3e | st4 | stu | tnc);
        request (force-switch | lockout);
      }
      interfaces interface-name {
        priority number;
        quality-level (prc | prs |sec | smc | ssu-a | ssu-b | st2 | st3 | st3e | st4 | stu | tnc);
        request (force-switch | lockout);
        wait-to-restore minutes;
      }
```



```
        }
        switchover-mode(non-revertive | revertive);
    }
    system-domains {
        protected-system-domains psdnumerical-index {
            control-plane-bandwidth-percent percent;
            control-slot-numbers [ slot-numbers ];
            control-system-id control-system-id;
            description description;
            fpcs [ slot-numbers ];
        }
        root-domain-id root-domain-id;
    }
    vrf-mtu-check;
}

chassis {
    fpc slot-number {
        number-of-ports active-ports;
        offline;
        pic slot-number {
            ... the pic subhierarchy appears after the main [edit chassis fpc slot-number] hierarchy
                ...
        }
        port-mirror-instance port-mirror-instance-name;
        power (off  | on);
        sampling-instance instance-name;
    }

    fpc slot-number {
        pic slot-number {
            adaptive-services {
                service-package (layer-2 | layer-3 | ...the following extension-provider subhierarchy
                    ...);
                extension-provider {
                    control-cores number;
                    data-cores number;
                    data-flow-affinity {
                        hash-key (layer-3 | layer-4);
                    }
                    channelization;
                    forwarding-db-size megabytes;
                    object-cache-size megabytes;
                    package package-name;
                    policy-db-size megabytes;
                    syslog {
                        facility {
                            severity;
                            destination (pic-console | routing-engine);
                        }
                    }
                    wired-process-mem-size megabytes;
                }
            }
            aggregated-devices {
                ima {
```

```
        device-count number;
    }
}
aggregate-ports;
atm-cell-relay-accumulation;
atm-l2circuit-mode (aal5 | cell | trunk trunk);
ce1 {
    e1 port-number {
        channel-group group-number timeslots slot-number;
    }
}
ct3 {
    port port-number {
        t1 link-number {
            channel-group group-number timeslots slot-number;
        }
    }
}
ethernet {
    pic-mode (enhanced-switching | routing | switching);
}
fibre-channel {
    port port-number;
    port-range port-range-low port-range-high
}
egress-policer-overhead bytes;
forwarding-mode {
    sa-multicast;
    vlan-steering {
    vlan-rule (high-low | odd-even);
    }
}
framing (e1 | e3 | sdh | sonet | t1 | t3);
idle-cell-format {
    itu-t;
    payload-pattern payload-pattern-byte;
}
ingress-policer-overhead bytes;
inline-services {
    bandwidth (1g | 10g);
}
linerate-mode;
max-queues-per-interface (4 | 8);
mlfr-uni-nni-bundles number;
no-concatenate;
no-multi-rate;
port port-number {
    framing (e1 | e3 | sdh | sonet | t1 | t3);
    forwarding-mode {
        sa-multicast;
    }
    speed ( oc3-stm1 | oc12-stm4 | oc48-stm16);
}
port-mirror-instance port-mirror-instance-name;
q-pic-large-buffer {
    (large-scale | small-scale);
```

```
        }
        red-buffer-occupancy {
          weighted-averaged <instant-usage-weight-exponent weight-value>;
        }
        shdsl {
          pic-mode (1-port-atm | 2-port-atm);
        }
        sparse-dlcis;
        traffic-manager {
          egress-shaping-overhead number;
          ingress-shaping-overhead number;
          mode {
            egress-only;
            ingress-and-egress;
            session-shaping;
          }
        }
        tunnel-queuing;
        tunnel-services {
          bandwidth (1g | 10g | 20g | 40g);
          tunnel-only;
        }
        vtmapping (itu-t | klm);
      }
    }
}

chassis {
  lcc index {
    fpc slot-number {
      ... the fpc subhierarchy appears after the main [edit chassis lcc index] hierarchy ...
    }
    offline;
    online-expected;
  }
}

lcc index {
  fpc slot-number {
    pic slot-number {
      ... the pic subhierarchy appears after the main [edit chassis lcc index fpc slot-number]
        hierarchy ...
    }
    power (off  | on);
    sampling-instance instance-name;
  }

  fpc slot-number {
    pic slot-number {
      aggregate-ports;
      atm-cell-relay-accumulation;
      atm-l2circuit-mode (aal5 | cell | trunk trunk);
      framing (e1 | e3 | sdh | sonet | t1 | t3);
      idle-cell-format {
        itu-t;
        payload-pattern payload-pattern-byte;
```

```
            }
            linerate-mode;
            max-queues-per-interface (4 | 8);
            no-concatenate;
            no-mcast-replication;
            no-pre-classifier;
            port port-number {
              framing (e1 | e3 | sdh | sonet | t1 | t3);
            }
            q-pic-large-buffer {
              (large-scale | small-scale);
            }
            red-buffer-occupancy {
              weighted-averaged <instant-usage-weight-exponent weight-value>;
            }
            shdsl {
              pic-mode (1-port-atm | 2-port-atm);
            }
            traffic-manager {
              egress-shaping-overhead bytes;
              ingress-shaping-overhead bytes;
              mode {
                egress-only;
                ingress-and-egress;
              }
            }
          }
        }
      }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit class-of-service] Hierarchy Level

```
class-of-service {
  classifiers {
    type classifier-name {
      forwarding-class class-name {
        loss-priority (high | low | medium-high | medium-low) code-points [ aliases bits ];
      }
      import (classifier-name | default);
    }
  }
  code-point-aliases {
    (dscp | dscp-ipv6 | exp | ieee-802.1 | ieee-802.1ad | inet-precedence) {
      alias-name bits;
    }
  }
  drop-profiles {
    profile-name {
      fill-level percentage drop-probability percentage;
      interpolate {
        drop-probability value;
        fill-level value;
```

```
        }
    }
}
fabric {
    scheduler-map {
        priority (high | low) scheduler scheduler-name;
    }
}
forwarding-class-map {
    map-name {
        class class-name queue-num queue-number <restricted-queue queue-number>;
    }
}
forwarding-classes {
    class class-name policing-priority (normal | premium) queue-num queue-number
        priority (high | low);
    queue queue-number class-name policing-priority (normal | premium) priority (high |
        low);
}
forwarding-policy {
    class class-name {
        classification-override {
            forwarding-class class-name;
        }
    }
    next-hop-map map-name {
        forwarding-class class-name {
            discard;
            lsp-next-hop [ lsp-regular-expressions ];
            next-hop [ next-hop-names ];
            non-lsp-next-hop;
        }
    }
}
fragmentation-maps {
    map-name {
        forwarding-class class-name {
            drop-timeout milliseconds;
            fragment-threshold bytes;
            multilink-class number;
            no-fragmentation;
        }
    }
}
host-outbound-traffic {
    dscp-code-point value;
    forwarding-class class-name;
    ieee-802.1 {
        default value;
        rewrite-rules;
    }
    tcp {
        raise-internet-control-priority;
    }
}
interfaces {
```

```
    ... the interfaces subhierarchy appears after the main [edit class-of-service] hierarchy
        ...
}
}
restricted-queues {
    forwarding-class class-name queue-number;
}
rewrite-rules {
    (dscp | dscp-ipv6 | exp |frame-relay-de | ieee-802.1 | ieee-802.1ad | inet-precedence)
        rewrite-rule {
        forwarding-class class-name {
            loss-priority level code-point (alias | bits);
        }
        import (rewrite-rule | default);
    }
}
routing-instances routing-instance-name {
    classifiers {
        dscp (classifier-name | default);
        dscp-ipv6 (classifier-name | default);
        exp (classifier-name | default);
        ieee-208.1 (classifier-name | default | encapsulated | vlan-tag (inner | outer));
    }
}
scheduler-maps {
    map-name {
        forwarding-class class-name scheduler scheduler-name;
    }
}
schedulers {
    scheduler-name {
        adjust-minimum value;
        adjust-percent value;
        buffer-size (exact | percent percentage | remainder);
        drop-profile-map loss-priority (any | high | low | medium-high | medium-low)
            protocol any;
        excess-priority (high | low | medium-high | medium-low);
        excess-rate (percent percentage | proportion proportion);
        priority (high | low | medium-high | medium-low | strict-high);
        shaping-rate (bps | percent percentage | burst-size size);
        transmit-rate (bps | percent percentage | remainder) <exact | rate-limit>;
    }
}
traceoptions {
    file <files number> <match regular-expression> <size maximum-file-size>
        <world-readable | no-world-readable>;
    flag flag;
    no-remote-trace;
}
traffic-control-profiles {
    profile-name {
        adjust-minimum rate;
        delay-buffer-rate (bps | cps cps | percent percentage);
        excess-rate (percent percentage | proportion value);
        guaranteed-rate (bps | percent percentage) <burst-size bytes>;
        overhead-accounting (frame-mode | cell-mode) <bytes byte-value>;
```



```
            scheduler-map map-name;
            shaping-rate (bps | percent percentage) <burst-size bytes>;
        }
    }
    tri-color;
}

class-of-service {
    interfaces {
        interface-name {
            excess-bandwith-share (equal | proportional value);
            input-excess-bandwith-share (equal | proportional value);
            input-scheduler-map map-name;
            input-shaping-rate bps;
            input-traffic-control-profile profile-name;
            output-forwarding-class-map map-name;
            output-traffic-control-profile profile-name;
            scheduler-map map-name;
            scheduler-map-chassis (map-name | derived);
            shaping-rate bps;
            unit (logical-unit-number | *){
                classifiers {
                    dscp (classifier-name | default) {
                        family [ inet mpls ];
                    }
                    dscp-ipv6 (classifier-name | default) {
                        family [ inet mpls ];
                    }
                    exp (classifier-name | default);
                    ieee-208.1 (classifier-name | default)  <vlan-tag (inner | outer)>;
                    ieee-208.1ad (classifier-name | default);
                    inet-precedence (classifier-name | default);
                }
                forwarding-class class-name;
                input-scheduler-map map-name;
                input-shaping-rate bps;
                input-traffic-control-profile profile-name shared-instance instance-name;
                loss-priority-maps {
                    (map-name | default);
                }
                loss-priority-rewrites {
                    (map-name | default);
                }
                output-forwarding-class-map map-name;
                output-traffic-control-profile profile-name shared-instance instance-name;
                rewrite-rules {
                    dscp (rule-name | default) <protocol mpls>;
                    dscp-ipv6 (rule-name | default);
                    exp (rule-name | default) <protocol [ mpls-any | mpls-inet-both |
                        mpls-inet-both-non-vpn ]>;
                    exp-push-push-push default;
                    exp-swap-push-push default;
                    ieee-802.1 (rewrite-name | default) <vlan-tag (outer | outer-and-inner)>;
                    ieee-802.1ad (rewrite-name | default) <vlan-tag (outer | outer-and-inner)>;
                    inet-precedence (rewrite-name | default) <protocol mpls>;
                }
```

```
            scheduler-map map-name;
            shaping-rate bps;
            translation-table (to-dscp-from-dscp | to-dscp-ipv6-from-dscp-ipv6 |
              to-exp-from-exp | to-inet-precedence-from-inet-precedence) table-name;
          }
        }
        interface-set interface-set-name {
          excess-bandwith-share (equal | proportional value);
          input-excess-bandwith-share (equal | proportional value);
          input-traffic-control-profile profile-name;
          input-traffic-control-profile-remaining profile-name;
          internal-node;
          output-traffic-control-profile profile-name;
          output-traffic-control-profile-remaining profile-name;
        }
      }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit dynamic-profiles] Hierarchy Level

```
dynamic-profiles {
  profile-name {
    class-of-service
    ... statements from those in [edit class-of-service] Hierarchy Level.
    firewall
    ... statements from those in [edit firewall] Hierarchy Level.
    interfaces
    ... statements from those in [edit interfaces] Hierarchy Level.
    policy-options
    ... statements from those in [edit policy-options] Hierarchy Level.
    predefined-variable-defaults variable-name default-value
    profile-variable-set variable-set-name dynamic-variable-name substitute-variable-name
    protocols
    ... statements from those in [edit protocols] Hierarchy Level.
    routing-instances
    ... statements from those in [edit routing-instances] Hierarchy Level.
    routing-options
    ... statements from those in [edit routing-options] Hierarchy Level.
    services
    ... statements from those in [edit services] Hierarchy Level.
      variables {
        variable-name {
          default-value default-value;
          equals expression;
          mandatory;
          }
          uid;
          uid-reference;
        }
      }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit dynamic-profiles routing-instances] Hierarchy Level*
- *[edit dynamic-profiles routing-options] Hierarchy Level*
- *[edit dynamic-profiles variables] Hierarchy Level*

[edit event-options] Hierarchy Level

```
event-options {
  destinations {
    destination-name {
      archive-sites {
        url <password password>;
      }
      transfer-delay seconds;
    }
  }
  event-script {
    dampen {
      dampen-options {
        cpu-factor cpu-factor;
        line-interval line-interval;
        time-interval microseconds;
      }
    }
    file filename {
      checksum (md5 | sha-256 | sha1) hash;
      refresh;
      refresh-from url;
      remote-execution {
        remote-hostname {
          passphrase user-password;
          username user-login;
        }
      }
      source url;
    }
    max-datasize
    refresh;
    refresh-from url;
    traceoptions {
      file <filename> <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag;
      no-remote-trace;
    }
  }
  generate-event event-name {
    time-interval seconds;
    time-of-day hh:mm:ss;
  }
  max-policies policies;
  policy policy-name {
```

```
      ... the policy subhierarchy appears after the main [edit event-options] hierarchy ...
    }
    traceoptions {
      file <filename> <files number> <match regular-expression> <size maximum-file-size>
        <world-readable | no-world-readable>;
      flag flag;
      no-remote-trace;
    }
  }

  event-options {
    policy policy-name {
      attributes-match {
        event1.attribute-name equals event2.attribute-name;
        event.attribute-name matches regular-expression;
        event1.attribute-name starts-with event2.attribute-name;
      }
      events [ events ];
      then {
        change-configuration {
          commands {
            "command";
          }
          commit-options {
            check <synchronize>;
            force;
            log "comment-string";
            synchronize;
          }
          retry count number interval seconds;
          user-name username;
        }
        event-script filename {
          arguments {
            argument-name argument-value;
          }
          destination destination-name {
            retry-count number retry-interval seconds;
            transfer-delay seconds;
          }
          output-filename filename;
          output-format (text | xml);
          user-name username;
        }
        execute-commands {
          commands {
            "command";
          }
          destination destination-name {
            retry-count number retry-interval seconds;
            transfer-delay seconds;
          }
          output-filename filename;
          output-format (text | xml);
          user-name username;
        }
```



```
            ignore;
            priority-override {
                facility facility-type;
                severity severity-level;
            }
            raise-trap;
            upload filename (filename | committed) destination destination-name {
                retry-count number retry-interval seconds;
                transfer-delay seconds;
                user-name username;
            }
        }
        within seconds {
            events [ events ];
            not events [ events ];
            trigger (after number | on number | until number);
        }
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit firewall] Hierarchy Level

Several statements in the **[edit firewall]** hierarchy are valid at numerous locations within the hierarchy. To make the complete hierarchy easier to read, the repeated statements are listed in the following sections, which are referenced at the appropriate locations in "Complete [edit firewall] Hierarchy" on page 40.

Common Firewall Actions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit firewall] Hierarchy" on page 40 instead of the statements being repeated.

- **[edit firewall family (any | ccc | ethernet-switching | inet | inet6 | mpls | vpls) filter *filter-name* term *term-name* then]**
- **[edit firewall filter *filter-name* term *term-name* then]**

The common firewall actions are as follows:

```
count counter-name;
forwarding-class class-name;
loss-priority (high | low | medium-high | medium-low);
next term;
policer policer-name;
three-color-policer policer-name {
   (single-rate single-rate-policer-name | two-rate two-rate-policer-name);
}
```

Common IP Firewall Actions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit firewall] Hierarchy" on page 40 instead of the statements being repeated.

- **[edit firewall family inet filter *filter-name* term *term-name* then]**
- **[edit firewall family inet6 filter *filter-name* term *term-name* then]**
- **[edit firewall filter *filter-name* term *term-name* then]**

The common IP firewall actions are as follows:

```
log;
logical-system logical-system-name <routing-instance routing-instance-name>
   <topology topology-name>;
port-mirror;
port-mirror-instance instance-name;
routing-instance routing-instance-name> <topology topology-name>;
sample;
service-filter-hit;
syslog;
topology topology-name;
```

Common IPv4 Firewall Actions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit firewall] Hierarchy" on page 40 instead of the statements being repeated.

- **[edit firewall family inet filter *filter-name* term *term-name* then]**
- **[edit firewall filter *filter-name* term *term-name* then]**

The common IP version 4 (IPv4) firewall actions are as follows:

```
(accept | discard <accounting collector-name> | reject <administratively-prohibited |
   bad-host-tos | bad-network-tos | fragmentation-needed | host-prohibited |
   host-unknown | host-unreachable | network-prohibited | network-unknown |
   network-unreachable | port-unreachable | precedence-cutoff | precedence-violation |
   protocol-unreachable | source-host-isolated | source-route-failed | tcp-reset>);
ipsec-sa sa-name;
load-balance sa-name;
next-hop-group group-name;
prefix-action action-name;
```


Common IP Firewall Match Conditions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit firewall] Hierarchy" on page 40 instead of the statements being repeated.

- **[edit firewall family inet dialer-filter *filter-name* term *term-name* from]** (with the exceptions noted at this level in "Complete [edit firewall] Hierarchy" on page 40)
- **[edit firewall family inet filter *filter-name* term *term-name* from]**
- **[edit firewall family inet6 dialer-filter *filter-name* term *term-name* from]** (with the exceptions noted at this level in "Complete [edit firewall] Hierarchy" on page 40)
- **[edit firewall family inet6 filter *filter-name* term *term-name* from]**
- **[edit firewall filter *filter-name* term *term-name* from]**

The common IP firewall match conditions are as follows:

```
address {
   ip-prefix</prefix-length> <except>;
}
destination-address {
   ip-prefix</prefix-length> <except>;
}
destination-class [ class-names ] | destination-class-except [ class-names ]);
(destination-port [ port-names ] | destination-port-except [ port-names ]);
destination-prefix-list {
   list-name <except>;
}
(forwarding-class [ class-names ] | forwarding-class-except [ class-names ]);
(icmp-code [ codes ] | icmp-code-except [ codes ]);
(icmp-type [ types ] | icmp-type-except [ types ]);
interface interface-name;
(interface-group [ group-names ] | interface-group-except [ group-names ]);
interface-set set-name;
(loss-priority [ priorities ] | loss-priority-except [ priorities ]);
(packet-length [ values ] | packet-length-except [ values ]);
(port [ port-names ] | port-except [ port-names ]);
prefix-list {
   list-name <except>;
}
service-filter-hit;
source-address {
   ip-prefix</prefix-length> <except>;
}
(source-class [ class-names ] | source-class-except [ class-names ]);
(source-port [ port-names ] | source-port-except [ port-names ]);
source-prefix-list {
   list-name <except>;
}
tcp-established;
tcp-flags flag;
tcp-initial;
```

Common IPv4 Firewall Match Conditions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit firewall] Hierarchy" on page 40 instead of the statements being repeated.

- **[edit firewall family inet dialer-filter *filter-name* term *term-name* from]** (with the exceptions noted at this level in "Complete [edit firewall] Hierarchy" on page 40)
- **[edit firewall family inet filter *filter-name* term *term-name* from]**
- **[edit firewall filter *filter-name* term *term-name* from]**

The common IPv4 firewall match conditions are as follows:

```
(ah-spi [ values ] | ah-spi-except [ values ]);
(dscp [ code-point-values ] | dscp-except [ code-point-values ]);
(esp-spi [ values ] | esp-spi-except [ values ]);
first-fragment;
fragment-flags flag;
(fragment-offset [ offsets ] | fragment-offset-except [ offsets ]);
(ip-options [ option-names ] | ip-options-except [ option-names ]);
is-fragment;
(precedence [ precedence-names ] | precedence-except [ precedence-names ]);
(protocol [ protocol-names ] | protocol-except [ protocol-names ]);
(ttl [ ttl-values ] | ttl-except [ ttl-values ]);
```

Common Layer 2 Firewall Match Conditions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit firewall] Hierarchy" on page 40 instead of the statements being repeated.

- **[edit firewall family ethernet-switching filter *filter-name* term *term-name* from]**
- **[edit firewall family vpls filter *filter-name* term *term-name* from]**

The common Layer 2 firewall match conditions are as follows:

```
destination-mac-address {
   mac-address <except>;
}
(destination-port [ port-names ] | destination-port-except [ port-names ]);
(dscp [ code-point-values ] | dscp-except [ code-point-values ]);
(ether-type [ protocol-types ] | ether-type-except [ protocol-types ]);
(forwarding-class [ class-names ] | forwarding-class-except [ class-names ]);
(icmp-code [ codes ] | icmp-code-except [ codes ]);
(icmp-type [ types ] | icmp-type-except [ types ]);
(interface-group [ group-names ] | interface-group-except [ group-names ]);
ip-address {
   ip-prefix</prefix-length> <except>;
}
ip-destination-address {
   ip-prefix</prefix-length> <except>;
}
```



```
(ip-precedence [ precedence-names ] | ip-precedence-except [ precedence-names ]);
(ip-protocol [ protocol-names ] | ip-protocol-except [ protocol-names ]);
ip-source-address ip-prefix</prefix-length>;
(learn-vlan-1p-priority [ priorities ] | learn-vlan-1p-priority [ priorities ]);
(learn-vlan-id [ vlan-ids ] | learn-vlan-id-except [ vlan-ids ]);
(loss-priority [ priorities ] | loss-priority-except [ priorities ]);
(port [ port-names ] | port-except [ port-names ]);
source-mac-address {
   mac-address <except>;
}
(source-port [ port-names ] | source-port-except [ port-names ]);
tcp-flags flag;
(traffic-type [ broadcast known-unicast multicast unknown-unicast ] |
   traffic-type-except [ broadcast known-unicast multicast unknown-unicast ]);
(user-vlan-1p-priority [ priorities ] | user-vlan-1p-priority [ priorities ]);
(user-vlan-id [ vlan-ids ] | user-vlan-id-except [ vlan-ids ]);
(vlan-ether-type [ protocol-types ] | vlan-ether-type-except [ protocol-types ]);
```

Complete [edit firewall] Hierarchy

```
firewall {
  family (any | ccc | ethernet-switching | inet | inet6 | mpls | vpls) {
    ... the family subhierarchies appear after the main [edit firewall] hierarchy ...
  }
  filter filter-name {
    accounting-profile [ profile-names ];
    enhanced-mode;
    interface-shared-with;
    interface-specific;
    physical-interface-policer;
    term term-name {
      filter filter-name;
      from {
        ... statements in Common IP Firewall Match Conditions on page 37 AND
          statements in Common IPv4 Firewall Match Conditions on page 38 ...
      }
      then {
        ... statements in Common Firewall Actions on page 35 AND
          statements in Common IP Firewall Actions on page 36 AND
          statements in Common IPv4 Firewall Actions on page 36 ...
      }
    }
  }
  hierarchical-policer policer-name {
    aggregate {
      if-exceeding {
        bandwidth-limit bps;
        burst-size-limit bytes;
      }
      then {
        discard;
        forwarding-class class-name;
        loss-priority (high | low | medium-high | medium-low);
      }
    }
    logical-interface-policer;
    physical-interface-policer;
    premium {
      if-exceeding {
        bandwidth-limit bps;
        burst-size-limit bytes;
      }
      then {
        discard;
      }
    }
  }
  shared-bandwidth-policer;
    interface-set interface-set-name {
    interface-name;
  }
  load-balance-group group-name {
    next-hop-group [ group-names ];
```

```
    }
    policer policer-name {
      filter-specific;
      if-exceeding {
        (bandwidth-limit bps | bandwidth-percent percentage);
        burst-size-limit bytes;
      }
      logical-bandwidth-policer;
      logical-interface-policer;
      physical-interface-policer;
      then {
        discard;
        forwarding-class class-name;
        loss-priority (high | low | medium-high | medium-low);
      }
    }
    three-color-policer policer-name {
      action {
        loss-priority high then discard;
      }
      filter-specific;
      logical-interface-policer;
      physical-interface-policer;
      shared-bandwidth-policer;
      single-rate {
        (color-aware | color-blind);
        committed-burst-size bytes;
        committed-information-rate bps;
        excess-burst-size bytes;
      }
      two-rate {
        (color-aware | color-blind);
        committed-burst-size bytes;
        committed-information-rate bps;
        peak-burst-size bytes;
        peak-information-rate bps;
      }
    }
  }

  firewall {
    family any {
      filter filter-name {
        interface-shared;
        term term-name {
          from {
            (forwarding-class [ class-names ] | forwarding-class-except [ class-names ]);
            interface interface-name;
            interface-set set-name;
            (loss-priority [ priorities ] | loss-priority-except [ priorities ]);
            (packet-length [ values ] | packet-length-except [ values ]);
          }
          then {
            ... statements in Common Firewall Actions on page 35 PLUS ...
            (accept | discard);
          }
```

```
        }
      }
    }
  }


  firewall {
    family ccc {
      filter filter-name {
        accounting-profile [ profile-names ];
        physical-interface-filter;
        interface-specific;
        term term-name {
          filter filter-name;
          from {
            (forwarding-class [ class-names ] | forwarding-class-except [ class-names ]);
            (interface-group [ group-names ] | interface-group-except [ group-names ]);
            (learn-vlan-1p-priority [ priorities ] | learn-vlan-1p-priority [ priorities ]);
            (loss-priority [ priorities ] | loss-priority-except [ priorities ]);
            (user-vlan-1p-priority [ priorities ] | user-vlan-1p-priority [ priorities ]);
          }
          then {
            ... statements in Common Firewall Actions on page 35 PLUS ...
            (accept | discard);
            port-mirror-instance instance-name;
          }
        }
      }
    }
  }

  firewall {
    family ethernet-switching {
      filter filter-name {
        interface-specific;
        term term-name {
          from {
            destination-address {
              ip-prefix</prefix-length>;
            }
            destination-mac-address {
              mac-address;
            }
            destination-port [ port-names ];
            destination-prefix-list {
              list-name;
            }
            dot1q-tag [ tag-values ];
            dot1q-user-priority [ priority-values ];
            dscp [ code-point-values ];
            ether-type [ protocol-names ];
            fragment-flags flag;
            icmp-code [ codes ];
            icmp-type [ types ];
            interface interface-name;
            is-fragment;
```



```
                precedence [ precedence-names ];
                protocol [ protocol-names ];
                source-address {
                  ip-prefix</prefix-length>;
                }
                source-mac-address {
                  mac-address;
                }
                source-port [ port-names ];
                source-prefix-list {
                  list-name;
                }
                tcp-established;
                tcp-flags flag;
                tcp-initial;
                vlan [ vlan-names ];
              }
              then {
                (accept | discard);
                analyzer analyzer-name;
                count counter-name;
                forwarding-class class-name;
                interface interface-name;
                log;
                loss-priority (high | low);
                policer policer-name;
                syslog;
                vlan vlan-name;
              }
            }
          }
        }
      }

      firewall {
        family inet {
          dialer-filter filter-name {
            accounting-profile [ profile-names ];
            term term-name {
              from {
                ... statements in Common IP Firewall Match Conditions on page 37 AND
                  statements in Common IPv4 Firewall Match Conditions on page 38 EXCEPT
                  FOR ...
                  (ah-spi [ values ] | ah-spi-except [ values ]);   # NOT valid at this level
                  (destination-class [ class-names ] |
                    destination-class-except [ class-names ]);   # NOT valid at this level
                  interface interface-name;   # NOT valid at this level
                  (loss-priority [ priorities ] | loss-priority-except [ priorities ]);   # NOT valid at
                    this level
                  service-filter-hit;   # NOT valid at this level
                  (source-class [ class-names ] | source-class-except [ class-names ]);   # NOT
                    valid at this level
              }
              then {
                (ignore | note);
                log;
```

```
            sample;
            syslog;
        }
    }
}
filter filter-name {
    accounting-profile [ profile-names ];
    interface-specific;
    term term-name {
        filter filter-name;
        from {
            ... statements in Common IP Firewall Match Conditions on page 37 AND
                statements in Common IPv4 Firewall Match Conditions on page 38 ...
        }
        then {
            ... statements in Common Firewall Actions on page 35 AND
                statements in Common IP Firewall Actions on page 36 AND
                statements in Common IPv4 Firewall Actions on page 36 ...
        }
    }
}
prefix-action name {
    count;
    destination-prefix-length prefix-length;
    filter-specific;
    policer policer-name;
    source-prefix-length prefix-length;
    subnet-prefix-length prefix-length;
}
service-filter filter-name {
    term term-name {
        from {
            address {
                ip-prefix</prefix-length>;
            }
            (ah-spi [ values ] | ah-spi-except [ values ]);
            destination-address {
                ip-prefix</prefix-length>;
            }
            (destination-port [ port-names ] | destination-port-except [ port-names ]);
            destination-prefix-list {
                list-name;
            }
            (esp-spi [ values ] | esp-spi-except [ values ]);
            first-fragment;
            fragment-flags flag;
            (fragment-offset [ offsets ] | fragment-offset-except [ offsets ]);
            (interface-group [ group-names ] | interface-group-except [ group-names ]);
            (ip-options [ option-names ] | ip-options-except [ option-names ]);
            is-fragment;
            (loss-priority [ priorities ] | loss-priority-except [ priorities ]);
            (port [ port-names ] | port-except [ port-names ]);
            prefix-list {
                list-name;
            }
            (protocol [ protocol-names ] | protocol-except [ protocol-names ]);
```

```
                source-address {
                  ip-prefix</prefix-length>;
                }
                (source-port [ port-names ] | source-port-except [ port-names ]);
                source-prefix-list {
                  list-name;
                }
                tcp-flags flag-name;
              }
              then {
                count counter-name;
                log;
                port-mirror;
                sample;
                (service | skip);
              }
            }
          }
          simple-filter filter-name {
            term term-name {
              from {
                destination-address ip-prefix</prefix-length>;
                destination-port port-name;
                forwarding-class [ class-names ];
                protocol protocol-name;
                source-address ip-prefix</prefix-length>;
                source-port port-name;
              }
              then {
                forwarding-class class-name;
                loss-priority (high | low | medium-high | medium-low);
                policer policer-name;
              }
            }
          }
        }
      }

      firewall {
        family inet6 {
          dialer-filter filter-name {
            accounting-profile [ profile-names ];
            term term-name {
              from {
                ... statements in Common IP Firewall Match Conditions on page 37 PLUS ...
                  (next-header [ protocol-types ] | next-header-except [ protocol-types ]);
                ... BUT NOT ...
                  (destination-class [ class-names ] |
                    destination-class-except [ class-names ]);   # NOT valid at this level
                  (forwarding-class [ class-names ] |
                    forwarding-class-except [ class-names ]);   # NOT valid at this level
                  interface interface-name;   # NOT valid at this level
                  (interface-group [ group-names ] | interface-group-except [ group-names ]);  #
                    NOT valid at this level
                  (loss-priority [ priorities ] | loss-priority-except [ priorities ]);   # NOT valid at
                    this level
```

```
            service-filter-hit;   # NOT valid at this level
            (source-class [ class-names ] | source-class-except [ class-names ]);   # NOT
              valid at this level
            tcp-established;   # NOT valid at this level
            tcp-flags flag;   # NOT valid at this level
            tcp-initial;   # NOT valid at this level
        }
        then {
          (ignore | note);
          log;
          sample;
          syslog;
        }
      }
    }
    filter filter-name {
      accounting-profile [ profile-names ];
      interface-specific;
      term term-name {
        filter filter-name;
        from {
          ... statements in Common IP Firewall Match Conditions on page 37 PLUS ...
          (next-header [ protocol-types ] | next-header-except [ protocol-types ]);
          (traffic-class [ code-point-values ] | traffic-class-except [ code-point-values ]);
        }
        then {
          ... statements in Common Firewall Actions on page 35 AND
            statements in Common IP Firewall Actions on page 36 PLUS ...
          (accept | discard | reject <address-unreachable | administratively-prohibited |
            beyond-scope | fragmentation-needed | no-route | port-unreachable |
            tcp-reset>);
        }
      }
    }
    service-filter filter-name {
      term term-name {
        from {
          address {
            ip-prefix</prefix-length>;
          }
          (ah-spi [ values ] | ah-spi-except [ values ]);
          destination-address {
            ip-prefix</prefix-length>;
          }
          (destination-port [ port-names ] | destination-port-except [ port-names ]);
          destination-prefix-list {
            list-name;
          }
          (esp-spi [ values ] | esp-spi-except [ values ]);
          (interface-group [ group-names ] | interface-group-except [ group-names ]);
          (next-header [ protocol-types ] | next-header-except [ protocol-types ]);
          (port [ port-names ] | port-except [ port-names ]);
          prefix-list {
            list-name;
          }
          source-address {
```



```
                ip-prefix</prefix-length>;
              }
              (source-port [ port-names ] | source-port-except [ port-names ]);
              source-prefix-list {
                list-name;
              }
              tcp-flags flag-name;
            }
            then {
              count counter-name;
              log;
              port-mirror;
              sample;
              (service | skip);
            }
          }
        }
      }
    }

    firewall {
      family mpls {
        filter filter-name {
          accounting-profile [ profile-names ];
          interface-specific;
          physical-interface-filter;
          term term-name {
            from {
              (exp [ exp-bits ] | exp-except [ exp-bits ]);
            }
            then {
              (ignore | note);
              log;
              sample;
              syslog;
            }
          }
        }
        filter filter-name {
          accounting-profile [ profile-names ];
          interface-specific;
          physical-interface-filter;
          term term-name {
            filter filter-name;
            from {
              (exp [ exp-bits ] | exp-except [ exp-bits ]);
              (forwarding-class [ class-names ] | forwarding-class-except [ class-names ]);
              interface interface-name;
              interface-set set-name;
              (loss-priority [ priorities ] | loss-priority-except [ priorities ]);
            }
            then {
              ... statements in Common Firewall Actions on page 35 PLUS ...
              (accept | discard);
              sample;
            }
```

```
        }
      }
    }
  }

  firewall {
    family vpls {
      filter filter-name {
        accounting-profile [ profile-names ];
        interface-specific;
        term term-name {
          filter filter-name;
          from {
            ... statements in Common Layer 2 Firewall Match Conditions on page 38 ...
          }
          then {
            ... statements in Common Firewall Actions on page 35 PLUS ...
            (accept | discard);
            port-mirror;
            port-mirror-instance instance-name;
          }
        }
      }
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit groups] Hierarchy Level

```
groups {
  group-name {
    ... statements from any subhierarchy at the [edit] hierarchy level ...
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit interfaces] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
interfaces {
  interface-name {
    ... the "interface-name" subhierarchy appears after the main [edit interfaces] hierarchy
      level ...
  }
  interface-set interface-set-name {
    interface interface-name {
      (unit unit-number | vlan-tags-outer vlan-tag);
    }
```

```
}
irb {
   accounting-profile name;
   description  text;

   (gratuitous-arp-reply | no-gratuitous-arp-reply);
   hold-time up milliseconds down milliseconds;
   mtu bytes;
   no-gratuitous-arp-request;

   traceoptions {
      flag flag;
   }
   (traps | no-traps);
   unit logical-unit-number {
      accounting-profile name;
      bandwidth rate;
      description text;
      disable;
      encapsulation type;
      family inet {
         accounting {
            destination-class-usage;
            source-class-usage {
               input;
               output;
            }
         }
         address ipv4-address {
            arp ip-address (mac | multicast-mac) mac-address <publish>;
            broadcast address;
            preferred;
            primary;
            vrrp-group group-id {
               (accept-data | no-accept-data);
               advertise-interval seconds;
               advertisements-threshold number;
               authentication-key key;
               authentication-type authentication;
               fast-interval milliseconds;
               (preempt | no-preempt) {
                  hold-time seconds;
               }
               priority number;
               track {
                  interface interface-name {
                     bandwidth-threshold bits-per-second priority-cost priority;
                     priority-cost priority;
                  }
                  priority-hold-time seconds;
                  route prefix/prefix-length routing-instance instance-name priority-cost priority;
               }
               virtual-address [ addresses ];
               vrrp-inherit-from vrrp-group;
            }
```

```
    }
    filter {
      input filter-name;
      output filter-name;
    }
    mtu bytes;
    no-neighbor-learn;
    no-redirects;
    primary;
    rpf-check {
      fail-filter filter-name;
      mode {
        loose;
      }
    }
    targeted-broadcast {
      forward-and-send-to-re;
      forward-only;
    }
  }
  family inet6 {
    accounting {
      destination-class-usage;
      source-class-usage {
        input;
        output;
      }
    }
    address address {
      eui-64;
      ndp ip-address (mac | multicast-mac) mac-address <publish>;
      preferred;
      primary;
      vrrp-inet6-group group-id {
        accept-data | no-accept-data;
        advertisements-threshold number;
        authentication-key key;
        authentication-type authentication;
        fast-interval milliseconds;
        inet6-advertise-interval milliseconds;
        preempt | no-preempt {
          hold-time seconds;
        }
        priority number;
        track {
          interface interface-name {
            bandwidth-threshold bandwidth priority-cost number;
            priority-cost number;
          }
          priority-hold-time seconds;
          route ip-address/mask routing-instance instance-name priority-cost cost;
        }
        virtual-inet6-address [addresses];
        virtual-link-local-address ipv6–address;
        vrrp-inherit-from {
          active-group group-number;
```



```
                    active-interface interface-name;
                }
            }
        }
        (dad-disable | no-dad-disable);
        filter {
            input filter-name;
            output filter-name;
        }
        mtu bytes;
        nd6-stale-time seconds;
        no-neighbor-learn;
        no-redirects;
        policer {
            input policer-name;
            output policer-name;
        }
        rpf-check {
            fail-filter filter-name;
            mode {
                loose;
            }
        }
    }
    family iso {
        address interface-address;
        mtu bytes;
    }
    family mpls {
        filter {
            input filter-name;
            output filter-name;
        }
        mtu bytes;
        policer {
            input policer-name;
            output policer-name;
        }
    }
    native-inner-vlan-id vlan-id;
    proxy-arp (restricted | unrestricted);
    (traps | no-traps);
    vlan-id-list [vlan-id's];
    vlan-id-range [vlan-id-range];
  }
}
traceoptions {
  file <filename> <files number> <match regular-expression> <size maximum-file-size>
    <world-readable | no-world-readable>;
  flag flag <disable>;
  no-remote-trace;
}
}

interfaces {
  interface-name {
```

```
disable;
accounting-profile name;
aggregated-ether-options {
   ethernet-switch-profile {
      tag-protocol-id [ hexadecimal-identifiers ];
   }
   (flow-control | no-flow-control);
   lacp {
      (active | passive);
      admin-key key;
      fast-failover;
      link-protection {
         disable;
         (revertive | non-revertive);
      }
      periodic (fast | slow);
      system-id mac-address;
      system-priority priority;
   }
   (link-protection | no-link-protection);
   link-speed (100m | 1g | 8g | 10g | 40g | 50g | 80g | 100g | oc192);
   logical-interface-fpc-redundancy;
   (loopback | no-loopback);
   mc-ae {
      chassis-id chassis-id;
      events {
         iccp-peer-down {
            force-icl-down;
            prefer-status-control-active;
         }
      }
      mc-ae-id mc-ae-id;
      mode (active-active | active-standby);
      redundancy-group group-id;
      status-control (active | standby);
   }
   minimum-links number;
   rebalance-periodic {
      start-time time;
      interval number;
   }
   source-address-filter {
      mac-address;
   }
   (source-filtering | no-source-filtering);
}
auto-configure {
   remove-when-no-subscribers;
   stacked-vlan-ranges {
      access-profile profile-name;
      authentication {
         password password-string;
         username-include {
            circuit-type;
            delimiter delimiter-character;
            domain-name domain-name-string;
```



```
            interface-name;
            mac-address;
            option-82 ( circuit-id | remote-id);
            radius-realm radius-realm-string;
            user-prefix user-prefix-string;
          }
        }
        dynamic-profile profile-name {
          accept (any | dhcp-v4 | dhcp-v6 | inet | inet6);
          ranges (any | low-tag–high-tag),(any | low-tag–high-tag);
        }
      }
      vlan-ranges {
        access-profile profile-name;
        authentication {
          password password-string;
          username-include {
            circuit-type;
            delimiter delimiter-character;
            domain-name domain-name-string;
            interface-name;
            mac-address;
            option-82;
            radius-realm radius-realm-string;
            user-prefix user-prefix-string;
          }
        }
        dynamic-profile profile-name {
          accept (any | dhcp-v4 | dhcp-v6 | inet | inet6);
          ranges (any | low-tag)–(any | high-tag);
        }
      }
      override tag vlan-tag dynamic-profile profile name;
    }
    encapsulation (ethernet-bridge | ethernet-vpls | extended-vlan-bridge |
      extended-vlan-vpls | flexible-ethernet-services | vlan-vpls);
    ether-options {
      802.3ad {
        aex;
        (backup | primary);
        lacp {
          force-up;
          port-priority
        }
      }
      asynchronous-notification;
      (auto-negotiation | no-auto-negotiation);
      ethernet-switch-profile {
        ethernet-policer-profile {
          input-priority-map {
            ieee802.1p premium [ values ];
          }
          output-priority-map {
            classifier {
              premium {
                forwarding-class class-name {
```

```
                loss-priority (high | low);
              }
            }
          }
        }
        policer cos-policer-name {
          aggregate {
            bandwidth-limit bps;
            burst-size-limit bytes;
          }
          premium {
            bandwidth-limit bps;
            burst-size-limit bytes;
          }
        }
        tag-protocol-id;
      }
      (mac-learn-enable | no-mac-learn-enable);
    }
    (flow-control | no-flow-control);
    ignore-l3-incompletes;
    link-mode (automatic | full-duplex | half-duplex);
    (lloopback | no-loopback);
    keepalives <interval seconds> <down-count number> <up-count number>;
    speed (1g | 10m | 100m | 10m-100m | auto-negotiation);
    source-address-filter {
      mac-address;
    }
    source-filtering | no-source-filtering;
  }
  flexible-vlan-tagging;
  (gratuitous-arp-reply | no-gratuitous-arp-reply);
  hold-time (up milliseconds | down milliseconds);
  interface-transmit-statistics;
  (keepalives <down-count number> <interval seconds> <up-count number> |
    no-keepalives);
  layer2-policer {
    apply-groups [ group-names ];
    apply-groups-except [ group-names ];
  }
  link-mode (automatic | full-duplex);
  mac mac-address;
  mtu bytes;
  multi-chassis-protection peer-ip-address {
    interface interface-name;
  }
  native-vlan-id number;
  no-gratuitous-arp-request;
  optics-options {
    alarm low–light–alarm {
      (link-down | syslog);
    }
    warning low–light–warning {
      (link-down | syslog);
    }
    wavelength nm;
```



```
    }
    passive-monitor-mode;
    per-unit-scheduler;
    speed (10m | 100m | 1g | auto | oc3 | oc12 | oc48);
    stacked-vlan-tagging;
    traceoptions {
        flag flag;
    }
    transmit-bucket {
        overflow discard;
        rate percentage;
        threshold bytes;
    }
    (traps | no-traps);
    unidirectional;
    vlan-tagging;
}


interface-name {
    unit logical-unit-number {
        disable;
        accept-source-mac {
            mac-address mac-address {
                policer {
                    input policer-name;
                    output policer-name;
                }
            }
        }
        accounting-profile name;
        advisory-options {
            downstream-rate rate;
            upstream-rate rate;
        }
        arp-resp (restricted|unrestricted);
        bandwidth rate;
        clear-dont-fragment-bit;
        copy-tos-to-outer-ip-header;
        demux-destination family;
        encapsulation (vlan-bridge | vlan-vpls);
        epd-threshold cells plp1 cells;
        filter filter-name;
        inner-vlan-id-range start start-id end end-id;
        input-vlan-map {
            (pop | pop-pop | pop-swap | push | push-push | swap | swap-push | swap-swap);
            inner-tag-protocol-id tpid;
            inner-vlan-id number;
            tag-protocol-id tpid;
            vlan-id number;
        }
        interface-shared-with psdnumerical-index;
        layer2-policer {
            input-hierarchical-policer policer-name;
            input-policer policer-name;
            input-three-color policer-name;
```

```
        output-policer policer-name;
        output-three-color policer-name;
    }
    multi-chassis-protection peer-ip-address {
        interface interface-name;
    }
    native-inner-vlan-id number;
    output-vlan-map {
        (pop | pop-pop | pop-swap | push | push-push | swap | swap-push | swap-swap);
        inner-tag-protocol-id tpid;
        inner-vlan-id number;
        tag-protocol-id tpid;
        vlan-id number;
    }
    peer-interface interface-name;
    peer-unit unit-number;
    plp-to-clp;
    proxy-arp <restricted | unrestricted>;
    rpm {
        (client | server);
        twamp-server;
    }
    swap-by-poppush;
    vlan-id number;
    vlan-id-list [ vlan-id vlan-id-vlan-id ];
    vlan-id-range number-number;
    vlan-tags (inner <tpid.>vlan-id | inner-list [vlan-id vlan-id–vlan-id ] |
        inner-range <tpid.>vlan-id–vlan-id) outer <tpid.>vlan-id;
}

unit logical-unit-number {
    family ethernet-switching {
        filter{
            group filter-group-number;
            (input filter-name | input-list [ filter-names ]);
        (output filter-name | output-list [ filter-names ]);
        (inner-vlan-id-list [ vlan-ids ] | vlan-id number | vlan-id-list [ number
            number–number ]);
        interface-mode (access | trunk);
        policer {
            input policer-name;
            output policer-name;
        }
        vlan-rewrite {
            translate old-vlan-id new-vlan-id;
        }
        vlan {
            members [ all vlan-identifiers ];
        }
    }
    family inet {
        filter {
            group filter-group-number;
            (input filter-name | input-list [ filter-names ]);
            (output filter-name | output-list [ filter-names ]);
        }
```



```
    input-hierarchical-policer policer-name;
    mac-validate (loose | strict);
    mtu bytes;
    no-neighbor-learn;
    no-redirects;
    policer {
      arp policer-template-name;
      input policer-name;
      output policer-name;
    }
    primary;
    receive-options-packets;
    receive-ttl-exceeded;
    rpf-check {
      fail-filter filter-name;
      mode loose;
    }
    sampling {
      (input | output | input output);
    }
    simple-filter {
      input filter-name;
    }
    targeted-broadcast {
      forward-and-send-to-re;
      forward-only;
    }
    unnumbered-address interface-name <destination address>
      <destination-profile profile-name> <preferred-source-address address>;

  }

  family inet6 {
    address ipv6-address {
      destination destination-address;
      eui-64;
      ndp ipv6-address <l2-interface interface-name> <(mac mac-address |
        multicast-mac multicast-mac-address) <publish>>;
      preferred;
      primary;
      vrrp-inet6-group group-number {
        (accept-data | no-accept-data);
        fast-interval milliseconds;
        inet6-advertise-interval seconds;
        (no-preempt; | ... the following preempt statement ...)
        preempt {
          hold-time seconds;
        }
        priority number;
        track {
          interface interface-name {
            bandwidth-threshold bits-per-second priority-cost priority;
            priority-cost priority;
          }
          priority-hold-time seconds;
```

```
            route ip-address-prefix/prefix-length routing-instance instance-name
              priority-cost priority;
          }
          virtual-inet6-address [ addresses ];
          virtual-link-local-address ipv6-address;
          vrrp-inherit-from {
            active-group group-number;
            active-interface interface-name;
          }
        }
      }
      (dad-disable | no-dad-disable);
      filter {
        group filter-group-number;
        (input filter-name | input-list [ filter-names ]);
        (output filter-name | output-list [ filter-names ]);
      }
      input-hierarchical-policer policer-name;
      mtu bytes;
      nd6-stale-time seconds;
      no-neighbor-learn;
      policer {
        input policer-name;
        output policer-name;
      }
      rpf-check {
        fail-filter filter-name;
        mode loose;
      }
      sampling {
        (input | output | input output);
      }
      unnumbered-address interface-name preferred-source-address address;

    }

    family iso {
      address iso-address;
      mtu bytes;
    }

    family mlfr-end-to-end {
      bundle logical-interface-name;
    }



    family mpls {
      filter {
        group filter-group-number;
        (input filter-name | input-list [ filter-names ]);
        (output filter-name | output-list [ filter-names ]);
      }
      input-hierarchical-policer policer-name;
      maximum-labels maximum-labels;
      mtu bytes;
```



```
            policer {
              input policer-name;
              output policer-name;
            }
          }



          family vpls {
            core-facing;
            filter {
              group filter-group-number;
              (input filter-name | input-list [ filter-names ]);
              (output filter-name | output-list [ filter-names ]);
            }
            policer {
              input policer-name;
              output policer-name;
            }
          }

        }
      }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit logical-systems] Hierarchy Level

As indicated in the following hierarchy, you can include at this hierarchy level several of the hierarchies that can be included at the **[edit]** hierarchy level. However, some statements in a subhierarchy are not valid for logical systems. To learn which statements can be included under **[edit logical-systems *logical-system-name*]** on your device, issue the **set ?** command at the hierarchy level of interest.

```
logical-systems {
  logical-system-name {
    routing-options{
      nonstop-routing;
    }
    access {
      address-assignment {
        ... same statements as in the address-assignment subhierarchy in [edit access]
            Hierarchy Level ...
      }
    }
    access-profile profile-name;
    bridge-domains {
      ... (MX Series only) same statements as in  [edit bridge-domains] Hierarchy Level ...
    }
    bridge-domains {
      ... (MX Series only) same statements as in  [edit bridge-domains] Hierarchy Level ...
    }
    firewall {
```

```
        ... same statements as in several subhierarchies in [edit firewall] Hierarchy Level ...
      }
      forwarding-options {
        ... same statements as in [edit forwarding-options dhcp-relay] Hierarchy Level ...
      }
      interfaces {
        interface-name {
          unit logical-unit-number {
            ... some of the statements in the unit subhierarchy in [edit interfaces] Hierarchy
              Level ...
          }
        }
      }
      policy-options {
        ... same statements as in [edit policy-options] Hierarchy Level on page 61 ...
      }
      protocols {
        ... same statements as in [edit protocols] Hierarchy Level ...
      }
      routing-instances {
        ... most statements in [edit routing-instances] Hierarchy Level ...
      }
      routing-options {
        ... most statements in [edit routing-options] Hierarchy Level ...
      }
      services {
        mobile-ip {
          ... same statements as in [edit services mobile-ip] Hierarchy Level ...
        }
      }
      switch-options {
        ... (MX Series only) same statements as in  [edit switch-options] Hierarchy Level ...
      }
      system {
        services {
          dhcp-local-server {
            ... same statements as in the services dhcp-local-server subhierarchy in [edit
              system] Hierarchy Level ...
          }
        }
        syslog {
          ... most statements in syslog subhierarchy in [edit system] Hierarchy Level...
          }
        }
      }
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit multi-chassis] Hierarchy Level

```
multi-chassis {
  multi-chassis-protection ipv4-address {
```

```
        interface interface-name;
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit policy-options] Hierarchy Level

Several statements in the **[edit policy-options]** hierarchy are valid at numerous locations within the hierarchy. To make the complete hierarchy easier to read, the repeated statements are listed in the following sections, which are referenced at the appropriate locations in "Complete [edit policy-options] Hierarchy" on page 64.

Common Policy Terms

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Common Ingress Policy Match Conditions" on page 63 and "Complete [edit policy-options] Hierarchy" on page 64 instead of the statements being repeated.

- [edit policy-options policy-statement *policy-name* from prefix-list-filter *prefix-list-name* (exact | longer | orlonger)]
- [edit policy-options policy-statement *policy-name* from route-filter *ip-prefix*</*prefix-length*> (exact | longer | orlonger | through *ip-prefix*</*prefix-length*> | upto /*prefix-length*)]
- [edit policy-options policy-statement *policy-name* from source-address-filter *ip-prefix*</*prefix-length*> (exact | longer | orlonger | through *ip-prefix*</*prefix-length*> | upto /*prefix-length*)]
- [edit policy-options policy-statement *policy-name* term *term-name* from prefix-list-filter *prefix-list-name* (exact | longer | orlonger)]
- [edit policy-options policy-statement *policy-name* term *term-name* from route-filter *ip-prefix*</*prefix-length*> (exact | longer | orlonger | through *ip-prefix*</*prefix-length*> | upto /*prefix-length*)]
- [edit policy-options policy-statement *policy-name* term *term-name* from source-address-filter *ip-prefix*</*prefix-length*> (exact | longer | orlonger | through *ip-prefix*</*prefix-length*> | upto /*prefix-length*)]
- [edit policy-options policy-statement *policy-name* then]
- [edit policy-options policy-statement *policy-name* term *term-name* then]

The common policy terms are as follows:

```
(accept | reject);
aigp-originate distance;
as-path-expand (as-number | last-as) <count number>;
as-path-prepend as-number;
class class-name;
color (preference | add number | subtract number);
color2 (preference | add number | subtract number);
community (add | delete | set | + | – | =) community-name;
cos-next-hop-map map-name;
damping list-name;
default-action (accept | reject);
destination-class class-name;
external {
   type (1 | 2);
}
forwarding-class class-name;
install-nexthop <strict> (lsp [ lsp-names ] | lsp-regex [ regular-expressions ] |
   static-lsp [ lsp-names ] | static-lsp-regex [ regular-expressions ])
   <except (lsp [ lsp-names ] | lsp-regex [ regular-expressions | static-lsp [ lsp-names ] |
   static-lsp-regex [ regular-expressions ]])>;
load-balance per-packet;
local-preference (preference | add number | subtract number);
metric (metric-value | add number | igp <metric-offset> | minimum-igp <metric-offset> |
   subtract number | ... the following complex expression ...);
   expression {
      metric (multiplier number | offset number | multiplier number offset number);
      metric2 (multiplier number | offset number | multiplier number offset number);
   }
metric2 (metric-value | add number | subtract number);
metric3 (metric-value | add number | subtract number);
metric4 (metric-value | add number | subtract number);
next (policy | term);
next-hop (ip-address | discard | next-table routing-table-name | peer-address | reject |
   self);
origin (egp | igp | incomplete);
preference (preference | add number | subtract number);
preference2 (preference | add number | subtract number);
priority (high | low | medium);
selected-mldp-egress
source-class class-name;
tag (tag-number | add number | subtract number);
tag2 (tag-number | add number | subtract number);
trace;
```

Common Policy Match Conditions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit policy-options] Hierarchy" on page 64 instead of the statements being repeated.

- **[edit policy-options policy-statement *policy-name* from]**
- **[edit policy-options policy-statement *policy-name* term *term-name* from]**

- **[edit policy-options policy-statement *policy-name* term *term-name* to]**
- **[edit policy-options policy-statement *policy-name* to]**

The common policy match conditions are as follows:

```
area area-id;
as-path [ regular-expression-names ];
as-path-group [ as-path-group-names ];
color preference;
color2 preference;
community [ community-names ];
external {
   type (1 | 2);
}
family family-name;
instance instance-name;
interface [ interface-names ];
level isis-level;
local-preference value;
metric metric-value;
metric2 metric-value;
metric3 metric-value;
metric4 metric-value;
neighbor [ ip-addresses ];
next-hop [ ip-addresses ];
nlri-route-type route-type-number;
origin (egp | igp | incomplete);
policy [ policy-names ];
preference preference;
preference2 preference;
protocol [ protocol-names ];
rib routing-table-name;
tag [ tag-numbers ];
tag2 tag-number;
```

Common Ingress Policy Match Conditions

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit policy-options] Hierarchy" on page 64 instead of the statements being repeated at each level.

- **[edit policy-options policy-statement *policy-name* from]**
- **[edit policy-options policy-statement *policy-name* term *term-name* from]**

The common ingress policy match conditions are as follows:

```
aggregate-contributor;
condition [ conditions ];
multicast-scope (scope-value | global | link-local | node-local | organization-local |
   site-local) <orhigher | orlower>;
next-hop-type merged;
prefix-list prefix-list-name;
prefix-list-filter prefix-list-name (exact | longer | orlonger) {
   ... statements in Common Policy Terms on page 61 ...;
```

```
}
route-filter ip-prefix</prefix-length> (exact | longer | orlonger |
   through ip-prefix</prefix-length> | upto /prefix-length) {
   ... statements in Common Policy Terms on page 61 ...;
}
route-type (external | internal);
rtf-prefix-list name route-targets
source-address-filter ip-prefix</prefix-length> (exact | longer | orlonger |
   through ip-prefix</prefix-length> | upto /prefix-length) {
   ... statements in Common Policy Terms on page 61 ...;
}
state (active | inactive);
```

Complete [edit policy-options] Hierarchy

The statement hierarchy in this section can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
policy-options {
   as-path name regular-expression;
   as-path-group group-name {
      as-path name regular-expression;
   }
   community name {
      invert-match;
      members [ community-ids ];
   }
   condition condition-name {
      dynamic-db;
      if-route-exists{
         address;
         address-family {
            inet {
               address;
               table table-name;
            }
            ccc {
               interface-name;
               standby;
               peer-unit unit-number;
               table table-name;
            }
         }
         table table-name;
      }
   }
   damping name {
      disable;
      half-life minutes;
      max-suppress minutes;
      reuse number;
      suppress number;
   }
   policy-statement policy-name {
      from {
         ... statements in Common Policy Match Conditions on page 62 AND
```



```
            statements in Common Ingress Policy Match Conditions on page 63 ...
        }
        term term-name {
            from {
                ... statements in Common Policy Match Conditions on page 62 AND
                    statements in Common Ingress Policy Match Conditions on page 63 ...
            }
            to {
                ... statements in Common Policy Match Conditions on page 62 ...
            }
            then {
                ... statements in Common Policy Terms on page 61 ...
            }
        }
        to {
            ... statements in Common Policy Match Conditions on page 62 ...
        }
        then {
            ... statements in Common Policy Terms on page 61 ...
        }
    }
    prefix-list list-name {
        ip-prefix</prefix-length>;
        apply-path path;
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit protocols] Hierarchy Level

Each of the following topics lists the statements at a subhierarchy of the **[edit protocols]** hierarchy.

- *[edit protocols bfd] Hierarchy Level*
- [edit protocols bgp] Hierarchy Level on page 68
- *[edit protocols dot1x] Hierarchy Level*
- *[edit protocols dvmrp] Hierarchy Level*
- *[edit protocols igmp] Hierarchy Level*
- **igmp-snooping**
- [edit protocols isis] Hierarchy Level on page 78
- [edit protocols l2-learning] Hierarchy Level on page 80
- *[edit protocols lacp] Configuration Statement Hierarchy on EX Series Switches*
- [edit protocols layer2-control] Hierarchy Level on page 81
- [edit protocols ldp] Hierarchy Level on page 82
- *[edit protocols lldp] Hierarchy Level*

- *[edit protocols mld] Hierarchy Level*
- [edit protocols mpls] Hierarchy Level on page 85
- *[edit protocols msdp] Hierarchy Level*
- [edit protocols mstp] Hierarchy Level on page 86
- *[edit protocols mvrp] Hierarchy Level*
- *[edit protocols neighbor-discovery] Hierarchy Level*
- *[edit protocols oam] Hierarchy Level*
- [edit protocols ospf] Hierarchy Level on page 91
- [edit protocols ospf3] Hierarchy Level on page 95
- [edit protocols pim] Hierarchy Level on page 98
- *[edit protocols protection-group] Hierarchy Level*
- [edit protocols rip] Hierarchy Level on page 102
- [edit protocols ripng] Hierarchy Level on page 104
- [edit protocols router-advertisement] Hierarchy Level on page 105
- [edit protocols router-discovery] Hierarchy Level on page 106
- [edit protocols rstp] Hierarchy Level on page 106
- [edit protocols sap] Hierarchy Level on page 107
- [edit protocols vrrp] Hierarchy Level on page 107
- [edit protocols vstp] Hierarchy Level on page 108

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

bfd

Syntax

```
bfd {
  traceoptions {
    file filename <files number> <match regular-expression> <size size> <world-readable |
      no-world-readable>;
    flag flag <flag-modifier> <disable>;
  }
}
```

Hierarchy Level

[edit logical-systems *logical-system-name* protocols],
[edit logical-systems *logical-system-name* routing-instances *routing-instance-name* protocols],
[edit protocols],
[edit routing-instances *routing-instance-name* protocols]

Release Information

Statement introduced before Junos OS Release 7.4.

Description

Configure trace options for Bidirectional Forwarding Protocol (BFD) traffic.

Default

If you do not include this statement, no BFD tracing operations are performed.

Options

disable—(Optional) Disable the BFD tracing operation. You can use this option to disable a single operation when you have defined a broad group of tracing operations, such as **all**.

file ***filename***—Name of the file to receive the output of the tracing operation. Enclose the name in quotation marks. All files are placed in the **/var/log** directory . We recommend that you place global routing protocol tracing output in the **routing-log** file.

files ***number***—(Optional) Maximum number of trace files. When a trace file named ***trace-file*** reaches its maximum size, it is renamed ***trace-file*.0**, then ***trace-file*.1**, and so on, until the maximum number of trace files is reached. Then the oldest trace file is overwritten.

If you specify a maximum number of files, you also must specify a maximum file size with the **size** option.

Range: 2 through 1000 files

Default: 2 files

flag ***flag***—Tracing operation to perform. To specify more than one tracing operation, include multiple **flag** statements. These are the BFD protocol tracing options:

- **adjacency**—Trace adjacency messages.
- **all**—Trace all options for BFD.
- **error**—Trace all errors.
- **event**—Trace all events.
- **issu**—Trace in-service software upgrade (ISSU) packet activity.

- **nsr-packet**—Trace non-stop-routing (NSR) packet activity.
- **nsr-synchronization**—Trace NSR synchronization events.
- **packet**—Trace all packets.
- **pipe**—Trace pipe messages.
- **pipe-detail**—Trace pipe messages in detail.
- **ppm-packet**—Trace packet activity by periodic packet management (PPM).
- **state**—Trace state transitions.
- **timer**—Trace timer processing.

match ***regular-expression***—(Optional) Regular expression for lines to be logged.

no-world-readable—(Optional) Prevent any user from reading the log file.

size ***size***—(Optional) Maximum size of each trace file, in kilobytes (KB), megabytes (MB), or gigabytes (GB). When a trace file named ***trace-file*** reaches this size, it is renamed ***trace-file*.0**. When the trace file again reaches its maximum size, ***trace-file*.0** is renamed ***trace-file*.1** and ***trace-file*** is renamed ***trace-file*.0**. This renaming scheme continues until the maximum number of trace files is reached. Then, the oldest trace file is overwritten.

If you specify a maximum file size, you also must specify a maximum number of trace files with the **files** option.

Syntax: ***x*k** to specify KB, ***x*m** to specify MB, or ***x*g** to specify GB

Range: 10 KB through the maximum file size supported on your system

Default: 128 KB

world-readable—(Optional) Allow any user to read the log file.

Required Privilege Level

routing and trace—To view this statement in the configuration.
routing-control and trace–control—To add this statement to the configuration.

Related Documentation

- *Example: Configuring BFD for Static Routes*

[edit protocols bgp] Hierarchy Level

Several statements in the **[edit protocols mpls]** hierarchy are valid at numerous locations within it. To make the complete hierarchy easier to read, the repeated statements are listed in "Common BGP Family Options" on page 69 and that section is referenced at the appropriate locations in "Complete [edit protocols bgp] Hierarchy" on page 69.

- Common BGP Family Options on page 69
- Complete [edit protocols bgp] Hierarchy on page 69

Common BGP Family Options

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit protocols bgp] Hierarchy" on page 69 instead of the statements being repeated.

- **[edit protocols bgp family inet (any | flow | labeled-unicast | multicast | unicast)]**
- **[edit protocols bgp family inet6 (any | labeled-unicast | multicast | unicast)]**
- **[edit protocols bgp family (evpn | inet-mdt | inet-mvpn | inet6-mvpn | l2vpn) signaling]**
- **[edit protocols bgp family inet-vpn (any | flow | multicast | unicast)]**
- **[edit protocols bgp family inet6-vpn (any | multicast | unicast)]**
- **[edit protocols bgp family iso-vpn unicast]**

The common BGP family options are as follows:

```
accepted-prefix-limit {
   maximum number;
   teardown <percentage> <idle-timeout (forever | minutes)>;
}
damping;
loops number;
prefix-limit {
   maximum number;
   teardown <percentage> <idle-timeout (forever | minutes)>;
}
rib-group group-name;
topology name {
   community {
      target identifier;
   }
}
```

Complete [edit protocols bgp] Hierarchy

The statement hierarchy listed in this section can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
   bgp {
      disable;
      accept-remote-nexthop;
      advertise-external <conditional>;
      advertise-from-main-vpn-tables;
      advertise-inactive;
      (advertise-peer-as | no-advertise-peer-as);
      authentication-algorithm (aes-128-cmac-96 | hmac-sha-1-96 | md5);
      authentication-key key;
      authentication-key-chain key-chain;
      bfd-liveness-detection {
         authentication {
```

```
        algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 |
          meticulous-keyed-sha-1 | simple-password);
        key-chain key-chain-name;
        loose-check;
      }
      detection-time {
        threshold milliseconds;
      }
      holddown-interval milliseconds;
      minimum-interval milliseconds;
      minimum-receive-interval milliseconds;
      multiplier number;
      no-adaptation;
      session-mode (automatic | multihop | single-hop);
      transmit-interval {
        minimum-interval milliseconds;
        threshold milliseconds;
      }
      version (1 | automatic);
    }
    bmp {
      monitor (disable | enable);
      route-monitoring {
        none;
        post-policy {
          exclude-non-eligible;
        }
        pre-policy {
          exclude-non-feasible;
        }
      }
    }
    cluster cluster-identifier;
    damping;
    description text-description;
    export [ policy-names ];
    family family-name {
      ... the family subhierarchies appear after the main [edit protocols bgp] hierarchy ...
    }
    unconfigured-peer-graceful-restart;
    graceful-restart {
      disable;
      restart-time seconds;
      stale-routes-time seconds;
    }
    group group-name {
      ... the group subhierarchy appears after the main [edit protocols bgp] hierarchy ...
    }
    hold-time seconds;
    idle-after-switch-over (seconds | forever);
    import [ policy-names ];
    include-mp-next-hop;
    ipsec-sa ipsec-sa;
    keep (all | none);
    local-address address;
    local-as autonomous-system <loops number> < alias> <private>;
```



```
    local-interface interface-name;
    local-preference local-preference;
    log-updown;
    metric-out (metric | igp (delay-med-update | offset) | minimum-igp offset);
    mtu-discovery;
    multihop {
      no-nexthop-change;
      ttl ttl-value;
    }
    no-aggregator-id;
    no-client-reflect;
    out-delay seconds;
    outbound-route-filter {
      bgp-orf-cisco-mode;
      prefix-based {
        accept {
          inet;
          inet6;
        }
      }
    }
    passive;
    path-selection {
      always-compare-med;
      as-path-ignore;
      cisco-non-deterministic;
      external-router-id;
      med-plus-igp {
        igp-multiplier number;
        med-multiplier number;
      }
    }
    peer-as autonomous-system;
    preference preference;
    remove-private;
    tcp-mss segment-size;
    traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag <flag-modifier> <disable>;
      }
    tcp-aggressive-transmission;
    vpn-apply-export;
  }

  bgp {
    family inet {
      (any | multicast) {
        ... statements in Common BGP Family Options on page 69 ...
      }
      flow {
        ... statements in Common BGP Family Options on page 69 PLUS ...
        no-validate [ validation-procedure-names ];
      }
      labeled-unicast {
        ... statements in Common BGP Family Options on page 69 PLUS ...
```

```
            add-path {
              receive;
              send {
                path-count number;
                prefix-policy [ policy-names ];
              }
            }
            aggregate-label {
              community community-name;
            }
            aigp [disable];
            explicit-null connected-only;
            per-group-label;
            per-prefix-label;
            protection;
            resolve-vpn;
            rib (inet.3 | inet6.3);
            traffic-statistics {
              file filename <files number> <size maximum-file-size> <world-readable |
                no-world-readable>;
              interval seconds;
            }
          }
          unicast {
            ... statements in Common BGP Family Options on page 69 PLUS ...
            add-path {
              receive;
              send {
                path-count number;
                prefix-policy [ policy-names ];
              }
            }
            topology name {
              community target identifier;
            }
          }
        }
      }

      bgp {
        family inet6 {
          (any | multicast) {
            ... statements in Common BGP Family Options on page 69 ...
          }
          labeled-unicast {
            ... statements in Common BGP Family Options on page 69 PLUS ...
            add-path {
              receive;
              send {
                path-count number;
                prefix-policy [ policy-names ];
              }
            }
            aggregate-label {
              community community-name:
            }
```



```
        aigp [disable];
        explicit-null;
        per-group-label;
        protection;
        traffic-statistics {
          file filename <files number> <size maximum-file-size> <world-readable |
            no-world-readable>;
          interval seconds;
        }
      }
      unicast {
        ... statements in Common BGP Family Options on page 69 PLUS ...
        topology name {
          community target identifier;
        }
      }
    }
}

bgp {
  family (evpn | inet-mdt | inet-mvpn | inet6-mvpn | l2vpn) {
    auto-discovery-only; # for l2vpn
    signaling {
      ... statements in Common BGP Family Options on page 69 ...
    }
  }
}

bgp {
  family inet-vpn {
    (any | multicast | unicast) {
      ... statements in Common BGP Family Options on page 69 PLUS ...
      aggregate-label <community community-name>;
    }
    flow {
      ... statements in Common BGP Family Options on page 69 ...
    }
  }
}

bgp {
  family inet6-vpn {
    (any | multicast | unicast) {
      ... statements in Common BGP Family Options on page 69 PLUS ...
      aggregate-label <community community-name>;
    }
  }
}

bgp {
  family iso-vpn {
    unicast {
      ... statements in Common BGP Family Options on page 69 PLUS ...
      aggregate-label <community community-name>;
    }
  }
```

```
}

bgp {
  family route-target {
    accepted-prefix-limit {
      maximum number;
      teardown <percentage> <idle-timeout (forever | minutes)>;
    }
    advertise-default;
    external-paths number;
    prefix-limit {
      maximum number;
      teardown <percentage> <idle-timeout (forever | minutes)>;
    }
    proxy-generate <route-target-policy route-target-policy-name>;
  }
}

bgp {
  group group-name {
    ... same statements as at the [edit protocols bgp] hierarchy level PLUS ...
      allow [ all ip-prefix</prefix-length> ];
      as-override;
      multipath <multiple-as>;
      neighbor address {
        ... the neighbor subhierarchy appears after the main [edit protocols bgp group
          group-name] hierarchy ...
      }
      type (external | internal);
    ... BUT NOT ...
      disable;  # NOT valid at this level
      group group-name { ... }  # NOT valid at this level
      path-selection { ... }  # NOT valid at this level
  }

  group group-name {
    neighbor address {
      ... same statements as at the [edit protocols bgp] hierarchy level PLUS ...
        as-override;
        multipath <multiple-as>;
      ... BUT NOT ...
        disable;  # NOT valid at this level
        group group-name { ... }  # NOT valid at this level
        neighbor address { ... }  # NOT valid at this level
        path-selection { ... }  # NOT valid at this level
    }
  }
}
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

dvmrp

Syntax

```
dvmrp {
   disable;
   export [ policy-names ];
   import [ policy-names ];
   interface interface-name {
      disable;
      hold-time seconds;
      metric metric;
      mode (forwarding | unicast-routing);
   }
   rib-group group-name;
   traceoptions {
      file filename <files number> <size size> <world-readable | no-world-readable>;
      flag flag <flag-modifier> <disable>;
   }
}
```

Hierarchy Level

[edit logical-systems *logical-system-name* protocols],
[edit protocols]

Release Information

Statement introduced before Junos OS Release 7.4.
Statement introduced in Junos OS Release 12.3R2 for EX Series switches.

Description

Enable DVMRP on the router or switch.

Default

DVMRP is disabled on the router or switch.

Options

The statements are explained separately.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Example: Configuring DVMRP*

igmp

Syntax

```
igmp {
  accounting;
  interface interface-name {
    disable;
    (accounting | no-accounting);
    group-limit limit;
    group-policy [ policy-names ];
    group-threshold
    immediate-leave;
    log-interval
    oif-map map-name;
    passive;
    promiscuous-mode;
    ssm-map ssm-map-name;
    ssm-map-policy ssm-map-policy-name;
    static {
      group multicast-group-address {
        exclude;
        group-count number;
        group-increment increment;
        source ip-address {
          source-count number;
          source-increment increment;
        }
      }
    }
    version version;
  }
  query-interval seconds;
  query-last-member-interval seconds;
  query-response-interval seconds;
  robust-count number;
  traceoptions {
    file filename <files number> <size size> <world-readable | no-world-readable>;
    flag flag <flag-modifier> <disable>;
  }
}
```

Hierarchy Level

[edit logical-systems *logical-system-name* protocols],
[edit protocols]

Release Information

Statement introduced before Junos OS Release 7.4.
Statement introduced in Junos OS Release 12.1 for the QFX Series.
Statement introduced in Junos OS Release 12.3R2 for EX Series switches.

Description

Enable IGMP on the router or switch. IGMP must be enabled for the router or switch to receive multicast packets.

The remaining statements are explained separately.

Default IGMP is disabled on the router or switch. IGMP is automatically enabled on all broadcast interfaces when you configure Protocol Independent Multicast (PIM) or Distance Vector Multicast Routing Protocol (DVMRP).

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation
- *Enabling IGMP*

igmp-snooping

Syntax

```
igmp-snooping {
  vlan vlan-id {
    immediate-leave;
    interface interface-name {
      group-limit limit;
      host-only-interface;
      immediate-leave;
      multicast-router-interface;
      static {
        group ip-address {
          source ip-address;
        }
      }
    }
    proxy {
      source-address ip-address;
    }
    query-interval seconds;
    query-last-member-interval seconds;
    query-response-interval seconds;
    robust-count number;
  }
}
```

Hierarchy Level [edit protocols]

Release Information Statement introduced in Junos OS Release 8.5.

Description Enable IGMP snooping on the router or switch.

Default IGMP snooping is disabled on the router or switch.

Options The statements are explained separately.

Required Privilege Level routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation
- *Understanding IGMP Snooping*
- *IGMP Snooping in MC-LAG Active-Active on MX Series Routers Overview*

[edit protocols isis] Hierarchy Level

The following statement hierarchy can also be included at the **[edit protocols isis]** hierarchy level.

```
protocols {
  isis {
    disable;
    clns-routing;
    clns-updown-compatibility
    context-identifier ip-address</prefix> {
      level (1 | 2) <disable>;
    }
    export [ policy-names ];
    graceful-restart {
      disable;
      helper-disable;
      restart-duration seconds;
    }
    ignore-attached-bit;
    interface interface-name {
      ... the interface subhierarchy appears after the main [edit protocols isis] hierarchy ...
    }
    label-switched-path name level level metric metric;
    level (1 | 2) {
      disable;
      authentication-key key;
      authentication-type authentication;
      external-preference preference;
      no-csnp-authentication;
      no-hello-authentication;
      no-psnp-authentication;
      preference preference;
      prefix-export-limit number;
      wide-metrics-only;
    }
    loose-authentication-check;
    lsp-lifetime seconds;
    max-areas number;
    no-adjacency-holddown;
    no-authentication-check;
    no-ipv4-routing;
    no-ipv6-routing;
    overload {
      advertise-high-metrics;
      timeout seconds;
    }
    reference-bandwidth reference-bandwidth;
    rib-group {
      inet group-name;
      inet6 group-name;
    }
    spf-options {
      delay milliseconds;
```



```
        holddown milliseconds;
        rapid-runs number;
    }
    topologies {
        ipv4-multicast;
        ipv6-multicast;
        ipv6-unicast;
    }
    traceoptions {
        file filename <files number> <size maximum-file-size> <world-readable |
            no-world-readable>;
        flag flag <flag-modifier> <disable>;
    }
    traffic-engineering {
        disable;
        family inet {
            shortcuts {
                multicast-rpf-routes:
            }
        }
        family inet6 {
            shortcuts;
        }
    }
    ignore-lsp-metrics;
}

isis {
    interface interface-name {
        disable;
        bfd-liveness-detection {
            authentication {
                algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 |
                    meticulous-keyed-sha-1 | simple-password);
                key-chain key-chain-name;
                loose-check;
            }
            detection-time {
                threshold milliseconds;
            }
            minimum-interval milliseconds;
            minimum-receive-interval milliseconds;
            multiplier number;
            no-adaptation;
            transmit-interval {
                minimum-interval milliseconds;
                threshold milliseconds;
            }
            version (1 | automatic);
        }
        checksum;
        csnp-interval (seconds | disable);
        hello-padding (adaptive | loose | strict);
        ldp-synchronization {
            disable;
            hold-time seconds;
```

```
            }
            level (1 | 2) {
                disable;
                hello-authentication-key key;
                hello-authentication-type authentication;
                hello-interval seconds;
                hold-time seconds;
                ipv4-multicast-metric number;
                ipv6-multicast-metric number;
                ipv6-unicast-metric number;
                metric metric;
                passive;
                priority number;
                te-metric metric;
            }
            link-protection;
            lsp-interval milliseconds;
            mesh-group (value | blocked);
            no-adjacency-down-notification;
            no-eligible-backup;
            no-ipv4-multicast;
            no-ipv6-multicast;
            no-ipv6-unicast;
            no-unicast-topology;
            node-link-protection;
            passive;
            point-to-point;
        }
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols l2-learning] Hierarchy Level

```
protocols {
    l2-learning {
        global-mac-limit {
            limit;
            packet-action drop;
        }
        global-mac-statistics;
        global-mac-table-aging-time seconds;
        global-no-mac-learning;
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols lacp] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  lacp {
    traceoptions {
      file <filename> <files number> <match regular-expression> <size maximum-file-size>
        <world-readable | no-world-readable>;
      flag flag;
      no-remote-trace;
    }
    ppm (centralized | distributed)
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols layer2-control] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  layer2-control {
    bpdu-block {
      disable-timeout seconds;
      interface [ interface-names ];
    }
    mac-rewrite {
      interface interface-name {
          enable-all-ifl;
          protocol {
            cdp;
            stp;
            vtp;
            pvstp;
        }
      }
    }
    nonstop-bridging;
    traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag <disable>;
    }
  }
}
```

Related Documentation

- *layer2-control*
- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols ldp] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  ldp {
    (deaggregate | no-deaggregate);
    dod-request-policy [ policy-names ];
    egress-policy [ policy-names ];
    explicit-null;
    export [ policy-names ];
    graceful-restart {
      disable;
      helper-disable;
      maximum-neighbor-reconnect-time seconds;
      maximum-neighbor-recovery-time seconds;
      reconnect-time seconds;
      recovery-time seconds;
    }
    igp-synchronization holddown-interval seconds;
    import [ policy-names ];
    interface interface-name {
      (allow-subnet-mismatch | no-allow-subnet-mismatch;
      disable;
      hello-interval seconds;
      hold-time seconds;
      transport-address (interface | router-id);
    }
    keepalive-interval seconds;
    keepalive-timeout seconds;
    l2-smart-policy;
    log-updown {
      trap disable;
    }
    next-hop {
      merged {
        policy [ policy-names ];
      }
    }
    no-forwarding;
    oam {
      ... the oam subhierarchy appears after the main [edit protocols ldp] hierarchy ...
    }
    p2mp {
      root-address root-address{
      lsp-id id;
      }
```

```
    }
    policing {
      fec class-address {
        ingress-traffic filter-name;
        transit-traffic filter-name;
      }
    }
    preference preference;
    session destination-address {
      authentication-algorithm algorithm;
      authentication-key key;
      authentication-key-chain key-chain;
      downstream-on-demand;
    }
    session-protection <timeout seconds>;
    strict-targeted-hellos;
    targeted-hello {
      hello-interval seconds;
      hold-time seconds;
    }
    traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag <flag-modifier> <disable>;
    }
    track-igp-metric;
    traffic-statistics {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      interval seconds;
      no-penultimate-hop;
    }
    transport-address (address | interface | router-id);
  }

    oam {
      bfd-liveness-detection {
        detection-time {
          threshold milliseconds;
        }
        ecmp;
        failure-action (remove-nexthop | remove-route);
        holddown-interval milliseconds;
        minimum-interval milliseconds;
        minimum-receive-interval milliseconds;
        multiplier number;
        no-adaptation;
        transmit-interval {
          minimum-interval milliseconds;
          threshold milliseconds;
        }
        version (1 | automatic);
      }
      fec class-address {
        bfd-liveness-detection {
```

```
                ... same statements as at the [edit protocols ldp oam bfd-liveness-detection]
                    hierarchy level ...
              }
              no-bfd-liveness-detection;
              periodic-traceroute {
                ... same statements as at the [edit protocols ldp oam periodic-traceroute]
                    hierarchy level PLUS ...
              disable;
              }
            }
            ingress-policy [ policy-names ];
            periodic-traceroute {
              exp cos-value;
              fanout next-hops;
              frequency minutes;
              paths number;
              retries number;
              source address;
              ttl number;
              wait seconds;
            }
          }
        }
      }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

lldp

Syntax

```
lldp {
  advertisement-interval seconds;
  disable;
  hold-multiplier number;
  interface (all | interface-name) {
    disable;
  }
  lldp-configuration-notification-interval seconds;
  port-id-subtype {
    interface-name;
    locally-assigned;
  }
  ptopo-configuration-maximum-hold-time seconds;
  ptopo-configuration-trap-interval seconds;
  traceoptions {
    file filename <files number> <size maximum-file-size> <world-readable |
      no-world-readable>;
    flag flag <disable>;
  }
}
```

Hierarchy Level

[edit protocols],
[edit routing-instances *routing-instance-name* protocols]

Release Information

Statement introduced in Junos OS Release 9.6.

Description

(MX Series and T Series routers and EX Series switches only) Specify LLDP configuration parameters.

Options

The statements are explained separately.

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Configuring LLDP*

[edit protocols mpls] Hierarchy Level

- Complete [edit protocols mpls] Hierarchy on page 85

Complete [edit protocols mpls] Hierarchy

The statement hierarchy listed in this section can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  mpls {
    disable;
    interface (interface-name | all) {
```

```
            always-mark-connection-protection-tlv
            disable;
            admin-group [ group-names ];
            srlg srlg-name
            static {
                protection-revert-time seconds
            }
            switch-away-lsps;
        }
        ipv6-tunneling;
        priority setup-priority hold-priority;
        traceoptions {
            file filename <files number> <size maximum-file-size> <world-readable |
                no-world-readable>;
            flag flag;
        }
    }

}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols mstp] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
    mstp {
        disable;
        backup-bridge-priority priority;
        bpdu-block-on-edge;
        bpdu-destination-mac-address provider-bridge-group;
        bridge-priority priority;
        configuration-name configuration-name;
        forward-delay seconds;
        hello-time seconds;
        interface interface-name {
            bpdu-timeout-action {
                alarm;
                block;
            }
            cost cost;
            edge;
            mode (point-to-point | shared);
            no-root-port;
            priority interface-priority;
        }
        max-age seconds;
        max-hops hops;
        msti identifier {
            backup-bridge-priority priority;
            bridge-priority priority;
```

```
            interface interface-name {
                cost cost;
                priority interface-priority;
            }
            vlan [ vlan-ids ];
        }
        priority-hold-time seconds;
        revision-level revision-level;
        system-id mac-address {
            ip-address ip-address</prefix-length>;
        }
        traceoptions {
            file filename <files number> <size maximum-file-size> <world-readable |
                no-world-readable>;
            flag flag <disable>;
        }
        vpls-flush-on-topology-change;
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

neighbor-discovery

Syntax

```
neighbor-discovery {
  no-dad-on-state-change ;
  onlink-subnet-only;
  secure {
    security-level {
      (default | secure-messages-only);
    }
    cryptographic-address {
      key-length number;
      key-pair pathname;
    }
    timestamp {
      clock-drift number;
      known-peer-window number;
      new-peer-window number;
    }
    traceoptions {
      file filename <files number> <match regular-expression> <size size> <world-readable |
        no-world-readable>;
      flag flag;
      no-remote-trace;
    }
  }
}
```

Hierarchy Level

[edit protocols]

Release Information

Statement introduced in Junos OS Release 9.3.
Statement introduced in Junos OS Release 12.3R2 for EX Series switches.

Description

Enable Secure Neighbor Discovery.

The remaining statements are explained separately.

Default

Disabled

Required Privilege Level

routing—To view this statement in the configuration.
routing-control—To add this statement to the configuration.

Related Documentation

- *Example: Configuring Secure IPv6 Neighbor Discovery*

oam

Syntax

```
oam {
  ethernet{
    connectivity-fault-management {
      action-profile profile-name {
        action {
          interface-down;
        }
        default-actions {
          interface-down;
        }
        event {
          adjacency-loss;
        }
      }
      linktrace {
        age (30m | 10m | 1m | 30s | 10s);
        path-database-size path-database-size;
      }
      maintenance-domain domain-name {
        level number;
        mip-half-function (none | default |explicit);
        name-format (character-string | none | dns | mac+2oct);
        maintenance-association ma-name {
          continuity-check {
            hold-interval minutes;
            interface-status-tlv;
            interval (10m | 10s | 1m | 1s| 100ms);
            loss-threshold number;
            port-status-tlv;
          }
          mep mep-id {
            auto-discovery;
            direction down;
            interface interface-name;
            remote-mep mep-id {
              action-profile profile-name;
            }
          }
        }
      }
      performance-monitoring {
        sla-iterator-profiles {
          profile-name {
            calculation-weight {
              delay delay-value;
              delay-variation delay-variation-value;
            }
            cycle-time cycle-time-value;
            iteration-period iteration-period-value;
            measurement-type two-way-delay;
            passive;
          }
```

```
            }
          }
          traceoptions {
            file filename <files number> <match regex> <size size> <world-readable |
              no-world-readable>;
            flag flag ;
            no-remote-trace;
          }
        }
        link-fault-management {
          action-profile profile-name;
            action {
              syslog;
              link-down;
              send-criticial-event
            }
            event {
              link-adjacency-loss;
              link-event-rate {
                frame-error count;
                frame-period count;
                frame-period-summary count;
                symbol-period count;
              }
            }
          interface interface-name {
            link-discovery (active | passive);
            pdu-interval interval;
            pdu-threshold threshold-value;
            remote-loopback;
            event-thresholds {
              frame-errorcount;
              frame-period count;
              frame-period-summary count;
              symbol-period count;
            }
            negotiation-options {
              allow-remote-loopback;
              no-allow-link-events;
            }
          }
          traceoptions {
            file filename <files number> <match regex> <size size> <world-readable |
              no-world-readable>;
            flag flag ;
            no-remote-trace;
          }
        }
      }
```

Hierarchy Level [edit protocols]

Release Information Statement introduced in Junos OS Release 9.4 for EX Series switches.
connectivity-fault-management introduced in Junos OS Release 10.2 for EX Series switches.

Description Provide IEEE 802.3ah Operation, Administration, and Maintenance (OAM) link fault management (LFM) support for Ethernet interfaces on EX Series switches or configure connectivity fault management (CFM) for IEEE 802.1ag Operation, Administration, and Management (OAM) support on the switches.

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

- *Example: Configuring Ethernet OAM Link Fault Management on EX Series Switches*
- *Example: Configuring Ethernet OAM Connectivity Fault Management on EX Series Switches*
- *Configuring Ethernet OAM Link Fault Management (CLI Procedure)*
- *Configuring Ethernet OAM Connectivity Fault Management (CLI Procedure)*

[edit protocols ospf] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  ospf {
    disable;
    area area-id {
      ... the area subhierarchy appears after the main [edit protocols ospf] hierarchy ...
    }
    backup-spf-options {
      disable;
      downstream-paths-only;
      no-install;
    }
    database-protection {
      ignore-count number;
      ignore-time seconds;
      maximum-lsa number;
      reset-time seconds;
      warning-only;
      warning-threshold percent;
    }
    export [ policy-names ];
    external-preference preference;
    graceful-restart {
      disable;
      helper-disable <both | restart-signaling | standard>;
      no-strict-lsa-checking;
      notify-duration seconds;
      restart-duration seconds;
    }
    import [ policy-names ];
    lsa-refresh-interval;
    no-nssa-abr;
```

```
    no-rfc-1583;
    overload <timeout seconds>;
    preference preference;
    prefix-export-limit number;
    reference-bandwidth reference-bandwidth;
    rib-group group-name;
    spf-options {
      delay milliseconds;
      holddown milliseconds;
      rapid-runs number;
    }
    topology (default | ipv4-multicast | name) {
      backup-spf-options {
        disable;
        downstream-paths-only;
        no-install;
      }
      overload;
      prefix-export-limit number;
      spf-options {
        delay milliseconds;
        holddown milliseconds;
        rapid-runs number;
      }
      topology-id number;
    }
    traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag <flag-modifier> <disable>;
    }
    traffic-engineering {
      advertise-unnumbered-interfaces;
      credibiliity-protocol-preference;
      ignore-lsp-metrics;
      multicast-rpf-routes;
      no-topology;
      shortcuts <lsp-metric-into-summary>;
    }
  }

  ospf {
    area area-id {
      area-range ip-prefix</prefix-length> <exact> <override-metric metric> <restrict>;
      context-identifier identifier
      interface interface-name {
        ... the interface subhierarchy appears after the main [edit ospf area area-id] hierarchy
          level ...
      }
      label-switched-path name {
        disable;
        metric metric;
        topology (name | default | ipv4-multicast) {
          disable;
          metric metric;
        }
```



```
    }
    network-summary-export [ policy-names ];
    network-summary-import [ policy-names ];
    nssa {
      area-range ip-prefix</prefix-length> <exact> <override-metric metric> <restrict>;
      default-lsa {
        default-metric metric;
        metric-type type;
        type-7;
      }
      (summaries | no-summaries);
    }
    peer-interface interface-name {
      disable;
      authentication {
        md5 key-id key key-string <start-time YYYY-MM-DD.hh:mm>;
        simple-password key-string;
      }
      dead-interval seconds;
      demand-circuit;
      flood-reduction;
      hello-interval seconds;
      no-neighbor-down-notification;
      retransmit-interval seconds;
      transit-delay seconds;
    }
    stub <default-metric metric> <summaries | no-summaries>;
    virtual-link neighbor-id router-id transit-area area-id {
      disable;
      authentication {
        md5 key-id key key-string <start-time YYYY-MM-DD.hh:mm>;
        simple-password key-string;
      }
      dead-interval seconds;
      demand-circuit;
      flood-reduction;
      hello-interval seconds;
      ipsec-sa sa-name;
      no-neighbor-down-notification;
      retransmit-interval seconds;
      topology (name | default | ipv4-multicast) {
        disable;
        metric metric;
      }
      transit-delay seconds;
    }
  }

  area area-id {
    interface interface-name {
      disable;
      authentication {
        md5 key-id key key-string <start-time YYYY-MM-DD.hh:mm>;
        simple-password key-string;
      }
      bandwidth-based-metrics {
```

```
    bandwidth value metric number;
  }
  bfd-liveness-detection {
    authentication {
      algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 |
        meticulous-keyed-sha-1 | simple-password);
      key-chain key-chain-name;
      loose-check;
    }
    detection-time {
      threshold milliseconds;
    }
    full-neighbors-only;
    minimum-interval milliseconds;
    minimum-receive-interval milliseconds;
    multiplier number;
    no-adaptation;
    transmit-interval {
      minimum-interval milliseconds;
      threshold milliseconds;
    }
    version (1 | automatic);
  }
  dead-interval seconds;
  demand-circuit;
  dynamic-neighbors;
  flood-reduction;
  hello-interval seconds;
  interface-type (nbma | p2mp | p2p);
  ipsec-sa sa-name;
  ldp-synchronization {
    disable;
    hold-time seconds;
  }
  (link-protection | node-link-protection);
  metric metric;
  neighbor address <eligible>;
  no-eligible-backup;
  no-interface-state-traps;
  no-neighbor-down-notification;
  passive {
    traffic-engineering {
      remote-node-id address;
    }
  }
  poll-interval seconds;
  priority number;
  retransmit-interval seconds;
  secondary;
  te-metric metric;
  topology (name | default | ipv4-multicast) {
    disable;
    bandwidth-based-metrics {
      bandwidth value;
      metric number;
    }
```

```
            metric metric;
          }
          transit-delay seconds;
        }
      }
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols ospf3] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  ospf3 {
    disable;
    area area-id {
      ... the area subhierarchy appears after the main [edit protocols ospf3] hierarchy ...
    }
    backup-spf-options {
      disable;
      downstream-paths-only;
      no-install;
    }
    database-protection {
      ignore-count number;
      ignore-time seconds;
      maximum-lsa number;
      reset-time seconds;
      warning-only;
      warning-threshold percent;
    }
    export [ policy-names ];
    external-preference preference;
    graceful-restart {
      disable;
      helper-disable;
      no-strict-lsa-checking;
      notify-duration seconds;
      restart-duration seconds;
    }
    import [ policy-names ];
    lsa-refresh-interval;
    no-nssa-abr;
    no-rfc-1583;
    overload <timeout seconds>;
    preference preference;
    prefix-export-limit number;
    realm (ipv4-multicast | ipv4-unicast | ipv6-multicast | ipv6-unicast) {
      ... the realm subhierarchies appear after the main [edit protocols ospf3] hierarchy ...
    }
```

```
    reference-bandwidth reference-bandwidth;
    rib-group group-name;
    spf-options {
      delay milliseconds;
      holddown milliseconds;
      no-ignore-our-externals;
      rapid-runs number;
    }
    traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag <flag-modifier> <disable>;
    }
    traffic-engineering {
      ignore-lsp-metrics;
      shortcuts <lsp-metric-into-summary>;
    }
  }

  ospf3 {
    area area-id {
      area-range ip-prefix</prefix-length> <exact> <override-metric metric> <restrict>;
      inter-area-prefix-export [ policy-names ];
      inter-area-prefix-import [ policy-names ];
      interface interface-name {
        ... the interface subhierarchy appears after the main [edit ospf3 area area-id]
          hierarchy level ...
      }
      nssa {
        area-range ip-prefix</prefix-length> <exact> <override-metric metric> <restrict>;
        default-lsa {
          default-metric metric;
          metric-type type;
          type-7;
        }
        (summaries | no-summaries);
      }
      stub <default-metric metric> <summaries | no-summaries>;
      virtual-link neighbor-id router-id transit-area area-id {
        disable;
        dead-interval seconds;
        demand-circuit;
        flood-reduction;
        hello-interval seconds;
        ipsec-sa sa-name;
        retransmit-interval seconds;
        transit-delay seconds;
      }
    }

    area area-id {
      interface interface-name {
        disable;
        bandwidth-based-metrics {
          bandwidth value metric number;
        }
```



```
        bfd-liveness-detection {
          authentication {
            algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 |
              meticulous-keyed-sha-1 | simple-password);
            key-chain key-chain-name;
            loose-check;
          }
          detection-time {
            threshold milliseconds;
          }
          full-neighbors-only;
          minimum-interval milliseconds;
          minimum-receive-interval milliseconds;
          multiplier number;
          no-adaptation;
          transmit-interval {
            minimum-interval milliseconds;
            threshold milliseconds;
          }
          version (1 | automatic);
        }
        dead-interval seconds;
        demand-circuit;
        flood-reduction;
        hello-interval seconds;
        interface-type (p2mp-over-lan | p2p);
        ipsec-sa sa-name;
        (link-protection | node-link-protection);
        metric metric;
        no-eligible-backup;
        own-router-lsa;
        passive {
          traffic-engineering {
            remote-node-id address;
          }
        }
        priority number;
        retransmit-interval seconds;
        transit-delay seconds;
      }
    }
  }

  ospf3 {
    realm (ipv4-multicast| ipv6-multicast) {
      ... same statements as at the [edit protocols ospf3] hierarchy level, EXCEPT FOR ...
      area area-id {
        interface interface-name {
          no-eligible-backup;    # NOT valid at this level
        }
        virtual-link { ... }    # NOT valid at this level
      }
      backup-spf-options { ... }    # NOT valid at this level
      realm realm-identifier { ... }    # NOT valid at this level
      traffic-engineering { ... }    # NOT valid at this level
    }
```

```
    }

    ospf3 {
      realm ipv4-unicast {
        ... same statements as at the [edit protocols ospf3] hierarchy level, PLUS ...
          area area-id {
            interface interface-name {
              ldp-synchronization {
                disable;
                hold-time seconds;
              }
            }
          }

        ... BUT NOT ...
          area area-id {
            virtual-link { ... }    # NOT valid at this level
          }
          realm realm-identifier { ... }    # NOT valid at this level
          traffic-engineering { ... }    # NOT valid at this level

      }
    }

    ospf3 {
      realm ipv6-unicast {
        disable;
        backup-spf-options {
          disable;
          downstream-paths-only;
          no-install;
        }
      }
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols pim] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  pim {
    disable;
    assert-timeout seconds;
    default-vpn-source {
      interface-name interface-name;
    }
    dense-groups {
      address <announce | reject>;
    }
```

```
    dr-election-on-p2p;
    export [ policy-names ];
    family (inet | inet6) {
      disable;
    }
    graceful-restart {
      disable;
      no-bidirectional-mode;
      restart-duration seconds;
    }
    import [ policy-names ];
    interface interface-name {
      ... the interface subhierarchy appears after the main [edit protocols pim] hierarchy ...
      family (inet | inet6) {
        disable;
      }
    }
    join-load-balance;
    join-prune-timeout seconds;
    nonstop-routing {
      disable;
    }
    override-interval milliseconds;
    propagation-delay milliseconds;
    reset-tracking-bit;
    rib-group {
      inet group-name;
      inet6 group-name;
    }
    rp {
      ... the rp subhierarchy appears after the main [edit protocols pim] hierarchy ...
    }
    sglimit {
      family (inet | inet6) {
        log-interval seconds;
        maximum limit;
        threshold value;
        }
      }
      log-interval seconds;
      maximum limit;
      threshold value;
      }
    }
    spt-threshold {
      infinity [ policy-names ];
    }
    traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag <flag-modifier> <disable>;
      flag (route | state) <flag-modifier> <disable> <filter <match-on prefix>
        <policy [ policy-names ]>>;
    }
  }
```

```
pim {
  interface interface-name {
    accept-remote-source;
    disable;
    bfd-liveness-detection {
      authentication {
        algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 |
          meticulous-keyed-sha-1 | simple-password);
        key-chain key-chain-name;
        loose-check;
      }
      detection-time {
        threshold milliseconds;
      }
      minimum-interval milliseconds;
      minimum-receive-interval milliseconds;
      multiplier number;
      no-adaptation;
      transmit-interval {
        minimum-interval milliseconds;
        threshold milliseconds;
      }
      version (1 | automatic);
    }
    bidirectional {
      df-election {
        backoff-period milliseconds;
        offer-period milliseconds;
        robustness-count number;
      }
    }
    family (inet | inet6) {
      disable;
    }
    hello-interval seconds;
    bidirectional-sparse | bidirectional-sparse-dense mode (bidirectional-sparse |
      bidirectional-sparse-dense | dense | sparse | sparse-dense);
    neighbor-policy [ policy-names ];
    override-interval milliseconds;
    priority number;
    propagation-delay milliseconds;
    reset-tracking-bit;
    version (1 | 2);
  }
}

pim {
  rp {
    auto-rp {
      (announce | discovery | mapping);
      (mapping-agent-election | no-mapping-agent-election);
    }
    bidirectional {
      address address {
        group-ranges {
          destination-ip-prefix</prefix-length>;
```



```
        }
        hold-time seconds;
        priority number;
        }
    }
  bootstrap {
    family (inet | inet6) {
        export [ policy-names ];
        import [ policy-names ];
        priority number;
    }
  }
  bootstrap-export [ policy-names ];
  bootstrap-import [ policy-names ];
  bootstrap-priority number;
  dr-register-policy [ policy-names ];
  embedded-rp {
    group-ranges {
        ip-prefix</prefix-length>;
    }
    maximum-rps limit;
  }
  group-rp-mapping {
    family (inet | inet6) {
        log-interval seconds;
        maximum limit;
        threshold value;
        }
    }
    log-interval seconds;
    maximum limit;
    threshold value;
    }
  }
  local {
    ... the local subhierarchy appears after the main [edit protocols pim rp] hierarchy ...
  }
  register-limit {
    family (inet | inet6) {
        log-interval seconds;
        maximum limit;
        threshold value;
        }
    }
    log-interval seconds;
    maximum limit;
    threshold value;
    }
  }
  rp-register-policy [ policy-names ];
  static {
    address address {
        group-ranges {
            ip-prefix</prefix-length>;
        }
        override;
```

```
            version (1 | 2);
          }
        }
      }

      rp {
        local {
          disable;
          address address;
          family (inet | inet6) {
            disable;
            address address;
            anycast-pim {
              local-address address;
              rp-set {
                address address <forward-msdp-sa>;
              }
            }
            group-ranges {
              ip-prefix</prefix-length>;
            }
            hold-time seconds;
            override;
            priority number;
          }
          group-ranges {
            ip-prefix</prefix-length>;
          }
          hold-time seconds;
          override;
          priority number;
        }
      }
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols rip] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  rip {
    authentication-key password;
    authentication-type type;
    (check-zero | no-check-zero);
    graceful-restart {
      disable;
      restart-time seconds;
    }
    group group-name {
```

```
        ... the group subhierarchy appears after the main [edit protocols rip] hierarchy ...
      }
      holddown seconds;
      import [ policy-names ];
      message-size number;
      metric-in metric;
      receive (both | none | version-1 | version-2);
      rib-group group-name;
      route-timeout seconds;
      send (broadcast | multicast | none | version-1);
      traceoptions {
        file filename <files number> <size maximum-file-size> <world-readable |
          no-world-readable>;
        flag flag <flag-modifier> <disable>;
      }
      update-interval seconds;
    }

    rip {
      group group-name {
        bfd-liveness-detection {
          authentication {
            algorithm (keyed-md5 | keyed-sha-1 | meticulous-keyed-md5 |
              meticulous-keyed-sha-1 | simple-password);
            key-chain key-chain-name;
            loose-check;
          }
          detection-time {
            threshold milliseconds;
          }
          minimum-interval milliseconds;
          minimum-receive-interval milliseconds;
          multiplier number;
          no-adaptation;
          transmit-interval {
            minimum-interval milliseconds;
            threshold milliseconds;
          }
          version (1 | automatic);
        }
        demand-circuit;
        export [ policy-names ];
        import [ policy-names ];
        max-retrans-time seconds;
        metric-out metric;
        neighbor interface-name {
          ... the neighbor subhierarchy appears after the main [edit protocols rip group
            group-name] hierarchy level ...
        }
        preference preference;
        route-timeout seconds;
        update-interval seconds;
      }

      group group-name {
        neighbor neighbor-name {
```

```
                any-sender;
                authentication-key password;
                authentication-type type;
                bfd-liveness-detection {
                  ... same statements as at the [edit protocols rip group group-name
                      bfd-liveness-detection] hierarchy level ...
                }
                (check-zero | no-check-zero);
                demand-circuit;
                import [ policy-names ];
                max-retrans-time seconds;
                message-size number;
                metric-in metric;
                receive (both | none | version-1 | version-2);
                route-timeout seconds;
                send (broadcast | multicast | none | version-1);
                update-interval seconds;
            }
        }
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols ripng] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  ripng {
    graceful-restart {
      disable;
      restart-time seconds;
    }
    group group-name {
      export [ policy-names ];
      import [ policy-names ];
      metric-out metric;
      neighbor neighbor-name {
        import [ policy-names ];
        metric-in metric;
        receive <none>;
        route-timeout seconds;
        send <none>;
        update-interval seconds;
      }
      preference number;
      route-timeout seconds;
      update-interval seconds;
    }
    holddown seconds;
    import [ policy-names ];
```

```
        metric-in metric;
        receive <none>;
        route-timeout seconds;
        send <none>;
        update-interval seconds;
        traceoptions {
          file filename <files number> <size maximum-file-size> <world-readable |
            no-world-readable>;
          flag flag <flag-modifier> <disable>;
        }
      }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols router-advertisement] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  router-advertisement {
    interface interface-name {
      current-hop-limit number;
      default-lifetime seconds;
      dns-server-address address;
      (link-mtu | no-link-mtu);
      (managed-configuration | no-managed-configuration);
      max-advertisement-interval seconds;
      min-advertisement-interval seconds;
      (other-stateful-configuration | no-other-stateful-configuration);
      prefix prefix {
        (autonomous | no-autonomous);
        (on-link | no-on-link);
        preferred-lifetime seconds;
        valid-lifetime seconds;
      }
      reachable-time milliseconds;
      retransmit-timer milliseconds;
      virtual-router-only;
    }
    traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag;
    }
  }
}
```

Related Documentation

- *Example: Configuring IPv6 Interfaces and Enabling Neighbor Discovery*
- *Notational Conventions Used in Junos OS Configuration Hierarchies*

- *[edit protocols] Hierarchy Level*

[edit protocols router-discovery] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  router-discovery {
    disable;
    address address {
      (advertise | ignore);
      (broadcast | multicast);
      (ineligible | priority number);
    }
    interface interface-name {
      lifetime seconds;
      max-advertisement-interval seconds;
      min-advertisement-interval seconds;
    }
    traceoptions {
      file filename <files number> <size size> <world-readable | no-world-readable>;
      flag flag <flag-modifier> <disable>;
    }
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols rstp] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  rstp {
    disable;
    backup-bridge-priority priority;
    bpdu-block-on-edge;
    bpdu-destination-mac-address provider-bridge-group;
    bridge-priority priority;
    extended-system-id id;
    force-version stp;
    forward-delay seconds;
    hello-time seconds;
    interface interface-name {
      bpdu-timeout-action {
        alarm;
        block;
      }
      cost cost;
```



```
            edge;
            mode (point-to-point | shared);
            no-root-port;
            priority interface-priority;
          }
          max-age seconds;
          priority-hold-time seconds;
          system-id mac-address {
            ip-address ip-address</prefix-length>;
          }
          traceoptions {
            file filename <files number> <size maximum-file-size> <world-readable |
              no-world-readable>;
            flag flag <disable>;
          }
          vpls-flush-on-topology-change;
        }
      }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols sap] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  sap {
    disable;
    listen address <port port>;
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

[edit protocols vrrp] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  vrrp {
    asymmetric-hold-time;
    delegate-processing;
    failover-delay milliseconds;
    global-advertisements-threshold advertisement-value;
    skew-timer-disable;
    startup-silent-period seconds;
    traceoptions {
```

```
            file <filename> <files number> <match regular-expression> <microsecond-stamp>
              <size maximum-file-size> <world-readable | no-world-readable>;
            flag flag;
            no-remote-trace;
            }
          version-3;
        }
      }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*
- *Junos OS Hierarchy and RFC Reference*
- *Ethernet Interfaces*
- *Junos OS Network Interfaces Library for Routing Devices*

[edit protocols vstp] Hierarchy Level

The following statement hierarchy can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
protocols {
  vstp {
    disable;
    bpdu-block-on-edge;
    force-version stp;
    interface interface-name {
        access-trunk
        bpdu-timeout-action {
      alarm;
        block;
      }
      cost cost;
      edge;
      mode (point-to-point | shared);
      no-root-port;
      priority interface-priority;
    }
    priority-hold-time seconds;
    system-id mac-address {
      ip-address ip-address</prefix-length>;
    }
    vlan vlan-id {
      ... the vlan subhierarchy appears after the main [edit protocols vstp] hierarchy level ...
    }
    vpls-flush-on-topology-change;
  }

  vstp {
    vlan vlan-id {
      backup-bridge-priority priority;
      bridge-priority priority;
```

```
        forward-delay seconds;
        hello-time seconds;
        interface interface-name {
          ... same statements as at the [edit protocols vstp interface interface-name] hierarchy
            level ...
        }
        max-age seconds;
        traceoptions {
          file filename <files number> <size maximum-file-size> <world-readable |
            no-world-readable>;
          flag flag <disable>;
        }
      }
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *[edit protocols] Hierarchy Level*

Layer 2 Routing Instances Configuration Hierarchy

Use the **vpls** routing instance type for point-to-multipoint LAN implementations between a set of sites in a VPN.

To configure routing instances for Layer 2 networks, include the following statements:

```
routing-instances {
  routing-instance-name {
    access {
      address-assignment {
        ... same statements as in the address-assignment subhierarchy in [edit access]
          Hierarchy Level ...
      }
      address-protection;
    description text;
    egress-protection {
      context-identifier context-id;
    }
    forwarding-options {
      ...forwarding-options...
    }
    instance-role role;
    instance-type type;
    interface interface-name;
    l2-domain-id-for-l3 id;
    l2vpn-id community;
    layer3-domain-identifier identifier;
    multicast-snooping-options {
      ... same statements as in [edit multicast-snooping-options] Hierarchy Level EXCEPT
        FOR ...
      traceoptions {...}   # NOT valid at this level
    }
    no-irb-layer-2-copy;
    no-local-switching;
```

```
no-vrf-advertise;
no-vrf-propagate-ttl;
pbb-options {
   default-bvlan bvlan;
   peer-instance instance;
   vlan-id vlan-id isid-list [ isid-numbers ]
}
protocols {
   ... the protocols subhierarchy appears after the main [edit routing-instances
      routing-instance-name] hierarchy ...
}
provider-tunnel {
   ... the provider-tunnel subhierarchy appears after the main [edit routing-instances
      routing-instance-name] hierarchy ...
}
route-distinguisher (as-number:number | ip-address:number);
routing-interface interface;
routing-options {
   ... the routing-options subhierarchy appears after the main [edit routing-instances
      routing-instance-name] hierarchy ...
}
service-groups {
   service-group-name {
      pbb-service-options {
         default-isid isid-number;
         isid isid-number vlan-id-list [ vlan-ids ];
         mac-address mac-address;
      }
      service-type type;
   }
}
services {
   mobile-ip {
      ... same statements as in [edit services mobile-ip] Hierarchy Level ...
   }
}
switch-options {
   ... same statements as in [edit switch-options] Hierarchy Level ...
}
vlan-id (id | all | none);
vlan-model one-to-one;
vlan-tags outer <tpid.>vlan-id inner <tpid.>vlan-id;
[edit vlans] Hierarchy Level on page 145 {
   ... same statements as in [edit vlans] Hierarchy Level ...
}
vrf-advertise-selective {
   family {
      inet-mvpn;
      inet6-mvpn;
   }
}
vrf-export [ policy-names ];
vrf-import [ policy-names ];
vrf-propagate-ttl;
vrf-table-label;
vrf-target {
```



```
            export community-name;
            import community-name;
        }
        protocols {
            ... protocols-configuration ...
        }
        routing-options {
            ... routing-options-configuration ...
        }
        bridge-domains {
            bridge-domain-name {
                domain-type bridge;
                interface interface-name;
                routing-interface routing-interface-name;
                vlan-id (Bridge Domain or VLAN) (none | all | number);
                vlan-tags outer number inner number;
                bridge-options {
                    interface-mac-limit limit {
                        packet-action drop;
                    }
                    interface interface-name {
                        interface-mac-limit limit {
                            packet-action drop;
                        }
                    }
                    mac-statistics;
                    mac-table-size limit {
                        packet-action drop;
                    }
                    no-mac-learning;
                    static-mac mac-address;
                }
            }
        }
    }
}
```

With the exception of the **instance-type virtual-switch** statement (which configures a virtual-switch routing instance), you can include the statements at the following hierarchy levels:

- **[edit]**
- **[edit logical-systems *logical-system-name*]**

The **instance-type virtual-switch** statement is not supported at the **[edit logical-systems *logical-system-name*]** hierarchy level.

Related Documentation

- *Routing Instances Overview*
- *Layer 2 Routing Instance Types*
- *Configuring a Layer 2 Virtual Switch*
- *Configuring a Layer 2 Control Protocol Routing Instance*

[edit routing-options] Hierarchy Level

Several statements in the **[edit routing-options** hierarchy are valid at numerous locations within the hierarchy. To make the complete hierarchy easier to read, the repeated statements are listed in "Common Routing Options" on page 112 and that section is referenced at the appropriate locations in "Complete [edit routing-options] Hierarchy" on page 113.

Common Routing Options

This section lists statements that are valid at the following hierarchy levels, and is referenced at those levels in "Complete [edit routing-options] Hierarchy" on page 113 instead of the statements being repeated.

- **[edit routing-options aggregate defaults]**
- **[edit routing-options aggregate route *ip-prefix</prefix-length>*]**
- **[edit routing-options generate defaults]**
- **[edit routing-options generate route *ip-prefix</prefix-length>*]**
- **[edit routing-options static defaults]**
- **[edit routing-options static route *ip-prefix</prefix-length>*]**

The common routing options are as follows:

```
(active | passive);
as-path {
   aggregator as-number address;
   atomic-aggregate;
   origin (egp | igp | incomplete);
   path path-identifier;
}
color metric <type metric-type>;
color2 metric <type metric-type>;
community [ community-id no-advertise no-export no-export-subconfed ];
metric metric <type metric-type>;
metric2 metric <type metric-type>;
metric3 metric <type metric-type>;
metric4 metric <type metric-type>;
passive;
preference preference-value <type metric-type>;
preference2 preference-value <type metric-type>;
tag metric <type metric-type>;
tag2 metric <type metric-type>;
```


Complete [edit routing-options] Hierarchy

The statement hierarchy in this section can also be included at the **[edit logical-systems *logical-system-name*]** hierarchy level.

```
routing-options {
  access {
    route ip-prefix</prefix-length> {
      metric metric;
      next-hop [ addresses ];
      preference preference-value;
      qualified-next-hop address;
      tag route-tag;
    }
  }
  access-internal {
    route ip-prefix</prefix-length> {
      next-hop [ addresses ];
      qualified-next-hop address;
      tag route-tag;
    }
  }
  admin-groups-extended group-name {
    group-value group-identifier;
  }
  admin-groups-extended-range {
    maximum maximum-number;
    mininum minimum-number;
  }
  aggregate {
    defaults {
      ... statements in Common Routing Options on page 112 PLUS ...
      (brief | full);
      discard;
    }
    route ip-prefix</prefix-length> {
      ... statements in Common Routing Options on page 112 PLUS ...
      (brief | full);
      discard;
      policy [ policy-names ];
    }
  }
  auto-export {
    disable;
    family inet {
      disable;
      flow {
        disable;
        rib-group rib-group;
      }
      multicast {
        disable;
        rib-group rib-group;
      }
      unicast {
```

```
            disable;
            rib-group rib-group;
        }
    }
    family inet6 {
        disable;
        multicast {
            disable;
            rib-group rib-group;
        }
        unicast {
            disable;
            rib-group rib-group;
        }
    }
    family iso {
        disable;
        unicast {
            disable;
            rib-group rib-group;
        }
    }
    traceoptions {
        file filename <files number> <size maximum-file-size> <world-readable |
            no-world-readable>;
        flag flag <flag-modifier> <disable>;
    }
}
autonomous-system autonomous-system <asdot-notation> <loops number>;
no-bfd-triggered-local-repair;
bgp-orf-cisco-mode;
bmp {
    memory-limit bytes;
    station-address (ip-address | name);
    station-port-number port-number;
    statistics-timeout seconds;
}
confederation as-number members [ as-numbers ];
dynamic-tunnels tunnel-name {
    destination-networks prefix;
    gre;
    rsvp-te entry-name {
        destination-networks network-prefix;
        label-switched-path-template {
            default-template;
            template-name;
        }
    }
    source-address address;
}
fate-sharing {
    group group-name {
        cost value;
        from {
            address <to address>;
        }
```



```
    }
  }
  flow {
    firewall-install-disable;
    route name {
      match {
        destination address;
        destination-port [ afs bgp biff bootpc bootps cmd cvspserver dhcp domain eklogin
          ekshell exec finger ftp ftp-data http https ident imap kerberos-sec klogin kpasswd
          krb-prop krbupdate kshell ldap ldp login mobileip-agent mobilip-mn msdp
          netbios-dgm netbios-ns netbios-ssn nfsd nntp ntalk ntp pop3 pptp printer radacct
          radius rip rkinit smtp snmp snmptrap snpp socks ssh sunrpc syslog tacacs
          tacacs-ds talk telnet tftp timed who xdmcp ];
        dscp [ code-points ];
        fragment [ don't-fragment first-fragment is-fragment last-fragment
          not-a-fragment ];
        icmp-code [ communication-prohibited-by-filtering destination-host-prohibited
          destination-host-unknow fragmentation-needed host-precedence-violation
          host-unreachable host-unreachable-for-tos ip-header-bad network-unreachable
          network-unreachable-for-tos port-unreachable precedence-cutoff-in-effect
          protocol-unreachable redirect-for-host redirect-for-network
          redirect-for-tos-and-host redirect-for-tos-and-net required-option-missing
          source-host-isolated source-route-failed ttl-eq-zero-during-reassembly
          ttl-eq-zero-during-transit ];
        icmp-type [ echo-reply echo-request info-reply info-request mask-reply
          mask-request parameter-problem redirect router-advertisement router-solicit
          source-quench time-exceeded timestamp timestamp-reply unreachable ];
        packet-length [ values ];
        port [ ... same values as for the preceding destination-port statement ... ];
        protocol [ ah egp esp gre icmp igmp ipip ospf pim rsvp sctp tcp udp ];
        source address;
        source-port [ ... same values as for the preceding destination-port statement ... ];
        tcp-flags [ ack fin push rst syn urgent ];
      }
      then {
        (accept | discard);
        community community-name;
        next-term;
        rate-limit value;
        routing-instance routing-instance-name;
        sample;
      }
    }
    term order (legacy | standard);
    validation {
      traceoptions {
        file filename <files number> <size maximum-file-size> <world-readable |
          no-world-readable>;
        flag flag <flag-modifier> <disable>;
      }
    }
  }
  forwarding-table {
    chained-composite-next-hop {
      ingress {
        l3vpn {
```

```
            extended-space;
          }
        }
      }
      export [ policy-name ];
      (indirect-next-hop | no-indirect-next-hop);
      (indirect-next-hop-change-acknowledgements |
        no-indirect-next-hop-change-acknowledgements;)
      krt-nexthop-ack-timeout interval;
      unicast-reverse-path (active-paths | feasible-paths);
    }
    generate {
      defaults {
        ... statements in Common Routing Options on page 112 PLUS ...
        (brief | full);
        discard;
      }
      route ip-prefix</prefix-length> {
        ... statements in Common Routing Options on page 112 PLUS ...
        (brief | full);
        discard;
        policy [ policy-names ];
      }
    }
    graceful-restart {
      disable;
      restart-duration seconds;
    }
    host-fast-reroute {
      global-arp-prefix-limit number;
      global-supplementary-blackout-timer minutes;
    }
    instance-export [ policy-names ];
    instance-import [ policy-names ];
    interface interface-name { # In the routing-instance only
      arp-prefix-limit number;
      link-protection;
      supplementary-blackout-timer minutes;
    }
    interface-routes {
      family (inet | inet6) {
        export {
          lan;
          point-to-point;
        }
        import [ policy-names ];
      }
      rib-group {
        inet group-name;
        inet6 group-name;
      }
    }
    martians {
      ip-prefix</prefix-length> (exact | longer | orlonger |
        prefix-length-range /minimum-prefix-length–/maximum-prefix-length |
        through ip-prefix</prefix-length> | upto /prefix-length) <allow>;
```

```
}
maximum-paths path-limit <log-only | threshold value> <log-interval seconds>;
maximum-prefixes prefix-limit <log-only | threshold value> <log-interval seconds>;
med-igp-update-interval minutes;
multicast {
   ... the multicast subhierarchy appears after the main [edit routing-options] hierarchy ...
}
nonstop-routing;
options {
   mark seconds;
   syslog {
      level level;
      upto level;
   }
}
ppm {
   no-delegate-processing;
}
resolution {
   rib routing-table-name {
      import [ policy-names ];
      resolution-ribs [ routing-table-names ];
   }
   tracefilter [ filter-policy-names ];
   traceoptions {
      file filename <files number> <size maximum-file-size> <world-readable |
         no-world-readable>;
      flag flag <flag-modifier> <disable>;
   }
}
rib routing-table-name {
   access {
      ... same statements as at the [edit routing-options access] hierarchy level ...
   }
   access-internal {
      ... same statements as at the [edit routing-options access-internal] hierarchy level ...
   }
   aggregate {
      ... same statements as at the [edit routing-options aggregate] hierarchy level ...
   }
   generate {
      ... same statements as at the [edit routing-options generate] hierarchy level ...
   }
   martians {
      ip-prefix</prefix-length> (exact | longer | orlonger |
         prefix-length-range /minimum-prefix-length–/maximum-prefix-length |
         through ip-prefix</prefix-length> | upto /prefix-length) <allow>;
   }
   maximum-paths path-limit <log-only | threshold value> <log-interval seconds>;
   maximum-prefixes prefix-limit <log-only | threshold value> <log-interval seconds>;
   static {
      ... same statements as at the [edit routing-options static] hierarchy level ...
   }
}
rib-groups {
   group-name {
```

```
        export-rib table-name;
        import-policy [ policy-names ];
        import-rib [ table-names ];
    }
}
route-distinguisher-id address;
route-record;
router-id address;
source-routing {
    ip;
    ipv6;
}
srlg {
    srlg-name {
        srlg-cost srlg-cost;
        srlg-value srlg-value;
    }
}
static {
    ... the static subhierarchy appears after the main [edit routing-options] hierarchy ...
}
topologies {
    family (inet | inet6) {
        topology topology-name;
    }
}
traceoptions {
    file filename <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
    flag flag <disable>;
}
validation {
    group group-name {
        max-sessions number;
        session address {
            hold-time seconds;
            local-address local-ip-address;
            port port-number;
            preference number;
            record-lifetime seconds;
            refresh-time seconds;
        }
    }
    notification-rib value;
    static {
        record destination {
            maximum-length prefix-length {
                origin-autonomous-system as-number {
                    validation-state (invalid | valid);
                }
            }
        }
    }
    traceoptions {
        file filename <files number> <size size> <world-readable | no-world-readable>;
        flag flag;
```



```
        }
    }
}

routing-options {
    multicast {
        asm-override-ssm;
        backup-pe-group group-name {
            backups [ addresses ];
            local-address address;
        }
        flow-map flow-map-name {
            bandwidth <bps> <adaptive>;
            forwarding-cache {
                timeout (never <non-discard-entry-only> | minutes);
            }
            policy [ policy-names ];
            redundant-sources [ addresses ];
        }
        forwarding-cache {
            family (inet | inet6) {
                threshold {
                    log-warningvalue;
                    suppress value <reuse value>;
                }
            threshold {
                log-warning value;
                suppress value <reuse value>;
            }
            timeout minutes;
        }
        interface interface-name {
            maximum-bandwidth bps;
            no-qos-adjust;
            reverse-oif-mapping {
                no-qos-adjust;
            }
            subscriber-leave-timer seconds;
        }
        pim-to-igmp-proxy {
            upstream-interface [ interface-names ];
        }
        pim-to-mld-proxy {
            upstream-interface [ interface-names ];
        }
        rpf-check-policy [ policy-names ];
        scope scope-name {
            interface [ interface-names ];
            prefix ip-prefix</prefix-length>;
        }
        scope-policy [ policy-names ];
        ssm-groups [ ip-prefix</prefix-length> ];
        ssm-map ssm-map-name {
            policy [ policy-names ];
            source [ addresses ];
        }
```

```
        traceoptions {
            file filename <files number> <size maximum-file-size> <world-readable |
                no-world-readable>;
            flag flag <disable>;
        }
    }
}

routing-options {
    static {
        defaults {
            ... statements in Common Routing Options on page 112 PLUS ...
            (install | no-install);
            (readvertise | no-readvertise);
            (resolve | no-resolve);
            (retain | no-retain);
        }
        rib-group group-name;
        route destination-prefix {
            ... statements in Common Routing Options on page 112 PLUS ...
            backup-pe-group group-name;
            bfd-liveness-detection {
                detection-time {
                    threshold milliseconds;
                }
                holddown-interval milliseconds;
                local-address ip-address;
                minimum-interval milliseconds;
                minimum-receive-interval milliseconds;
                minimum-receive-ttl milliseconds;
                multiplier number;
                neighbor address;
                no-adaptation;
                transmit-interval {
                    minimum-interval milliseconds;
                    threshold milliseconds;
                }
                version (1 | automatic);
            }
            (discard | next-hop [ addresses ] | next-table address | receive | reject);
            (install | no-install);
            lsp-next-hop {
                metric metric;
                preference preference;
            }
            p2mp-lsp-next-hop lsp-name {
                metric metric;
                preference preference;
            }
            (readvertise | no-readvertise);
            (resolve | no-resolve);
            (retain | no-retain);
            static-lsp-next-hop lsp-name {
                metric metric;
                preference preference-value;
            }
```

```
        }
      }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit security] Hierarchy Level

Each of the following topics lists the statements at a subhierarchy of the **[edit security]** hierarchy.

- [edit security alarms] Hierarchy Level on page 121
- [edit security authentication-key-chains] Hierarchy Level on page 121
- [edit security certificates] Hierarchy Level on page 122
- [edit security ike] Hierarchy Level on page 122
- [edit security ipsec] Hierarchy Level on page 123
- [edit security log] Hierarchy Level on page 124
- [edit security pki] Hierarchy Level on page 124
- [edit security ssh-known-hosts] Hierarchy Level on page 125
- [edit security traceoptions] Hierarchy Level on page 125

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit security alarms] Hierarchy Level

```
security {
  alarms {
    audible;
    potential-violation {
      policy;
      replay-attacks;
    }
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security authentication-key-chains] Hierarchy Level

```
security {
  authentication-key-chains{
    key-chain key-chain-name}
      key key {
```

```
            secret secret-data;
            start-time yyyy-mm-dd.hh:mm:ss;
        }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security certificates] Hierarchy Level

```
security {
  certificates {
    cache-size bytes;
    cache-timeout-negative seconds;
    certification-authority ca-profile-name {
      ca-name ca-identity;
      crl file-name;
      encoding (binary | pem);
      enrollment-url url-name;
      file certificate-filename;
      ldap-url url-name;
    }
    enrollment-retry attempts;
    local certificate-filename {
      certificate-key-string;
      load-key-file URL key-filename;
    }
    maximum-certificates number;
    path-length certificate-path-length;
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security ike] Hierarchy Level

```
security {
  ike {
    policy ike-peer-address {
      description description;
      encoding (binary | pem);
      identity identity-name;
      local-certificate certificate-filename;
      local-key-pair private-public-key-file;
      mode (aggressive | main);
      pre-shared-key (ascii-text key | hexadecimal key);
      proposals [ proposal-names ];
    }
    proposal ike-proposal-name {
      authentication-algorithm (md5 | sha-256| sha1);
      authentication-method (dsa-signatures | pre-shared-keys | rsa-signatures);
```



```
        description description;
        dh-group (group1 | group2 | group5);
        encryption-algorithm (3des-cbc | aes-128-cbc | aes-192-cbc | aes-256-cbc | des-cbc);;
        lifetime-seconds seconds;
      }
    }
  }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security ipsec] Hierarchy Level

```
security {
  ipsec {
    policy ipsec-policy-name {
      description text-description;
      perfect-forward-secrecy {
        keys (group1 | group14 |group2 | group5);
      }
      proposals [ proposal-names ];
    }
    proposal ipsec-proposal-name {
      authentication-algorithm (hmac-md5-96 | hmac-sha-256-128 |hmac-sha1-96);
      description text-description;
      encryption-algorithm (3des-cbc | aes-128-cbc | aes-192-cbc | aes-256-cbc | des-cbc);
      lifetime-seconds seconds;
      protocol (ah | bundle | esp);
    }
    security-association sa-name {
      description text-description;
      dynamic {
        ipsec-policy policy-name;
        replay-window-size (32 | 64);
      }
      manual {
        direction (bidirectional | inbound | outbound) {
          authentication {
            algorithm (hmac-md5-96 | hmac-sha1-96);
            key (ascii-text key | hexadecimal key);
          }
          auxiliary-spi spi-index;
          encryption {
            algorithm (3des-cbc | aes-128-cbc | aes-192-cbc | aes-256-cbc | des-cbc);
            key (ascii-text key | hexadecimal key);
          }
          protocol (ah | bundle | esp);
          spi spi-index;
          encryption {
            algorithm 3des-cbc;
            key ascii-text ascii-text-string;
          }
        }
      }
```

```
            mode (transport | tunnel);
        }
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security log] Hierarchy Level

```
security {
    log {
        cache {
            exclude exclude-name{
                destination-address;
                destination-port;
                event-id;
                failure;
                interface-name;
                policy-name;
                process;
                protocol;
                source-address;
                source-port;
                success;
                username;
            limit limit;
    }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security pki] Hierarchy Level

```
security {
    pki {
        auto-re-enrollment {
            certificate-id certificate-id {
                ca-profile ca-profile-name;
                challenge-password password;
                re-enroll-trigger-time-percentage percentage;
                re-generate-keypair;
                validity-period days;
            }
        }
        ca-profile ca-profile-name {
            administrator {
                email-address email-address;
            }
            ca-identity ca-identifier;
            enrollment {
```

```
            retry attempts;
            retry-interval seconds;
            url url;
          }
          revocation-check {
            disable;
            crl {
              disable on-download-failure;
              refresh-interval hours;
              url url {
                password password;
              }
            }
          }
          routing-instance;
        }
        traceoptions {
          file <filename> <files number> <match regular-expression> <size maximum-file-size>
            <world-readable | no-world-readable>;
          flag flag;
        }
      }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security ssh-known-hosts] Hierarchy Level

```
security {
  ssh-known-hosts {
    fetch-from-server server-name;
    host hostname {
      dsa-key dsa-key;
      ecdsa-sha2-nistp256-key ecdsa-sha2-nistp256-key;
      ecdsa-sha2-nistp384-key ecdsa-sha2-nistp384-key;
      ecdsa-sha2-nistp521-key ecdsa-sha2-nistp521-key;
      rsa-key rsa-key;
      rsa1-key rsa1-key;
    }
    load-key-file key-file;
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit security traceoptions] Hierarchy Level

```
security {
  traceoptions {
    file filename <files number> < size size>;
```

```
        flag all;
        flag database;
        flag general;
        flag ike;
        flag parse;
        flag policy-manager;
        flag routing-socket;
        flag timer;
      }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- [edit security] Hierarchy Level on page 121

[edit snmp] Hierarchy Level

```
snmp {
  client-list list-name {
    address {
      restrict;
    }
  }
  community community-name {
    authorization (read-only | read-write);
    client-list-name list-name;
    clients {
      address <restrict>;
    }
    logical-system logical-system-name {
      routing-instance instance-name;
    }
    routing-instance instance-name {
      client-list-name list-name;
      clients {
        address <restrict>;
      }
    }
    view view-name;
  }
  contact contact-information;
  description description;
  engine-id {
    (local engine-id | use-default-ip-address | use-mac-address);
  }
  filter-duplicates;
  filter-interfaces {
    interfaces
    all-internal-interfaces;
    interface 1;
    interface 2;
  }
  health-monitor {
    falling-threshold percentage;
    idp {
```

```
        falling-threshold;
        interval seconds;
        rising-threshold;
    }
    interval seconds;
    rising-threshold percentage;
}
interface [ interface-names ];
location location;
logical-system-trap-filter;
name system-name;
nonvolatile {
    commit-delay seconds;
}
rmon {
    alarm index {
        description description;
        falling-event-index index;
        falling-threshold integer;
        falling-threshold-interval seconds;
        interval seconds;
        request-type (get-next-request | get-request | walk-request);
        rising-event-index index;
        rising-threshold integer;
        sample-type (absolute-value | delta-value);
        startup-alarm (falling-alarm | rising-alarm | rising-or-falling alarm);
        syslog-subtag text-string;
        variable oid-variable;
    }
    event index {
        community community-name;
        description description;
        type (log | log-and-trap | none | snmptrap);
    }
    history index {
        bucket-size number;
        interface interface-name;
        interval seconds;
        owner owner-name;
    }
}
routing-instance-access {
    access-list {
        routing-instance-name <restrict>;
    }
}
traceoptions {
    file <files number> <match regular-expression> <size maximum-file-size>
        <world-readable | no-world-readable>;
    flag flag;
    no-remote-trace;
}
trap-group group-name {
    categories {
        authentication;
        chassis;
```

```
            chassis-cluster;
            configuration;
            link;
            otn-alarms {
              alarm-name;
            }
            remote-operations;
            rmon-alarm;
            routing;
            services;
            sonet-alarms {
              alarm-name;
            }
            startup;
            vrrp-events;
          }
          destination-port port-number;
          logical-system logical-system-name {
            routing-instance instance-name;
          }
          routing-instance instance-name;
          targets {
            address;
          }
          version (all | v1 | v2);
        }
        trap-options {
          agent-address outgoing-interface;
          enterprise-oid;
          logical-system logical-system-name {
            routing-instance instance-name;
          }
          routing-instance instance-name {
            source-address (address | lo0);
          }
          source-address address;
        }
        v3 {
          ... the v3 subhierarchy appears after the main [edit snmp] hierarchy level ...
        }
        view view-name {
          oid object-identifier <exclude | include>;
        }
      }

      snmp {
        v3 {
          notify name {
            tag tag-name;
            type (inform | trap);
          }
          notify-filter profile-name {
            oid oid <exclude | include>;
          }
          snmp-community community-index {
            community-name community-name;
```



```
    context context-name;
    security-name security-name;
    tag tag-name;
  }
  target-address target-address-name {
    address address;
    address-mask address-mask;
    logical-system logical-system-name {
      routing-instance routing-instance-name;
    }
    port port-number;
    retry-count number;
    routing-instance routing-instance-name;
    tag-list tag-list;
    target-parameters parameter-name;
    timeout seconds;
  }
  target-parameters parameter-name {
    notify-filter profile-name;
    parameters {
      message-processing-model (v1 | v2c | v3);
      security-level (authentication | none | privacy);
      security-model (usm | v1 | v2c);
      security-name security-name;
    }
  }
  usm {
    local-engine {
      user username {
        authentication-md5 {
          authentication-password password;
        }
        authentication-none;
        authentication-sha {
          authentication-password password;
        }
        privacy-3des {
          privacy-password password;
        }
        privacy-aes128 {
          privacy-password password;
        }
        privacy-des {
          privacy-password password;
        }
        privacy-none;
      }
    }
    remote-engine engine-id {
      user username {
        authentication-md5 {
          authentication-password password;
        }
        authentication-none;
        authentication-sha {
          authentication-password password;
```

```
                }
                privacy-3des {
                    privacy-password password;
                }
                privacy-aes128 {
                    privacy-password password;
                }
                privacy-des {
                    privacy-password password;
                }
                privacy-none;
            }
        }
    }
    vacm {
        access {
            group group-name {
                context-prefix prefix {
                    security-model (any | usm | v1 | v2c) {
                        security-level (authentication | none | privacy) {
                            context-match (exact | prefix);
                            notify-view view-name;
                            read-view view-name;
                            write-view view-name;
                        }
                    }
                }
                default-context-prefix prefix {
                    security-model (any | usm | v1 | v2c) {
                        security-level (authentication | none | privacy) {
                            context-match (exact | prefix);
                            notify-view view-name;
                            read-view view-name;
                            write-view view-name;
                        }
                    }
                }
            }
        }
        security-to-group {
            security-model (usm | v1 | v2c) {
                security-name security-name {
                    group group-name;
                }
            }
        }
    }
  }
}
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*
- *Understanding the Integrated Local Management Interface*

[edit switch-options] Hierarchy Level

```
switch-options {
  interface interface-name {
    interface-mac-limit {
      number-of-addresses;
      packet-action drop;
    }
    no-mac-learning;
  }
  interface-mac-limit {
    number-of-addresses;
    packet-action drop;
  }
  mac-statistics;
  mac-table-size {
    number-of-addresses;
    packet-action drop;
  }
  no-mac-learning;
  service-id number;
}
```

[edit system] Hierarchy Level

```
system {
  accounting {
    destination {
      radius {
        server {
          server-address {
            accounting-port port-number;
            max-outstanding-requests
            port port-number;
            retry number;
            secret password;
            source-address address;
            timeout seconds;
          }
        }
      }
      tacplus {
        server {
          server-address {
            port port-number;
            secret password;
            single-connection;
            source-address address;
            timeout seconds;
          }
        }
      }
    }
    events  [ change-log interactive-commands login ];
```

```
}
allow-6pe-traceroute;
allow-v4mapped-packets;
archival {
  configuration {
    archive-sites {
      ftp://<username>:<password>@<host>:<port>/<url-path>;
      scp://<username>:<password>@<host>:<port>/<url-path>;
    }
    transfer-interval interval;
    transfer-on-commit;
  }
}
arp {
  aging-timer minutes;
  gratuitous-arp-delay;
  gratuitous-arp-on-ifup;
  interfaces {
    logical-interface-name {
      aging-timer minutes;
    }
  }
  passive-learning;
  purging;
}
authentication-order [ authentication-methods ];
auto-configuration {
  traceoptions {
    file <filename> <files number> <match regular-expression> <size size>
      <world-readable | no-world-readable>;
    flag <all | auth | configuration | ;interfaces | io | rtsock | ui>
    level level;
    no-remote-trace;
  }
}
backup-router address <destination [ destination-addresses ]>;
commit {
  fast-synchronize;
  synchronize;
  server {
    commit-interval number;
    days-to-keep-error-logs number;
    maximum-aggregate-pool number;
    maximum-entries number;
    traceoptions {
      file <filename> <files number> <match regular-expression> <size size>
        <world-readable | no-world-readable>;
      flag <all | auth | configuration | ;interfaces | io | rtsock | ui>
      level level;
      no-remote-trace;
    }
  }
}
(compress-configuration-files | no-compress-configuration-files);
ddos-protection {
  global {
```

```
        disable-fpc;
        disable-logging;
        disable-routing-engine;
        flow-detection;
        flow-report-rate;
        violation-report-rate;
      }
      protocols protocol-group (aggregate | packet-type) {
        bandwidth packets-per-second;
        burst size;
        disable-fpc;
        disable-logging;
        disable-routing-engine;
        fpc {
          bandwidth-scale percentage;
          burst-scale percentage;
          disable-fpc;
        }
        priority level;
        recover-time seconds;
        flow-detection {
          flow-detect-time detect-period;
          no-flow-logging;
          timeout-active-flows enable-period;
          flow-level-bandwidth;
          flow-level-control (all | keep-all | police);
          flow-detection-mode (always-on |automatic |disabled);
          physical-interface;
          flow-recover-time recover-period;
          flow-timeout-time timeout-period;
          subscriber;
        }
      }
      traceoptions{
        file filename <files number> <match regular-expression > <size maximum-file-size>
          <world-readable | no-world-readable>;
        flag flag;
        level (all | error | info | notice | verbose | warning);
        no-remote-trace;
      }
    }
    default-address-selection;
    diag-port-authentication (encrypted-password "password" | plain-text-password);
    dynamic-profile-options {
      versioning;
    }
    domain-name domain-name;
    domain-search [ domain-list ];
    donot-disable-ip6op-ondad;
    extensions {
      providers {
        provider-id {
          license-type license deployment-scope [ deployments ];
        }
      }
      resource-limits {
```

```
        package package-name {
          resources {
            cpu {
              priority number;
              time seconds;
            }
            file {
              core-size bytes;
              open number;
              size bytes;
            }
            memory {
              data-size bytes;
              locked-in bytes;
              resident-set-size bytes;
              socket-buffers bytes;
              stack-size bytes;
            }
          }
        }
        process process-ui-name {
          resources {
            cpu {
              priority number;
              time seconds;
            }
            file {
              core-size bytes;
              open number;
              size bytes;
            }
            memory {
              data-size bytes;
              locked-in bytes;
              resident-set-size bytes;
              socket-buffers bytes;
              stack-size bytes;
            }
          }
        }
      }
    }
    fips {
      level level;
      }
    host-name hostname;
    inet6-backup-router ipv6-address <destination address>;
    internet-options {
      (gre-path-mtu-discovery | no-gre-path-mtu-discovery);
      icmpv4-rate-limit bucket-size number packet-rate rate;
      icmpv6-rate-limit bucket-size number packet-rate rate;
      (ipip-path-mtu-discovery | no-ipip-path-mtu-discovery);
      (ipv6-path-mtu-discovery | noipv6-path-mtu-discovery);
      ipv6-path-mtu-discovery-timeout;
      no-tcp-rfc1323-paws;
      no-tcp-rfc1323;
```



```
    (path-mtu-discovery | no-path-mtu-discovery);
    source-port upper-limit port-number;
    (source-quench | no-source-quench);
    tcp-drop-synfin-set;
  }
  kernel-replication;
  license {
    autoupdate {
      url URL;
      password password;
    }
    renew before-expiration number;
    interval number
    traceoptions {
      file <filename> <files number> <size maximum-file-size> <world-readable |
        no-world-readable>;
      flag flag;
      no-remote-trace;
    }
  }
  location {
    altitude feet;
    building name;
    country-code code;
    floor number;
    hcoord horizontal-coordinate;
    lata service-area;
    latitude degrees;
    longitude degrees;
    npa-nxx number;
    postal-code postal-code;
    rack number;
    vcoord vertical-coordinate;
  }
  login {
    announcement "text";
    class class-name {
      access-end "hh<:mm:<ss>>";
      access-start "hh<:mm:<ss>>";
      allow-commands "regular-expression";
      ( allow-configuration | allow-configuration-regexps) "regular expression 1" "regular
        expression 2";
      allowed-days [ sunday monday tuesday wednesday thursday friday saturday ];
      configuration-breadcrumbs;
      deny-commands "regular-expression";
      ( deny-configuration | deny-configuration-regexps )  "regular expression 1" "regular
        expression 2 ";
      idle-timeout minutes;
      logical-system logical-system-name;
      login-alarms;
      login-script filename;
      login-tip;
      permissions [ permissions ];
      security-role [security-role ] ;
    }
    deny-sources (address address | apply-groups | apply-groups-except) ;
```

```
    message "text";
    password {
      change-type (character-sets | set-transitions);
      format (des | md5 | sha1);
      maximum-length length;
      minimum-changes number;
      minimum-length length;
      minimum-lower-cases number;
      minimum-numerics number;
      minimum-punctuations number;
      minimum-upper-cases number;
    }
    retry-options {
      backoff-factor number;
      backoff-threshold number;
      maximum-time number;
      minimum-time number;
      tries-before-disconnect number;
    }
    user username {
      authentication {
        (encrypted-password "password" | plain-text-password);
        load-key-file filename;
        ssh-dsa "public-key" <from hostname>;
        ssh-ecdsa "public-key" <from hostname>;
        ssh-rsa "public-key" <from hostname>;
      }
      class class-name;
      full-name "complete-name";
      uid uid-value;
    }
  }
  max-configurations-on-flash number;
  mirror-flash-on-disk;
  name-server {
    address;
  }
  nd-maxmcast-solicit
  nd-retransmit-timer
  no-multicast-echo;
  no-neighbor-learn;;
  no-ping-record-route;
  no-ping-time-stamp;
  no-redirects;
  no-redirects-ipv6;
  ntp {
    authentication-key key-number type md5 value password;
    boot-server address;
    broadcast <address> <key key-number> <ttl value> <version value>;
    broadcast-client;
    multicast-client <address>;
    peer address <key key-number> <prefer> <version value>;
    server address <key key-number> <prefer> <version value>;
    source-address source-address;
    trusted-key [ key-numbers ];
  }
```

```
pic-console-authentication {
   (encrypted-password "encrypted-password" | plain-text-password);
}
ports {
   auxiliary {
      disable;
      insecure;
      type (ansi | small-xterm | vt100 | xterm);
      port-type (mini-usb | rj45) ;
      }
   }
   console {
      disable;
      insecure;
      log-out-on-disconnect;
      type (ansi | small-xterm | vt100 | xterm);
   }
}
processes {
   process-name (enable | disable) failover (alternate-media | other-routing-engine);
   command path;
   timeout seconds;
}
proxy {
   password password;
   port port-number;
   server (hostname | ip-address);
   username username;
}
radius-options {
   attributes {
      nas-ip-address address;
   }
   password-protocol mschap-v2;
}
radius-server {
   server-address {
      accounting-port port-number;
      max-outstanding-requests number;
      port port-number;
      retry number;
      secret password;
      source-address source-address;
      timeout seconds;
   }
}
root-authentication {
   (encrypted-password "password" | plain-text-password);
   load-key-file filename;
   ssh-dsa "public-key" <from hostname>;
   ssh-ecdsa "public-key" <from hostname>;
   ssh-rsa "public-key" <from hostname>;
}
(saved-core-context | no-saved-core-context);
saved-core-files number;
scripts {
```

```
    load-scripts-from-flash;
    commit {
      allow-transients;
      direct-access;
      file filename.xsl {
        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 maximum-file-size> <world-readable |
          no-world-readable>;
        flag flag;
        no-remote-trace;
      }
    }
    op {
      file filename.xsl {
        arguments {
          argument-name {
            description descriptive-text;
          }
        }
        checksum (md5 | sha-256 | sha1) hash;
        command filename-alias;
        description descriptive-text;
        refresh;
        refresh-from url;
        source url;
      }
      max-datasize
      no-allow-url
      refresh;
      refresh-from url;
      traceoptions {
        file <filename> <files number> <size maximum-file-size> <world-readable |
          no-world-readable>;
        flag flag;
        no-remote-trace;
      }
    }
  }
  static-host-mapping {
    hostname {
      alias [ aliases ];
      inet [ addresses ];
      inet6 [ addresses ];
      sysid system-identifier;
    }
  }
  syslog {
```



```
allow-duplicates;
archive <binary-data | no-binary-data> <files number> <size size> <world-readable |
   no-world-readable>;
console {
   any | authorization | change-log | conflict-log | daemon | dfc | external | firewall | ftp
      | interactive-commands | kernel | ntp | pfe | security | user) (alert | any | critical |
      emergency | error | info | none | notice | warning);
}
file filename {
   facility severity;
   allow-duplicates;
   any (alert | any | critical | emergency | error | info | none | notice | warning);
   archive <archive-sites {ftp-url <password password>}> <files number> <size size>
      <start-time "YYYY-MM-DD.hh:mm"> <transfer-interval minutes> <world-readable |
      no-world-readable>;
   authorization (alert | any | critical | emergency | error | info | none | notice | warning);
   change-log (alert | any | critical | emergency | error | info | none | notice | warning);
   conflict-log (alert | any | critical | emergency | error | info | none | notice | warning);
   daemon (alert | any | critical | emergency | error | info | none | notice | warning);
   dfc (alert | any | critical | emergency | error | info | none | notice | warning);
   explicit-priority;
   external (alert | any | critical | emergency | error | info | none | notice | warning);
   firewall (alert | any | critical | emergency | error | info | none | notice | warning);
   ftp (alert | any | critical | emergency | error | info | none | notice | warning);
   interactive-commands (alert | any | critical | emergency | error | info | none | notice
      | warning);
   kernel (alert | any | critical | emergency | error | info | none | notice | warning);
   match "regular-expression";
   ntp (alert | any | critical | emergency | error | info | none | notice | warning);
   pfe (alert | any | critical | emergency | error | info | none | notice | warning);
   security (alert | any | critical | emergency | error | info | none | notice | warning);
   structured-data {
   brief
}
host (hostname | other-routing-engine | scc-master) {
   facility severity;
   authorization (alert | any | critical | emergency | error | info | none | notice | warning);
   change-log (alert | any | critical | emergency | error | info | none | notice | warning);
   conflict-log (alert | any | critical | emergency | error | info | none | notice | warning);
   daemon (alert | any | critical | emergency | error | info | none | notice | warning);
   dfc (alert | any | critical | emergency | error | info | none | notice | warning);
   explicit-priority;
   external (alert | any | critical | emergency | error | info | none | notice | warning);
   facility-override facility;
   firewall (alert | any | critical | emergency | error | info | none | notice | warning);
   ftp (alert | any | critical | emergency | error | info | none | notice | warning);
   interactive-commands (alert | any | critical | emergency | error | info | none | notice
      | warning);
   kernel (alert | any | critical | emergency | error | info | none | notice | warning);
   log-prefix string;
   match "regular-expression";
   ntp (alert | any | critical | emergency | error | info | none | notice | warning);
   pfe (alert | any | critical | emergency | error | info | none | notice | warning);
   security (alert | any | critical | emergency | error | info | none | notice | warning);
   source-address source-address;
   structured-data {
```

```
            brief
            user (username | *) {
        }
        log-rotate-frequency minutes;
        server;
        source-address address;
        time-format (year | millisecond | year millisecond);
        user (username | *) {
            facility severity;
            match "regular-expression";
        }
    }
    tacplus-options {
        (exclude-cmd-attribute | no-cmd-attribute-value);
        service-name service-name;
    }
    tacplus-server {
        server-address {
            port port-number;
            secret password;
            single-connection;
            source-address source-address;
            timeout seconds;
        }
    }
    time-zone (GMT | GMT+hour-offset | GMT-hour-offset | zone-name);
    tracing destination-override syslog host address;
    use-imported-time-zones;
}
}
system {
    services {
        database-replication {
            traceoptions {
                file <filename> <files number> <match regular-expression>
                    <size maximum-file-size> <world-readable | no-world-readable>;
                flag flag;
                no-remote-trace;
            }
        }
        dhcp-local-server {
            authentication {
                password password;
                username-include {
                    circuit-type;
                    delimiter delimiter-character;
                    domain-name domain-name;
                    logical-system-name;
                    mac-address;
                    option-60;
                    option-82 <circuit-id> <remote-id>;
                    routing-instance-name;
                    user-prefix user-prefix;
                }
            }
            OBSOLETE — duplicate-clients-on-interface;
```



```
    dynamic-profile (profile-name | junos-default-profile) <aggregate-clients <merge |
      replace> | use-primary primary-profile-name>;
    forward-snooped-clients (all-interfaces | configured-interfaces |
      non-configured-interfaces);
    group group-name {
      dynamic-profile (profile-name | junos-default-profile) <aggregate-clients <merge |
        replace> | use-primary primary-profile-name>;
      interface interface-name {
        exclude;
        overrides {
          ... same statements as at the [edit system services dhcp-local-server overrides]
              hierarchy level ...
        }
        trace;
        upto upto-interface-name;
      }
    }
    overrides {
      client-discover-match <option60-and-option82>;
      interface-client-limit number;
      OBSOLETE - no-arp;
      process-inform {
        pool pool-name;
      }
    }
    pool-match-order {
      external-authority;
      ip-address-first;
      option-82;
    }
    reconfigure {
      attempts attempt-count;
      clear-on-abort;
      strict;
      timeout timeout-value;
      token token-value;
      trigger {
        radius-disconnect;
      }
    }
  }
  dhcpv4-profiles profile-name {
    bind-interface interface-name;
    dead-server-retry-interval interval-in-seconds;
    dead-server-successive-retry-attempt number-of-attempts;
    dhcp-server-selection-algorithm (highest-priority-server | round-robin);
    lease-time time-in-seconds;
    pool-name pool-name;
    retransmission-attempt  number-of-attempts;
    retransmission-interval interval-in-seconds;
    servers ip-address {
      priority value;
    }
  }
  dhcpv6-profiles profile-name {
    bind-interface interface-name;
```

```
        lease-time time-in-seconds;
        pool-name pool-name;
        retransmission-attempt  number-of-attempts;
        retransmission-interval interval-in-seconds;
      }
    }
    finger {
      connection-limit limit;
      rate-limit limit;
    }
    flow-tap-dtcp {
      ssh {
        connection-limit limit;
        rate-limit limit;
      }
    }
    ftp {
      connection-limit limit;
      rate-limit limit;
    }
    local-policy-decision-function {
      statistics {
        aacl-statistics-profile profile-name {
          aacl-fields {
            address;
            all-fields;
            application;
            application-group;
            input-bytes;
            input-interface;
            input-packets;
            ipv6-address
            ipv6-prefix-length
            mask;
            output-bytes;
            output-packets;
            subscriber-name;
            timestamp;
            vrf-name;
          }
          file filename;
          record-type (delta | interim);
        }
        file filename {
          archive-sites {
            url;
          }
          files number;
          size bytes;
          transfer-interval minutes;
        }
        record-type (data | interim);
      }
      traceoptions {
        file <filename> <files number> <match regular-expression>
          <size maximum-file-size> <world-readable | no-world-readable>;
```



```
        flag flag;
        no-remote-trace;
      }
    }
    netconf {
      ssh {
        connection-limit limit;
        port port;
        rate-limit limit;
      }
      traceoptions {
        file <filename> <files number> <match regular-expression> <size size>
          <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
        on-demand;
      }
    }
    outbound-ssh {
      client client-id {
        address {
          port port-number;
          retry number;
          timeout seconds;
        }
        device-id device-id;
        keep-alive {
          retry number;
          timeout seconds;
        }
        reconnect-strategy (in-order | sticky);
        secret secret;
        services netconf;
      }
      traceoptions {
        file <filename> <files number> <match regular-expression>
          <size maximum-file-size> <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
      }
    }
    resource-monitor {
      resource-category jtree {
        resource-type free-dwords {
          low-watermark number;
          high-watermark number;
        }
        resource-type free-pages {
          low-watermark number;
          high-watermark number;
        }
      }
      no-throttle;
      no-logging;
      high-threshold number;
      traceoptions {
```

```
        file filename <files number> <match regular-expression> <size maximum-file-size>
          <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
      }
    }
    service-deployment {
      local-certificate certificate-name;
      servers {
        server-address {
          port port-number;
          security-options {
            (ssl3 | tls);
          }
          user username;
        }
      }
      source-address source-address;
      traceoptions {
        flag flag;
      }
    }
    ssh {
      ciphers [ cipher-1 cipher-2 cipher-3 ...]
      client-alive-count-max seconds;
      client-alive-interval seconds;
      connection-limit limit;
      hostkey-algorithm limit;
      key-exchange limit;
      macs limit;
      max-sessions-per-connection number;
      no-tcp-forwarding;
      protocol-version [v1 v2];
      rate-limit limit;
      root-login (allow | deny | deny-password);
    }
    subscriber-management {
      enforce-strict-scale-limit-license;
      gres-route-flush-delay;
      maintain-subscriber {
        interface-delete;
      }
      traceoptions {
        file filename <files number> <match regular-expression > <size maximum-file-size>
          <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
      }
    }
      traceoptions {
        file filename <files number> <match regular-expression > <size maximum-file-size>
          <world-readable | no-world-readable>;
        flag flag;
        no-remote-trace;
      }
    telnet {
```

```
        connection-limit limit;
        rate-limit limit;
      }
      tftp-server {
        connection-limit limit;
        rate-limit limit;
      }
      xnm-clear-text {
        connection-limit limit;
        rate-limit limit;
      }
      xnm-ssl {
        connection-limit limit;
        local-certificate certificate-name;
        rate-limit limit;
        ssl-renegotiation ;
      }
    }
```

Related Documentation

- *Notational Conventions Used in Junos OS Configuration Hierarchies*

[edit vlans] Hierarchy Level

```
vlans {
  vlan-name {
    description text-description;
    domain-type bridge;
    forwarding-options {
      dhcp-security {
        arp-inspection;
        group name {
          interface interface-name {
            static-ip ip-address {
              mac mac-address;
            }
          }
          overrides {
            no-option82;
            trusted;
            untrusted;
          }
        }
        ip-source-guard;
        no-dhcp-snooping;
        option-82 {
          circuit-id {
            prefix {
              host-name;
              logical-system-name;
              routing-instance-name;
            }
            use-interface-description (device | logical);
            use-vlan-id;
          }
```

```
            remote-id {
              host-name;
              use-interface-description (device | logical);
              use-string string;
            }
            vendor-id {
              use-string string;
            }
          }
        }
        filter {
          input filter-name;
          output filter-name;
        }
        flood {
          input filter-name;
        }
      }
      interface interface-name;
      l3-interface interface-name;
      mcae-mac-synchronize;
      multicast-snooping-options {
        ... same statements as in multicast-snooping-options ...
      }
      no-irb-layer-2-copy;
      service-id number;
      switch-options {
        ... the switch-options subhierarchy appears after the main [edit vlans vlan-name]
          hierarchy ...
      }
      vlan-id (all | none | number);
      vlan-id-list [ vlan-id-numbers ];
      vlan-tags outer <tpid.>vlan-id <inner <tpid.>vlan-id>;
    }

    vlan-name {
      switch-options {
        interface interface-name {
          interface-mac-limit {
            limit;
            packet-action drop;
          }
          no-mac-learning;
          static-mac mac-address {
            vlan-id number;
          }
        }
        interface-mac-limit {
          limit;
          packet-action drop;
        }
        mac-statistics;
        mac-table-size {
          number-of-addresses;
          packet-action drop;
        }
```



```
            no-mac-learning;
        }
    }

}
```

PART 3

Administration

CHAPTER 5

Operational Commands: CLI Interface

set cli complete-on-space

Syntax set cli complete-on-space (off | on)

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description Set the command-line interface (CLI) to complete a partial command entry when you type a space or a tab. This is the default behavior of the CLI.

Options **off**—Turn off command completion.

on—Allow either a space or a tab to be used for command completion.

Required Privilege Level view

Related Documentation
- *CLI User Interface Overview*
- show cli on page 161

List of Sample Output set cli complete-on-space on page 152

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

set cli complete-on-space

In the following example, pressing the Spacebar changes the partial command entry from **com** to **complete-on-space**. The example shows how adding the keyword **off** at the end of the command disables command completion.

```
user@host> set cli com<Space>
user@host>set cli complete-on-space off
Disabling complete-on-space
```


set cli directory

Syntax set cli directory *directory*

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description Set the current working directory.

Options ***directory***—Pathname of the working directory.

Required Privilege Level view

Related Documentation
- *CLI User Interface Overview*
- show cli directory on page 167

List of Sample Output set cli directory on page 153

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

set cli directory

```
user@host> set cli directory /var/home/regress
Current directory: /var/home/regress
```

set cli idle-timeout

Syntax

set cli idle-timeout
<minutes>

Release Information

Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description

Set the maximum time that an individual session can be idle before the user is logged off the router or switch.

Options

minutes—(Optional) Maximum idle time. The range of values, in minutes, is 0 through 100,000. If you do not issue this command, and the user's login class does not specify this value, the user is never forced off the system after extended idle times. Setting the value to 0 disables the timeout.

Required Privilege Level

view

Related Documentation

- *CLI User Interface Overview*
- show cli on page 161

List of Sample Output

set cli idle-timeout on page 154

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

set cli idle-timeout

```
user@host> set cli idle-timeout 60
Idle timeout set to 60 minutes
```

set cli prompt

Syntax set cli prompt *string*

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description Set the prompt so that it is displayed within the CLI.

Options ***string***—CLI prompt string. To include spaces in the prompt, enclose the string in quotation marks. By default, the string is ***username@hostname***.

Required Privilege Level view

Related Documentation
- *CLI User Interface Overview*
- show cli on page 161

List of Sample Output set cli prompt on page 155

Output Fields When you enter this command, the new CLI prompt is displayed.

Sample Output

set cli prompt

```
user@host> set cli prompt lab1-router>
lab1-router>
```

set cli restart-on-upgrade

Syntax set cli restart-on-upgrade string (off | on)

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description For an individual session, set the CLI to prompt you to restart the router or switch after upgrading the software.

Options **off**—Disables the prompt.

on—Enables the prompt.

Required Privilege Level view

Related Documentation
- *CLI User Interface Overview*
- show cli on page 161

List of Sample Output set cli restart-on-upgrade on page 156

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

set cli restart-on-upgrade

```
user@host> set cli restart-on-upgrade on
Enabling restart-on-upgrade
```


set cli screen-length

Syntax set cli screen-length *length*

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description Set terminal screen length.

Options ***length***—Number of lines of text that the terminal screen displays (**0** through **10,000**). The default is **24**.

Additional Information The point at which the **---(more)---** prompt appears on the screen is a function of this setting and the settings for the **set cli screen-width** and **set cli terminal** commands.

Required Privilege Level view

Related Documentation

- *CLI User Interface Overview*
- set cli screen-width on page 158
- set cli terminal on page 159
- show cli on page 161

List of Sample Output set cli screen-length on page 157

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

set cli screen-length

```
user@host> set cli screen-length 75
Screen length set to 75
```

set cli screen-width

Syntax set cli screen-width *width*

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description Set the terminal screen width.

Options ***width***—Number of characters (**0** through **1024**) in a line. The default is **80**.

Additional Information The point at which the **---(more)---** prompt appears on the screen is a function of this setting and the settings for the **set cli screen-length** and **set cli terminal** commands.

Required Privilege Level view

Related Documentation

- *CLI User Interface Overview*
- set cli screen-length on page 157
- set cli terminal on page 159
- show cli on page 161

List of Sample Output set cli screen-width on page 158

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

set cli screen-width

```
user@host> set cli screen-width
Screen width set to 132
```


set cli terminal

Syntax set cli terminal *terminal-type*

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description Set the terminal type.

Options ***terminal-type***—Type of terminal that is connected to the Ethernet management port:

- **ansi**—ANSI-compatible terminal (80 characters by 24 lines)
- **small-xterm**—Small xterm window (80 characters by 24 lines)
- **vt100**—VT100-compatible terminal (80 characters by 24 lines)
- **xterm**—Large xterm window (80 characters by 65 lines)

Required Privilege Level view

Related Documentation

- *CLI User Interface Overview*
- set cli screen-length on page 157
- set cli screen-width on page 158
- show cli on page 161

List of Sample Output set cli terminal on page 159

Output Fields This command provides no output.

Sample Output

set cli terminal

```
user@host> set cli terminal xterm
```

set cli timestamp

Syntax set cli timestamp (format *timestamp-format* | disable)

Release Information Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 9.0 for EX Series switches.

Description Set a timestamp for CLI output.

Options **format *timestamp-format***—Set the date and time format for the timestamp. The timestamp format you specify can include the following placeholders in any order:

- **%m**—Two-digit month
- **%d**—Two-digit date
- **%T**—Six-digit hour, minute, and seconds

disable—Remove the timestamp from the CLI.

Required Privilege Level view

Related Documentation

- *CLI User Interface Overview*
- show cli on page 161

List of Sample Output set cli timestamp on page 160

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

set cli timestamp

```
user@host> set cli timestamp format '%m-%d-%T'
'04-21-17:39:13'
CLI timestamp set to: '%m-%d-%T'
```


show cli

List of Syntax
Syntax on page 161
Syntax (QFX Series) on page 161

Syntax
show cli

Syntax (QFX Series)
show cli
<authorization>
<directory>
<history *count*>

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 configured CLI settings.

Options
This command has no options.

Required Privilege Level
view

List of Sample Output
show cli on page 162

Output Fields
Table 9 on page 161 lists the output fields for the **show cli** command. Output fields are listed in the approximate order in which they appear.

Table 9: show cli Output Fields

Field Name	Field Description
CLI complete-on-space	Capability to complete a partial command entry when you type a space or a tab: **on** or **off**.
CLI idle-timeout	Maximum time that an individual session can be idle before the user is logged out from the router or switch. When this feature is enabled, the number of minutes is displayed. Otherwise, the state is **disabled**.
CLI restart-on-upgrade	CLI is set to prompt you to restart the router or switch after upgrading the software: **on** or **off**.
CLI screen-length	Number of lines of text that the terminal screen displays.
CLI screen-width	Number of characters in a line on the terminal screen.
CLI terminal	Terminal type.
CLI is operating in	Mode: **enhanced**.
CLI timestamp	Date and time format for the timestamp. If the timestamp is not set, the state is **disabled**.
CLI working directory	Pathname of the working directory.

Sample Output

show cli

```
user@host> show cli
CLI complete-on-space set to on
CLI idle-timeout disabled
CLI restart-on-upgrade set to on
CLI screen-length set to 47
CLI screen-width set to 132
CLI terminal is 'vt100'
CLI is operating in enhanced mode
CLI timestamp disabled
CLI working directory is '/var/home/regress'
```

show cli authorization

Syntax show cli authorization

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 permissions for the current user.

Options This command has no options.

Required Privilege Level view

List of Sample Output show cli authorization on page 165

Output Fields Table 10 on page 163 lists the output fields for the **show cli authorization** command. In the table, all possible permissions are displayed and output fields are listed in alphabetical order.

Table 10: show cli authorization Output Fields

Field Name	Field Description
access	Can view access configuration information.
access-control	Can modify access configuration.
admin	Can view user account information.
admin-control	Can modify user account information.
clear	Can clear learned network information.
configure	Can enter configuration mode.
control	Can modify any configuration.
edit	Can edit configuration files.
field	Reserved for field (debugging) support.
firewall	Can view firewall configuration information.
firewall-control	Can modify firewall configuration information.
floppy	Can read from and write to removable media.
flow-tap	Can view flow-tap configuration information.

Table 10: show cli authorization Output Fields *(continued)*

Field Name	Field Description
flow-tap-control	Can configure flow-tap configuration information.
idp-profiler-operation	Can configure Profiler data.
interface	Can view interface configuration information.
interface-control	Can modify interface configuration information.
maintenance	Can perform system maintenance.
network	Can access the network by entering the **ping**, **ssh**, **telnet**, and **traceroute** commands.
pgcp-session-mirroring	Can view Packet Gateway Control Protocol session mirroring configuration.
pgcp-session-mirroring-control	Can modify Packet Gateway Control Protocol session mirroring configuration all-control.
reset	Can reset or restart interfaces and system processes.
rollback	Can roll back to previous configurations.
routing	Can view routing configuration information.
routing-control	Can modify routing configuration information.
secret	Can view passwords and authentication keys in the configuration.
secret-control	Can modify passwords and authentication keys in the configuration.
security	Can view security configuration information.
security-control	Can modify security configuration information.
shell	Can start a local shell.
snmp	Can view SNMP configuration information.
snmp-control	Can modify SNMP configuration information.
system	Can view system configuration information.
system-control	Can modify system configuration information.
trace	Can view trace file settings information.

Table 10: show cli authorization Output Fields *(continued)*

Field Name	Field Description
trace-control	Can modify trace file settings information.
view	Can view current values and statistics.
view-configuration	Can view all configuration information (not including secrets).

Sample Output

show cli authorization

```
user@host> show cli authorization
Current user: 'remote' login: 'user' class ''
Permissions:
    admin       -- Can view user accounts
    admin-control-- Can modify user accounts
    clear       -- Can clear learned network information
    configure   -- Can enter configuration mode
    control     -- Can modify any configuration
    edit        -- Can edit full files
    field       -- Special for field (debug) support
    floppy      -- Can read and write from the floppy
    interface   -- Can view interface configuration
    interface-control-- Can modify interface configuration
    network     -- Can access the network
    reset       -- Can reset/restart interfaces and daemons
    routing     -- Can view routing configuration
    routing-control-- Can modify routing configuration
    shell       -- Can start a local shell
    snmp        -- Can view SNMP configuration
    snmp-control-- Can modify SNMP configuration
    system      -- Can view system configuration
    system-control-- Can modify system configuration
    trace       -- Can view trace file settings
    trace-control-- Can modify trace file settings
    view        -- Can view current values and statistics
    maintenance -- Can become the super-user
    firewall    -- Can view firewall configuration
    firewall-control-- Can modify firewall configuration
    secret      -- Can view secret configuration
    secret-control-- Can modify secret configuration
    rollback    -- Can rollback to previous configurations
    security    -- Can view security configuration
    security-control-- Can modify security configuration
    access      -- Can view access configuration
    access-control-- Can modify access configuration
    view-configuration-- Can view all configuration (not including secrets)
    flow-tap    -- Can view flow-tap configuration
    flow-tap-control-- Can configure flow-tap service
Individual command authorization:
    Allow regular expression: none
    Deny regular expression: none
    Allow configuration regular expression: none
    Deny configuration regular expression: none
```

show cli directory

Syntax show cli directory

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 current working directory.

Options This command has no options.

Required Privilege Level view

List of Sample Output show cli directory on page 167

Output Fields Table 11 on page 167 lists the output fields for the **show cli directory** command. Output fields are listed in the approximate order in which they appear.

Table 11: show cli directory Output Fields

Field Name	Field Description
Current directory	Pathname of the current working directory.

Sample Output

show cli directory

```
user@host> show cli directory
Current directory: /var/home/regress
```

show cli history

Syntax

show cli history
<count>

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 list of previous CLI commands.

Options

none—Display all previous CLI commands.

count—(Optional) Maximum number of commands to display.

Required Privilege Level

view

List of Sample Output

show cli history on page 168

Output Fields

Table 12 on page 168 lists the output fields for the **show cli history** command. Output fields are listed in the approximate order in which they appear.

Table 12: show cli history Output Fields

Field Name	Field Description
timestamp	Time at which the command was entered.
command-syntax	Command that was entered.

Sample Output

show cli history

```
user@host> show cli history
  11:14:14 -- show arp
  11:22:10 -- show cli authorization
  11:27:12 -- show cli history
```

start shell

Syntax

start shell (csh | sh)
<user *username*>

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

Exit from the CLI environment and create a UNIX-level shell. To return to the CLI, type **exit** from the shell.

NOTE:

- To issue this command, the user must have the required login access privileges configured by including the **permissions** statement at the **[edit system login class *class-name*]** hierarchy level.
- UNIX wheel group membership or permissions are no longer required to issue this command.

Options

csh—Create a UNIX C shell.

sh—Create a UNIX Bourne shell.

user *username*—(Optional) Start the shell as another user.

Additional Information

When you are in the shell, the shell prompt has the following format:

username@hostname%

An example of the prompt is:

root@host%

Required Privilege Level

shell and maintenance

List of Sample Output

start shell csh on page 169

Output Fields

When you enter this command, you are provided feedback on the status of your request.

Sample Output

start shell csh

```
user@host> start shell csh
%

exit
%
```

```
username@hostname% start shell sh
%
```

```
exit
user@host>
```

CHAPTER 6

Operational Commands: Software Installation

request system license add

Syntax request system license add (*filename* | terminal)

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 9.5 for SRX Series devices.
Command introduced in Junos OS Release 11.1 for the QFX Series.

Description Add a license key.

Options ***filename***—License key from a file or URL. Specify the filename or the URL where the key is located.

terminal—License key from the terminal.

Required Privilege Level maintenance

Related Documentation
- *Adding New Licenses (CLI Procedure)*

List of Sample Output request system license add on page 172

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system license add

```
user@host> request system license add terminal
```


request system license delete

Syntax

request system license delete (*license-identifier* | license-identifier-list [*licenseid001 licenseid002 licenseid003*]| all)

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.
Option **license-identifier-list** introduced in Junos OS Release 13.1.

Description

Delete a license key. You can choose to delete one license at a time, all licenses at once, or a list of license identifiers enclosed in brackets.

Options

license-identifier—Text string that uniquely identifies a license key.

license-identifier-list [*licenseid001 licenseid002 licenseid003*....]—Delete multiple license identifiers as a list enclosed in brackets.

all—Delete all licenses on the device.

Required Privilege Level

maintenance

Related Documentation

- *Deleting a License (CLI Procedure)*

request system license save

Syntax request system license save (*filename* | terminal)

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.
Command introduced in Junos OS Release 9.5 for SRX Series devices.

Description Save installed license keys to a file or URL.

Options ***filename***—License key from a file or URL. Specify the filename or the URL where the key is located.

terminal—License key from the terminal.

Required Privilege Level maintenance

Related Documentation
- *Saving License Keys*

List of Sample Output request system license save on page 174

Output Fields When you enter this command, you are provided feedback on the status of your request.

Sample Output

request system license save

```
user@host> request system license save ftp://user@host/license.conf
```


request system reboot

List of Syntax

Syntax

```
request system reboot
<at time>
<both-routing-engines>
<in minutes>
<media (compact-flash | disk | removable-compact-flash | usb)>
<message "text">
<other-routing-engine>
```

Syntax (EX Series Switches)

```
request system reboot
<all-members>
<at time>
<both-routing-engines>
<in minutes>
<local>
<media (external | internal)>
<member member-id>
<message "text">
<other-routing-engine>
<slice slice>
```

Syntax (TX Matrix Router)

```
request system reboot
<all-chassis | all-lcc | lcc number |  scc>
<at time>
<both-routing-engines>
<in minutes>
<media (compact-flash | disk)>
<message "text">
<other-routing-engine>
```

Syntax (TX Matrix Plus Router)

```
request system reboot
<all-chassis | all-lcc | lcc number | sfc number>
<at time>
<both-routing-engines>
<in minutes>
<media (compact-flash | disk)>
<message "text">
<other-routing-engine>
<partition (1 | 2 | alternate)>
```

Syntax (MX Series Router)

```
request system reboot
<all-members>
<at time>
<both-routing-engines>
<in minutes>
<local>
```

<media (external | internal)>
<member *member-id*>
<message "*text*">
<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 routers 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 routers andTX 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 routers and TX Matrix Plus routers only) (Optional) Line-card chassis number.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.

- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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*
- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output

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
user@host> request system reboot at 19:00
```

request system reboot (Immediately)

```
user@host> request system reboot at now
```

request system reboot (at 1:20 AM)

```
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.

user@host> request system reboot at 06060120
request system reboot at 120
Reboot the system at 120? [yes,no] (no) yes
```

request system snapshot

List of Syntax

Syntax

request system snapshot
<partition>

Syntax (ACX Series Routers)

request system snapshot
<media *type*>
<partition>

Syntax (EX Series Switches)

request system snapshot
<all-members | local | member *member-id*>
<media *type*>
<partition>
<re0 | re1 | routing-engine *routing-engine-id*>
<slice alternate>

Syntax (J Series Routers)

request system snapshot
<as-primary>
<config-size *size*>
<data-size *size*>
<factory>
<media *type*>
<partition>
<root-size *size*>
<swap-size *size*>

Syntax (MX Series Routers)

request system snapshot
<all-members>
<config-partition>
<local>
<member *member-id*>
<media *usb-port-number*>
<partition>
<root-partition>

Syntax (TX Matrix Routers)

request system snapshot
<all-chassis | all-lcc | lcc *number* | scc>
<config-partition>
<partition>
<root-partition>

Syntax (TX Matrix Plus Routers)

request system snapshot
<all-chassis | all-lcc | lcc *number* | sfc *number*>
<config-partition>
<partition>

<root-partition>

Release Information

Command introduced before Junos OS Release 7.4.
Command introduced in Junos OS Release 10.0 for EX Series switches.
Command introduced in Junos OS Release 12.2 for ACX Series switches.
Options **<config-partition>** and **<root-partition>** introduced in Junos OS Release 13.1 for M, MX, T, TX Series switches.
Option **media** ***usb-port-number*** introduced in Junos OS Release 13.2 for MX104 routers.

Description

- 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 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 router (line-card chassis) that is connected to a TX Matrix Plus router.

  Replace *number* with the following values depending on the LCC configuration:

  - 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
  - 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
  - 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
  - 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

all-members | local | member ***member-id***—(EX Series switch 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-partition—(M, MX, T, TX Series routers only) Create a snapshot of the configuration partition only and store it onto the default **/altconfig** on the hard disk device or an **/altconfig** on a USB device.

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**—(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**—(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.
- **usb0**—(MX104 routers only) Copy software to the device connected to the USB0 port.
- **usb1**—(MX104 routers only) Copy software to the device connected to the USB1 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 only supported 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 Administration Library for Routing Devices*.

(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-partition—(M, MX, T, TX Series routers only) Create a snapshot of the root partition only and store it onto the default **/altroot** on the hard disk device or an **/altroot** on a USB device.

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 to the alternate slice on the boot media.

scc—(TX Matrix router only) (Optional) Archive data and executable areas for a TX Matrix router (or switch-card chassis).

sfc ***number***—(TX Matrix Plus router 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 Administration Library for Routing Devices*
- (TX Matrix and TX Matrix Plus router 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 226
- *show system auto-snapshot*

List of Sample Output

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 (MX104 routers when media device is missing)

```
user@host > request system snapshot media usb0
error: usb0 media missing or invalid
```

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

List of Syntax

Syntax

request system software add *package-name*
<best-effort-load>
<delay-restart>
<force>
<no-copy>
<no-validate>
<re0 | re1>
<reboot>
<set [*package-name package-name*]>
<unlink>
<upgrade-with-config>
<upgrade-with-config-format *format*>
<validate>

Syntax (EX Series Switches)

request system software add *package-name*
<best-effort-load>
<delay-restart>
<force>
<no-copy>
<no-validate>
<re0 | re1>
<reboot>
<set [*package-name package-name*]>
<upgrade-with-config>
<upgrade-with-config-format *format*>
<validate>

Syntax (TX Matrix Router)

request system software add *package-name*
<best-effort-load>
<delay-restart>
<force>
<lcc *number* | scc>
<no-copy>
<no-validate>
<re0 | re1>
<reboot>
<set [*package-name package-name*]>
<unlink>
<upgrade-with-config>
<upgrade-with-config-format *format*>
<validate>

Syntax (TX Matrix Plus Router)

request system software add *package-name*
<best-effort-load>

<delay-restart>
<force>
<lcc *number* | sfc *number*>
<no-copy>
<no-validate>
<re0 | re1>
<reboot>
<set [*package-name package-name*]>
<unlink>
<upgrade-with-config>
<upgrade-with-config-format *format*>
<validate>

Syntax (MX Series Router)

request system software add *package-name*
<best-effort-load>
<delay-restart>
<force>
<member *member-id*>
<no-copy>
<no-validate>
<re0 | re1>
<reboot>
<set [*package-name package-name*]>
<unlink>
<upgrade-with-config>
<upgrade-with-config-format *format*>
<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>
<upgrade-with-config>
<upgrade-with-config-format *format*>
<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.

upgrade-with-config and **upgrade-with-config-format *format*** options added in Junos OS Release 12.3 for M Series routers, MX Series routers, T Series routers, EX Series Ethernet switches, and QFX Series devices.

Description

NOTE: We recommend that you always download the software image to **/var/tmp** only. On EX Series and QFX Series switches, you must use the **/var/tmp** directory. Other directories are not supported.

Install a software package or bundle on the router or switch.

WARNING: Any configuration changes performed after inputting the **request system software add** command will be lost when the system reboots with an upgraded version of JUNOS.

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 routers 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 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 router that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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. 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.

upgrade-with-config—(Optional) Install one or more configuration files.

upgrade-with-config-format ***format***—(Optional) Specify the configuration file fomat, **text** or **xml**. The default format is **text**.

NOTE: The **upgrade-with-config** and **upgrade-with-config-format** options are only available locally on the router or switch. In a routing matrix, the configuration is applied only to the local router and is not propagated to other routers.

The options are validated during the validation process and applied to the router or switch during the upgrade process. If the upgrade process is successful, the options are removed from the configuration. If the upgrade process fails, the configuration file is renamed with the .failed suffix.

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.

NOTE: The **validate** option only works on systems that do not have **graceful-switchover** (GRES) enabled. To use the **validate** option on a system with GRES, either disable GRES for the duration of the installation, or install using the command **request system software in-service-upgrade**, which requires nonstop active routing (NSR) to be enabled when using GRES.

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. 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.

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.

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, jkernel, last. Add the operating system package, jkernel, 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/jkernel
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 or T4000 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 or T4000 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 196
- request system software rollback on page 200
- *request system storage cleanup*
- *Upgrading Software on QFX3500, QFX3600, and QFX5100 Switches*
- *Upgrading Software on a QFabric System*
- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output

request system software add validate on page 194
request system software add (Mixed EX4200 and EX4500 Virtual Chassis) on page 194
request system software add component all (QFabric Systems) on page 195

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 software add (Mixed EX4200 and EX4500 Virtual Chassis)

```
user@switch> request system software add set
[/var/tmp/jinstall-ex-4200-11.1R1.1-domestic-signed.tgz
/var/tmp/jinstall-ex-4500-11.1R1.1-domestic-signed.tgz]
...
```

request system software add component all (QFabric Systems)

```
user@switch> request system software add /pbdata/packages/jinstall-qfabric-12.2X50-D1.3.rpm
component all
...
```

request system software delete

List of Syntax

Syntax on page 196
Syntax (TX Matrix Router) on page 196
Syntax (TX Matrix Plus Router) on page 196

Syntax

request system software delete *software-package*
<force>
<reboot>
<set [*package-name package-name*]>

Syntax (TX Matrix Router)

request system software delete *software-package*
<force>
<lcc *number* | scc>
<reboot>
<set [*package-name package-name*]>

Syntax (TX Matrix Plus Router)

request system software delete *software-package*
<force>
<lcc *number* | sfc *number*>
<reboot>
<set [*package-name package-name*]>

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 [*package-name package-name*]** 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.

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.**

Options

software-package—Software package or bundle name. You can delete any or all of the following software bundles or packages:

- **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 routers and TX Matrix Plus routers only) (Optional) On a TX Matrix router, remove an extension or upgrade package from a specific T640 router (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 router that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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. 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 187
- request system software rollback on page 200
- request system software validate on page 204
- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output request system software delete jdocs on page 198

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

List of Syntax

Syntax on page 200
Syntax (EX Series Switches) on page 200
Syntax (TX Matrix Router) on page 200
Syntax (TX Matrix Plus Router) on page 200
Syntax (MX Series Router) on page 200

Syntax

request system software rollback

Syntax (EX Series Switches)

request system software rollback
<all-members>
<local>
<member *member-id*>
<reboot>

Syntax (TX Matrix Router)

request system software rollback
<lcc *number* | scc>
<reboot>

Syntax (TX Matrix Plus Router)

request system software rollback
<lcc *number* | sfc *number*>
<reboot>

Syntax (MX Series Router)

request system software rollback
<all-members>
<local>
<member *member-id*>
<reboot>

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.
Command behavior changed in Junos OS Release 12.1.
Option **reboot** introduced in Junos OS Release 12.3.

Description

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.

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.

A software rollback fails if any required package (or a **jbundle** package containing the required package) cannot be found in /var/sw/pkg.

Additional Information

- 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 o 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 routers 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 connected to the TX Matrix router. On a TX Matrix Plus router, attempt to roll back to the previous set of packages on a connected router connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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. Replace *number* with 0.

Required Privilege Level

maintenance

Related Documentation

- *request system software abort*
- request system software add on page 187
- request system software delete on page 196
- request system software validate on page 204
- *request system configuration rescue delete*
- *request system configuration rescue save*
- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output

request system software rollback on page 203

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

List of Syntax

Syntax on page 204
Syntax (TX Matrix Router) on page 204
Syntax (TX Matrix Plus Router) on page 204
Syntax (MX Series Router) on page 204

Syntax

request system software validate *package-name*
<set [*package-name package-name*]>
<upgrade-with-config>
<upgrade-with-config-format *format*>

Syntax (TX Matrix Router)

request system software validate *package-name*
<lcc *number* | scc>
<set [*package-name package-name*]>
<upgrade-with-config>
<upgrade-with-config-format *format*>

Syntax (TX Matrix Plus Router)

request system software validate *package-name*
<lcc *number* | sfc *number*>
<set [*package-name package-name*]>
<upgrade-with-config>
<upgrade-with-config-format *format*>

Syntax (MX Series Router)

request system software validate *package-name*
<member *member-id*>
<set [*package-name package-name*]>
<upgrade-with-config>
<upgrade-with-config-format *format*>

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 [*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.
upgrade-with-config and **upgrade-with-config-format *format*** options added in Junos OS Release 12.3 for M Series routers, MX Series routers, and T Series routers.

Description

Validate candidate software against the current configuration of the router.

Options

lcc *number*—(TX Matrix routers 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 for a specific router that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.

- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

member ***member-id***—(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 ***member-id*** with a value of 0 or 1.

package-name—Name of the software bundle or package to test.

scc—(TX Matrix routers only) (Optional) Validate the software bundle or package for 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) Validate the software bundle or package for the TX Matrix Plus router.

upgrade-with-config—(Optional) Install one or more configuration files.

upgrade-with-config-format ***format***—(Optional) Specify the configuration file fomat, **text** or **xml**. The default format is **text**.

NOTE: The **upgrade-with-config** and **upgrade-with-config-format** options are only available locally on the router or switch. In a routing matrix, the configuration is applied only to the local router and is not propagated to other routers.

The options are validated during the validation process and applied to the router or switch during the upgrade process. If the upgrade process is successful, the options are removed from the configuration. If the upgrade process fails, the configuration file is renamed with the .failed suffix.

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 or T4000 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 or T4000 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 187
- request system software delete on page 196
- request system software rollback on page 200
- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output

request system software validate (Successful Case) on page 206
request system software validate (Failure Case) on page 206

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 zeroize

Syntax

request system zeroize
<media>
<local>

Release Information

Command introduced before Junos OS Release 9.0.
Command introduced in Junos OS Release 11.2 for EX Series switches.
Option **media** added in Junos OS Release 11.4 for EX Series switches.
Command introduced in Junos OS Release 12.2 for MX Series devices.
Command introduced in Junos OS Release 12.3 for the QFX Series.
Option *local* added in Junos OS Release 14.1.

Description

NOTE: **The media option is not available on the QFX Series.**

Remove all configuration information on the Routing Engines and reset all key values. If the device has dual Routing Engines, the command is broadcast to all Routing Engines on the device. The command removes all data files, including customized configuration and log files, by unlinking the files from their directories. The command removes all user-created files from the system including all plain-text passwords, secrets, and private keys for SSH, local encryption, local authentication, IPsec, RADIUS, TACACS+, and SNMP.

This command reboots the device and sets it to the factory default configuration. After the reboot, you cannot access the device through the management Ethernet interface. Log in through the console as **root** and start the Junos OS command-line interface (CLI) by typing **cli** at the prompt.

To completely erase user-created data so that it is unrecoverable, use the **media** option.

Options

media—(Optional) In addition to removing all configuration and log files, the **media** option causes memory and the media to be scrubbed, removing all traces of any user-created files. Every storage device attached to the system is scrubbed, including disks, flash drives, removable USBs, and the like. The duration of the scrubbing process is dependent on the size of the media being erased. As a result, the **request system zeroize media** operation can take considerably more time than the **request system zeroize** operation. However, the critical security parameters are all removed at the beginning of the process.

local—(Optional) Removes all the configuration information and restores all the key values on the active Routing Engine.

Required Privilege Level

maintenance

Related Documentation

- request system snapshot on page 180
- *request system snapshot*

- *Reverting to the Default Factory Configuration for the EX Series Switch*
- *Reverting to the Rescue Configuration for the EX Series Switch*
- *Reverting to the Default Factory Configuration*
- *Reverting to the Rescue Configuration*
- *Reverting to the Default Factory Configuration by Using the request system zeroize Command*

List of Sample Output

Sample Output

request system zeroize

```
user@host> request system zeroize
warning: System will be rebooted and may not boot without configuration
Erase all data, including configuration and log files? [yes,no] (no) yes

0 1 1 0 0 0 done

syncing disks... All buffers synced.
Uptime: 5d19h20m26s
recorded reboot as normal shutdown
Rebooting...

U-Boot 1.1.6 (Mar 11 2011 - 04:39:06)

Board: EX4200-24T 2.11
EPLD:  Version 6.0 (0x85)
DRAM:  Initializing (1024 MB)
FLASH: 8 MB

Firmware Version: --- 01.00.00 ---
USB:   scanning bus for devices... 2 USB Device(s) found
       scanning bus for storage devices... 1 Storage Device(s) found

ELF file is 32 bit
Consoles: U-Boot console

FreeBSD/PowerPC U-Boot bootstrap loader, Revision 2.4
(user@juniper.net, Fri Mar 11 03:03:36 UTC 2011)
Memory: 1024MB
bootsequencing is enabled
bootsuccess is set
new boot device = disk0s1:
Loading /boot/defaults/loader.conf
/kernel data=0x915c84+0xa1260 syms=[0x4+0x7cbd0+0x4+0xb1c19]


Hit [Enter] to boot immediately, or space bar for command prompt.
Booting [/kernel]...
Kernel entry at 0x800000e0 ...
GDB: no debug ports present
KDB: debugger backends: ddb
KDB: current backend: ddb
Copyright (c) 1996-2011, Juniper Networks, Inc.
```

```
All rights reserved.
Copyright (c) 1992-2006 The FreeBSD Project.
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
        The Regents of the University of California. All rights reserved.
JUNOS 11.1R1.8 #0: 2011-03-09 20:14:25 UTC

user@juniper.net:/volume/build/junos/11.1/release/11.1R1.8/obj-powerpc/bsd/kernels/
  JUNIPER-EX/kernel
Timecounter "decrementer" frequency 50000000 Hz quality 0
cpu0: Freescale e500v2 core revision 2.2
cpu0: HID0 80004080
...
```

request system zeroize media

```
user@host> request system zeroize media
warning: System will be rebooted and may not boot without configuration
Erase all data, including configuration and log files? [yes,no] (no) yes

warning: ipsec-key-management subsystem not running - not needed by configuration.
warning: zeroizing fpc0

{master:0}
root> Waiting (max 60 seconds) for system process `vnlru' to stop...done
. . .
Syncing disks, vnodes remaining...2 4 2 4 3 2 1 1 0 0 0 done

syncing disks... All buffers synced.
Uptime: 14m50s
recorded reboot as normal shutdown
Rebooting...

U-Boot 1.1.6 (Apr 21 2011 - 13:58:42)

Board: EX4200-48PX 1.1
EPLD:  Version 8.0 (0x82)
DRAM:  Initializing (512 MB)
FLASH: 8 MB
NAND:  No NAND device found!!!
0 MiB

Firmware Version: --- 01.00.00 ---
USB:   scanning bus for devices... 2 USB Device(s) found
       scanning bus for storage devices... 1 Storage Device(s) found

ELF file is 32 bit
Consoles: U-Boot console

FreeBSD/PowerPC U-Boot bootstrap loader, Revision 2.2
(vtseng@svl-junos-pool27.juniper.net, Fri Feb 26 17:48:51 PST 2010)
Memory: 512MB
Loading /boot/defaults/loader.conf
/kernel data=0x9abfdc+0xb06e4 syms=[0x4+0x83b30+0x4+0xbd7c6]

Hit [Enter] to boot immediately, or space bar for command prompt.
Booting [/kernel] in 1 second... Booting [/kernel]...
Kernel entry at 0x800000e0 ...
GDB: no debug ports present
KDB: debugger backends: ddb
KDB: current backend: ddb
Copyright (c) 1996-2011, Juniper Networks, Inc.
```

```
All rights reserved.
Copyright (c) 1992-2006 The FreeBSD Project.
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
 The Regents of the University of California. All rights reserved.
JUNOS 11.4R1.2 #0: 2011-10-27 18:05:39 UTC
    user@juniper.net:/volume/build/junos/11.4/release/11.4R1.2/obj-powerpc/
bsd/kernels/JUNIPER-EX/kernel
can't re-use a leaf (all_slot_serialid)!
Timecounter "decrementer" frequency 50000000 Hz quality 0
cpu0: Freescale e500v2 core revision 2.2
cpu0: HID0 80004080<EMCP,TBEN,EN_MAS7_UPDATE>
real memory  = 511705088 (488 MB)
avail memory = 500260864 (477 MB)
ETHERNET SOCKET BRIDGE initialising
Initializing EXSERIES platform properties ...
. . .
Automatic reboot in progress...
Media check on da0 on ex platforms
** /dev/da0s2a
FILE SYSTEM CLEAN; SKIPPING CHECKS
clean, 20055 free (31 frags, 2503 blocks, 0.0% fragmentation)
zeroizing /dev/da0s1a ...
. . .
zeroizing /dev/da0s3d ...
. . .
zeroizing /dev/da0s3e ...
. . .
zeroizing /dev/da0s4d ...
. . .
zeroizing /dev/da0s4e ...
. . .

syncing disks... All buffers synced.
Uptime: 3m40s
Rebooting...

U-Boot 1.1.6 (Apr 21 2011 - 13:58:42)

Board: EX4200-48PX 1.1
EPLD:  Version 8.0 (0x82)
DRAM:  Initializing (512 MB)
FLASH: 8 MB
NAND:  No NAND device found!!!
0 MiB

Firmware Version: --- 01.00.00 ---
USB:   scanning bus for devices... 2 USB Device(s) found
       scanning bus for storage devices... 1 Storage Device(s) found

ELF file is 32 bit
Consoles: U-Boot console

FreeBSD/PowerPC U-Boot bootstrap loader, Revision 2.2
(vtseng@svl-junos-pool27.juniper.net, Fri Feb 26 17:48:51 PST 2010)
Memory: 512MB
Loading /boot/defaults/loader.conf
/kernel data=0x9abfdc+0xb06e4 syms=[0x4+0x83b30+0x4+0xbd7c6]

Hit [Enter] to boot immediately, or space bar for command prompt.
Booting [/kernel] in 1 second... Booting [/kernel]...
Kernel entry at 0x800000e0 ...
```



```
GDB: no debug ports present
KDB: debugger backends: ddb
KDB: current backend: ddb
Copyright (c) 1996-2011, Juniper Networks, Inc.
All rights reserved.
Copyright (c) 1992-2006 The FreeBSD Project.
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
 The Regents of the University of California. All rights reserved.
JUNOS 11.4R1.2 #0: 2011-10-27 18:05:39 UTC
    user@juniper.net:/volume/build/junos/11.4/release/11.4R1.2/obj-powerpc/
bsd/kernels/JUNIPER-EX/kernel
can't re-use a leaf (all_slot_serialid)!
Timecounter "decrementer" frequency 50000000 Hz quality 0
cpu0: Freescale e500v2 core revision 2.2
cpu0: HID0 80004080 <EMCP,TBEN,EN_MAS7_UPDATE>
real memory  = 511705088 (488 MB)
avail memory = 500260864 (477 MB)
ETHERNET SOCKET BRIDGE initialising
Initializing EXSERIES platform properties ...
. . .
Automatic reboot in progress...
Media check on da0 on ex platforms
** /dev/da0s1a
FILE SYSTEM CLEAN; SKIPPING CHECKS
clean, 20064 free (48 frags, 2502 blocks, 0.1% fragmentation)
zeroizing /dev/da0s2a ...
. . .
Creating initial configuration...mgd: error: Cannot open configuration file:
/config/juniper.conf
mgd: warning: activating factory configuration
mgd: commit complete
mgd: ------------------------------------------------------------
mgd: Please login as 'root'. No password is required.
mgd: To start Initial Setup, type 'ezsetup' at the JUNOS prompt.
mgd: To start JUNOS CLI, type 'cli' at the JUNOS prompt.
mgd: ------------------------------------------------------------
Setting initial options:  debugger_on_panic=NO debugger_on_break=NO.
Starting optional daemons: .
Doing initial network setup:
. . .

Amnesiac (ttyu0)
```

show system boot-messages

List of Syntax

Syntax on page 212
Syntax (EX Series Switches) on page 212
Syntax (TX Matrix Router) on page 212
Syntax (TX Matrix Plus Router) on page 212
Syntax (MX Series Router) on page 212
Syntax (QFX Series) on page 212

Syntax

show system boot-messages

Syntax (EX Series Switches)

show system boot-messages
<all-members>
<local>
<member *member-id*>

Syntax (TX Matrix Router)

show system boot-messages
<all-chassis | all-lcc | lcc *number* | scc>

Syntax (TX Matrix Plus Router)

show system boot-messages
<all-chassis | all-lcc | lcc *number* | sfc *number*>

Syntax (MX Series Router)

show system boot-messages
<all-members>
<local>
<member *member-id*>

Syntax (QFX Series)

show system boot-messages
infrastructure *name* | interconnect-device *name* | node-group *name*

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 initial messages generated by the system kernel upon startup. These messages are the contents of **/var/run/dmesg.boot**.

Options

none—Display all boot time messages.

all-chassis—(TX Matrix routers andTX Matrix Plus routers only) (Optional) Display boot time messages for all of the chassis.

all-lcc—(TX Matrix routers and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display boot time messages for all T640 routers connected to a TX Matrix router. On a TX Matrix Plus router, display boot time messages for all connected T1600 or T4000 LCCs.

all-members—(EX4200 switches and MX Series routers only) (Optional) Display boot time messages on all members of the Virtual Chassis configuration.

infrastructure ***name***—(QFabric systems only) (Optional) Display boot time messages on the fabric control Routing Engine or fabric manager Routing engines.

interconnect-device ***name***—(QFabric systems only) (Optional) Display boot time messages on the Interconnect device.

lcc ***number***—(TX Matrix routers and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display boot time messages for a specific T640 router connected to a TX Matrix router. On a TX Matrix Plus router, display boot time messages for a specific router connected to a TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

local—(EX4200 switches and MX Series routers only) (Optional) Display boot time messages on the local Virtual Chassis member.

member ***member-id***—(EX4200 switches and MX Series routers only) (Optional) Display boot time messages 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) Display boot time messages on the Node group.

scc—(TX Matrix routers only) (Optional) Display boot time messages for the TX Matrix router (or switch-card chassis).

sfc ***number***—(TX Matrix Plus routers only) (Optional) Display boot time messages for the TX Matrix Plus router. Replace *number* with **0**.

Additional Information

By default, when you issue the **show system boot-messages** command on the master Routing Engine of a TX Matrix router or a TX Matrix Plus router, the command is broadcast to all the master Routing Engines of the LCCs connected to it in the routing matrix. Likewise, if you issue the same command on the backup Routing Engine of a TX Matrix or a TX Matrix Plus router, the command is broadcast to all backup Routing Engines of the LCCs that are connected to it in the routing matrix.

Required Privilege Level

view

Related Documentation

- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output

Sample Output

show system boot-messages (TX Matrix Router)

```
user@host> show system boot-messages
Copyright (c) 1992-1998 FreeBSD Inc.
Copyright (c) 1996-2000 Juniper Networks, Inc.
All rights reserved.
Copyright (c) 1982, 1986, 1989, 1991, 1993
        The Regents of the University of California.  All rights reserved.

JUNOS 4.1-20000216-Zf8469 #0: 2000-02-16 12:57:28 UTC
    tlim@single.juniper.net:/p/build/20000216-0905/4.1/release_kernel/sys/compil
e/GENERIC
CPU: Pentium Pro (332.55-MHz 686-class CPU)
  Origin = "GenuineIntel"  Id = 0x66a  Stepping=10
  Features=0x183f9ff<FPU,VME,DE,PSE,TSC,MSR,PAE,MCE,CX8,SEP,MTRR,PGE,MCA,CMOV,<b
16>,<b17>,MMX,<b24>>
Teknor CPU Card Recognized
real memory  = 805306368 (786432K bytes)
avail memory = 786280448 (767852K bytes)
Probing for devices on PCI bus 0:
chip0 <generic PCI bridge (vendor=8086 device=7192 subclass=0)> rev 3 class 6000
0 on pci0:0:0
chip1 <Intel 82371AB PCI-ISA bridge> rev 1 class 60100 on pci0:7:0
chip2 <Intel 82371AB IDE interface> rev 1 class 10180 on pci0:7:1
chip3 <Intel 82371AB USB interface> rev 1 class c0300 int d irq 11 on pci0:7:2
smb0 <Intel 82371AB SMB controller> rev 1 class 68000 on pci0:7:3
pcic0 <TI PCI-1131 PCI-CardBus Bridge> rev 1 class 60700 int a irq 15 on pci0:13
:0
TI1131 PCI Config Reg: [pci only][FUNC0 pci int]
pcic1 <TI PCI-1131 PCI-CardBus Bridge> rev 1 class 60700 int b irq 12 on pci0:13
:1
TI1131 PCI Config Reg: [pci only][FUNC1 pci int]
fxp0 <Intel EtherExpress Pro 10/100B Ethernet> rev 8 class 20000 int a irq 12 on

 pci0:16:0
chip4 <generic PCI bridge (vendor=1011 device=0022 subclass=4)> rev 4 class 6040
0 on pci0:17:0
fxp1 <Intel EtherExpress Pro 10/100B Ethernet> rev 8 class 20000 int a irq 10 on

 pci0:19:0
Probing for devices on PCI bus 1:
mcs0 <Miscellaneous Control Subsystem> rev 12 class ff0000 int a irq 12 on pci1:
13:0
fxp2 <Intel EtherExpress Pro 10/100B Ethernet> rev 8 class 20000 int a irq 10 on

 pci1:14:0
Probing for devices on the ISA bus:
sc0 at 0x60-0x6f irq 1 on motherboard
sc0: EGA color <16 virtual consoles, flags=0x0>
```



```
ed0 not found at 0x300
ed1 not found at 0x280
ed2 not found at 0x340
psm0 not found at 0x60
sio0 at 0x3f8-0x3ff irq 4 flags 0x20010 on isa
sio0: type 16550A, console
sio1 at 0x3e8-0x3ef irq 5 flags 0x20000 on isa
sio1: type 16550A
sio2 at 0x2f8-0x2ff irq 3 flags 0x20000 on isa
sio2: type 16550A
pcic0 at 0x3e0-0x3e1 on isa
PC-Card ctlr(0) TI PCI-1131 [CardBus bridge mode] (5 mem & 2 I/O windows)
pcic0: slot 0 controller I/O address 0x3e0
npx0 flags 0x1 on motherboard
npx0: INT 16 interface
fdc0: direction bit not set
fdc0: cmd 3 failed at out byte 1 of 3
fdc0 not found at 0x3f0
wdc0 at 0x1f0-0x1f7 irq 14 on isa
wdc0: unit 0 (wd0): <SunDisk SQFXB-80>, single-sector-i/o
wd0: 76MB (156672 sectors), 612 cyls, 8 heads, 32 S/T, 512 B/S
wdc0: unit 1 (wd1): <IBM-DCXA-210000>
wd1: 8063MB (16514064 sectors), 16383 cyls, 16 heads, 63 S/T, 512 B/S
wdc1 not found at 0x170
wdc2 not found at 0x180
ep0 not found at 0x300
fxp0: Ethernet address 00:a0:a5:12:05:5a
fxp1: Ethernet address 00:a0:a5:12:05:59
fxp2: Ethernet address 02:00:00:00:00:01
swapon: adding /dev/wd1s1b as swap device
Automatic reboot in progress...
/dev/rwd0s1a: clean, 16599 free (95 frags, 2063 blocks, 0.1% fragmentation)
/dev/rwd0s1e: clean, 9233 free (9 frags, 1153 blocks, 0.1% fragmentation)
/dev/rwd0s1a: clean, 16599 free (95 frags, 2063 blocks, 0.1% fragmentation)
/dev/rwd1s1f: clean, 4301055 free (335 frags, 537590 blocks, 0.0% fragmentation)
```

show system boot-messages lcc (TX Matrix Router)

```
user@host> show system boot-messages lcc 2
lcc2-re0:
--------------------------------------------------------------------------
Copyright (c) 1996-2001, Juniper Networks, Inc.
All rights reserved.
Copyright (c) 1992-2001 The FreeBSD Project.
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
        The Regents of the University of California. All rights reserved.
JUNOS 7.0-20040912.0 #0: 2004-09-12 09:16:32 UTC

builder@benten.juniper.net:/build/benten-b/7.0/20040912.0/obj-i386/sys/compile/JUNIPER
Timecounter "i8254"  frequency 1193182 Hz
Timecounter "TSC"  frequency 601368936 Hz
CPU: Pentium III/Pentium III Xeon/Celeron (601.37-MHz 686-class CPU)
  Origin = "GenuineIntel"  Id = 0x68a  Stepping = 10

Features=0x387f9ff<FPU,VME,DE,PSE,TSC,MSR,PAE,MCE,CX8,SEP,MTRR,PGE,MCA,CMOV,PAT,PSE36,PN,MMX,FXSR,SSE>
real memory  = 2147467264 (2097136K bytes)
sio0: gdb debugging port
avail memory = 2084040704 (2035196K bytes)
Preloaded elf kernel "kernel" at 0xc06d9000.
DEVFS: ready for devices
Pentium Pro MTRR support enabled
```

```
md0: Malloc disk
DRAM Data Integrity Mode: ECC Mode with h/w scrubbing
npx0: <math processor> on motherboard
npx0: INT 16 interface
pcib0: <ServerWorks NB6635 3.0LE host to PCI bridge> on motherboard
pci0: <PCI bus> on pcib0
pcic-pci0: <TI PCI-1410 PCI-CardBus Bridge> irq 15 at device 1.0 on pci0
pcic-pci0: TI12XX PCI Config Reg: [pwr save][pci only]
fxp0: <Intel Embedded 10/100 Ethernet> port 0x1000-0x103f mem
0xfb800000-0xfb81ffff,0xfb820000-0xfb820fff irq 9 at device 3.0 on pci0
fxp1: <Intel Embedded 10/100 Ethernet> port 0x1040-0x107f mem
0xfb840000-0xfb85ffff,0xfb821000-0xfb821fff irq 11 at device 4.0 on pci0
...
```

show system boot-messages (TX Matrix Plus Router)

```
user@host> show system boot-messages
sfc0-re0:
--------------------------------------------------------------------------
Copyright (c) 1996-2009, Juniper Networks, Inc.
All rights reserved.
Copyright (c) 1992-2006 The FreeBSD Project.
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
        The Regents of the University of California. All rights reserved.
JUNOS 9.6B3.3 #0: 2009-06-17 19:52:08 UTC

builder@lanath.juniper.net:/volume/build/junos/9.6/release/9.6B3.3/obj-i386/bsd/sys/compile/JUNIPER
MPTable:  Timecounter "i8254" frequency 1193182 Hz quality 0 CPU: Intel(R) Xeon(R)
 CPU           L5238  @ 2.66GHz (2660.01-MHz 686-class CPU)   Origin =
"GenuineIntel"  Id = 0x1067a  Stepping = 10   Features=0xbfebfbff
...
lcc1-re0:
--------------------------------------------------------------------------
Copyright (c) 1996-2009, Juniper Networks, Inc.
All rights reserved.
Copyright (c) 1992-2006 The FreeBSD Project.
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
        The Regents of the University of California. All rights reserved.
JUNOS 9.6-20090617.0 #0: 2009-06-17 04:15:14 UTC

builder@lanath.juniper.net:/volume/build/junos/9.6/production/20090617.0/obj-i386/bsd/sys/compile/JUNIPER
Timecounter "i8254" frequency 1193182 Hz quality 0
CPU: Intel(R) Xeon(R) CPU                 @ 1.86GHz (1862.01-MHz 686-class CPU)

  Origin = "GenuineIntel"  Id = 0x1067a  Stepping = 10
  Features=0xbfebfbff
...
```

show system boot-messages (EX9200 Switch)

```
user@switch> show sytem boot-messages
```

show system boot-messages (QFX3500 Switch)

```
user@switch> show sytem boot-messages
getmemsize: msgbufp[size=32768] = 0x81d07fe4

System physical memory distribution:
--------------------------------------------------------------------------------
Total physical memory: 4160749568 (3968 MB)
Physical memory used: 3472883712 (3312 MB)
Physical memory allocated to kernel: 2130706432 (2032 MB)
```

```
Physical memory allocated to user BTLB: 1342177280 (1280 MB)
--------------------------------------------------------------------------------

Copyright (c) 1996-2010, Juniper Networks, Inc.
All rights reserved.
Copyright (c) 1992-2006 The FreeBSD Project.
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
        The Regents of the University of California. All rights reserved.
JUNOS 11.1I #0: 2010-09-17 19:18:07 UTC

ssiano@svl-junos-pool125.juniper.net:/c/ssiano/DEV_QFX_SI_BRANCH/03/20100917.399988/
obj-xlr/bsd/sys/compile/JUNIPER-DCTOR
WARNING: debug.mpsafenet forced to 0 as ipsec requires Giant
JUNOS 11.1I #0: 2010-09-17 19:18:07 UTC

ssiano@svl-junos-pool125.juniper.net:/c/ssiano/DEV_QFX_SI_BRANCH/03/20100917.399988/
obj-xlr/bsd/sys/compile/JUNIPER-DCTOR
real memory  = 3472883712 (3312MB)
avail memory = 1708171264 (1629MB)
cpuid: 0, btlb_cpumap:0xffffff8
FreeBSD/SMP: Multiprocessor System Detected: 12 CPUs
ETHERNET SOCKET BRIDGE initialising
Initializing QFX platform properties ..
cpu0 on motherboard
: RMI's XLR CPU Rev. 0.3 with no FPU implemented
        L1 Cache: I size 32kb(32 line), D size 32kb(32 line), eight way.
        L2 Cache: Size 1024kb, eight way
pic_lbus0: <XLR Local Bus>
pic_lbus0: <XLR Local Bus> on motherboard
Enter qfx control ethernet probe addr:0xc5eeec00
gmac4: <XLR GMAC GE Ethernet> on pic_lbus0
me0: Ethernet address 00:1d:b5:f7:68:40
Enter qfx control ethernet probe addr:0xc5eeeb40
gmac5: <XLR GMAC GE Ethernet> on pic_lbus0
me1: Ethernet address 00:1d:b5:f7:68:41
Enter qfx control ethernet probe addr:0xc5eeea80
gmac6: <XLR GMAC GE Ethernet> on pic_lbus0
me1: Ethernet address 00:1d:b5:f7:68:42
sio0 on pic_lbus0
Entering sioattach
sio0: type 16550A, console
xls_setup_intr: skip irq 3, xlr regs are set up somewhere else.
gblmem0 on pic_lbus0
ehci0: <RMI XLS USB 2.0 controller> on pic_lbus0
ehci_bus_attach: allocated resource.  tag=1, base=bef24000
xls_ehci_init: endian hardware swapping NOT enabled.
usb0: EHCI version 1.0
usb0 on ehci0
usb0: USB revision 2.0
uhub0: vendor 0x0000 EHCI root hub, class 9/0, rev 2.00/1.00, addr 1
uhub0: 2 ports with 2 removable, self powered
umass0: USB USBFlashDrive, rev 2.00/11.00, addr 2
pcib0: PCIe link 0 up
pcib0: PCIe link 2 up
pcib0: PCIe link 3 up
pcib0: <XLS PCI Host Controller> on pic_lbus0
pci0: <PCI bus> on pcib0
pcib1: <PCI-PCI bridge> at device 0.0 on pci0
pci1: <PCI bus> on pcib1
pci1: <network, ethernet> at device 0.0 (no driver attached)
pcib2: <PCI-PCI bridge> at device 1.0 on pci0
```

```
pcib3: <PCI-PCI bridge> at device 2.0 on pci0
pci2: <PCI bus> on pcib3
pci2: <network, ethernet> at device 0.0 (no driver attached)
pcib4: <PCI-PCI bridge> at device 3.0 on pci0
pci3: <PCI bus> on pcib4
pci3: <network, ethernet> at device 0.0 (no driver attached)
cfi device address space at 0xbc000000
cfi0: <AMD/Fujitsu - 8MB> on pic_lbus0
cfi device address space at 0xbc000000
i2c0: <I2C bus controller> on pic_lbus0
i2c1: <I2C bus controller> on pic_lbus0
qfx_fmn0 on pic_lbus0
pool offset 1503776768
xlr_lbus0: <XLR Local Bus Controller> on motherboard
qfx_bcpld_probe[124]
qfx_bcpld_probe[138]: dev_type=0x0
qfx_bcpld_probe[124]
qfx_bcpld0: QFX BCPLD probe success
qfx_bcpld0qfx_bcpld_attach[174]
qfx_bcpld_attach[207] : bus_space_tag=0x0, bus_space_handle=0xbd900000
qfx_bcpld_probe[124]
qfx_bcpld1: QFX BCPLD probe success
qfx_bcpld1qfx_bcpld_attach[174]
tor_bcpld_slave_attach[1245] : bus_space_tag=0x0, bus_space_handle=0xbda00000
Initializing product: 96 ..
bmeb: bmeb_lib_init done 0xc60a5000, addr 0x809c99a0
bme0:Virtual BME driver initializing
Timecounter "mips" frequency 1200000000 Hz quality 0
Timecounter "xlr_pic_timer" frequency 66666666 Hz quality 1
Timecounters tick every 1.000 msec
Loading the NETPFE fc module
IPsec: Initialized Security Association Processing.
SMP: AP CPU #3 Launched!
SMP: AP CPU #1 Launched!
SMP: AP CPU #2 Launched!
SMP: AP CPU #4 Launched!
SMP: AP CPU #5 Launched!
SMP: AP CPU #7 Launched!
SMP: AP CPU #6 Launched!
SMP: AP CPU #11 Launched!
SMP: AP CPU #10 Launched!
SMP: AP CPU #9 Launched!
SMP: AP CPU #8 Launched!
da0 at umass-sim0 bus 0 target 0 lun 0
da0: <USB USBFlashDrive 1100> Removable Direct Access SCSI-0 device
da0: 40.000MB/s transfers
da0: 3920MB (8028160 512 byte sectors: 255H 63S/T 499C)
Trying to mount root from ufs:/dev/da0s1a
```

show system license

Syntax

show system license
<installed | keys | usage>

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.
Command introduced in Junos OS Release 13.3 for the MX104 3D Universal Edge Routers.

Description

Display licenses and information about how they are used.

Options

none—Display all license information.

installed—(Optional) Display installed licenses only.

keys—(Optional) Display a list of license keys. Use this information to verify that each expected license key is present.

usage—(Optional) Display the state of licensed features.

Required Privilege Level

maintenance

List of Sample Output

show system license on page 220
show system license installed on page 221
show system license keys on page 221
show system license usage on page 221
show system license (MX104 Routers) on page 221
show system license installed (MX104 Routers) on page 222
show system license keys (MX104 Routers) on page 222
show system license usage (MX104 Routers) on page 222
show system license (MX104 Routers) on page 222
show system license installed (MX104 Routers) on page 223
show system license keys (MX104 Routers) on page 223
show system license usage (MX104 Routers) on page 223
show system license (MX104 Routers) on page 224
show system license installed (MX104 Routers) on page 224
show system license keys (MX104 Routers) on page 224
show system license usage (MX104 Routers) on page 225
show system license (QFX Series) on page 225

Output Fields

Table 13 on page 219 lists the output fields for the **show system license** command. Output fields are listed in the approximate order in which they appear.

Table 13: show system license Output Fields

Field Name	Field Description
Feature name	Name assigned to the configured feature. You use this information to verify that all the features for which you installed licenses are present.

Table 13: show system license Output Fields *(continued)*

Field Name	Field Description
Licenses used	Number of licenses used by a router or switch. You use this information to verify that the number of licenses used matches the number configured. If a licensed feature is configured, the feature is considered used. NOTE: In Junos OS Release 10.1 and later, the **Licenses used** column displays the actual usage count based on the number of active sessions or connections as reported by the corresponding feature daemons. This is applicable for scalable license-based features such as Subscriber Access (**scale-subscriber**), L2TP (**scale-l2tp**), Mobile IP (**scale-mobile-ip**), and so on.
Licenses installed	Information about the installed license key: • **License identifier**—Identifier associated with a license key. • **State**—State of the license key:**valid** or **invalid**. An **invalid** state indicates that the key was entered incorrectly or is not valid for the specific device. • **License version**—Version of a license. The version indicates how the license is validated, the type of signature, and the signer of the license key. • **Valid for device**—Device that can use a license key. • **Group defined**—Group membership of a device. • **Features**—Feature associated with a license, such as data link switching (DLSw).
Licenses needed	Number of licenses required for features being used but not yet properly licensed.
Expiry	Amount of time left within the grace period before a license is required for a feature being used.

Sample Output

show system license

```
user@host> show system license

License usage:
                                  Licenses     Licenses    Licenses    Expiry
  Feature name                        used    installed      needed
  subscriber-accounting                  2            2           0    permanent
  subscriber-authentication              1            2           0    permanent
  subscriber-address-assignment          2            2           0    permanent
  subscriber-vlan                        2            2           0    permanent
  subscriber-ip                          0            2           0    permanent
  scale-subscriber                       2            3           0    permanent
  scale-l2tp                             4            5           0    permanent
  scale-mobile-ip                        1            2           0    permanent

Licenses installed:
  License identifier: XXXXXXXXXX
  License version: 2
  Features:
    subscriber-accounting - Per Subscriber Radius Accounting
      permanent
    subscriber-authentication - Per Subscriber Radius Authentication
      permanent
    subscriber-address-assignment - Radius/SRC Address Pool Assignment
      permanent
    subscriber-vlan  - Dynamic Auto-sensed Vlan
```

```
    permanent
  subscriber-ip    - Dynamic and Static IP
    permanent
```

show system license installed

```
user@host> show system license installed
  License identifier: XXXXXXXXXX
  License version: 2
  Features:
    subscriber-accounting - Per Subscriber Radius Accounting
      permanent
    subscriber-authentication - Per Subscriber Radius Authentication
      permanent
    subscriber-address-assignment - Radius/SRC Address Pool Assignment
      permanent
    subscriber-vlan  - Dynamic Auto-sensed Vlan
      permanent
    subscriber-ip    - Dynamic and Static IP
      permanent
```

show system license keys

```
user@host> show system license keys
XXXXXXXXXX xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
         xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
         xxxxxx xxxxxx xxx
```

show system license usage

```
user@host> show system license usage
License usage:
                                 Licenses     Licenses    Licenses    Expiry
  Feature name                       used    installed      needed
  subscriber-accounting                 2            2           0    permanent
  subscriber-authentication             1            2           0    permanent
  subscriber-address-assignment         2            2           0    permanent
  subscriber-vlan                       2            2           0    permanent
  subscriber-ip                         0            2           0    permanent
  scale-subscriber                      2            3           0    permanent
  scale-l2tp                            4            5           0    permanent
  scale-mobile-ip                       1            2           0    permanent
```

show system license (MX104 Routers)

In the following output, ports 0 and 1 are activated by installing the license to activate the first two built-in ports.

```
user@host> show system license
License usage:
                                 Licenses     Licenses    Licenses    Expiry
  Feature name                       used    installed      needed
  scale-subscriber                      0         1000           0    permanent
  scale-l2tp                            0         1000           0    permanent
  scale-mobile-ip                       0         1000           0    permanent
  MX104-2x10Gig-port-0-1                0            1           0    permanent

Licenses installed:
  License identifier: XXXXXXXXXX
  License version: 2
  Features:
```

```
    MX104-2x10Gig-port-0-1 - MX104 2X10Gig Builtin Port(xe-2/0/0 & xe-2/0/1)
upgrade
      permanent
```

show system license installed (MX104 Routers)

In the following output, ports 0 and 1 are activated by installing the license to activate the first two built-in ports.

```
user@host > show system license installed
License identifier: XXXXXXXXXX
  License version: 2
  Features:
    MX104-2x10Gig-port-0-1 - MX104 2X10Gig Builtin Port(xe-2/0/0 & xe-2/0/1)
upgrade
      permanent
```

show system license keys (MX104 Routers)

In the following output, ports 0 and 1 are activated by installing the license to activate the first two built-in ports.

```
user@host > show system license keys

XXXXXXXXXX xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxx
```

show system license usage (MX104 Routers)

In the following output, ports 0 and 1 are activated by installing the license to activate the first two built-in ports.

```
user@host > show system license usage
           Licenses     Licenses    Licenses    Expiry
  Feature name                       used    installed      needed
  scale-subscriber                      0         1000           0    permanent
  scale-l2tp                            0         1000           0    permanent
  scale-mobile-ip                       0         1000           0    permanent
  MX104-2x10Gig-port-0-1                0            1           0    permanent
```

show system license (MX104 Routers)

In the following output, ports 2 and 3 are activated by installing the license to activate the next two built-in ports after installing the license to activate the first two built-in ports.

```
user@host > show system license
License usage:
                                Licenses     Licenses    Licenses    Expiry
  Feature name                       used    installed      needed
  scale-subscriber                      0         1000           0    permanent
  scale-l2tp                            0         1000           0    permanent
  scale-mobile-ip                       0         1000           0    permanent
  MX104-2x10Gig-port-0-1                0            1           0    permanent
  MX104-2x10Gig-port-2-3                0            1           0    permanent

Licenses installed:
  License identifier: XXXXXXXXXX
  License version: 2
```

```
  Features:
    MX104-2x10Gig-port-0-1 - MX104 2X10Gig Builtin Port(xe-2/0/0 & xe-2/0/1)
upgrade
      permanent

  License identifier: XXXXXXXXXX
  License version: 2
  Features:
    MX104-2x10Gig-port-2-3 - MX104 2X10Gig Builtin Port(xe-2/0/2 & xe-2/0/3)
upgrade
      permanent
```

show system license installed (MX104 Routers)

In the following output, ports 2 and 3 are activated by installing the license to activate the next two built-in ports after installing the license to activate the first two built-in ports.

```
user@host > show system license installed
License identifier: XXXXXXXXXX
  License version: 2
  Features:
    MX104-2x10Gig-port-0-1 - MX104 2X10Gig Builtin Port(xe-2/0/0 & xe-2/0/1)
upgrade
      permanent

  License identifier: XXXXXXXXXX
  License version: 2
  Features:
    MX104-2x10Gig-port-2-3 - MX104 2X10Gig Builtin Port(xe-2/0/2 & xe-2/0/3)
upgrade
      permanent
```

show system license keys (MX104 Routers)

In the following output, ports 2 and 3 are activated by installing the license to activate the next two built-in ports after installing the license to activate the first two built-in ports.

```
user@host > show system license keys

XXXXXXXXXX xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxx

XXXXXXXXXX xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxx
```

show system license usage (MX104 Routers)

In the following output, ports 2 and 3 are activated by installing the license to activate the next two built-in ports after installing the license to activate the first two built-in ports.

```
user@host > show system license usage
           Licenses     Licenses    Licenses    Expiry
  Feature name                        used    installed      needed
  scale-subscriber                       0         1000           0    permanent
  scale-l2tp                             0         1000           0    permanent
```

```
  scale-mobile-ip                       0         1000           0    permanent
  MX104-2x10Gig-port-0-1                0            1           0    permanent
  MX104-2x10Gig-port-2-3                0            1           0    permanent
```

show system license (MX104 Routers)

In the following output, ports 0,1,2, and 3 are activated by installing a single license key to activate all four built-in ports.

```
user@host > show system license
License usage:
                                 Licenses     Licenses    Licenses    Expiry
  Feature name                       used    installed      needed
  scale-subscriber                      0         1000           0    permanent
  scale-l2tp                            0         1000           0    permanent
  scale-mobile-ip                       0         1000           0    permanent
  MX104-2x10Gig-port-0-1                0            1           0    permanent
  MX104-2x10Gig-port-2-3                0            1           0    permanent

Licenses installed:
  License identifier: XXXXXXXXXX
  License version: 2
  Features:
    MX104-2x10Gig-port-0-1 - MX104 2X10Gig Builtin Port(xe-2/0/0 & xe-2/0/1)
upgrade
      permanent
    MX104-2x10Gig-port-2-3 - MX104 2X10Gig Builtin Port(xe-2/0/2 & xe-2/0/3)
upgrade
      permanent
```

show system license installed (MX104 Routers)

In the following output, ports 0,1,2, and 3 are activated by installing a single license key to activate all four built-in ports.

```
user@host > show system license installed
License identifier: XXXXXXXXXX
  License version: 2
  Features:
    MX104-2x10Gig-port-0-1 - MX104 2X10Gig Builtin Port(xe-2/0/0 & xe-2/0/1)
upgrade
      permanent
    MX104-2x10Gig-port-2-3 - MX104 2X10Gig Builtin Port(xe-2/0/2 & xe-2/0/3)
upgrade
      permanent
```

show system license keys (MX104 Routers)

In the following output, ports 0,1,2, and 3 are activated by installing a single license key to activate all four built-in ports.

```
user@host > show system license keys

XXXXXXXXX  xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
           xxxxxx xxxxxx x
```

show system license usage (MX104 Routers)

In the following output, ports 0,1,2, and 3 are activated by installing a single license key to activate all four built-in ports.

```
user@host > show system license usage
           Licenses     Licenses    Licenses    Expiry
  Feature name                       used    installed      needed
  scale-subscriber                      0         1000           0    permanent
  scale-l2tp                            0         1000           0    permanent
  scale-mobile-ip                       0         1000           0    permanent
  MX104-2x10Gig-port-0-1                0            1           0    permanent
  MX104-2x10Gig-port-2-3                0            1           0    permanent
```

show system license (QFX Series)

```
user@switch> show system license
License usage:
                    Licenses     Licenses    Licenses    Expiry
  Feature name         used    installed      needed
  qfx-edge-fab            1            1           1    permanent
Licenses installed:
  License identifier: JUNOS417988
  License version: 1
  Features:
    qfx-edge-fab  -        QFX3000 Series QF/Node feature license
      permanent
```

show system snapshot

List of Syntax

Syntax on page 226
Syntax (EX Series Switches) on page 226

Syntax

show system snapshot

Syntax (EX Series Switches)

show system snapshot
<all-members|local|member *member-id*>
<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

Display information about the backup software:

- 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.

NOTE: To back up software, use the **request system snapshot** command.

Options

none—Display information about the backup software.

all-members | local | member *member-id*—(EX Series switch Virtual Chassis only) (Optional) Display the snapshot in a Virtual Chassis:

- **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 *member-id***—Display the snapshot for the specified member of the Virtual Chassis.

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.

Required Privilege Level

view

Related Documentation

- request system snapshot on page 180

List of Sample Output

show system snapshot (Router) on page 227
show system snapshot media external (Switch) on page 227
show system snapshot media internal (Switch) on page 228

Output Fields

Table 14 on page 227 lists the output fields for the **show system snapshot** command. Output fields are listed in the approximate order in which they appear.

Table 14: 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/da1s1a) (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/da1s2a) (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
```

CHAPTER 7

Operational Commands: System Monitoring

show chassis alarms

List of Syntax

Syntax on page 230
Syntax (TX Matrix Routers) on page 230
Syntax (TX Matrix Plus Routers) on page 230
Syntax (MX Series Routers) on page 230
Syntax (MX104, MX2010, and MX2020 3D Universal Edge Routers) on page 230
Syntax (QFX Series) on page 230
Syntax (PTX Series Packet Transport Routers) on page 230
Syntax (ACX Series Universal Access Routers) on page 230

Syntax

show chassis alarms

Syntax (TX Matrix Routers)

show chassis alarms
<lcc *number* | scc>

Syntax (TX Matrix Plus Routers)

show chassis alarms
<lcc *number* | sfc *number*>

Syntax (MX Series Routers)

show chassis alarms
<all-members>
<local>
<member *member-id*>

Syntax (MX104, MX2010, and MX2020 3D Universal Edge Routers)

show chassis alarms

Syntax (QFX Series)

show chassis alarms
<interconnect-device *name*>
<node-device *name*>

Syntax (PTX Series Packet Transport Routers)

show chassis alarms

Syntax (ACX Series Universal Access Routers)

show chassis alarms

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 the TX Matrix Plus router introduced in Junos OS Release 9.6.
Command introduced in Junos OS Release 11.1 for the QFX Series.
Command introduced in Junos OS Release 12.1 for the PTX Series Packet Transport Routers.
Command introduced in Junos OS Release 12.2 for the 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.

Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

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 router and TX Matrix Plus router only) (Optional) Line-card chassis number.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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* variable 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 (switch-card chassis).

sfc ***number***—(TX Matrix Plus router only) (Optional) Show information about the respective TX Matrix Plus router, which is the switch-fabric chassis. Replace *number* variable 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 LED 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.

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)

According to the table above, 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_ILLEGALSIZE_ERR	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

Chip Type: M Chip	Code
CMALARM_MCHIP_ECC_UNCORRECT_ERR	128

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 = (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 236
show chassis alarms (No Alarms Active) on page 236
show chassis alarms (Fan Tray) on page 236
show chassis alarms (MX104 Router) on page 237
show chassis alarms (MX2010 Router) on page 237
show chassis alarms (MX2020 Router) on page 237
show chassis alarms (T4000 Router) on page 237
show chassis alarms (Unreachable Destinations Present on a T Series Router) on page 237
show chassis alarms (FPC Offline Due to Unreachable Destinations on a T Series Router) on page 238

Output Fields Table 15 on page 236 lists the output fields for the **show chassis alarms** command. Output fields are listed in the approximate order in which they appear.

Table 15: 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 (Alarms Active)

```
user@host> show chassis alarms
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 (No Alarms Active)

```
user@host> show chassis alarms
No alarms are currently active
```

show chassis alarms (Fan Tray)

```
user@host> show chassis alarms
```



```
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 (MX104 Router)

```
user@host >show chassis alarms
1 alarms currently active
Alarm time               Class  Description
2013-06-05 14:43:31 IST  Minor  Backup RE Active
```

show chassis alarms (MX2010 Router)

```
user@host> show chassis alarms
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 (MX2020 Router)

```
user@host> show chassis alarms
1 alarms currently active
Alarm time Class Description
2012-10-03 12:14:59 PDT Minor Plane 0 not online
```

show chassis alarms (T4000 Router)

```
user@host> show chassis alarms
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 (TX Matrix Plus router with 3D SIBs)

```
user@host> show chassis alarms
sfc0-re0:
--------------------------------------------------------------------------
Alarm time               Class  Description

2014-04-08 14:35:13 IST  Minor  FPM 0 SFC Config Size Changed
2014-04-08 14:32:58 IST  Major  Fan Tray Failure
2014-04-08 14:31:53 IST  Major  SIB F13 6 Fault
2014-04-08 14:31:43 IST  Major  SIB F13 11 Fault
2014-04-08 14:31:08 IST  Minor  Check SIB F13 12 CXP 14 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 12 CXP 8 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 12 CXP 3 Fbr Cbl
2014-04-08 14:31:08 IST  Major  SIB F13 12 CXP 15 fault
2014-04-08 14:31:08 IST  Minor  SIB F13 12 CXP 14 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 12 CXP 14
2014-04-08 14:31:08 IST  Major  SIB F13 12 CXP 10 fault
2014-04-08 14:31:08 IST  Minor  SIB F13 12 CXP 8 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 12 CXP 8
2014-04-08 14:31:08 IST  Major  SIB F13 12 CXP 7 fault
2014-04-08 14:31:08 IST  Major  SIB F13 12 CXP 4 fault
2014-04-08 14:31:08 IST  Minor  SIB F13 12 CXP 3 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 12 CXP 3
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 14 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 12 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 8 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 6 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 4 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 2 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 0 Fbr Cbl
2014-04-08 14:31:08 IST  Minor  SIB F13 6 CXP 14 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 14
2014-04-08 14:31:08 IST  Minor  SIB F13 6 CXP 12 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 12
2014-04-08 14:31:08 IST  Major  SIB F13 6 CXP 10 fault
2014-04-08 14:31:08 IST  Minor  SIB F13 6 CXP 8 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 8
2014-04-08 14:31:08 IST  Minor  SIB F13 6 CXP 6 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 6
2014-04-08 14:31:08 IST  Minor  SIB F13 6 CXP 4 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 4
2014-04-08 14:31:08 IST  Minor  SIB F13 6 CXP 2 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 2
2014-04-08 14:31:08 IST  Minor  SIB F13 6 CXP 0 LOL
2014-04-08 14:31:08 IST  Minor  Check SIB F13 6 CXP 0
2014-04-08 14:31:08 IST  Minor  SIB F13 12 CXP 14 XC HSL Link Error
2014-04-08 14:29:27 IST  Minor  LCC 0 Minor Errors
2014-04-08 14:28:37 IST  Major  LCC 0 Major Errors
2014-04-08 14:28:37 IST  Major  LCC 2 Major Errors
2014-04-08 14:28:37 IST  Minor  LCC 2 Minor Errors
2014-04-08 14:28:24 IST  Major  SIB F2S 4/6 Absent
2014-04-08 14:28:24 IST  Major  SIB F2S 4/4 Absent
2014-04-08 14:28:24 IST  Major  SIB F2S 4/2 Absent
2014-04-08 14:28:24 IST  Major  SIB F2S 4/0 Absent
2014-04-08 14:28:24 IST  Major  SIB F2S 3/6 Absent
2014-04-08 14:28:24 IST  Major  SIB F2S 3/4 Absent
2014-04-08 14:28:24 IST  Major  SIB F2S 3/2 Absent
2014-04-08 14:28:24 IST  Major  SIB F2S 3/0 Absent
2014-04-08 14:28:24 IST  Major  SIB F13 9 Absent
2014-04-08 14:28:24 IST  Major  SIB F13 8 Absent
```

```
2014-04-08 14:28:24 IST  Major  SIB F13 7 Absent
2014-04-08 14:28:24 IST  Major  SIB F13 4 Absent
2014-04-08 14:28:24 IST  Major  SIB F13 1 Absent
2014-04-08 14:28:22 IST  Major  PEM 0 Input Failure
2014-04-08 14:28:22 IST  Major  PEM 0 Not OK

lcc0-re0:
--------------------------------------------------------------------------
12 alarms currently active
Alarm time               Class  Description
2014-04-08 14:36:08 IST  Minor  CB 1  M/S Switch Changed
2014-04-08 14:36:08 IST  Minor  CB 1  CHASSIS ID Changed
2014-04-08 14:35:43 IST  Minor  CB 0  M/S Switch Changed
2014-04-08 14:35:43 IST  Minor  CB 0  CHASSIS ID Changed
2014-04-08 14:29:30 IST  Minor  SIB 4 Not Online
2014-04-08 14:29:30 IST  Minor  SIB 3 Not Online
2014-04-08 14:29:30 IST  Minor  SIB 2 Not Online
2014-04-08 14:29:24 IST  Major  Rear Fan Tray Failure
2014-04-08 14:29:24 IST  Major  Front Bottom Fan Tray Improper for Platform
2014-04-08 14:29:24 IST  Major  Front Top Fan Tray Improper for Platform
2014-04-08 14:28:37 IST  Major  SIB 4 Absent
2014-04-08 14:28:37 IST  Major  SIB 3 Absent

lcc2-re0:
--------------------------------------------------------------------------
12 alarms currently active
Alarm time               Class  Description
2014-04-08 14:36:02 IST  Minor  CB 1  M/S Switch Changed
2014-04-08 14:36:02 IST  Minor  CB 1  CHASSIS ID Changed
2014-04-08 14:35:42 IST  Minor  CB 0  M/S Switch Changed
2014-04-08 14:34:42 IST  Minor  CB 0  CHASSIS ID Changed
2014-04-08 14:29:29 IST  Minor  SIB 0 CXP 7 Unsupported Optics
2014-04-08 14:29:27 IST  Major  Front Bottom Fan Tray Improper for Platform
2014-04-08 14:29:27 IST  Major  Front Top Fan Tray Improper for Platform
2014-04-08 14:29:25 IST  Minor  SIB 4 Not Online
2014-04-08 14:29:25 IST  Minor  SIB 3 Not Online
2014-04-08 14:28:47 IST  Major  PEM 0 Not OK
2014-04-08 14:28:36 IST  Major  SIB 2 Absent
2014-04-08 14:28:36 IST  Minor  Host 0 Boot from alternate media

lcc6-re0:
--------------------------------------------------------------------------
2 alarms currently active
Alarm time               Class  Description
2013-11-06 04:03:56 PST  Minor  SIB 1 CXP 0 XC HSL Link Error
2013-11-06 03:49:32 PST  Major  PEM 1 Not OK
```

show chassis alarms (Alarms on a T4000 Router After the enhanced-mode Statement is Enabled)

To enable improved virtual private LAN service (VPLS) MAC address learning on T4000 routers, you must include the **enhanced-mode** statement at the **[edit chassis network-services]** hierarchy level and reboot the router. When router reboots, only the T4000 Type 5 FPCs are required to be present on the router. If there are any other FPCs (apart from T4000 Type 5 FPCs) on the T4000 router, such FPCs become 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 Router)

```
user@host> 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 (Mix of PDUs Alarm on a PTX5000 Packet Transport Router with FPC2-PTX-P1A)

All PDUs installed on a PTX5000 router must be of the same type. **Mix of PDUs** or **Power Manager Non Operational** alarm is raised when different types of PDUs are installed on a PTX5000 router.

```
user@host> show chassis alarms
15 alarms currently active
Alarm time               Class  Description
2013-03-19 23:03:53 PDT  Minor  No Redundant Power
2013-03-19 23:03:48 PDT  Minor  Mix of PDUs
2013-03-19 23:03:47 PDT  Minor  PDU 1 PSM 3 Absent
2013-03-19 23:03:47 PDT  Minor  PDU 1 PSM 2 Absent
2013-03-19 23:03:47 PDT  Minor  PDU 1 PSM 1 Absent
2013-03-19 23:03:47 PDT  Minor  PDU 1 PSM 0 Absent
2013-03-19 23:03:46 PDT  Major  No CG Online
```

show chassis alarms (PDU Converter Failed Alarm on a PTX5000 Packet Transport Router with FPC2-PTX-P1A)

The *PDU Converter Failed* alarm is raised when one or more 36v booster converter of a DC PDU fails. If two or more 36v booster converter fails, fan trays fail and the router may get over heated. Therefore, when this alarm is raised, check the PDU and replace the PDU if required.

```
user@host> show chassis alarms
11 alarms currently active
Alarm time               Class  Description
2013-12-11 22:14:13 PST  Minor  No Redundant Power for System
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 7 Not OK
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 6 Not OK
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 5 Not OK
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 4 Not OK
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 3 Not OK
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 2 Not OK
```

```
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 1 Not OK
2013-12-11 22:14:10 PST  Major  PDU 0 PSM 0 Not OK
2013-12-11 22:14:10 PST  Major  PDU 0 Not OK
2013-12-11 22:14:01 PST  Major  PDU 0 Converter Failed
```

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 alarms (Active Alarm to Indicate Status of the Bad SCB Clock on MX Series)

```
user@host> show chassis alarms
1 alarm currently active
Alarm time               Class  Description
2013-08-06 07:48:35 PDT  Major  CB 0 19.44 MHz clock failure
```

show chassis environment

List of Syntax

Syntax

show chassis environment

Syntax (T320, T640, T1600, and T4000 Routers)

show chassis environment
<cb *cb-slot-number*>
<fpc *fpc-slot-number*>
<fpm>
<pem *pem-slot-number*>
<routing-engine *re-slot-number*>
<scg *scg-slot-number*>
<sib *sib-slot-number*>

Syntax (TX Matrix Routers)

show chassis environment
<lcc *number* | scc>

Syntax (TX Matrix Plus Routers)

show chassis environment
<cb *cb-slot-number*>
<cip *cip-slot-number*>
<fpc *fpc-slot-number*>
<fpm>
<lcc *number*>
<pem *pem-slot-number*>
<routing-engine *re-slot-number*>
<scg *scg-slot-number*>
< sfc *number*>
<sib *sib-slot-number*>

Syntax (MX Series Routers)

show chassis environment
<all-members>
<local>
<member *member-id*>

Syntax (MX104 3D Universal Edge Routers)

show chassis environment
<cb>
<pem *pem-slot-number*>
<routing-engine *re-slot-number*>

Syntax (MX2010 and MX2020 3D Universal Edge Routers)

show chassis environment
<adc *adc-slot-number*>
<cb *cb-slot-number*>
<fpc *fpc-slot-number*>
<fpm>
<monitored>
<psm *psm-slot-number*>
<routing-engine *re-slot-number*>
<sfb *sfb-slot-number*>

Syntax (EX8200 Switches)

show chassis environment
<all-members>
<cb *cb-slot-number*>
<fpc *fpc-slot-number*>
<local>
<member *member-id*>
<psu *psu-slot-number*>
<routing-engine *re-slot-number*>

Syntax (EX Series Switches except EX8200)

show chassis environment
<all-members>
<fpc *fpc-slot-number*>
<local>
<member *member-id*>
<power-supply-unit>
<routing-engine>

Syntax (QFX Series)

show chassis environment
<cb *slot-number* <interconnect-device *name*>>
<fpc *slot-number* <interconnect-device *name*>>
<interconnect-device *name* <*slot-number*>
<node-device *name*>
<pem *slot-number* (interconnect-device *name slot-number*) | (node-device *name*)>
<routing-engine *name* <interconnect-device *name slot-number*>>

Syntax (PTX Series Packet Transport Routers)

show chassis environment
<cb *cb-slot-number*>
<ccg *ccg-slot-number* >
<fpc *fpc-slot-number*>
<fpm>
<monitored>
<pdu *pdu-slot-number*>
<routing-engine *re-slot-number*>
<sib *sib-slot-number*>

Syntax (ACX Series Universal Access Routers)

show chassis environment
<cb *cb-slot-number*>
<pem *pem-slot-number*>
<routing-engine *re-slot-number*>

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 QFX Series.

Command introduced in Junos OS Release 12.1x48 for PTX Series Packet Transport Routers.
monitored option added in Junos OS Release 12.1x48 for PTX Series Packet Transport Routers.
Command introduced in Junos OS Release 12.1 for T4000 Core Routers.
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.
pem option introduced in Junos OS Release 12.3 for ACX4000 Universal Access Routers.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

Description Display environmental information about the router or switch chassis, including the temperature and information about the fans, power supplies, and Routing Engine.

In addition, on ACX4000 routers, display temperature information about the different channels of a Modular Interface Card (MIC). The number of channels displayed depends on the type of MIC installed.

Starting with Junos OS Release 14.1, the output of the **show chassis environment cb** ***cb-slot-number*** **| ccg** ***ccg-slot-number*** **| fpc** ***fpc-slot-number*** **| fpm | monitored | pdu** ***pdu-slot-number*** **| routing-engine** ***re-slot-number*** **| sib** ***sib-slot-number*** operational mode command displays the new DC power supply module (PSM) and power distribution unit (PDU) that are added to provide power to the high-density FPC (FPC2-PTX-P1A) and other components in a PTX5000 Packet Transport Router.

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 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 Routers, QFX Series, and T Series routers, and TX Matrix Plus 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.

cip ***cip-slot-number***—(TX Matrix Plus routers only) (Optional) Display chassis environmental information for the Connection Interface Panel (CIP). Replace the ***cip-slot-number*** variable with a value of **0** or **1**.

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 Routers, QFX Series, QFX3500 switches, QFabric systems, T Series routers, and TX Matrix Plus 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. On a TX Matrix Plus router with 3D SIBs replace *fpc-slot* with a value from **0** through **63**.

fpm—(M120, M320, and M40e routers, MX2010 routers, MX2020 routers, PTX Series, Packet Transport Routers, T Series routers, and TX Matrix Plus 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 Routers 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 routers and TX Matrix Plus routers only) (Optional) Line-card chassis number.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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* variable 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, MX104 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 (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 respective TX Matrix Plus router (switch-fabric chassis). Replace ***number*** variable with **0**.

sib ***sib-slot-number***—(M320 routers, PTX Series Packet Transport Routers, 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 299
- *show chassis environment ccg*
- *show chassis environment cip*
- show chassis environment fpc on page 317
- *show chassis environment fpm*
- *show chassis environment lcc*
- *show chassis environment mcs*
- *show chassis environment monitored*
- *show chassis environment pcg*
- *show chassis environment pdu*
- show chassis environment pem on page 342
- *show chassis environment psm*
- *show chassis environment psu*
- show chassis environment routing-engine on page 351
- *show chassis environment scg*
- *show chassis environment sfb*
- *show chassis environment sib*
- *show chassis environment sfc*

List of Sample Output

show chassis environment (J2300 Router) on page 252
show chassis environment (J4300 or J6300 Router) on page 252
show chassis environment (M5 Router) on page 252
show chassis environment (M7i Router) on page 253
show chassis environment (M10 Router) on page 253
show chassis environment (M10i Router) on page 253
show chassis environment (M20 Router) on page 254
show chassis environment (M40 Router) on page 254
show chassis environment (M40e Router) on page 254
show chassis environment (M120 Router) on page 255
show chassis environment (M160 Router) on page 256
show chassis environment (M320 Router) on page 256

Output Fields

Table 16 on page 251 lists the output fields for the **show chassis environment** command. Output fields are listed in the approximate order in which they appear.

Table 16: show chassis environment Output Fields

Field Name	Field Description

Class	Information about the category or class of chassis component:
	• **Power**: Power information:
	  ◦ (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 Routers 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.
	  ◦ EX2200 switches have a side-to-rear cooling system. The **Local Intake** temperature is measured by the sensor on the right side of the chassis, and the **Remote Intake** temperature is measured by the sensor on the left side of the chassis.
	• **Pic**: On ACX4000 Routers, multiple temperature channels on a MIC. The status is: **OK** and the **Measurement** is in degrees Celsius (C) and Fahrenheit (F).
	• **Fan**: Fan status: **OK**, **Testing** (during initial power-on), **Failed**, or **Absent**.
	  On PTX Series Packet Transport Routers 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.
	  ◦ 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 Routers, **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). (MX104 Routers) Information about the chassis components: Routing Engines, Control Board (CB), Power Entry Module (PEM), and Compact Forwarding Engine Board (AFEB). (QFabric Systems) Information about the chassis component: Control Boards, Routing Engines, Flexible PIC Concentrators (FPCs), and Power Entry Modules (PEMs), Node Devices, and Interconnect Devices. (QFX Series) Information about the chassis component: Flexible PIC Concentrators (FPCs), and Power Entry Modules (PEMs).

Table 16: show chassis environment Output Fields *(continued)*

Field Name	Field Description
Status	(MX104, MX2010, and MX2020 Routers) Status of the specified chassis component. For example, if the Class is Fan, the fan status can be: • **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. If the Class is Power, the power supply status can be: • **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	(MX104, 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 1                 OK
```

show chassis environment (M5 Router)

```
user@host> show chassis environment
Class Item                  Status     Measurement
Power Power Supply A        OK
      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 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 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 environment (M10i Router)

```
user@host> show chassis environment
Class Item                  Status     Measurement
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 / 82 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 environment (M20 Router)

```
user@host> show chassis environment
Class Item                   Status     Measurement
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 environment (M40 Router)

```
user@host> show chassis environment
Class Item                   Status     Measurement
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 (MX104 Router)

```
user@host> show chassis environment
Class Item                          Status     Measurement
Temp  PEM 0                         OK         34 degrees C / 93 degrees F
      PEM 1                         Absent
      ABB 0 Intake                  OK         33 degrees C / 91 degrees F
      ABB 0 Exhaust A               OK         42 degrees C / 107 degrees F
      ABB 0 Exhaust B               OK         43 degrees C / 109 degrees F
      ABB 1 Intake                  Absent
      ABB 1 Exhaust A               Absent
      ABB 1 Exhaust B               Absent
      Routing Engine 0              OK         34 degrees C / 93 degrees F
      Routing Engine 0 CPU          OK         46 degrees C / 114 degrees F
      Routing Engine 1              Absent
      Routing Engine 1 CPU          Absent
      AFEB 0 AFEB Processor         OK         33 degrees C / 91 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
      Fan 5                          OK         Spinning at normal speed
```

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 SCBE)

```
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 SCBE)

```
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 SCBE)

```
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

lcc0-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 environment (T1600 Router)

```
user@host> show chassis environment
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

lcc0-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 (TX Matrix Plus router with 3D SIBs)

```
user@host> show chassis environment
sfc0-re0:
--------------------------------------------------------------------------
Class Item                            Status     Measurement
Temp  PEM 0                           Check      30 degrees C / 86 degrees F
      PEM 1                           OK         33 degrees C / 91 degrees F
      Routing Engine 0                OK         28 degrees C / 82 degrees F
      Routing Engine 0 CPU            OK         42 degrees C / 107 degrees F
      Routing Engine 1                OK         29 degrees C / 84 degrees F
      Routing Engine 1 CPU            OK         44 degrees C / 111 degrees F
      CB 0 Intake                     OK         30 degrees C / 86 degrees F
      CB 0 Exhaust A                  OK         28 degrees C / 82 degrees F
      CB 0 Exhaust B                  OK         30 degrees C / 86 degrees F
      CB 1 Intake                     OK         31 degrees C / 87 degrees F
      CB 1 Exhaust A                  OK         27 degrees C / 80 degrees F
      CB 1 Exhaust B                  OK         31 degrees C / 87 degrees F
      SIB F13 0 Board                 OK         44 degrees C / 111 degrees F
      SIB F13 0 XF Junction           OK         62 degrees C / 143 degrees F
      SIB F13 3 Board                 OK         45 degrees C / 113 degrees F
      SIB F13 3 XF Junction           OK         60 degrees C / 140 degrees F
      SIB F13 6 Board                 OK         47 degrees C / 116 degrees F
      SIB F13 6 XF Junction           OK         62 degrees C / 143 degrees F
      SIB F2S 0/0 Board               OK         32 degrees C / 89 degrees F
      SIB F2S 0/0 XF Junction         OK         42 degrees C / 107 degrees F
      SIB F2S 0/2 Board               OK         31 degrees C / 87 degrees F
      SIB F2S 0/2 XF Junction         OK         41 degrees C / 105 degrees F
      SIB F2S 0/4 Board               OK         31 degrees C / 87 degrees F
      SIB F2S 0/4 XF Junction         OK         42 degrees C / 107 degrees F
      SIB F2S 0/6 Board               OK         31 degrees C / 87 degrees F
      SIB F2S 0/6 XF Junction         OK         41 degrees C / 105 degrees F
      SIB F2S 1/0 Board               OK         31 degrees C / 87 degrees F
      SIB F2S 1/0 XF Junction         OK         41 degrees C / 105 degrees F
      SIB F2S 1/2 Board               OK         29 degrees C / 84 degrees F
      SIB F2S 1/2 XF Junction         OK         39 degrees C / 102 degrees F
      SIB F2S 1/4 Board               OK         29 degrees C / 84 degrees F
      SIB F2S 1/4 XF Junction         OK         35 degrees C / 95 degrees F
      SIB F2S 1/6 Board               OK         30 degrees C / 86 degrees F
      SIB F2S 1/6 XF Junction         OK         41 degrees C / 105 degrees F
      SIB F2S 2/0 Board               OK         30 degrees C / 86 degrees F
      SIB F2S 2/0 XF Junction         OK         42 degrees C / 107 degrees F
      SIB F2S 2/2 Board               OK         28 degrees C / 82 degrees F
      SIB F2S 2/2 XF Junction         OK         39 degrees C / 102 degrees F
      SIB F2S 2/4 Board               OK         29 degrees C / 84 degrees F
      SIB F2S 2/4 XF Junction         OK         42 degrees C / 107 degrees F
      SIB F2S 2/6 Board               OK         29 degrees C / 84 degrees F
      SIB F2S 2/6 XF Junction         OK         41 degrees C / 105 degrees F
      CIP 0 Intake                    OK         25 degrees C / 77 degrees F
      CIP 0 Exhaust A                 OK         26 degrees C / 78 degrees F
      CIP 0 Exhaust B                 OK         26 degrees C / 78 degrees F
      CIP 1 Intake                    OK         26 degrees C / 78 degrees F
      CIP 1 Exhaust A                 OK         27 degrees C / 80 degrees F
      CIP 1 Exhaust B                 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 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              Check
Misc  SPMB 0                        OK
      SPMB 1                        OK

lcc0-re0:
--------------------------------------------------------------------------
Class Item                          Status     Measurement
Temp  PEM 0                         OK         29 degrees C / 84 degrees F
      PEM 1                         Check      29 degrees C / 84 degrees F
      SCG 0                         OK         32 degrees C / 89 degrees F
      SCG 1                         OK         33 degrees C / 91 degrees F
      Routing Engine 0              OK         32 degrees C / 89 degrees F
      Routing Engine 0 CPU          OK         51 degrees C / 123 degrees F
      Routing Engine 1              OK         32 degrees C / 89 degrees F
      Routing Engine 1 CPU          OK         49 degrees C / 120 degrees F
      CB 0                          OK         34 degrees C / 93 degrees F
      CB 1                          OK         34 degrees C / 93 degrees F
      SIB 0                         OK         39 degrees C / 102 degrees F
```

```
        SIB 0 (B)                       Absent
        SIB 1                           OK         39 degrees C / 102 degrees F
        SIB 1 (B)                       Absent
        SIB 2                           OK         39 degrees C / 102 degrees F
        SIB 2 (B)                       Absent
        FPC 4 Top                       OK         43 degrees C / 109 degrees F
        FPC 4 Bottom                    OK         43 degrees C / 109 degrees F
        FPC 7 Fan Intake                OK         35 degrees C / 95 degrees F
        FPC 7 Fan Exhaust               OK         50 degrees C / 122 degrees F
        FPC 7 PMB                       OK         50 degrees C / 122 degrees F
        FPC 7 LMB0                      OK         55 degrees C / 131 degrees F
        FPC 7 LMB1                      OK         49 degrees C / 120 degrees F
        FPC 7 LMB2                      OK         39 degrees C / 102 degrees F
        FPC 7 PFE1 LU2                  OK         55 degrees C / 131 degrees F
        FPC 7 PFE1 LU0                  OK         45 degrees C / 113 degrees F
        FPC 7 PFE0 LU0                  OK         62 degrees C / 143 degrees F
        FPC 7 XF1                       OK         52 degrees C / 125 degrees F
        FPC 7 XF0                       OK         61 degrees C / 141 degrees F
        FPC 7 XM1                       OK         39 degrees C / 102 degrees F
        FPC 7 XM0                       OK         56 degrees C / 132 degrees F
        FPC 7 PFE0 LU1                  OK         60 degrees C / 140 degrees F
        FPC 7 PFE0 LU2                  OK         55 degrees C / 131 degrees F
        FPC 7 PFE1 LU1                  OK         41 degrees C / 105 degrees F
        FPM GBUS                        OK         24 degrees C / 75 degrees F
        FPM Display                     OK         28 degrees C / 82 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 fan 1 (Top)           OK         Spinning at normal speed
        Rear Tray fan 2                 OK         Spinning at normal speed
        Rear Tray fan 3                 OK         Spinning at normal speed
        Rear Tray fan 4                 OK         Spinning at normal speed
        Rear Tray fan 5                 OK         Spinning at normal speed
        Rear Tray fan 6                 OK         Spinning at normal speed
        Rear Tray fan 7                 OK         Spinning at normal speed
        Rear Tray fan 8                 OK         Spinning at normal speed
        Rear Tray fan 9                 OK         Spinning at normal speed
        Rear Tray fan 10                OK         Spinning at normal speed
        Rear Tray fan 11                OK         Spinning at normal speed
        Rear Tray fan 12                OK         Spinning at normal speed
        Rear Tray fan 13                OK         Spinning at normal speed
        Rear Tray fan 14                OK         Spinning at normal speed
        Rear Tray fan 15                OK         Spinning at normal speed
        Rear Tray fan 16 (Bottom)       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
Fans  FPC 0 Fan 1                   OK         Spinning at normal speed
      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 Mgmnt 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 Router)

```
user@host> 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 Exhaust                  OK         47 degrees C / 116 degrees F
      SIB 0 Junction                 OK         45 degrees C / 113 degrees F
      SIB 1 Exhaust                  OK         44 degrees C / 111 degrees F
```

```
SIB 1 Junction                  OK         43 degrees C / 109 degrees F
SIB 2 Exhaust                   OK         47 degrees C / 116 degrees F
SIB 2 Junction                  OK         42 degrees C / 107 degrees F
SIB 3 Exhaust                   OK         43 degrees C / 109 degrees F
SIB 3 Junction                  OK         43 degrees C / 109 degrees F
SIB 4 Exhaust                   OK         47 degrees C / 116 degrees F
SIB 4 Junction                  OK         42 degrees C / 107 degrees F
SIB 5 Exhaust                   OK         42 degrees C / 107 degrees F
SIB 5 Junction                  OK         40 degrees C / 104 degrees F
SIB 6 Exhaust                   OK         46 degrees C / 114 degrees F
SIB 6 Junction                  OK         42 degrees C / 107 degrees F
SIB 7 Exhaust                   OK         43 degrees C / 109 degrees F
SIB 7 Junction                  OK         39 degrees C / 102 degrees F
SIB 8 Exhaust                   OK         44 degrees C / 111 degrees F
SIB 8 Junction                  OK         41 degrees C / 105 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
        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 (PTX5000 Packet Transport Router with FPC2-PTX-P1A)

```
user@host> show chassis environment
Class Item                          Status     Measurement
Temp  PDU 0                         OK
      PDU 0 PSM 0                   OK         41 degrees C / 105 degrees F
      PDU 0 PSM 1                   Absent
      PDU 0 PSM 2                   OK         43 degrees C / 109 degrees F
      PDU 0 PSM 3                   Absent
      PDU 0 PSM 4                   OK         44 degrees C / 111 degrees F
      PDU 0 PSM 5                   Absent
      PDU 0 PSM 6                   OK         45 degrees C / 113 degrees F
      PDU 0 PSM 7                   Absent
      PDU 1                         OK
      PDU 1 PSM 0                   Absent
      PDU 1 PSM 1                   OK         45 degrees C / 113 degrees F
      PDU 1 PSM 2                   Absent
      PDU 1 PSM 3                   OK         43 degrees C / 109 degrees F
      PDU 1 PSM 4                   Absent
      PDU 1 PSM 5                   OK         46 degrees C / 114 degrees F
      PDU 1 PSM 6                   Absent
      PDU 1 PSM 7                   OK         46 degrees C / 114 degrees F
      CCG 0                         OK         27 degrees C / 80 degrees F
      CCG 1                         OK         29 degrees C / 84 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)

On the ACX4000 router, the MIC output of the **show chassis environment** command varies depending on the number of temperature channels present in the installed MIC.

```
user@host> show chassis environment

Class Item                          Status     Measurement
Temp  PEM 0                         OK         33 degrees C / 91 degrees F
      PEM 1                         Absent
      PCB Bottom                    OK         30 degrees C / 86 degrees F
      PCB Middle                    OK         34 degrees C / 93 degrees F
      BCM56445                      OK         33 degrees C / 91 degrees F
      SFP+ Xcvr                     OK         32 degrees C / 89 degrees F
      Fan tray inlet                OK         39 degrees C / 102 degrees F
      Exhaust                       OK         30 degrees C / 86 degrees F
      Routing Engine                OK         32 degrees C / 89 degrees F
      Heater off
Pic   PIC 0/0 Channel 0             OK         28 degrees C / 82 degrees F
      PIC 0/0 Channel 1             OK         29 degrees C / 84 degrees F
      PIC 0/0 Channel 2             OK         0 degrees C / 32 degrees F
      PIC 0/0 Channel 3             OK         0 degrees C / 32 degrees F
```

```
        PIC 0/0 Channel 4              OK         0 degrees C / 32 degrees F
        PIC 0/0 Channel 5              OK         0 degrees C / 32 degrees F
        PIC 0/0 Channel 6              OK         0 degrees C / 32 degrees F
        PIC 0/0 Channel 7              OK         0 degrees C / 32 degrees F
        PIC 0/0 Channel 8              OK         0 degrees C / 32 degrees F
        PIC 0/0 Channel 9              OK         0 degrees C / 32 degrees F
        PIC 1/0 Channel 0              OK         33 degrees C / 91 degrees F
        PIC 1/0 Channel 1              OK         31 degrees C / 87 degrees F
        PIC 1/0 Channel 2              OK         30 degrees C / 86 degrees F
        PIC 1/0 Channel 3              OK         0 degrees C / 32 degrees F
        PIC 1/0 Channel 4              OK         0 degrees C / 32 degrees F
        PIC 1/0 Channel 5              OK         0 degrees C / 32 degrees F
        PIC 1/0 Channel 6              OK         0 degrees C / 32 degrees F
        PIC 1/0 Channel 7              OK         0 degrees C / 32 degrees F
        PIC 1/0 Channel 8              OK         0 degrees C / 32 degrees F
        PIC 1/1 Channel 0              OK         31 degrees C / 87 degrees F
        PIC 1/1 Channel 1              OK         29 degrees C / 84 degrees F
        PIC 1/1 Channel 2              OK         28 degrees C / 82 degrees F
        PIC 1/1 Channel 3              OK         0 degrees C / 32 degrees F
        PIC 1/1 Channel 4              OK         0 degrees C / 32 degrees F
        PIC 1/1 Channel 5              OK         0 degrees C / 32 degrees F
        PIC 1/1 Channel 6              OK         0 degrees C / 32 degrees F
        PIC 1/1 Channel 7              OK         0 degrees C / 32 degrees F
        PIC 1/1 Channel 8              OK         0 degrees C / 32 degrees F
Fans    Fan 1                          OK         Spinning at normal speed
        Fan 2                          OK         Spinning at normal speed
```

show chassis environment cb

List of Syntax

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 (MX104 3D Universal Edge Routers)

show chassis environment cb

Syntax (MX2010 and 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

Command introduced before Junos Release 7.4.
Command introduced in Junos OS Release 9.4 for EX Series switches.
Command introduced in Junos OS Release 12.1x48 for PTX Series Packet Transport Routers.
Command introduced in Junos OS Release 12.1 for T4000 Core Routers.
sfc option introduced for the TX Matrix Plus router in Junos Release 9.6.
Command introduced in Junos OS Release 11.3 for the QFX Series.
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.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

Description

(M120, M320, MX Series, and T Series routers, EX8200 switches, and PTX Series Packet Transport Routers 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 or T4000 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 CBs on the Interconnect device.

lcc ***number***—(TX Matrix router and TX Matrix Plus router only) (Optional) Line-card chassis number.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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 (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 Routers, 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*

- *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 302
show chassis environment cb (M320 Router) on page 302
show chassis environment cb (MX80 Router) on page 303
show chassis environment cb (MX104 Router) on page 303
show chassis environment cb (MX240 Router) on page 304
show chassis environment cb (MX240 Router with Enhanced MX SCB) on page 304
show chassis environment cb (MX480 Router) on page 304
show chassis environment cb (MX480 Router with Enhanced MX SCB) on page 305
show chassis environment cb (MX960 Router) on page 305
show chassis environment cb (MX960 Router with Enhanced MX SCB) on page 306
show chassis environment cb (MX2020 Router) on page 306
show chassis environment cb (MX2010 Router) on page 307
show chassis environment cb (T4000 Core Router) on page 308
show chassis environment cb (TX Matrix Router) on page 308
show chassis environment cb (TX Matrix Plus Router) on page 309
show chassis environment cb (EX8200 Switch) on page 313
show chassis environment cb (EX8208 Switch) on page 314
show chassis environment cb (PTX5000 Packet Transport Router) on page 315
show chassis environment cb (QFabric System) on page 316

Output Fields

Table 17 on page 301 lists the output fields for the **show chassis environment cb** command. Output fields are listed in the approximate order in which they appear.

Table 17: show chassis environment cb Output Fields

Field Name	Field Description
State	Status of the CB. If two CBs are installed and online, one is functioning as the master, and the other is the standby. • **Online**—CB is online and running. • **Offline**— CB is powered down. NOTE: On the EX8208 switch, the installation can include three CBs. See *EX Series Switches Hardware and CLI Terminology Mapping*.
Temperature	Temperature in Celsius (C) and Fahrenheit (F) of the air flowing past the CB. • **Temperature Intake**—Measures the temperature of the air intake to cool the power supplies. • **Temperature Exhaust**—Measures the temperature of the hot air exhaust. 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**).
Power	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.
BUS Revision	Revision level of the generic bus device. (Not on switches.)

Table 17: show chassis environment cb Output Fields *(continued)*

Field Name	Field Description
FPGA Revision	Revision level of the field-programmable gate array (FPGA). (Not on switches.)
PMBus device (on MX240, MX480, and MX960 routers with Enhanced MX SCB)	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: • **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 (MX104 Router)

```
user@host > show chassis environment cb
CB 0 status:
  State                      Online Master
  Temperature                33 degrees C / 91 degrees F
  Power 1
    0.75 V                     751 mV
    1.0 V                     1005 mV
    1.1 V                     1113 mV
    1.5 V                     1494 mV
    2.5 V                     2518 mV
    3.3 V                     3338 mV
    5.0 V                     4960 mV
    12.0 V                   12006 mV
  FPGA Revision              25
CB 1 status:
  State                      Empty
```

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             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 (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 environment cb (TX Matrix Plus Router)

```
user@host> show chassis environment cb
sfc0-re0:
--------------------------------------------------------------------------
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 (EX8200 Switch)

```
user@host> show chassis environment cb

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                      Online
  Temperature Intake         19 degrees C / 66 degrees F
  Temperature Exhaust        23 degrees C / 73 degrees F
  Power 1
    1.2 V                     1195 mV
    1.5 V                     1511 mV
    1.8 V                     1804 mV
    2.5 V                     2526 mV
    3.3 V                     3300 mV
    3.3 V bias                3306 mV
    12.0 V                   12220 mV
```

show chassis environment cb (EX8208 Switch)

```
user@host> show chassis environment cb
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                     1466 mV
    1.8 V                     1759 mV
    2.5 V                     2455 mV
    3.3 V                     3261 mV
    3.3 V bias                3300 mV
    5.0 V                     4930 mV
    12.0 V                   11891 mV
  Power 2
    3.3 V bias *              3606 mV
    3.3 V bias *              3615 mV
    3.3 V bias *              3567 mV
    3.3 V bias *              3673 mV
    4.3 V bias *              4224 mV
    4.3 V bias *              4215 mV
    4.3 V bias *              4234 mV
    4.3 V bias *              4205 mV
    4.3 V bias *              4186 mV
    4.3 V bias *              4215 mV
    5.0 V bias                4940 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                     1086 mV
    1.2 V                     1169 mV
    1.2 V *                   1179 mV
    1.2 V *                   1179 mV
    1.25 V                    1211 mV
    1.5 V                     1479 mV
    1.8 V                     1759 mV
```



```
    2.5 V                     2475 mV
    3.3 V                     3235 mV
    3.3 V bias                3306 mV
    5.0 V                     4930 mV
    12.0 V                   11891 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 *              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 Router)

```
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 fpc

List of Syntax

Syntax

show chassis environment fpc
<*slot*>

Syntax (TX Matrix and TX Matrix Plus Routers)

show chassis environment fpc
<lcc *number*>
<*slot*>

Syntax (MX Series Routers)

show chassis environment fpc
<*slot*>
<all-members>
<local>
<member *member-id*>

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 *name*

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 12.1x48 for PTX Series Packet Transport Routers.
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 routers 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 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 ***name***—(QFabric systems only) (Optional) Display chassis environmental information for the Interconnect device.

lcc ***number***—(TX Matrix router and TX Matrix Plus router only) (Optional) Line-card chassis number.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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 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 Router—Replace ***fpc-slot*** with 0 through 7.

Required Privilege Level

view

Related Documentation

- *request chassis fpc*
- *show chassis fpc*
- *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

Output Fields Table 18 on page 320 lists the output fields for the **show chassis environment fpc** command. Output fields are listed in the approximate order in which they appear.

Table 18: show chassis environment fpc Output Fields

Field Name	Field Description
State	Status of the FPC: • **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	(M120 and M320 routers, MX2010 routers, MX2020 routers, and PTX Series only) Temperature of the air flowing out of the chassis. The PTX Series Packet Transport Routers, and the MX2010 and MX2020 routers include exhaust temperatures for multiple zones (**Exhaust A** and **Exhaust B**).
Temperature Bottom	(T Series routers only) Temperature of the air flowing past the bottom of the FPC.
TL *n* Temperature	(PTX Series only) Temperature of the air flowing past the specified TL area of the packet forwarding engine (PFE) on the FPC.
TQ *n* 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-zl2105         3299 mV
    AS-VDD1V8-zl2006          1807 mV
    AS-VDD2V5-zl2006          2512 mV
    AS-AVDD1V0-zl2004          997 mV
    AS-PCIE_1V0-zl2004         996 mV
    AS-VDD3V3-zl2004          3294 mV
    AS-VDD_1V5A-zl2004        1501 mV
    AS-VDD_1V5B-zl2004        1498 mV
    AS-LU0_1V0-zl2004          998 mV
    AS-LU1_1V0-zl2004         1002 mV
    AS-MQ0_1V0-zl2004          999 mV
    AS-MQ1_1V0-zl2004          994 mV
    AS-LU2_1V0-zl2004         1000 mV
    AS-LU3_1V0-zl2004          998 mV
    AS-MQ2_1V0-zl2004         1002 mV
    AS-MQ3_1V0-zl2004          999 mV
    AS-PMB_1V1-zl2006         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-zl2105         3291 mV
    AS-VDD1V8-zl2006          1786 mV
    AS-VDD2V5-zl2006          2496 mV
    AS-AVDD1V0-zl2004         1000 mV
    AS-PCIE_1V0-zl2004        1000 mV
    AS-VDD3V3-zl2004          3294 mV
    AS-VDD_1V5A-zl2004        1500 mV
    AS-VDD_1V5B-zl2004        1498 mV
    AS-LU0_1V0-zl2004         1003 mV
    AS-LU1_1V0-zl2004         1000 mV
    AS-MQ0_1V0-zl2004         1000 mV
    AS-MQ1_1V0-zl2004          995 mV
    AS-LU2_1V0-zl2004         1002 mV
    AS-LU3_1V0-zl2004          997 mV
    AS-MQ2_1V0-zl2004         1000 mV
    AS-MQ3_1V0-zl2004          998 mV
    AS-PMB_1V1-zl2006         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-zl2105         3299 mV
```



```
    AS-VDD1V8-zl2006          1805 mV
    AS-VDD2V5-zl2006          2510 mV
    AS-AVDD1V0-zl2004          999 mV
    AS-PCIE_1V0-zl2004         998 mV
    AS-VDD3V3-zl2004          3296 mV
    AS-VDD_1V5A-zl2004        1492 mV
    AS-VDD_1V5B-zl2004        1497 mV
    AS-LU0_1V0-zl2004          997 mV
    AS-LU1_1V0-zl2004         1000 mV
    AS-MQ0_1V0-zl2004          998 mV
    AS-MQ1_1V0-zl2004         1001 mV
    AS-LU2_1V0-zl2004          996 mV
    AS-LU3_1V0-zl2004          995 mV
    AS-MQ2_1V0-zl2004          998 mV
    AS-MQ3_1V0-zl2004          997 mV
    AS-PMB_1V1-zl2006         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-zl2105         3305 mV
    AS-VDD1V8-zl2006          1810 mV
    AS-VDD2V5-zl2006          2508 mV
    AS-AVDD1V0-zl2004          999 mV
    AS-PCIE_1V0-zl2004        1001 mV
    AS-VDD3V3-zl2004          3294 mV
    AS-VDD_1V5A-zl2004        1500 mV
    AS-VDD_1V5B-zl2004        1498 mV
    AS-LU0_1V0-zl2004          998 mV
    AS-LU1_1V0-zl2004          998 mV
    AS-MQ0_1V0-zl2004          999 mV
    AS-MQ1_1V0-zl2004          998 mV
    AS-LU2_1V0-zl2004         1000 mV
    AS-LU3_1V0-zl2004         1001 mV
    AS-MQ2_1V0-zl2004          996 mV
    AS-MQ3_1V0-zl2004          998 mV
    AS-PMB_1V1-zl2006         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 3 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-zl2105         3300 mV
    AS-VDD1V8-zl2006          1805 mV
    AS-VDD2V5-zl2006          2505 mV
    AS-AVDD1V0-zl2004          998 mV
    AS-PCIE_1V0-zl2004         999 mV
    AS-VDD3V3-zl2004          3303 mV
    AS-VDD_1V5A-zl2004        1497 mV
    AS-VDD_1V5B-zl2004        1497 mV
    AS-LU0_1V0-zl2004          998 mV
    AS-LU1_1V0-zl2004         1003 mV
    AS-MQ0_1V0-zl2004          998 mV
    AS-MQ1_1V0-zl2004          998 mV
    AS-LU2_1V0-zl2004          997 mV
    AS-LU3_1V0-zl2004         1001 mV
    AS-MQ2_1V0-zl2004          996 mV
    AS-MQ3_1V0-zl2004          994 mV
    AS-PMB_1V1-zl2006         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 TSen45 degrees C / 113 degrees F
```

```
  Temperature PLX Switch Chip47 degrees C / 116 degrees F
  Power
    MPC-BIAS3V3-zl2105        3300 mV
    MPC-VDD3V3-zl6100         3294 mV
    MPC-VDD2V5-zl6100         2505 mV
    MPC-VDD1V8-zl2004         1796 mV
    MPC-AVDD1V0-zl2004         991 mV
    MPC-VDD1V2-zl6100         1196 mV
    MPC-VDD1V5A-zl2004        1491 mV
    MPC-VDD1V5B-zl2004        1492 mV
    MPC-XF_0V9-zl2004          996 mV
    MPC-PCIE_1V0-zl6100       1003 mV
    MPC-LU0_1V0-zl2004         996 mV
    MPC-LU1_1V0-zl2004         996 mV
    MPC-LU2_1V0-zl2004         998 mV
    MPC-LU3_1V0-zl2004         994 mV
    MPC-12VA-BMR453          12031 mV
    MPC-12VB-BMR453          12003 mV
    MPC-PMB_1V1-zl2006        1104 mV
    MPC-PMB_1V2-zl2106        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-zl2105        3296 mV
    MPC-VDD3V3-zl2006         3298 mV
    MPC-VDD2V5-zl2006         2505 mV
    MPC-TCAM_1V0-zl2004        997 mV
    MPC-AVDD1V0-zl2006        1007 mV
    MPC-VDD1V8-zl2006         1803 mV
    MPC-PCIE_1V0-zl2006       1004 mV
    MPC-LU0_1V0-zl2004        1000 mV
    MPC-MQ0_1V0-zl2004         999 mV
    MPC-VDD_1V5-zl2004        1498 mV
    MPC-PMB_1V1-zl2006        1102 mV
    MPC-9VA-BMR453            9009 mV
    MPC-9VB-BMR453            8960 mV
    MPC-PMB_1V2-zl2105        1202 mV
    MPC-LU1_1V0-zl2004        1005 mV
    MPC-MQ1_1V0-zl2004        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-zl2105         3302 mV
    AS-VDD1V8-zl2006          1808 mV
    AS-VDD2V5-zl2006          2513 mV
    AS-AVDD1V0-zl2004          997 mV
    AS-PCIE_1V0-zl2004         999 mV
    AS-VDD3V3-zl2004          3294 mV
    AS-VDD_1V5A-zl2004        1503 mV
    AS-VDD_1V5B-zl2004        1502 mV
    AS-LU0_1V0-zl2004          996 mV
    AS-LU1_1V0-zl2004          999 mV
    AS-MQ0_1V0-zl2004          997 mV
    AS-MQ1_1V0-zl2004          999 mV
    AS-LU2_1V0-zl2004          997 mV
    AS-LU3_1V0-zl2004          998 mV
    AS-MQ2_1V0-zl2004         1000 mV
    AS-MQ3_1V0-zl2004         1000 mV
    AS-PMB_1V1-zl2006         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-zl2105        3297 mV
    MPC-VDD3V3-zl2105         3306 mV
    MPC-VDD2V5-zl2105         2498 mV
    MPC-TCAM_1V0-zl2004        999 mV
    MPC-AVDD1V0-zl2006         999 mV
    MPC-VDD1V8-zl2006         1796 mV
    MPC-PCIE_1V0-zl2006       1002 mV
    MPC-LU0_1V0-zl2004         997 mV
    MPC-MQ0_1V0-zl2004         995 mV
    MPC-VDD_1V5-zl2004        1496 mV
    MPC-PMB_1V1-zl2006        1094 mV
    MPC-9VA-BMR453            9054 mV
    MPC-9VB-BMR453            9037 mV
    MPC-PMB_1V2-zl2106        1191 mV
    MPC-QXM0_1V0-zl2006       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-zl2105        3292 mV
    MPC-VDD3V3-zl6100         3303 mV
    MPC-VDD2V5-zl6100         2501 mV
    MPC-VDD1V8-zl2004         1801 mV
    MPC-AVDD1V0-zl2006         996 mV
    MPC-VDD1V2-zl6100         1199 mV
    MPC-VDD1V5A-zl2004        1493 mV
    MPC-VDD1V5B-zl2004        1498 mV
    MPC-XF_0V9-zl2006          996 mV
    MPC-PCIE_1V0-zl6100       1000 mV
    MPC-LU0_1V0-zl2004         994 mV
    MPC-LU1_1V0-zl2004         994 mV
    MPC-LU2_1V0-zl2004         992 mV
    MPC-LU3_1V0-zl2004         993 mV
    MPC-12VA-BMR453          12003 mV
    MPC-12VB-BMR453          12043 mV
    MPC-PMB_1V1-zl2006        1091 mV
    MPC-PMB_1V2-zl2106        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-zl2106        3302 mV
    MPC-VDD3V3-zl6100         3325 mV
    MPC-AVDD1V0-zl6100        1007 mV
    MPC-PCIE_1V0-zl6100        904 mV
    MPC-LU0_1V0-zl2004         996 mV
    MPC-VDD_1V5-zl2004        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 environment fpc (T4000 Router)

```
user@host> show chassis environment fpc
FPC 0 status:
  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 environment fpc (QFX Series)

```
user@switch> show chassis environment fpc 0
```

```
FPC 0 status:
  State                       Online
  Temperature                 42 degrees C / 107 degrees F
```

show chassis environment fpc interconnect-device (QFabric Systems)

```
user@switch> show chassis environment fpc interconnect-device interconnect1 0
FC 0 FPC 0 status:
  State                       Online
  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 Router)

```
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 FPC 1 (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-zl2106        3302 mV
    MPC-VDD3V3-zl6100         3325 mV
    MPC-AVDD1V0-zl6100        1007 mV
    MPC-PCIE_1V0-zl6100        904 mV
    MPC-LU0_1V0-zl2004         996 mV
    MPC-VDD_1V5-zl2004        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 pem

List of Syntax

Syntax on page 342
Syntax (ACX4000 Router) on page 342
Syntax (TX Matrix Routers) on page 342
Syntax (TX Matrix Plus Routers) on page 342
Syntax (MX Series Router) on page 342
Syntax (MX104 3D Universal Edge Routers) on page 342
Syntax (QFX Series) on page 342

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 (MX104 3D Universal Edge Routers)

show chassis environment pem
<*slot*>

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.
Command introduced in Junos OS 12.3R2 for EX Series.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

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 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 router and TX Matrix Plus router only) (Optional) Line-card chassis number.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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 (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 369

List of Sample Output

show chassis environment pem (M40e Router) on page 345

Output Fields Table 19 on page 344 lists the output fields for the **show chassis environment pem** command. Output fields are listed in the approximate order in which they appear.

Table 19: 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. (MX104 routers only) Information about voltage supplied by the PEM to the system.
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.

Table 19: show chassis environment pem Output Fields *(continued)*

Field Name	Field Description
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 (MX104 Router)

```
user@host> show chassis environment pem
PEM 0 status:
  State                     Online
  Temperature               OK
  DC Output:                OK
  Voltage:
    12.0 V output           12281 mV
    3.3 V output             3353 mV
PEM 1 status:
  State                     Empty
```

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 (MX480 Router)

```
user@host> show chassis environment pem
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 (MX960 Router)

```
user@host> show chassis environment pem
PEM 2 status:
  State                     Present
PEM 3 status:
  State                     Online
  Temperature                OK
  DC Output:                 OK
```

show chassis environment pem (T320 Router)

```
user@host> show chassis environment pem
PEM 0 status:
  State                           Online
  Temperature                     OK
  DC input:                       OK
```

show chassis environment pem (T640 Router)

```
user@host> show chassis environment pem
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 (T4000 Router)

```
user@host> show chassis environment pem
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(%)
                          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 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 IC1 1
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

List of Syntax

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 (MX104, MX2010, and MX2020 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 (QFX Series)

show chassis environment routing-engine
interconnect-device *name*

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.
Command introduced in Junos OS Release 12.1 for the PTX Series Packet Transport Routers.
Command introduced in Junos OS Release 12.1 for the 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.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

Description

Display Routing Engine environmental status information.

Options

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 routers.

all-members—(MX Series routers only) (Optional) Display environmental information about the Routing Engines in all member routers in the Virtual Chassis configuration.

interconnect-device ***name***—(QFabric systems only) (Optional) Display environmental information about the Routing Engines for the Interconnect device.

lcc ***number***——(TX Matrix router and TX Matrix Plus router only) (Optional) Line-card chassis number.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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 (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, MX104 routers, MX2010 routers, 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 Routers, replace ***slot*** with **0** or **1**

Required Privilege Level

view

Related Documentation

- *request chassis routing-engine master*
- show chassis routing-engine on page 516

List of Sample Output

Output Fields

Table 20 on page 353 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 20: 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: • **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 (MX104 Router)

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

```
Routing Engine 0 status:
  State                      Online Master
  Temperature                34 degrees C / 93 degrees F
  CPU Temperature            43 degrees C / 109 degrees F
Routing Engine 1 status:
  State                      Online Standby
  Temperature                33 degrees C / 91 degrees F
  CPU Temperature            39 degrees C / 102 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

lcc0-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 Router)

```
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 fan

List of Syntax

Syntax

show chassis fan

Syntax (ACX4000 Series Router)

show chassis fan

Syntax (MX Series Router)

show chassis fan
<all-members>
<local>
<member *member-id*>

Syntax (T Series Routers)

show chassis fan

Syntax (MX104, MX2010, and MX2020 3D Universal Edge Router)

show chassis fan

Syntax (QFabric Systems)

show chassis fan
<interconnect-device *name*>

Syntax (TX Matrix Router)

show chassis fan
<lcc *number* | scc>

Syntax (TX Matrix Plus Router)

show chassis fan
<lcc *number* | sfc *number*>

Release Information

Command introduced in Junos OS Release 10.0 on MX Series 3D Universal Edge Routers, M120 routers, and M320 routers, T320 routers, T640 routers, T1600 routers, TX Matrix Routers, and TX Matrix Plus routers.
Command introduced in Junos OS Release 11.1 for the QFX Series.
Command introduced in Junos OS Release 11.4 for EX Series switches.
Command introduced in Junos OS Release 12.3 for PTX5000 Packet Transport Routers.
Command introduced in Junos OS Release 12.1 for T4000 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.
Command introduced in Junos OS Release 12.3 for ACX Series Routers.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

Description

(T Series routers, TX Matrix routers, TX Matrix Plus routers, M120 routers, M320 routers, MX104 routers, MX2010 routers, MX2020 routers, MX Series 3D Universal Edge Routers,

QFX3008-I Interconnect devices, EX Series switches, and PTX Series Packet Transport Routers only) Show information about the fan tray and fans.

Options

all-members—(MX Series routers only) (Optional) Display information about the fan tray and fans for all members of the Virtual Chassis configuration.

local—(MX Series routers only) (Optional) Display information about the fan tray and fans for the local Virtual Chassis member.

member ***member-id***—(MX Series routers only) (Optional) Display information about the fan tray and fans for the specified member of the Virtual Chassis configuration. For an MX Series Virtual Chassis, replace *member-id* variable with a value 0 or 1.

interconnect-device ***name***—(QFX3000-G QFabric systems only) (Optional) Display information about the fan tray and fans for the specified QFX3008-I Interconnect device.

lcc ***number***—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display information about the fan tray and fans for the specified T640 router (line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, display information about the fan tray and fans for the specified router (line-card chassis) that is connected to a TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

scc —(TX Matrix routers only) (Optional) Display information about the fan tray and fans for the TX Matrix router (switch-card chassis).

sfc ***number***—(TX Matrix Plus routers only) (Optional) Display information about the fan tray and fans for the TX Matrix Plus router (switch-fabric chassis). Replace *number* variable with **0**.

Required Privilege Level

view

List of Sample Output

show chassis fan on page 358
show chassis fan (QFabric Systems) on page 359
show chassis fan (EX Series Switches) on page 360
show chassis fan (T320 Router) on page 360
show chassis fan (T640 Router) on page 361
show chassis fan (T1600 Router) on page 361

show chassis fan (T4000 Core Router) on page 362
show chassis fan (TX Matrix Router) on page 362
show chassis fan (TX Matrix Plus Router) on page 363
show chassis fan (TX Matrix Plus Router with 3D SIBs) on page 364
show chassis fan (PTX5000 Packet Transport Router) on page 366
show chassis fan (MX104 Router) on page 367
show chassis fan (MX2010 Router) on page 367
show chassis fan (MX2020 Router) on page 367
show chassis fan (ACX4000 Router) on page 368
show chassis fan (QFX5100 Switch) on page 368

Output Fields Table 21 on page 358 lists the output fields for the **show chassis fan** command. Output fields are listed in the approximate order in which they appear.

Table 21: show chassis fan Output Fields

Field Name	Field Description
Item	Fan item identifier.
Status	Status of the fan: • **OK**—Fan is running properly and within the normal range. • **Check**—Fan is in **Check** state because of some fault or alarm condition.
RPM	(T Series routers, TX Matrix routers, TX Matrix Plus routers, MX Series 3D Universal Edge Routers, QFX3108 Interconnect devices, and EX Series switches only) Fan speed in revolutions per minute (RPM).
% RPM	(MX2010 routers, MX2020 routers, and PTX Series Packet Transport Routers only) Percentage of the fan speed being used.
Measurement	(T Series routers, TX Matrix routers, TX Matrix Plus routers, MX Series 3D Universal Edge Routers, QFX3108 Interconnect devices, and EX Series switches only) Fan speed status based on different chassis cooling requirements: • Spinning at high speed • Spinning at intermediate speed • Spinning at normal speed • Spinning at low speed (except EX Series switches) (MX2010 routers, MX2020 routers, and PTX Series Packet Transport Routers only) Fan speed in revolutions per minute (RPM) for each fan in the fan tray.

Sample Output

show chassis fan

```
user@host> show chassis fan

      Item                        Status   RPM     Measurement
```



```
Top Tray Fan 1            OK       3790    Spinning at normal speed
Top Tray Fan 2            OK       3769    Spinning at normal speed
Top Tray Fan 3            OK       3769    Spinning at normal speed
Top Tray Fan 4            OK       3790    Spinning at normal speed
Top Tray Fan 5            OK       3790    Spinning at normal speed
Top Tray Fan 6            OK       3769    Spinning at normal speed
Top Tray Fan 7            OK       3790    Spinning at normal speed
Top Tray Fan 8            OK       3769    Spinning at normal speed
Top Tray Fan 9            OK       3769    Spinning at normal speed
Top Tray Fan 10           OK       3790    Spinning at normal speed
Top Tray Fan 11           OK       3790    Spinning at normal speed
Top Tray Fan 12           OK       3769    Spinning at normal speed
Bottom Tray Fan 1         OK       2880    Spinning at normal speed
Bottom Tray Fan 2         OK       2912    Spinning at normal speed
Bottom Tray Fan 3         OK       2928    Spinning at normal speed
Bottom Tray Fan 4         OK       2896    Spinning at normal speed
Bottom Tray Fan 5         OK       2896    Spinning at normal speed
Bottom Tray Fan 6         OK       2928    Spinning at normal speed
```

show chassis fan (QFabric Systems)

```
user@host> show chassis fan interconnect-device interconnect1

Item                      Status   RPM     Measurement
TFT 0 Fan 0               OK       2849    Spinning at normal speed
TFT 0 Fan 1               OK       2821    Spinning at normal speed
TFT 0 Fan 2               OK       2735    Spinning at normal speed
TFT 0 Fan 3               OK       2815    Spinning at normal speed
TFT 0 Fan 4               OK       2828    Spinning at normal speed
TFT 0 Fan 5               OK       2863    Spinning at normal speed
BFT 1 Fan 0               OK       2941    Spinning at normal speed
BFT 1 Fan 1               OK       3008    Spinning at normal speed
BFT 1 Fan 2               OK       3073    Spinning at normal speed
BFT 1 Fan 3               OK       2925    Spinning at normal speed
BFT 1 Fan 4               OK       2863    Spinning at normal speed
BFT 1 Fan 5               OK       2933    Spinning at normal speed
SFT 0 Fan 0 Rotor 0       OK       15472   Spinning at normal speed
SFT 0 Fan 0 Rotor 1       OK       14477   Spinning at normal speed
SFT 0 Fan 1 Rotor 0       OK       15561   Spinning at normal speed
SFT 0 Fan 1 Rotor 1       OK       14210   Spinning at normal speed
SFT 0 Fan 2 Rotor 0       OK       16167   Spinning at normal speed
SFT 0 Fan 2 Rotor 1       OK       14248   Spinning at normal speed
SFT 0 Fan 3 Rotor 0       OK       16463   Spinning at normal speed
SFT 0 Fan 3 Rotor 1       OK       14099   Spinning at normal speed
SFT 1 Fan 0 Rotor 0       OK       15083   Spinning at normal speed
SFT 1 Fan 0 Rotor 1       OK       13533   Spinning at normal speed
SFT 1 Fan 1 Rotor 0       OK       16071   Spinning at normal speed
SFT 1 Fan 1 Rotor 1       OK       14400   Spinning at normal speed
SFT 1 Fan 2 Rotor 0       OK       15517   Spinning at normal speed
SFT 1 Fan 2 Rotor 1       OK       14210   Spinning at normal speed
SFT 1 Fan 3 Rotor 0       OK       16413   Spinning at normal speed
SFT 1 Fan 3 Rotor 1       OK       14400   Spinning at normal speed
SFT 2 Fan 0 Rotor 0       OK       15297   Spinning at normal speed
SFT 2 Fan 0 Rotor 1       OK       14634   Spinning at normal speed
SFT 2 Fan 1 Rotor 0       OK       15561   Spinning at normal speed
SFT 2 Fan 1 Rotor 1       OK       14285   Spinning at normal speed
SFT 2 Fan 2 Rotor 0       OK       15835   Spinning at normal speed
SFT 2 Fan 2 Rotor 1       OK       14400   Spinning at normal speed
SFT 2 Fan 3 Rotor 0       OK       15789   Spinning at normal speed
SFT 2 Fan 3 Rotor 1       OK       14323   Spinning at normal speed
SFT 3 Fan 0 Rotor 0       OK       16314   Spinning at normal speed
```

```
SFT 3 Fan 0 Rotor 1       OK       14876   Spinning at normal speed
SFT 3 Fan 1 Rotor 0       OK       15835   Spinning at normal speed
SFT 3 Fan 1 Rotor 1       OK       14323   Spinning at normal speed
SFT 3 Fan 2 Rotor 0       OK       16265   Spinning at normal speed
SFT 3 Fan 2 Rotor 1       OK       14594   Spinning at normal speed
SFT 3 Fan 3 Rotor 0       OK       16071   Spinning at normal speed
SFT 3 Fan 3 Rotor 1       OK       14323   Spinning at normal speed
SFT 4 Fan 0 Rotor 0       OK       15652   Spinning at normal speed
SFT 4 Fan 0 Rotor 1       OK       14438   Spinning at normal speed
SFT 4 Fan 1 Rotor 0       OK       16167   Spinning at normal speed
SFT 4 Fan 1 Rotor 1       OK       14555   Spinning at normal speed
SFT 4 Fan 2 Rotor 0       OK       16023   Spinning at normal speed
SFT 4 Fan 2 Rotor 1       OK       14361   Spinning at normal speed
SFT 4 Fan 3 Rotor 0       OK       16216   Spinning at normal speed
SFT 4 Fan 3 Rotor 1       OK       14438   Spinning at normal speed
SFT 5 Fan 0 Rotor 0       OK       15297   Spinning at normal speed
SFT 5 Fan 0 Rotor 1       OK       14173   Spinning at normal speed
SFT 5 Fan 1 Rotor 0       OK       15472   Spinning at normal speed
SFT 5 Fan 1 Rotor 1       OK       13846   Spinning at normal speed
SFT 5 Fan 2 Rotor 0       OK       15340   Spinning at normal speed
SFT 5 Fan 2 Rotor 1       OK       13917   Spinning at normal speed
SFT 5 Fan 3 Rotor 0       OK       15835   Spinning at normal speed
SFT 5 Fan 3 Rotor 1       OK       13917   Spinning at normal speed
SFT 6 Fan 0 Rotor 0       OK       15743   Spinning at normal speed
SFT 6 Fan 0 Rotor 1       OK       14594   Spinning at normal speed
SFT 6 Fan 1 Rotor 0       OK       16167   Spinning at normal speed
SFT 6 Fan 1 Rotor 1       OK       14634   Spinning at normal speed
SFT 6 Fan 2 Rotor 0       OK       16167   Spinning at normal speed
SFT 6 Fan 2 Rotor 1       OK       14516   Spinning at normal speed
SFT 6 Fan 3 Rotor 0       OK       16666   Spinning at normal speed
SFT 6 Fan 3 Rotor 1       OK       14438   Spinning at normal speed
SFT 7 Fan 0 Rotor 0       OK       15517   Spinning at normal speed
SFT 7 Fan 0 Rotor 1       OK       14438   Spinning at normal speed
SFT 7 Fan 1 Rotor 0       OK       15517   Spinning at normal speed
SFT 7 Fan 1 Rotor 1       OK       14361   Spinning at normal speed
SFT 7 Fan 2 Rotor 0       OK       16167   Spinning at normal speed
SFT 7 Fan 2 Rotor 1       OK       14555   Spinning at normal speed
SFT 7 Fan 3 Rotor 0       OK       15697   Spinning at normal speed
SFT 7 Fan 3 Rotor 1       OK       14361   Spinning at normal speed
```

show chassis fan (EX Series Switches)

```
user@host> show chassis fan
```

```
Item                      Status   RPM     Measurement
Fan 1                     OK       3477    Spinning at normal speed
Fan 2                     OK       3477    Spinning at normal speed
Fan 3                     OK       3479    Spinning at normal speed
Fan 4                     OK       3508    Spinning at normal speed
Fan 5                     OK       3517    Spinning at normal speed
Fan 6                     OK       3531    Spinning at normal speed
Fan 7                     OK       3439    Spinning at normal speed
Fan 8                     OK       3424    Spinning at normal speed
Fan 9                     OK       3413    Spinning at normal speed
Fan 10                    OK       3439    Spinning at normal speed
Fan 11                    OK       3446    Spinning at normal speed
Fan 12                    OK       3432    Spinning at normal speed
```

show chassis fan (T320 Router)

```
user@host> show chassis fan
```

```
     Item                  Status    RPM     Measurement
Top Left Front fan          OK       2850    Spinning at normal speed
Top Left Middle fan         OK       2820    Spinning at normal speed
Top Left Rear fan           OK       2970    Spinning at normal speed
Top Right Front fan         OK       2790    Spinning at normal speed
Top Right Middle fan        OK       2640    Spinning at normal speed
Top Right Rear fan          OK       2790    Spinning at normal speed
Bottom Left Front fan       OK       2520    Spinning at normal speed
Bottom Left Middle fan      OK       2610    Spinning at normal speed
Bottom Left Rear fan        OK       2550    Spinning at normal speed
Bottom Right Front fan      OK       2610    Spinning at normal speed
Bottom Right Middle fan     OK       2880    Spinning at normal speed
Bottom Right Rear fan       OK       2790    Spinning at normal speed
Rear Tray Top fan           OK       2130    Spinning at normal speed
Rear Tray Second fan        OK       2190    Spinning at normal speed
Rear Tray Middle fan        OK       2250    Spinning at normal speed
Rear Tray Fourth fan        OK       2220    Spinning at normal speed
Rear Tray Bottom fan        OK       2280    Spinning at normal speed
```

show chassis fan (T640 Router)

```
user@host> show chassis fan
```

```
   Item                    Status    RPM     Measurement
Top Left Front fan          OK       3420    Spinning at normal speed
Top Left Middle fan         OK       3420    Spinning at normal speed
Top Left Rear fan           OK       3420    Spinning at normal speed
Top Right Front fan         OK       3420    Spinning at normal speed
Top Right Middle fan        OK       3420    Spinning at normal speed
Top Right Rear fan          OK       3450    Spinning at normal speed
Bottom Left Front fan       OK       3390    Spinning at normal speed
Bottom Left Middle fan      OK       3420    Spinning at normal speed
Bottom Left Rear fan        OK       3390    Spinning at normal speed
Bottom Right Front fan      OK       3390    Spinning at normal speed
Bottom Right Middle fan     OK       3390    Spinning at normal speed
Bottom Right Rear fan       OK       3390    Spinning at normal speed
Rear Tray Top fan           OK       5220    Spinning at normal speed
Rear Tray Second fan        OK       5220    Spinning at normal speed
Rear Tray Third fan         OK       5220    Spinning at normal speed
Rear Tray Fourth fan        OK       5220    Spinning at normal speed
Rear Tray Fifth fan         OK       5220    Spinning at normal speed
Rear Tray Sixth fan         OK       5220    Spinning at normal speed
Rear Tray Seventh fan       OK       5220    Spinning at normal speed
Rear Tray Bottom fan        OK       5220    Spinning at normal speed
```

show chassis fan (T1600 Router)

```
user@host> show chassis fan
```

```
  Item                      Status    RPM     Measurement
Top Left Front fan          OK       3420    Spinning at normal speed
Top Left Middle fan         OK       3420    Spinning at normal speed
Top Left Rear fan           OK       3450    Spinning at normal speed
Top Right Front fan         OK       3420    Spinning at normal speed
Top Right Middle fan        OK       3420    Spinning at normal speed
Top Right Rear fan          OK       3390    Spinning at normal speed
Bottom Left Front fan       OK       3420    Spinning at normal speed
Bottom Left Middle fan      OK       3420    Spinning at normal speed
Bottom Left Rear fan        OK       3390    Spinning at normal speed
Bottom Right Front fan      OK       3390    Spinning at normal speed
```

```
      Bottom Right Middle fan   OK       3420    Spinning at normal speed
      Bottom Right Rear fan     OK       3390    Spinning at normal speed
      Rear Tray Top fan         OK       5190    Spinning at normal speed
      Rear Tray Second fan      OK       5190    Spinning at normal speed
      Rear Tray Third fan       OK       5190    Spinning at normal speed
      Rear Tray Fourth fan      OK       5190    Spinning at normal speed
      Rear Tray Fifth fan       OK       5190    Spinning at normal speed
      Rear Tray Sixth fan       OK       5190    Spinning at normal speed
      Rear Tray Seventh fan     OK       5190    Spinning at normal speed
      Rear Tray Bottom fan      OK       5190    Spinning at normal speed
```

show chassis fan (T4000 Core Router)

```
user@host> show chassis fan

      Item                      Status   RPM     Measurement
      Top Left Front fan        OK       5190    Spinning at high speed
      Top Left Middle fan       OK       5220    Spinning at high speed
      Top Left Rear fan         OK       5190    Spinning at high speed
      Top Right Front fan       OK       5160    Spinning at high speed
      Top Right Middle fan      OK       5190    Spinning at high speed
      Top Right Rear fan        OK       5160    Spinning at high speed
      Bottom Left Front fan     OK       6030    Spinning at high speed
      Bottom Left Middle fan    OK       6090    Spinning at high speed
      Bottom Left Rear fan      OK       6090    Spinning at high speed
      Bottom Right Front fan    OK       6030    Spinning at high speed
      Bottom Right Middle fan   OK       6060    Spinning at high speed
      Bottom Right Rear fan     OK       6060    Spinning at high speed
      Rear Tray Top fan         OK       10000   Spinning at high speed
      Rear Tray Second fan      OK       10000   Spinning at high speed
      Rear Tray Third fan       OK       10000   Spinning at high speed
      Rear Tray Fourth fan      OK       10000   Spinning at high speed
      Rear Tray Fifth fan       OK       10000   Spinning at high speed
      Rear Tray Sixth fan       OK       10000   Spinning at high speed
      Rear Tray Seventh fan     OK       10000   Spinning at high speed
      Rear Tray Bottom fan      OK       10000   Spinning at high speed
```

show chassis fan (TX Matrix Router)

```
user@host> show chassis fan
scc-re0:
--------------------------------------------------------------------------
      Item                      Status   RPM     Measurement
      Top Left Front fan        OK       3420    Spinning at normal speed
      Top Left Middle fan       OK       3390    Spinning at normal speed
      Top Left Rear fan         OK       3420    Spinning at normal speed
      Top Right Front fan       OK       3390    Spinning at normal speed
      Top Right Middle fan      OK       3420    Spinning at normal speed
      Top Right Rear fan        OK       3390    Spinning at normal speed
      Bottom Left Front fan     OK       3420    Spinning at normal speed
      Bottom Left Middle fan    OK       3450    Spinning at normal speed
      Bottom Left Rear fan      OK       3420    Spinning at normal speed
      Bottom Right Front fan    OK       3420    Spinning at normal speed
      Bottom Right Middle fan   OK       3420    Spinning at normal speed
      Bottom Right Rear fan     OK       3420    Spinning at normal speed
      Rear Tray Top fan         OK       3420    Spinning at normal speed
      Rear Tray Second fan      OK       5190    Spinning at normal speed
      Rear Tray Third fan       OK       5190    Spinning at normal speed
      Rear Tray Fourth fan      OK       5190    Spinning at normal speed
      Rear Tray Fifth fan       OK       3420    Spinning at normal speed
      Rear Tray Sixth fan       OK       3420    Spinning at normal speed
```

```
      Rear Tray Seventh fan     OK       3420    Spinning at normal speed
      Rear Tray Bottom fan      OK       3420    Spinning at normal speed

lcc2-re0:
--------------------------------------------------------------------------
      Item                      Status   RPM     Measurement
      Top Left Front fan        OK       3420    Spinning at normal speed
      Top Left Middle fan       OK       3420    Spinning at normal speed
      Top Left Rear fan         OK       3450    Spinning at normal speed
      Top Right Front fan       OK       3420    Spinning at normal speed
      Top Right Middle fan      OK       3450    Spinning at normal speed
      Top Right Rear fan        OK       3360    Spinning at normal speed
      Bottom Left Front fan     OK       3420    Spinning at normal speed
      Bottom Left Middle fan    OK       3480    Spinning at normal speed
      Bottom Left Rear fan      OK       3420    Spinning at normal speed
      Bottom Right Front fan    OK       3420    Spinning at normal speed
      Bottom Right Middle fan   OK       3390    Spinning at normal speed
      Bottom Right Rear fan     OK       3420    Spinning at normal speed
      Rear Tray Top fan         OK       3420    Spinning at normal speed
      Rear Tray Second fan      OK       3420    Spinning at normal speed
      Rear Tray Third fan       OK       3420    Spinning at normal speed
      Rear Tray Fourth fan      OK       3420    Spinning at normal speed
      Rear Tray Fifth fan       OK       3420    Spinning at normal speed
      Rear Tray Sixth fan       OK       3420    Spinning at normal speed
      Rear Tray Seventh fan     OK       3420    Spinning at normal speed
      Rear Tray Bottom fan      OK       3420    Spinning at normal speed
```

show chassis fan (TX Matrix Plus Router)

```
user@host> show chassis fan
  sfc0-re0:
--------------------------------------------------------------------------
      Item                      Status   RPM     Measurement
      Fan Tray 0 Fan 1          OK       4350    Spinning at normal speed
      Fan Tray 0 Fan 2          OK       4380    Spinning at normal speed
      Fan Tray 0 Fan 3          OK       4410    Spinning at normal speed
      Fan Tray 0 Fan 4          OK       4380    Spinning at normal speed
      Fan Tray 0 Fan 5          OK       4350    Spinning at normal speed
      Fan Tray 0 Fan 6          OK       4380    Spinning at normal speed
      Fan Tray 1 Fan 1          OK       4410    Spinning at normal speed
      Fan Tray 1 Fan 2          OK       4380    Spinning at normal speed
      Fan Tray 1 Fan 3          OK       4410    Spinning at normal speed
      Fan Tray 1 Fan 4          OK       4380    Spinning at normal speed
      Fan Tray 1 Fan 5          OK       4410    Spinning at normal speed
      Fan Tray 1 Fan 6          OK       4410    Spinning at normal speed
      Fan Tray 2 Fan 1          OK       4380    Spinning at normal speed
      Fan Tray 2 Fan 2          OK       4380    Spinning at normal speed
      Fan Tray 2 Fan 3          OK       4380    Spinning at normal speed
      Fan Tray 2 Fan 4          OK       4410    Spinning at normal speed
      Fan Tray 2 Fan 5          OK       4380    Spinning at normal speed
      Fan Tray 2 Fan 6          OK       4410    Spinning at normal speed
      Fan Tray 2 Fan 7          OK       4410    Spinning at normal speed
      Fan Tray 2 Fan 8          OK       4380    Spinning at normal speed
      Fan Tray 2 Fan 9          OK       4380    Spinning at normal speed
      Fan Tray 3 Fan 1          OK       4350    Spinning at normal speed
      Fan Tray 3 Fan 2          OK       4380    Spinning at normal speed
      Fan Tray 3 Fan 3          OK       4410    Spinning at normal speed
      Fan Tray 3 Fan 4          OK       4440    Spinning at normal speed
      Fan Tray 3 Fan 5          OK       4380    Spinning at normal speed
      Fan Tray 3 Fan 6          OK       4410    Spinning at normal speed
      Fan Tray 3 Fan 7          OK       4410    Spinning at normal speed
```

```
      Fan Tray 3 Fan 8          OK       4380    Spinning at normal speed
      Fan Tray 3 Fan 9          OK       4410    Spinning at normal speed
      Fan Tray 4 Fan 1          OK       4410    Spinning at normal speed
      Fan Tray 4 Fan 2          OK       4410    Spinning at normal speed
      Fan Tray 4 Fan 3          OK       4380    Spinning at normal speed
      Fan Tray 4 Fan 4          OK       4380    Spinning at normal speed
      Fan Tray 4 Fan 5          OK       4410    Spinning at normal speed
      Fan Tray 4 Fan 6          OK       4410    Spinning at normal speed
      Fan Tray 4 Fan 7          OK       4410    Spinning at normal speed
      Fan Tray 4 Fan 8          OK       4410    Spinning at normal speed
      Fan Tray 4 Fan 9          OK       4410    Spinning at normal speed
      Fan Tray 5 Fan 1          OK       4350    Spinning at normal speed
      Fan Tray 5 Fan 2          OK       4380    Spinning at normal speed
      Fan Tray 5 Fan 3          OK       4380    Spinning at normal speed
      Fan Tray 5 Fan 4          OK       4350    Spinning at normal speed
      Fan Tray 5 Fan 5          OK       4380    Spinning at normal speed
      Fan Tray 5 Fan 6          OK       4410    Spinning at normal speed
      Fan Tray 5 Fan 7          OK       4410    Spinning at normal speed
      Fan Tray 5 Fan 8          OK       4380    Spinning at normal speed
      Fan Tray 5 Fan 9          OK       4410    Spinning at normal speed

lcc0-re0:
--------------------------------------------------------------------------
      Item                      Status   RPM     Measurement
      Top Left Front fan        OK       3420    Spinning at normal speed
      Top Left Middle fan       OK       3420    Spinning at normal speed
      Top Left Rear fan         OK       3420    Spinning at normal speed
      Top Right Front fan       OK       3450    Spinning at normal speed
      Top Right Middle fan      OK       3420    Spinning at normal speed
      Top Right Rear fan        OK       3420    Spinning at normal speed
      Bottom Left Front fan     OK       3420    Spinning at normal speed
      Bottom Left Middle fan    OK       3420    Spinning at normal speed
      Bottom Left Rear fan      OK       3390    Spinning at normal speed
      Bottom Right Front fan    OK       3420    Spinning at normal speed
      Bottom Right Middle fan   OK       3390    Spinning at normal speed
      Bottom Right Rear fan     OK       3390    Spinning at normal speed
      Rear Tray Top fan         OK       7050    Spinning at normal speed
      Rear Tray Second fan      OK       7050    Spinning at normal speed
      Rear Tray Third fan       OK       7050    Spinning at normal speed
      Rear Tray Fourth fan      OK       7050    Spinning at normal speed
      Rear Tray Fifth fan       OK       7050    Spinning at normal speed
      Rear Tray Sixth fan       OK       7050    Spinning at normal speed
      Rear Tray Seventh fan     OK       7050    Spinning at normal speed
      Rear Tray Bottom fan      OK       7050    Spinning at normal speed
```

show chassis fan (TX Matrix Plus Router with 3D SIBs)

```
user@host> show chassis fan
sfc0-re0:
--------------------------------------------------------------------------
      Item                      Status   RPM     Measurement
      Fan Tray 0 Fan 1          OK       4830    Spinning at normal speed
      Fan Tray 0 Fan 2          OK       4860    Spinning at normal speed
      Fan Tray 0 Fan 3          OK       4830    Spinning at normal speed
      Fan Tray 0 Fan 4          OK       4800    Spinning at normal speed
      Fan Tray 0 Fan 5          OK       4830    Spinning at normal speed
      Fan Tray 0 Fan 6          OK       4770    Spinning at normal speed
      Fan Tray 1 Fan 1          OK       4800    Spinning at normal speed
      Fan Tray 1 Fan 2          OK       4770    Spinning at normal speed
      Fan Tray 1 Fan 3          OK       4800    Spinning at normal speed
      Fan Tray 1 Fan 4          OK       4770    Spinning at normal speed
```

```
      Fan Tray 1 Fan 5          OK       4770    Spinning at normal speed
      Fan Tray 1 Fan 6          OK       4800    Spinning at normal speed
      Fan Tray 2 Fan 1          OK       4800    Spinning at normal speed
      Fan Tray 2 Fan 2          OK       4800    Spinning at normal speed
      Fan Tray 2 Fan 3          OK       4830    Spinning at normal speed
      Fan Tray 2 Fan 4          OK       4830    Spinning at normal speed
      Fan Tray 2 Fan 5          OK       4830    Spinning at normal speed
      Fan Tray 2 Fan 6          OK       4830    Spinning at normal speed
      Fan Tray 2 Fan 7          OK       4800    Spinning at normal speed
      Fan Tray 2 Fan 8          OK       4830    Spinning at normal speed
      Fan Tray 2 Fan 9          OK       4800    Spinning at normal speed
      Fan Tray 3 Fan 1          OK       4860    Spinning at normal speed
      Fan Tray 3 Fan 2          OK       4860    Spinning at normal speed
      Fan Tray 3 Fan 3          OK       4800    Spinning at normal speed
      Fan Tray 3 Fan 4          OK       4830    Spinning at normal speed
      Fan Tray 3 Fan 5          OK       4830    Spinning at normal speed
      Fan Tray 3 Fan 6          OK       4830    Spinning at normal speed
      Fan Tray 3 Fan 7          OK       4830    Spinning at normal speed
      Fan Tray 3 Fan 8          OK       4800    Spinning at normal speed
      Fan Tray 3 Fan 9          OK       4800    Spinning at normal speed
      Fan Tray 4 Fan 1          OK       4830    Spinning at normal speed
      Fan Tray 4 Fan 2          OK       4830    Spinning at normal speed
      Fan Tray 4 Fan 3          OK       4830    Spinning at normal speed
      Fan Tray 4 Fan 4          OK       4830    Spinning at normal speed
      Fan Tray 4 Fan 5          OK       4830    Spinning at normal speed
      Fan Tray 4 Fan 6          OK       4860    Spinning at normal speed
      Fan Tray 4 Fan 7          OK       4800    Spinning at normal speed
      Fan Tray 4 Fan 8          OK       4860    Spinning at normal speed
      Fan Tray 4 Fan 9          OK       4770    Spinning at normal speed
      Fan Tray 5 Fan 1          OK       4830    Spinning at normal speed
      Fan Tray 5 Fan 2          OK       4830    Spinning at normal speed
      Fan Tray 5 Fan 3          OK       4830    Spinning at normal speed
      Fan Tray 5 Fan 4          OK       4800    Spinning at normal speed
      Fan Tray 5 Fan 5          OK       4800    Spinning at normal speed
      Fan Tray 5 Fan 6          OK       4800    Spinning at normal speed
      Fan Tray 5 Fan 7          OK       4830    Spinning at normal speed
      Fan Tray 5 Fan 8          OK       4830    Spinning at normal speed
      Fan Tray 5 Fan 9          Check    2010

lcc0-re0:
--------------------------------------------------------------------------
      Item                      Status   RPM     Measurement
      Top Left Front fan        OK       3420    Spinning at normal speed
      Top Left Middle fan       OK       3390    Spinning at normal speed
      Top Left Rear fan         OK       3390    Spinning at normal speed
      Top Right Front fan       OK       3420    Spinning at normal speed
      Top Right Middle fan      OK       3420    Spinning at normal speed
      Top Right Rear fan        OK       3450    Spinning at normal speed
      Bottom Left Front fan     OK       3420    Spinning at normal speed
      Bottom Left Middle fan    OK       3390    Spinning at normal speed
      Bottom Left Rear fan      OK       3420    Spinning at normal speed
      Bottom Right Front fan    OK       3420    Spinning at normal speed
      Bottom Right Middle fan   OK       3390    Spinning at normal speed
      Bottom Right Rear fan     OK       3420    Spinning at normal speed
      Rear Tray fan 1 (Top)     OK       7740    Spinning at normal speed
      Rear Tray fan 2           OK       7740    Spinning at normal speed
      Rear Tray fan 3           OK       7740    Spinning at normal speed
      Rear Tray fan 4           OK       7740    Spinning at normal speed
      Rear Tray fan 5           OK       7740    Spinning at normal speed
      Rear Tray fan 6           OK       7740    Spinning at normal speed
      Rear Tray fan 7           OK       7740    Spinning at normal speed
```

```
      Rear Tray fan 8           OK       7740    Spinning at normal speed
      Rear Tray fan 9           OK       7740    Spinning at normal speed
      Rear Tray fan 10          OK       7740    Spinning at normal speed
      Rear Tray fan 11          OK       7740    Spinning at normal speed
      Rear Tray fan 12          OK       7740    Spinning at normal speed
      Rear Tray fan 13          OK       7740    Spinning at normal speed
      Rear Tray fan 14          OK       7740    Spinning at normal speed
      Rear Tray fan 15          OK       7740    Spinning at normal speed
      Rear Tray fan 16 (Bottom) OK       7740    Spinning at normal speed

lcc2-re0:
--------------------------------------------------------------------------
      Item                      Status   RPM     Measurement
      Top Left Front fan        OK       3420    Spinning at normal speed
      Top Left Middle fan       OK       3390    Spinning at normal speed
      Top Left Rear fan         OK       3420    Spinning at normal speed
      Top Right Front fan       OK       3420    Spinning at normal speed
      Top Right Middle fan      OK       3420    Spinning at normal speed
      Top Right Rear fan        OK       3450    Spinning at normal speed
      Bottom Left Front fan     OK       3420    Spinning at normal speed
      Bottom Left Middle fan    OK       3390    Spinning at normal speed
      Bottom Left Rear fan      OK       3420    Spinning at normal speed
      Bottom Right Front fan    OK       3420    Spinning at normal speed
      Bottom Right Middle fan   OK       3390    Spinning at normal speed
      Bottom Right Rear fan     OK       3420    Spinning at normal speed
      Rear Tray fan 1 (Top)     OK       7740    Spinning at normal speed
      Rear Tray fan 2           OK       7740    Spinning at normal speed
      Rear Tray fan 3           OK       7740    Spinning at normal speed
      Rear Tray fan 4           OK       7740    Spinning at normal speed
      Rear Tray fan 5           OK       7740    Spinning at normal speed
      Rear Tray fan 6           OK       7740    Spinning at normal speed
      Rear Tray fan 7           OK       7740    Spinning at normal speed
      Rear Tray fan 8           OK       7740    Spinning at normal speed
      Rear Tray fan 9           OK       7740    Spinning at normal speed
      Rear Tray fan 10          OK       7740    Spinning at normal speed
      Rear Tray fan 11          OK       7740    Spinning at normal speed
      Rear Tray fan 12          OK       7740    Spinning at normal speed
      Rear Tray fan 13          OK       7740    Spinning at normal speed
      Rear Tray fan 14          OK       7740    Spinning at normal speed
      Rear Tray fan 15          OK       7740    Spinning at normal speed
      Rear Tray fan 16 (Bottom) OK       7740    Spinning at normal speed
```

show chassis fan (PTX5000 Packet Transport Router)

```
user@host> show chassis fan
user@host> show chassis fan
      Item                      Status   % RPM     Measurement
      Fan Tray 0 Fan 1          OK       29%       2700 RPM
      Fan Tray 0 Fan 2          OK       29%       2700 RPM
      Fan Tray 0 Fan 3          OK       29%       2742 RPM
      Fan Tray 0 Fan 4          OK       29%       2700 RPM
      Fan Tray 0 Fan 5          OK       30%       2828 RPM
      Fan Tray 0 Fan 6          OK       30%       2828 RPM
      Fan Tray 0 Fan 7          OK       29%       2700 RPM
      Fan Tray 0 Fan 8          OK       30%       2785 RPM
      Fan Tray 0 Fan 9          OK       30%       2828 RPM
      Fan Tray 0 Fan 10         OK       30%       2828 RPM
      Fan Tray 0 Fan 11         OK       30%       2785 RPM
      Fan Tray 0 Fan 12         OK       30%       2828 RPM
      Fan Tray 0 Fan 13         OK       31%       2871 RPM
      Fan Tray 0 Fan 14         OK       30%       2828 RPM
```

```
      Fan Tray 1 Fan 1          OK       42%       3033 RPM
      Fan Tray 1 Fan 2          OK       42%       3066 RPM
      Fan Tray 1 Fan 3          OK       43%       3099 RPM
      Fan Tray 1 Fan 4          OK       43%       3166 RPM
      Fan Tray 1 Fan 5          OK       45%       3266 RPM
      Fan Tray 1 Fan 6          OK       43%       3133 RPM
      Fan Tray 2 Fan 1          OK       29%       2099 RPM
      Fan Tray 2 Fan 2          OK       30%       2199 RPM
      Fan Tray 2 Fan 3          OK       30%       2166 RPM
      Fan Tray 2 Fan 4          OK       33%       2399 RPM
      Fan Tray 2 Fan 5          OK       29%       2133 RPM
      Fan Tray 2 Fan 6          OK       32%       2366 RPM
```

show chassis fan (MX104 Router)

```
user@host > show chassis fan
Item                      Status   RPM     Measurement
      Fan 1                     OK       5640    Spinning at normal speed
      Fan 2                     OK       5640    Spinning at normal speed
      Fan 3                     OK       5760    Spinning at normal speed
      Fan 4                     OK       5640    Spinning at normal speed
      Fan 5                     OK       5640    Spinning at normal speed
```

show chassis fan (MX2010 Router)

```
user@host > show chassis fan
Item                      Status   % RPM     Measurement
      Fan Tray 0 Fan 1          OK       37%       3360 RPM
      Fan Tray 0 Fan 2          OK       38%       3480 RPM
      Fan Tray 0 Fan 3          OK       37%       3360 RPM
      Fan Tray 0 Fan 4          OK       37%       3360 RPM
      Fan Tray 0 Fan 5          OK       38%       3480 RPM
      Fan Tray 0 Fan 6          OK       37%       3360 RPM
      Fan Tray 1 Fan 1          OK       38%       3480 RPM
      Fan Tray 1 Fan 2          OK       40%       3600 RPM
      Fan Tray 1 Fan 3          OK       38%       3480 RPM
      Fan Tray 1 Fan 4          OK       38%       3480 RPM
      Fan Tray 1 Fan 5          OK       38%       3480 RPM
      Fan Tray 1 Fan 6          OK       38%       3480 RPM
      Fan Tray 2 Fan 1          OK       38%       3480 RPM
      Fan Tray 2 Fan 2          OK       41%       3720 RPM
      Fan Tray 2 Fan 3          OK       38%       3480 RPM
      Fan Tray 2 Fan 4          OK       38%       3480 RPM
      Fan Tray 2 Fan 5          OK       38%       3480 RPM
      Fan Tray 2 Fan 6          OK       38%       3480 RPM
      Fan Tray 3 Fan 1          OK       38%       3480 RPM
      Fan Tray 3 Fan 2          OK       40%       3600 RPM
      Fan Tray 3 Fan 3          OK       40%       3600 RPM
      Fan Tray 3 Fan 4          OK       40%       3600 RPM
      Fan Tray 3 Fan 5          OK       40%       3600 RPM
      Fan Tray 3 Fan 6          OK       38%       3480 RPM
```

show chassis fan (MX2020 Router)

```
user@host > show chassis fan
      Item                      Status   % RPM     Measurement
      Fan Tray 0 Fan 1          OK       37%       3360 RPM
      Fan Tray 0 Fan 2          OK       37%       3360 RPM
      Fan Tray 0 Fan 3          OK       36%       3240 RPM
      Fan Tray 0 Fan 4          OK       37%       3360 RPM
      Fan Tray 0 Fan 5          OK       37%       3360 RPM
      Fan Tray 0 Fan 6          OK       37%       3360 RPM
```

```
      Fan Tray 1 Fan 1          OK       37%       3360 RPM
      Fan Tray 1 Fan 2          OK       37%       3360 RPM
      Fan Tray 1 Fan 3          OK       37%       3360 RPM
      Fan Tray 1 Fan 4          OK       37%       3360 RPM
      Fan Tray 1 Fan 5          OK       37%       3360 RPM
      Fan Tray 1 Fan 6          OK       36%       3240 RPM
      Fan Tray 2 Fan 1          OK       37%       3360 RPM
      Fan Tray 2 Fan 2          OK       37%       3360 RPM
      Fan Tray 2 Fan 3          OK       37%       3360 RPM
      Fan Tray 2 Fan 4          OK       37%       3360 RPM
      Fan Tray 2 Fan 5          OK       37%       3360 RPM
      Fan Tray 2 Fan 6          OK       38%       3480 RPM
      Fan Tray 3 Fan 1          OK       38%       3480 RPM
      Fan Tray 3 Fan 2          OK       38%       3480 RPM
      Fan Tray 3 Fan 3          OK       38%       3480 RPM
      Fan Tray 3 Fan 4          OK       37%       3360 RPM
      Fan Tray 3 Fan 5          OK       37%       3360 RPM
      Fan Tray 3 Fan 6          OK       37%       3360 RPM
```

show chassis fan (ACX4000 Router)

```
user@host > show chassis fan
      Item                      Status   RPM     Measurement
      Fan 1                     OK       4140    Spinning at normal speed
      Fan 2                     OK       4200    Spinning at normal speed
```

show chassis fan (QFX5100 Switch)

```
user@switch > show chassis fan
Item                      Status   RPM     Measurement
FPC 0 Tray 0 Fan 0        OK       6428    Spinning at normal speed
FPC 0 Tray 0 Fan 1        OK       5515    Spinning at normal speed
FPC 0 Tray 1 Fan 0        OK       6360    Spinning at normal speed
FPC 0 Tray 1 Fan 1        OK       5532    Spinning at normal speed
```

show chassis hardware

List of Syntax

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 number | scc>
```

Syntax (TX Matrix Plus Router)

```
show chassis hardware
<clei-models>
<detail | extensive>
<models>
<lcc number | sfc number>
```

Syntax (MX Series Routers)

```
show chassis hardware
<detail | extensive>
<clei-models>
<models>
<all-members>
<local>
<member member-id>
```

Syntax (MX104, MX2010, and 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 name>
<node-device name>
<models>
```

Syntax (PTX Series Packet Transport Routers)

```
show chassis hardware
<detail | extensive>
<clei-models>
<models>
```

Syntax (ACX Series Universal Access Routers)

```
show chassis hardware
<detail | extensive>
<clei-models>
<models>
```

Release Information

Command introduced before Junos OS Release 7.4.
models option introduced in Junos OS Release 8.2.
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 QFX Series.
Command introduced in Junos OS Release 12.1X48 for PTX Series Packet Transport Routers.
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.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

Description

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.

In the EX Series switch command output, FPC refers to the following:

- 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.

On a QFX3500 standalone switch, both the FPC and FPC *number* are always **0**.

On T4000 Type 5 FPCs, there are no **top temperature sensor** or **bottom temperature sensor** parameters. Instead, **fan intake temperature sensor** and **fan exhaust temperature sensors** parameters are displayed.

Starting from Junos OS Release 11.4, the output of the **show chassis hardware models** operational mode command displays the enhanced midplanes FRU model numbers (CHAS-BP3-MX240-S, CHAS-BP3-MX480-S or CHAS-BP3-MX960-S) based on the router. Prior to release 11.4, the FRU model numbers are left blank when the router has

enhanced midplanes. Note that the enhanced midplanes are introduced through the Junos OS Release 13.3, but can be supported on all Junos OS releases.

Starting with Junos OS Release 14.1, the output of the **show chassis hardware detail | extensive | clei-models | models** operational mode command displays the new DC power supply module (PSM) and power distribution unit (PDU) that are added to provide power to the high-density FPC (FPC2-PTX-P1A) and other components in a PTX5000 Packet Transport Router.

Options

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 routers.

clei-models—(Optional) Display Common Language Equipment Identifier (CLEI) barcode and model number for orderable field-replaceable units (FRUs).

detail—(Optional) Include RAM and disk information in output.

extensive—(Optional) Display ID EEPROM information.

all-members—(MX Series routers only) (Optional) Display hardware-specific information for all the members of the Virtual Chassis configuration.

interconnect-device ***name***—(QFabric systems only) (Optional) Display hardware-specific information for the Interconnect device.

lcc ***number***—(TX Matrix routers and TX Matrix Plus router only) (Optional) On a TX Matrix router, display hardware information for a specified T640 router (line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display hardware information for a specified router (line-card chassis) that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

local—(MX Series routers only) (Optional) Display hardware-specific information for the local Virtual Chassis members.

member ***member-id***—(MX Series routers and EX Series switches) (Optional) Display hardware-specific information for the specified member of the Virtual Chassis configuration. Replace *member-id* variable with a value 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 (switch-card chassis).

sfc ***number***—(TX Matrix Plus router only) (Optional) Display hardware information for the TX Matrix Plus router (switch-fabric chassis). Replace *number* variable with **0**.

Additional Information

The **show chassis hardware detail** command now displays DIMM information for the following Routing Engines:

Table 22: 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

In Junos OS Release 11.4 and later, the output for the **show chassis hardware models** operational mode command for MX Series routers display the enhanced midplanes FRU model numbers—CHAS-BP3-MX240-S, CHAS-BP3-MX480-S, or CHAS-BP3-MX960-S—based on the router. In releases before Junos OS Release 11.4, the FRU model numbers are left blank when the router has enhanced midplanes. Note that the enhanced midplanes are introduced through Junos OS Release 13.3, but can be supported on all Junos OS releases.

Required Privilege Level

view

Related Documentation

- *show chassis power*

List of Sample Output

show chassis hardware extensive (MX Routers with Media Services Blade [MSB]) on page 494

Output Fields Table 23 on page 375 lists the output fields for the **show chassis hardware** command. Output fields are listed in the approximate order in which they appear.

Table 23: show chassis hardware Output Fields

Field Name	Field Description	Level of Output
Item	Chassis component: • (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 and EX Series switches)—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). MX104 routers have a built-in Packet forwarding Engine and a Forwarding Engine Board (FEB). The Packet Forwarding Engine of the MX104 router has three "pseudo" FPCs (FPC0, FPC1, and FPC2). • (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

Table 23: show chassis hardware Output Fields *(continued)*

Field Name	Field Description	Level of Output
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**
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	Brief description of the hardware item:
	• 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**.
	On EX Series switches, a brief description of the FPC.
	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.
	  • **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 CT1E1**—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
		All levels

Table 23: show chassis hardware Output Fields *(continued)*

Field Name	Field Description	Level of Output
	• **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) • **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, 4xFXO, 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 • **MPC M 16x 10GE**—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). • **MPC4E**—Fixed configuration MPC4E that is available in two flavors: MPC4E-3D-32XGE-SFPP and MPC4E-3D-2CGE-8XGE on MX2020, MX960, MX480, and MX240 routers. • LCD description for MX Series routers	

Sample Output

show chassis hardware (EX8216 Switch)

```
user@host> show chassis hardware
Hardware inventory:
Item            Version  Part number  Serial number     Description
Chassis         REV 06                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   PE70V0L           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-1OC48-SON-SMSR
  PIC 2          REV 14   750-001901                     PB-4OC12-SON-SMIR
  PIC 3          REV 07   750-001900                     PB-1OC48-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-4OC48-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-4OC48-SON-SFP
  PIC 3          REV 32   750-003700                     PC-1OC192-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-4OC192-SON-XFP
  PIC 1          REV 01   750-010850                     PD-1OC768-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   AGT0715OHGJ       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-4OC3-SON-MM
  PIC 1          REV 11   750-002992                     PE-4FE-TX
  PIC 2          REV 03   750-002977                     PE-2OC3-ATM-MM
  PIC 3          REV 08   750-005724                     PE-2OC3-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-2OC3-ATM-MM
Fan Tray 0                                               FANTRAY-F-M20-S
Fan Tray 1                                               FANTRAY-F-M20-S
Fan Tray 2                                               FANTRAY-F-M20-S
Fan Tray 3                                               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      MPBBT0X2HS2E3M    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-4OC3-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-1OC12-SON-SMIR
  PIC 2          REV 04   750-001894                    PB-1GE-SX
  PIC 3          REV 04   750-001896                    PB-1OC12-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-1OC12-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-4OC12-SON-SMIR
  PIC 1          REV 06   750-001900                    PB-1OC48-SON-SMSR
  PIC 2          REV 07   750-001900                    PB-1OC48-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-1OC12-SON-SMIR
  PIC 2          REV 04   750-001894                     PB-1GE-SX
  PIC 3          REV 04   750-001896                     PB-1OC12-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-1OC12-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-4OC12-SON-SMIR
  PIC 1          REV 06   750-001900                     PB-1OC48-SON-SMSR
  PIC 2          REV 07   750-001900                     PB-1OC48-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   AM1045SUAN0       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   P9P0XV3           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   P9M0U37           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            BUILTIN      BUILTIN          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      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            BUILTIN      BUILTIN          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 (MX104 Router)

```
user@host> show chassis hardware
Hardware inventory:
Item             Version  Part number  Serial number    Description
Chassis                               G3503            MX104
Midplane         REV 28   750-044219   CAAX5741         MX104
PEM 0            REV 03   740-045933   1H072500016      AC Power Entry Module
PEM 1            REV 03   740-045932   1H073050017      DC Power Entry Module
Routing Engine 0 REV 20   750-044228   CAAY7935         RE-MX-104
Routing Engine 1 REV 13   750-044228   CAAM6380         RE-MX-104
AFEB 0                    BUILTIN      BUILTIN          Forwarding Engine
Processor
```

```
FPC 0                     BUILTIN      BUILTIN           MPC BUILTIN
FPC 1                     BUILTIN      BUILTIN           MPC BUILTIN
  MIC 0          REV 15   750-036132   CAAF7948          2xOC12/8xOC3 CC-CE
    PIC 0                 BUILTIN      BUILTIN           2xOC12/8xOC3 CC-CE
      Xcvr 0     REV 01   740-011615   PCQ0U2J           SFP-IR
      Xcvr 1     REV 01   740-016068   PJL7A6G           SFP-SR
      Xcvr 2     REV 01   740-016068   PJL7A5J           SFP-SR
      Xcvr 3     REV 01   740-016065   PJN5HPZ           SFP-SR
      Xcvr 4     REV 01   740-029122   PKB38TL           SFP-LR
      Xcvr 5     REV 01   740-011787   P6A107G           SFP-LR
      Xcvr 6     REV 01   740-029122   PKB38TR           SFP-LR
      Xcvr 7     REV 01   740-011787   PBK0NK3           SFP-LR
  MIC 1
FPC 2                     BUILTIN      BUILTIN           MPC BUILTIN
  MIC 0                   BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
    PIC 0                 BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
      Xcvr 0     REV 01   740-031980   B10F00465         SFP+-10G-SR
      Xcvr 1     REV 01   740-031980   B10F00461         SFP+-10G-SR
      Xcvr 2     REV 01   740-031980   B10G01545         SFP+-10G-SR
      Xcvr 3     REV 01   740-031980   B10G01385         SFP+-10G-SR
Fan Tray 0       REV 02   711-049570   CAAX6538          Fan Tray
```

show chassis hardware detail (MX104 Router)

```
user@host> show chassis hardware detail
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                G3503             MX104
Midplane         REV 28   750-044219   CAAX5741          MX104
PEM 0            REV 03   740-045933   1H072500016       AC Power Entry Module
PEM 1            REV 03   740-045932   1H073050017       DC Power Entry Module
Routing Engine 0 REV 20   750-044228   CAAY7935          RE-MX-104
  da0    7836 MB  ATP IG eUSB SSD                        Nand Flash 0
  usb0 (addr 1)  EHCI root hub 0       Freescale         uhub0
  usb0 (addr 2)  USB2513Bi  9491       SMSC              uhub1
  usb0 (addr 3)  ATP IG eUSB SSD 44801 ATP Electronics   umass0
Routing Engine 1 REV 13   750-044228   CAAM6380          RE-MX-104
  da0    7836 MB  ATP IG eUSB SSD                        Nand Flash 0
AFEB 0                    BUILTIN      BUILTIN           Forwarding Engine
Processor
FPC 0                     BUILTIN      BUILTIN           MPC BUILTIN
FPC 1                     BUILTIN      BUILTIN           MPC BUILTIN
  MIC 0          REV 15   750-036132   CAAF7948          2xOC12/8xOC3 CC-CE
    PIC 0                 BUILTIN      BUILTIN           2xOC12/8xOC3 CC-CE
      Xcvr 0     REV 01   740-011615   PCQ0U2J           SFP-IR
      Xcvr 1     REV 01   740-016068   PJL7A6G           SFP-SR
      Xcvr 2     REV 01   740-016068   PJL7A5J           SFP-SR
      Xcvr 3     REV 01   740-016065   PJN5HPZ           SFP-SR
      Xcvr 4     REV 01   740-029122   PKB38TL           SFP-LR
      Xcvr 5     REV 01   740-011787   P6A107G           SFP-LR
      Xcvr 6     REV 01   740-029122   PKB38TR           SFP-LR
      Xcvr 7     REV 01   740-011787   PBK0NK3           SFP-LR
  MIC 1
FPC 2                     BUILTIN      BUILTIN           MPC BUILTIN
  MIC 0                   BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
    PIC 0                 BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
      Xcvr 0     REV 01   740-031980   B10F00465         SFP+-10G-SR
      Xcvr 1     REV 01   740-031980   B10F00461         SFP+-10G-SR
      Xcvr 2     REV 01   740-031980   B10G01545         SFP+-10G-SR
      Xcvr 3     REV 01   740-031980   B10G01385         SFP+-10G-SR
Fan Tray 0       REV 02   711-049570   CAAX6538          Fan Tray
```

show chassis hardware extensive (MX104 Router)

```
user@host> show chassis hardware extensive
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                G3503             MX104
 Jedec Code:   0x7fb0            EEPROM Version:    0x02
                                 S/N:               G3503
 Assembly ID:  0x0560            Assembly Version:  00.00
 Date:         00-00-0000        Assembly Flags:    0x00
 ID: MX104
 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 60 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: 47 33 35 30 33 00 00 00 00 00 00 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 00 00 00 00 00 00 00 00 00 00 00 00
Midplane         REV 28   750-044219   CAAX5741          MX104
 Jedec Code:   0x7fb0            EEPROM Version:    0x02
 P/N:          750-044219        S/N:               CAAX5741
 Assembly ID:  0x0560            Assembly Version:  01.28
 Date:         03-27-2013        Assembly Flags:    0x00
 Version:      REV 28            CLEI Code:         PROTOXCLEI
 ID: MX104                       FRU Model Number:  PROTO-ASSEMBLY
 Board Information Record:
  Address 0x00: ad 01 08 00 b0 a8 6e a7 f8 00 ff ff ff ff ff ff
 I2C Hex Data:
  Address 0x00: 7f b0 02 ff 05 60 01 1c 52 45 56 20 32 38 00 00
  Address 0x10: 00 00 00 00 37 35 30 2d 30 34 34 32 31 39 00 00
  Address 0x20: 53 2f 4e 20 43 41 41 58 35 37 34 31 00 1b 03 07
  Address 0x30: dd ff ff ff ad 01 08 00 b0 a8 6e a7 f8 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 47 33 35 30 33 00 00 00 00 00 00 00
PEM 0            REV 03   740-045933   1H072500016       AC Power Entry Module
 Jedec Code:   0x7fb0            EEPROM Version:    0x02
 P/N:          740-045933        S/N:               1H072500016
 Assembly ID:  0x0475            Assembly Version:  00.03
 Date:         12-14-2012        Assembly Flags:    0x00
 Version:      REV 03            CLEI Code:         IPUPAJ9KAA
 ID: AC Power Entry Module       FRU Model Number:  PWR-AMX1100-AC-S
 Board Information Record:
  Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff 02 02 00 ff
 I2C Hex Data:
  Address 0x00: 7f b0 02 ff 04 75 00 03 52 45 56 20 30 33 00 00
  Address 0x10: 00 00 00 00 37 34 30 2d 30 34 35 39 33 33 00 00
  Address 0x20: 31 48 30 37 32 35 30 30 30 31 36 00 00 0e 0c 07
  Address 0x30: dc 30 43 ff ff ff ff ff ff ff ff ff ff ff ff ff
  Address 0x40: 02 02 00 ff 01 49 50 55 50 41 4a 39 4b 41 41 50
  Address 0x50: 57 52 2d 41 4d 58 31 31 30 30 2d 41 43 2d 53 00
  Address 0x60: 00 00 00 00 00 00 41 30 30 ff ff ff ff ff ff ff
  Address 0x70: ff ff ff 70 ff ff ff ff ff ff ff ff ff ff ff ff
PEM 1            REV 03   740-045932   1H073050017       DC Power Entry Module
Jedec Code:   0x7fb0            EEPROM Version:    0x02
 P/N:          740-045932        S/N:               1H073050017
```

```
  Assembly ID:  0x0476            Assembly Version:  00.03
  Date:         01-30-2013        Assembly Flags:    0x00
  Version:      REV 03            CLEI Code:         IPUPAJ8KAA
  ID: DC Power Entry Module       FRU Model Number:  PWR-AMX1100-DC-S
  Board Information Record:
   Address 0x00: ff ff ff ff ff ff ff ff ff ff ff ff 02 02 00 ff
  I2C Hex Data:
   Address 0x00: 7f b0 02 ff 04 76 00 03 52 45 56 20 30 33 00 00
   Address 0x10: 00 00 00 00 37 34 30 2d 30 34 35 39 33 32 00 00
   Address 0x20: 31 48 30 37 33 30 35 30 30 31 37 00 00 1e 01 07
   Address 0x30: dd 30 44 ff ff ff ff ff ff ff ff ff ff ff ff ff
   Address 0x40: 02 02 00 ff 01 49 50 55 50 41 4a 38 4b 41 41 50
   Address 0x50: 57 52 2d 41 4d 58 31 31 30 30 2d 44 43 2d 53 00
   Address 0x60: 00 00 00 00 00 00 41 30 30 ff ff ff ff ff ff ff
   Address 0x70: ff ff ff 72 ff ff ff ff ff ff ff ff ff ff ff ff
Routing Engine 0 REV 20   750-044228   CAAY7935          RE-MX-104
  Jedec Code:   0x7fb0            EEPROM Version:    0x02
  P/N:          750-044228        S/N:               CAAY7935
  Assembly ID:  0x0b81            Assembly Version:  01.20
  Date:         03-18-2013        Assembly Flags:    0x00
  Version:      REV 20            CLEI Code:         PROTOXCLEI
  ID: RE-MX-104                   FRU Model Number:  PROTO-ASSEMBLY
  Board Information Record:
   Address 0x00: ad 01 00 08 b0 a8 6e a6 fc 10 ff ff ff ff ff ff
  I2C Hex Data:
   Address 0x00: 7f b0 02 fe 0b 81 01 14 52 45 56 20 32 30 00 00
   Address 0x10: 00 00 00 00 37 35 30 2d 30 34 34 32 32 38 00 00
   Address 0x20: 53 2f 4e 20 43 41 41 59 37 39 33 35 00 12 03 07
   Address 0x30: dd ff ff ff ad 01 00 08 b0 a8 6e a6 fc 10 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
   da0    7836 MB  ATP IG eUSB SSD                       Nand Flash 0
   usb0 (addr 1)  EHCI root hub 0       Freescale         uhub0
   usb0 (addr 2)  USB2513Bi  9491       SMSC              uhub1
   usb0 (addr 3)  ATP IG eUSB SSD 44801 ATP Electronics   umass0
Routing Engine 1 REV 13   750-044228   CAAM6380          RE-MX-104
  Jedec Code:   0x7fb0            EEPROM Version:    0x02
  P/N:          750-044228        S/N:               CAAM6380
  Assembly ID:  0x0b81            Assembly Version:  01.13
  Date:         09-17-2012        Assembly Flags:    0x00
  Version:      REV 13            CLEI Code:         PROTOXCLEI
  ID: RE-MX-104                   FRU Model Number:  PROTO-ASSEMBLY
  Board Information Record:
   Address 0x00: ad 01 00 08 64 87 88 27 08 18 ff ff ff ff ff ff
  I2C Hex Data:
   Address 0x00: 7f b0 02 fe 0b 81 01 0d 52 45 56 20 31 33 00 00
   Address 0x10: 00 00 00 00 37 35 30 2d 30 34 34 32 32 38 00 00
   Address 0x20: 53 2f 4e 20 43 41 41 4d 36 33 38 30 00 11 09 07
   Address 0x30: dc ff ff ff ad 01 00 08 64 87 88 27 08 18 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
   da0    7836 MB  ATP IG eUSB SSD                       Nand Flash 0
AFEB 0                    BUILTIN      BUILTIN           Forwarding Engine
Processor
FPC 0                     BUILTIN      BUILTIN           MPC BUILTIN
FPC 1                     BUILTIN      BUILTIN           MPC BUILTIN
   MIC 0          REV 15   750-036132   CAAF7948          2xOC12/8xOC3 CC-CE
```

```
  Jedec Code:   0x7fb0            EEPROM Version:    0x02
  P/N:          750-036132        S/N:               CAAF7948
  Assembly ID:  0x0a1a            Assembly Version:  01.15
  Date:         07-03-2012        Assembly Flags:    0x00
  Version:      REV 15            CLEI Code:         IP9IAM2DAA
  ID: 2xOC12/8xOC3 CC-CE          FRU Model Number:  MIC-3D-8OC3-2OC12-ATM
  Board Information Record:
   Address 0x00: 12 01 05 03 05 ff ff ff ff ff ff ff ff ff ff ff
  I2C Hex Data:
   Address 0x00: 7f b0 02 ff 0a 1a 01 0f 52 45 56 20 31 35 00 00
   Address 0x10: 00 00 00 00 37 35 30 2d 30 33 36 31 33 32 00 00
   Address 0x20: 53 2f 4e 20 43 41 41 46 37 39 34 38 00 03 07 07
   Address 0x30: dc ff ff ff 12 01 05 03 05 ff ff ff ff ff ff ff
   Address 0x40: ff ff ff ff 01 49 50 39 49 41 4d 32 44 41 41 4d
   Address 0x50: 49 43 2d 33 44 2d 38 4f 43 33 2d 32 4f 43 31 32
   Address 0x60: 2d 41 54 4d 00 00 41 00 00 ff ff ff ff ff ff ff
   Address 0x70: ff ff ff e3 c0 02 a3 9c 00 00 00 00 0a 60 00 00
     PIC 0                 BUILTIN      BUILTIN           2xOC12/8xOC3 CC-CE
       Xcvr 0     REV 01   740-011615   PCQ0U2J           SFP-IR
       Xcvr 1     REV 01   740-016068   PJL7A6G           SFP-SR
       Xcvr 2     REV 01   740-016068   PJL7A5J           SFP-SR
       Xcvr 3     REV 01   740-016065   PJN5HPZ           SFP-SR
       Xcvr 4     REV 01   740-029122   PKB38TL           SFP-LR
       Xcvr 5     REV 01   740-011787   P6A107G           SFP-LR
       Xcvr 6     REV 01   740-029122   PKB38TR           SFP-LR
       Xcvr 7     REV 01   740-011787   PBK0NK3           SFP-LR
  MIC 1
FPC 2                      BUILTIN      BUILTIN           MPC BUILTIN
  MIC 0                    BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
  Jedec Code:   0x0000            EEPROM Version:    0x00
  P/N:          BUILTIN           S/N:               BUILTIN
  Assembly ID:  0x0a60            Assembly Version:  00.00
  Date:         00-00-0000        Assembly Flags:    0x00
  ID: 4x 10GE(LAN) SFP+
  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: 00 00 00 00 0a 60 00 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 a5 04 7f b0 02 ff 0a 1a 01 0f
     PIC 0                 BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
       Xcvr 0     REV 01   740-031980   B10F00465         SFP+-10G-SR
       Xcvr 1     REV 01   740-031980   B10F00461         SFP+-10G-SR
       Xcvr 2     REV 01   740-031980   B10G01545         SFP+-10G-SR
       Xcvr 3     REV 01   740-031980   B10G01385         SFP+-10G-SR
Fan Tray 0        REV 02   711-049570   CAAX6538          Fan Tray
  Jedec Code:   0x7fb0            EEPROM Version:    0x02
  P/N:          711-049570        S/N:               CAAX6538
  Assembly ID:  0x0b82            Assembly Version:  01.02
  Date:         03-01-2013        Assembly Flags:    0x00
  Version:      REV 02            CLEI Code:         PROTOXCLEI
  ID: Fan Tray                    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 82 01 02 52 45 56 20 30 32 00 00
```

```
  Address 0x10: 00 00 00 00 37 31 31 2d 30 34 39 35 37 30 00 00
  Address 0x20: 53 2f 4e 20 43 41 41 58 36 35 33 38 00 01 03 07
  Address 0x30: dd 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
```

show chassis hardware models (MX104 Router)

```
user@host> show chassis hardware models
Hardware inventory:
Item             Version  Part number  Serial number     FRU model number
Midplane         REV 20   750-044219   CAAS5849          PROTO-ASSEMBLY
PEM 0            REV 01   740-045932   1H072400065
Routing Engine 0 REV 16   750-044228   CAAR5915          PROTO-ASSEMBLY
AFEB 0                    BUILTIN      BUILTIN
FPC 0                     BUILTIN      BUILTIN
FPC 1                     BUILTIN      BUILTIN
  MIC 0          REV 01   750-046905   CAAK7103          MIC-3D-20GE-SFP-EH
FPC 2                     BUILTIN      BUILTIN
Fan Tray         REV 02   711-049570   CAAX6538          PROTO-ASSEMBLY
```

show chassis hardware clei-models (MX104 Router)

```
user@host> show chassis hardware clei-models
Hardware inventory:
Item             Version  Part number  CLEI code         FRU model number
Midplane         REV 20   750-044219   PROTOXCLEI        PROTO-ASSEMBLY
PEM 0            REV 01   740-045932
Routing Engine 0 REV 16   750-044228   PROTOXCLEI        PROTO-ASSEMBLY
AFEB 0                    BUILTIN
FPC 0                     BUILTIN
FPC 1                     BUILTIN
  MIC 0          REV 01   750-046905   PROTOXCLEI        MIC-3D-20GE-SFP-EH
FPC 2                     BUILTIN
Fan Tray        REV 02   711-049570   CAAX6538          PROTO-ASSEMBLY
```

show chassis hardware (MX240 Router)

```
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 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 REV 01   740-031117   AARCHOO           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 (MX480 Router with Enhanced MX SCB)

```
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            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 (MX960 Router)

```
user@host> show chassis hardware
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 (MX960 Router with Bidirectional Optics)

```
user@host> show chassis hardware
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   QCS11035023       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   PDS0MRY           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   AHN0X1Z           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   PDS0MPZ           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-4OC48-SON-SFP
  PIC 1          REV 32   750-003700   DP2113            PC-1OC192-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-4OC3-1OC12-SON2-SFP
  PIC 1          REV 08   750-014637   DM3671            PB-4OC3-4OC12-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    NR0WT5925N77      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   AJC0JML          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            REV 01   740-045050   1E022240013       DC 52V Power Supply
Module
PSM 5            REV 01   740-045050   1E022240007       DC 52V Power Supply
Module
PSM 6            REV 01   740-045050   1E02224001C       DC 52V Power Supply
Module
PSM 7            REV 01   740-045050   1E02224001D       DC 52V Power Supply
Module
PSM 8            REV 01   740-045050   1E02224001B       DC 52V Power Supply
Module
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   AJ40JKK           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                                JN11E233DAFK      MX2010
 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:               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:               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:               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:               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:               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:               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 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 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 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:               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 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 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 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:               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 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 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 ff
  Address 0x70: ff ff ff c6 ff 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:               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 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 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 00 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 00
  I2C Hex Data:
   Address 0x00: 00 00 00 00 0a 53 00 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:               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 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 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           00000000000000000000000
PSM 5            REV 0B   740-033727   VG00015           00000000000000000000000
PSM 6            REV 0B   740-033727   VH00097           00000000000000000000000
PSM 7            REV 0C   740-033727   VJ00151           00000000000000000000000
PSM 8            REV 0C   740-033727   VJ00149           00000000000000000000000
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        00000000000000000000000
PSM 5            REV 0B   740-033727   0000000000        00000000000000000000000
PSM 6            REV 0B   740-033727   0000000000        00000000000000000000000
PSM 7            REV 0C   740-033727   0000000000        00000000000000000000000
PSM 8            REV 0C   740-033727   0000000000        00000000000000000000000
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         REV 27   750-040240   ABAB9384          Lower Power Midplane
Midplane 1       REV 04   711-032386   ABAB9386          Upper Backplane
PMP 1            REV 05   711-032428   ACAJ1579          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   1E022240056       DC 52V Power Supply
Module
PSM 1            REV 01   740-045050   1E022240054       DC 52V Power Supply
Module
PSM 2            REV 01   740-045050   1E02224005H       DC 52V Power Supply
Module
PSM 3            REV 01   740-045050   1E022240053       DC 52V Power Supply
Module
PSM 4            REV 01   740-045050   1E02224004K       DC 52V Power Supply
Module
PSM 7            REV 01   740-045050   1E02224006W       DC 52V Power Supply
Module
PSM 8            REV 01   740-045050   1E022240062       DC 52V Power Supply
Module
PSM 9            REV 01   740-045050   1E02224005B       DC 52V Power Supply
Module
PSM 10           REV 01   740-045050   1E02224005A       DC 52V Power Supply
Module
PSM 11           REV 01   740-045050   1E022240052       DC 52V Power Supply
Module
PSM 12           REV 01   740-045050   1E022240051       DC 52V Power Supply
Module
PSM 13           REV 01   740-045050   1E022240058       DC 52V Power Supply
Module
PSM 14           REV 01   740-045050   1E02224004L       DC 52V Power Supply
Module
PSM 15           REV 01   740-045050   1E02224005M       DC 52V Power Supply
Module
PSM 16           REV 01   740-045050   1E02224006S       DC 52V Power Supply
Module
```

```
PSM 17           REV 01   740-045050   1E02224005Z       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   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   AJQ0Q5G           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   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
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   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 2            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 3            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 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   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 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   AJQ0Q5G           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   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 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   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   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 models (MX2020 Router)

```
user@host > show chassis hardware models
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 (MX Series routers with ATM MIC)

```
user@host> show chassis hardware
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN115736EAFC      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            2xOC12/8xOC3 CC-CE
    PIC 2                 BUILTIN      BUILTIN           2xOC12/8xOC3 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:               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:               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 00 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 (MX480 Router with MPC4E)

```
user@host> show chassis hardware
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN10FF57BAFB      MX480
Midplane         REV 05   750-047849   Good              MX480 Midplane
FPM Board        REV 02   710-017254   KG2066            Front Panel Display
PEM 0            Rev 03   740-017330   QCS081590BJ       PS 1.2-1.7kW; 100-240V
AC in
PEM 1            Rev 03   740-017330   QCS0815908Z       PS 1.2-1.7kW; 100-240V
AC in
PEM 2            Rev 03   740-029970   QCS1001U001       PS 1.4-2.52kW; 90-264V
AC in
Routing Engine 0 REV 05   740-031116   9009089502        RE-S-1800x4
Routing Engine 1 REV 05   740-031116   9009089624        RE-S-1800x4
CB 0             REV 02   750-031391   YE8506            Enhanced MX SCB
CB 1             REV 14   750-031391   ZK8265            Enhanced MX SCB
FPC 2            REV 05   750-037358   ZT0638            MPC4E 3D 32XGE
  CPU            REV 07   711-035209   ZK3187            HMPC PMB 2G
  PIC 0                   BUILTIN      BUILTIN           8X10GE SFPP
  PIC 1                   BUILTIN      BUILTIN           8X10GE SFPP
  PIC 2                   BUILTIN      BUILTIN           8X10GE SFPP
  PIC 3                   BUILTIN      BUILTIN           8X10GE SFPP
FPC 3            REV 06   750-037355   CAAB1144          MPC4E 3D 2CGE+8XGE
  CPU            REV 08   711-035209   CAAB1278          HMPC PMB 2G
  PIC 0                   BUILTIN      BUILTIN           4x10GE SFPP
    Xcvr 0       REV 01   740-031980   B11E01439         SFP+-10G-SR
    Xcvr 1       REV 01   740-031980   B11D05809         SFP+-10G-SR
  PIC 1                   BUILTIN      BUILTIN           1X100GE CFP
    Xcvr 0                NON-JNPR     D5418             UNKNOWN
  PIC 2                   BUILTIN      BUILTIN           4x10GE SFPP
  PIC 3                   BUILTIN      BUILTIN           1X100GE CFP
    Xcvr 0                NON-JNPR     X12J00362         CFP-100G-SR10
FPC 4            REV 12.3.10 750-033205 YR9445           MPCE Type 3 3D
  CPU
Fan Tray                                                  Enhanced Left Fan Tray
```

show chassis hardware (MX2020 Router with MPC4E)

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

```
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN11E188CAFJ      MX2020
Midplane         REV 04   711-032387   ABAC7474          Lower Backplane
Midplane 1       REV 04   711-032386   ABAC7408          Upper Backplane
PMP 1            REV 03   711-032428   ACAJ1137          Upper Power Midplane
PMP 0            REV 03   711-032426   ACAJ1016          Lower Power Midplane
FPM Board        REV 06   760-040242   ABBT8832          Front Panel Display
PSM 3            REV 0C   740-033727   VK00255           DC 52V Power Supply
Module
PSM 4            REV 0C   740-033727   VJ00148           DC 52V Power Supply
Module
PSM 5            REV 0C   740-033727   VK00207           DC 52V Power Supply
Module
PSM 6            REV 0C   740-033727   VK00319           DC 52V Power Supply
Module
PSM 7            REV 0C   740-033727   VK00264           DC 52V Power Supply
Module
PSM 8            REV 0B   740-033727   VG00025           DC 52V Power Supply
Module
PSM 13           REV 0C   740-033727   VK00274           DC 52V Power Supply
Module
PSM 14           REV 0C   740-033727   VJ00167           DC 52V Power Supply
Module
PSM 15           REV 0C   740-033727   VK00299           DC 52V Power Supply
Module
PSM 16           REV 0C   740-033727   VK00213           DC 52V Power Supply
Module
PSM 17           REV 0C   740-033727   VK00253           DC 52V Power Supply
Module
PDM 0            REV 0B   740-038109   VJ00040           DC Power Dist Module
PDM 2            REV 0B   740-038109   VJ00025           DC Power Dist Module
Routing Engine 0 REV 02   740-041821   9009089735        RE-S-1800x4
Routing Engine 1 REV 02   740-041821   9009089731        RE-S-1800x4
CB 0             REV 04   750-040257   ZT2846            Control Board
CB 1             REV 04   750-040257   ZT2877            Control Board
SPMB 0           REV 01   711-041855   ZS2282            PMB Board
SPMB 1           REV 01   711-041855   ZS2261            PMB Board
SFB 0            REV 07   711-032385   ZZ2582            Switch Fabric Board
SFB 1            REV 04   711-032385   ZV4229            Switch Fabric Board
SFB 2            REV 07   711-032385   CAAB4902          Switch Fabric Board
SFB 3            REV 07   711-032385   CAAB4891          Switch Fabric Board
SFB 4            REV 07   711-032385   CAAB4883          Switch Fabric Board
SFB 5            REV 07   711-032385   CAAB4889          Switch Fabric Board
SFB 6            REV 06   711-032385   ZV1818            Switch Fabric Board
SFB 7            REV 07   711-032385   CAAB4897          Switch Fabric Board
FPC 0            REV 34   750-031090   ZT9799            MPC Type 2 3D EQ
  CPU            REV 06   711-030884   ZS1122            MPC PMB 2G
  MIC 0          REV 11   750-033535   CAAD7674          MIC-3D-10C192-XFP
    PIC 0                 BUILTIN      BUILTIN           MIC-3D-10C192-XFP
      Xcvr 0     REV 01   740-014279   753019A00404      XFP-OC192-SR
  MIC 1          REV 14   750-031967   ZM6103            MIC-3D-8OC3OC12-4OC48
    PIC 2                 BUILTIN      BUILTIN           MIC-3D-8OC3OC12-4OC48
      Xcvr 0     REV 01   740-011615   PEF1AZP           SFP-IR
      Xcvr 1     REV 01   740-011615   PEF1AZN           SFP-IR
      Xcvr 2     REV 01   740-021308   ANA0N8S           SFP+-10G-SR
  QXM 0          REV 06   711-028408   ZT9339            MPC QXM
  QXM 1          REV 06   711-028408   ZT9237            MPC QXM
FPC 9            REV 34   750-031090   ZT9770            MPC Type 2 3D EQ
  CPU            REV 06   711-030884   ZS1302            MPC PMB 2G
  MIC 0          REV 24   750-028387   YJ3950            3D 4x 10GE  XFP
```

```
    PIC 0                 BUILTIN      BUILTIN           2x 10GE  XFP
      Xcvr 0              NON-JNPR     T09M52516         XFP-10G-SR
      Xcvr 1              NON-JNPR     CA49BK095         XFP-10G-SR
    PIC 1                 BUILTIN      BUILTIN           2x 10GE  XFP
      Xcvr 0     REV 02   740-014289   C834XU01T         XFP-10G-SR
      Xcvr 1              NON-JNPR     T09M52515         XFP-10G-SR
  MIC 1          REV 11   750-033535   CAAD7681          MIC-3D-1OC192-XFP
    PIC 2                 BUILTIN      BUILTIN           MIC-3D-1OC192-XFP
      Xcvr 0     REV 01   740-014279   KBQ02BE           XFP-OC192-SR
  QXM 0          REV 06   711-028408   ZT9151            MPC QXM
  QXM 1          REV 06   711-028408   ZT9116            MPC QXM
FPC 10           REV 27   750-033205   ZL6215            MPCE Type 3 3D
  CPU            REV 07   711-035209   ZK9038            HMPC PMB 2G
  MIC 0          REV 18   750-028380   YG6885            3D 2x 10GE XFP
    PIC 0                 BUILTIN      BUILTIN           1x 10GE XFP
      Xcvr 0     REV 01   740-014289   C706XU0AG         XFP-10G-SR
    PIC 1                 BUILTIN      BUILTIN           1x 10GE XFP
      Xcvr 0     REV 02   740-014289   T08L84366         XFP-10G-SR
FPC 14           REV 09   750-037355   CAAF1534          MPC4E 3D 2CGE+8XGE
  CPU            REV 08   711-035209   CAAB9879          HMPC PMB 2G
  PIC 0                   BUILTIN      BUILTIN           4x10GE SFPP
    Xcvr 0       REV 01   740-021308   21T511100436      SFP+-10G-SR
    Xcvr 1       REV 01   740-031980   AHP0GPM           SFP+-10G-SR
    Xcvr 2       REV 01   740-031980   123363A00032      SFP+-10G-SR
    Xcvr 3       REV 01   740-021308   19T511100477      SFP+-10G-SR
  PIC 1                   BUILTIN      BUILTIN           1X100GE CFP
    Xcvr 0                NON-JNPR     X12J00260         CFP-100G-SR10
  PIC 2                   BUILTIN      BUILTIN           4x10GE SFPP
    Xcvr 0       REV 01   740-021308   21T511104086      SFP+-10G-SR
    Xcvr 1       REV 01   740-021308   21T511104627      SFP+-10G-SR
    Xcvr 3       REV 01   740-021308   21T511104644      SFP+-10G-SR
  PIC 3                   BUILTIN      BUILTIN           1X100GE CFP
FPC 19           REV 32   750-028467   ZR2008            MPC 3D 16x 10GE
  CPU            REV 10   711-029089   ZT6933            AMPC PMB
  PIC 0                   BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
    Xcvr 0       REV 01   740-021308   19T511100291      SFP+-10G-SR
    Xcvr 1       REV 01   740-021308   AMH02VE           SFP+-10G-SR
  PIC 1                   BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
    Xcvr 0       REV 01   740-021308   23T511102128      SFP+-10G-SR
  PIC 2                   BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
    Xcvr 0       REV 01   740-021308   AMS15PP           SFP+-10G-SR
  PIC 3                   BUILTIN      BUILTIN           4x 10GE(LAN) SFP+
    Xcvr 0       REV 01   740-031980   123363A00716      SFP+-10G-SR
ADC 0            REV 05   750-043596   CAAC2072          Adapter Card
ADC 9            REV 01   750-043596   ZV4111            Adapter Card
ADC 10           REV 05   750-043596   CAAC2058          Adapter Card
ADC 14           REV 02   750-043596   ZW1561            Adapter Card
ADC 19           REV 01   750-043596   ZV4127            Adapter Card
Fan Tray 0       REV 03   760-046960   ACAY0124          172mm FanTray - 6 Fans
Fan Tray 1       REV 2A   760-046960   ACAY0022          172mm FanTray - 6 Fans
Fan Tray 2       REV 2A   760-046960   ACAY0023          172mm FanTray - 6 Fans
Fan Tray 3       REV 2A   760-046960   ACAY0025          172mm FanTray - 6 Fans
```

show chassis hardware (MX5, MX10, MX40, MX80, MX240, MX480, and MX960 routers with Enhanced 20-port Gigabit Ethernet MIC)

```
user@host> show chassis hardware
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                F3434             MX80-P
Midplane         REV 01   711-044315   ZK2681            MX80-P
```

```
PEM 0            Rev 04   740-028288   VE05267          AC Power Entry Module
PEM 1            Rev 04   740-028288   VE05270          AC Power Entry Module
Routing Engine            BUILTIN      BUILTIN          Routing Engine
TFEB 0                    BUILTIN      BUILTIN          Forwarding Engine
Processor
  QXM 0          REV 05   711-028408   ZK0952           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   750-049846   CAAV2153         3D 20x 1GE(LAN)-E,SFP
    PIC 0                 BUILTIN      BUILTIN          10x 1GE(LAN) -E  SFP
      Xcvr 0     REV 01   740-011613   AM0816S9B81      SFP-SX
      Xcvr 1     REV 02   740-011613   AM0925SBLK7      SFP-SX
      Xcvr 2     REV 01   740-011613   UAQ0005          SFP-SX
      Xcvr 3     REV 01   740-011613   UAQ000C          SFP-SX
      Xcvr 4     REV 01   740-011613   P9F195E          SFP-SX
      Xcvr 5     REV 01   740-011613   UAQ0003          SFP-SX
      Xcvr 6     REV 01   740-031851   AM1041SU1LD      SFP-SX
      Xcvr 8     REV 02   740-013111   B101501          SFP-T
    PIC 1                 BUILTIN      BUILTIN          10x 1GE(LAN) -E  SFP
      Xcvr 0     REV 01   740-011613   PFM1ML7          SFP-SX
      Xcvr 4     REV 01   740-011613   PE729P6          SFP-SX
      Xcvr 6     REV 02   740-011613   AM1014SGC84      SFP-SX
      Xcvr 9     REV 01   740-011613   AM0812S8UK3      SFP-SX
  MIC 1          REV 26   750-028392   ZY0187           3D 20x 1GE(LAN) SFP
    PIC 2                 BUILTIN      BUILTIN          10x 1GE(LAN) SFP
      Xcvr 0     REV 01   740-011613   P9F1AN9          SFP-SX
      Xcvr 5     REV 02   740-011613   AM1003SFUF4      SFP-SX
      Xcvr 9     REV 01   740-031851   AM1041SU1LM      SFP-SX
    PIC 3                 BUILTIN      BUILTIN          10x 1GE(LAN) SFP
      Xcvr 4     REV 01   740-011613   PAJ4MYT          SFP-SX
      Xcvr 7     +        NON-JNPR     XG32A024         SFP-SX
      Xcvr 8              NON-JNPR     PFR0V6J          SFP-SX
      Xcvr 9     REV 01   740-031851   AM1041SU02U      SFP-SX
Fan Tray
```

show chassis hardware models (MX5, MX10, MX40, MX80, MX240, MX480, and MX960 routers with Enhanced 20-port Gigabit Ethernet MIC)

```
user@host> show chassis hardware models
Hardware inventory:
Item             Version  Part number  Serial number    FRU model number
PEM 0            Rev 04   740-028288   VE05267          PWR-MX80-AC-S
PEM 1            Rev 04   740-028288   VE05270          PWR-MX80-AC-S
Routing Engine            BUILTIN      BUILTIN
TFEB 0                    BUILTIN      BUILTIN
FPC 0                     BUILTIN      BUILTIN
FPC 1                     BUILTIN      BUILTIN
  MIC 0          REV 02   750-049846   CAAV2153         MIC-3D-20GE-SFP-E
  MIC 1          REV 26   750-028392   ZY0187           MIC-3D-20GE-SFP
Fan Tray                                                FANTRAY-MX80-S
```

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                       UNKNOWON
  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-4OC12-SON-SMIR
FPC 6            REV 03   710-001721                     T640-FPC3
  PIC 1          REV 01   750-009553                     PC-4OC48-SON-SFP
SIB 4            REV 02   750-005486                     SIB-I-T640-S
```

```
Fan Tray 0                                                  FANTRAY-T-S
Fan Tray 1                                                  FANTRAY-T-S
Fan Tray 2                                                  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 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:               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
 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 (T4000 Router with LSR FPC)

```
user@host> show chassis hardware
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN1173A24AHA      T4000
FPC 3            REV      750-048373   AN7797            FPC Type 5-LSR
  CPU            REV 10   711-030686   AN6649            SNG PMB
  PIC 0          REV 07   750-034624   EF6830            12x10GE (LAN/WAN) SFPP
```

show chassis hardware clei-models (T4000 Router)

```
user@host> show chassis hardware clei-models
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   IPUIBKLMAA        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 detail (T4000 Router)

```
user@host> show chassis hardware detail
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 lcc (TX Matrix Router)

```
user@host> show chassis hardware lcc 0
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 scc (TX Matrix Router)

```
user@host> show chassis hardware scc
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   P8P0A3T           SFP-SX
    Xcvr 1       REV 01   740-013111   5090002           SFP-T
    Xcvr 2       REV 01   740-011613   AM0814S93BQ       SFP-SX
    Xcvr 4                NON-JNPR     PDE0FAN           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   P9P0XV4           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 (TX Matrix Plus Router)

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

lcc0-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   P4T0WLR           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 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 32 46 30 30 37 41 48 42 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 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:               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:               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 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
CIP 0            REV 04   710-023792   DW4889           TXP CIP
 Jedec Code:   0x7fb0            EEPROM Version:    0x01
 P/N:          710-023792        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

lcc0-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-4OC48-SON-SMSR
FPC 3            REV 12   710-013037                     T1600-FPC4-ES
  PIC 0          REV 02   750-010850                     PD-1OC768-SON-SR
FPC 4            REV 05   710-021534                     T640-FPC1-ES
  PIC 0          REV 04   750-014627                     PB-4OC3-1OC12-SON-SFP
  PIC 1          REV 22   750-005634                     PB-1CHOC12SMIR-QPP
  PIC 2          REV 09   750-002911                     PB-4FE-TX
  PIC 3          REV 08   750-021652                     PB-1CHOC12-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-4OC12-SON-SMIR
  PIC 1          REV 05   750-001900                     PB-1OC48-SON-SMSR
  PIC 2          REV 10   750-008155                     PB-2GE-SFP-QPP
  PIC 3          REV 03   750-014638                     PB-1OC48-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-1OC192-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-1OC192-SON-VSR
  PIC 3          REV 12   750-009553                     PC-4OC48-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-4OC48-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 models (TX Matrix Plus Router)

```
user@host> show chassis hardware models
sfc0-re0:
--------------------------------------------------------------------------
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           ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
Routing Engine 0 REV 01   740-026942   737A-1064         RE-TXP-SFC-DUO-2600-16G
Routing Engine 1 REV 01   740-026942   737A-1082         RE-TXP-SFC-DUO-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

lcc0-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-1OC192-SON-XFP
  PIC 2          REV 10   750-009450   HX6466            PC-1OC192-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-4OC192-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-4OC192-SON-XFP
FPC 5            REV 14   710-013037   DT0016            T1600-FPC4-ES
  PIC 0          REV 14   750-012518   JY9918            PD-4OC192-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 (TX Matrix Plus router with 3D SIBs)

```
user@host> show chassis hardware
sfc0-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN11CAAA4AHB      TXP
Midplane         REV 05   710-022574   ABAC4696          SFC Midplane
FPM Display      REV 09   710-024027   EH3138            TXP FPM Display
CIP 0            REV 12   710-023792   EF6349            TXP CIP
CIP 1            REV 12   710-023792   EG5294            TXP CIP
PEM 0            Rev 06   740-027463   XH04595           Power Entry Module
PEM 1            Rev 06   740-027463   XH04592           Power Entry Module
Routing Engine 0 REV 07   740-026942   P737A-002541      RE-DUO-2600
Routing Engine 1 REV 07   740-026942   P737A-002602      RE-DUO-2600
CB 0             REV 15   710-022606   EH4376            SFC Control Board
CB 1             REV 15   710-022606   EH4379            SFC Control Board
SPMB 0                    BUILTIN                        SFC Switch CPU
SPMB 1                    BUILTIN                        SFC Switch CPU
SIB F13 0        REV 10   750-035002   EM9305            F13 SIB 3D
  B Board        REV 06   711-035082   EM9667            F13 SIB 3D Mezz
  P Board        REV 05   711-043544   EM9708            F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB34FB00S         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01H         CXP Module
  Xcvr 4         REV 01   740-047547   XB34FB02W         CXP Module
  Xcvr 6         REV 01   740-047547   XB34FB01T         CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB00W         CXP Module
  Xcvr 10        REV 01   740-047547   XB34FB01S         CXP Module
  Xcvr 12        REV 01   740-047547   XB34FB03H         CXP Module
  Xcvr 14        REV 01   740-047547   XB34FB023         CXP Module
SIB F13 3        REV 01   710-035001   EJ2612            F13 SIB 3D
  B Board        REV 01   711-035082   EJ3815            F13 SIB 3D Mezz
  P Board        REV 01   711-043544   EJ2678            F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB48FB04C         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB00Z         CXP Module
```

```
  Xcvr 4         REV 01   740-047547   XB47FB036         CXP Module
  Xcvr 6         REV 01   740-047547   XB47FB029         CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB02N         CXP Module
  Xcvr 10        REV 01   740-047547   XB42FB0CS         CXP Module
  Xcvr 12        REV 01   740-047547   XB47FB01X         CXP Module
  Xcvr 14        REV 01   740-047547   XB48FB02F         CXP Module
SIB F13 6        REV 05   750-035002   EK2675            F13 SIB 3D
  B Board        REV 03   711-035082   EK2612            F13 SIB 3D Mezz
  P Board        REV 04   711-043544   EK1179            F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB48FB01T         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB02M         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB031         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB04P         CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB02T         CXP Module
  Xcvr 10        REV 01   740-047547   XB34FB01V         CXP Module
  Xcvr 12        REV 01   740-047547   XB48FB02C         CXP Module
  Xcvr 14                 NON-JNPR                       No Module
SIB F13 12       REV 01   710-035001   EJ2631            F13 SIB 3D
  B Board        REV 01   711-035082   EJ3808            F13 SIB 3D Mezz
  P Board        REV 01   711-043544   EJ2676            F13 SIB 3D Power
SIB F2S 0/0      REV 01   711-034977   EH9829            F2S SIB 3D
  B Board        REV 01   711-034979   EH9927            F2S SIB 3D Mezz
SIB F2S 0/2      REV 01   711-034977   EH9791            F2S SIB 3D
  B Board        REV 01   711-034979   EH9852            F2S SIB 3D Mezz
SIB F2S 0/4      REV 01   711-034977   EH9803            F2S SIB 3D
  B Board        REV 01   711-034979   EH9915            F2S SIB 3D Mezz
SIB F2S 0/6      REV 01   711-034977   EH9763            F2S SIB 3D
  B Board        REV 01   711-034979   EH9880            F2S SIB 3D Mezz
SIB F2S 1/0      REV 01   711-034977   EH9757            F2S SIB 3D
  B Board        REV 01   711-034979   EH9889            F2S SIB 3D Mezz
SIB F2S 1/2      REV 01   711-034977   EH9815            F2S SIB 3D
  B Board        REV 01   711-034979   EH9890            F2S SIB 3D Mezz
SIB F2S 1/4      REV 08   750-034978   EN1954            F2S SIB 3D
  B Board        REV 02   711-034979   EN1436            F2S SIB 3D Mezz
SIB F2S 1/6      REV 01   711-034977   EJ7054            F2S SIB 3D
  B Board        REV 01   711-034979   EJ8238            F2S SIB 3D Mezz
SIB F2S 2/0      REV 01   711-034977   EH9830            F2S SIB 3D
  B Board        REV 01   711-034979   EH9844            F2S SIB 3D Mezz
SIB F2S 2/2      REV 01   711-034977   EH9818            F2S SIB 3D
  B Board        REV 01   711-034979   EH9888            F2S SIB 3D Mezz
SIB F2S 2/4      REV 01   711-034977   EH9795            F2S SIB 3D
  B Board        REV 01   711-034979   EH9869            F2S SIB 3D Mezz
SIB F2S 2/6      REV 01   711-034977   EJ7026            F2S SIB 3D
  B Board        REV 01   711-034979   EJ8273            F2S SIB 3D Mezz
SIB F2S 3/0      REV 01   711-034977   EH9811            F2S SIB 3D
  B Board        REV 01   711-034979   EH9892            F2S SIB 3D Mezz
SIB F2S 3/2      REV 01   711-034977   EH9812            F2S SIB 3D
  B Board        REV 01   711-034979   EH9877            F2S SIB 3D Mezz
SIB F2S 3/4      REV 08   750-034978   EN1947            F2S SIB 3D
  B Board        REV 02   711-034979   EN1471            F2S SIB 3D Mezz
Fan Tray 0       REV 10   760-024497   EH3313            Front Fan Tray
Fan Tray 1       REV 10   760-024497   EH3290            Front Fan Tray
Fan Tray 2       REV 10   760-024502   EH3292            Rear Fan Tray
Fan Tray 3       REV 10   760-024502   EH3287            Rear Fan Tray
Fan Tray 4       REV 10   760-024502   EH3286            Rear Fan Tray
Fan Tray 5       REV 10   760-024502   EH3285            Rear Fan Tray

lcc0-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
```

```
Chassis                                  JN11B23FEAHA      T1600
Midplane         REV 01   710-027486   RC9787            T-series Backplane
FPM GBUS         REV 13   710-002901   BBAG5132          T640 FPM Board
FPM Display      REV 04   710-021387   BBAL9612          T1600 FPM Display
CIP              REV 06   710-002895   BBAN0605          T-series CIP
PEM 0            REV 05   740-036442   1G022060143       Power Entry Module 6x60
PEM 1            REV 05   740-036442   1G022060011       Power Entry Module 6x60
SCG 0            REV 18   710-003423   BBAL7318          T640 Sonet Clock Gen.
SCG 1            REV 18   710-003423   BBAL7255          T640 Sonet Clock Gen.
Routing Engine 0 REV 07   740-026941   P737F-002933      RE-DUO-1800
Routing Engine 1 REV 06   740-026941   P737F-002749      RE-DUO-1800
CB 0             REV 11   710-022597   EH3611            LCC Control Board
CB 1             REV 11   710-022597   EH4798            LCC Control Board
FPC 5            REV 17   710-013037   BBAC5333          FPC Type 4-ES
  CPU            REV 10   710-016744   BBAB7619          ST-PMB2
  PIC 0          REV 18   750-017405   BBAE3420          4x 10GE (LAN/WAN) XFP
    Xcvr 0       REV 03   740-014289   T10C90659         XFP-10G-SR
  MMB 0          REV 05   710-025563   BBAB9538          ST-MMB2
  MMB 1          REV 05   710-025563   BBAB9502          ST-MMB2
FPC 7            REV 01   750-045173   BBAV0032          FPC Type 5-3D
  CPU
SPMB 0           REV 05   710-023321   EG9434            LCC Switch CPU
SPMB 1           REV 05   710-023321   EH3878            LCC Switch CPU
SIB 0            REV 01   750-041657   EH7997            LCC SIB 3D
  B Board        REV 01   711-042424   EH7674            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB014         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB05A         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB052         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB01B         CXP Module
SIB 1            REV 01   750-041657   EH8023            LCC SIB 3D
  B Board        REV 01   711-042424   EH7659            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB05J         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01E         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB01J         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB02S         CXP Module
SIB 2            REV 03   750-041657   EJ6554            LCC SIB 3D
  B Board        REV 02   711-042424   EJ5756            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB34FB01Z         CXP Module
  Xcvr 2         REV 01   740-047547   XB34FB013         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB04Z         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB05N         CXP Module
Fan Tray 0                                               Front Top Fan Tray
Fan Tray 1                                               Front Bottom Fan Tray
Fan Tray 2                                               Rear Fan Tray -- Rev 4

lcc2-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                  JN11B3975AHA      T1600
Midplane         REV 01   710-027486   RC9826            T-series Backplane
FPM GBUS         REV 13   710-002901   BBAG5124          T640 FPM Board
FPM Display      REV 03   710-021387   BBAJ1112          T1600 FPM Display
CIP              REV 06   710-002895   BBAL3744          T-series CIP
PEM 0            REV 05   740-036442   1G022060081       Power Entry Module 6x60
PEM 1            REV 05   740-036442   1G022060188       Power Entry Module 6x60
SCG 0            REV 18   710-003423   BBAH8775          T640 Sonet Clock Gen.
SCG 1            REV 18   710-003423   BBAL7272          T640 Sonet Clock Gen.
Routing Engine 0 REV 07   740-026941   P737F-002992      RE-DUO-1800
Routing Engine 1 REV 07   740-026941   P737F-002938      RE-DUO-1800
CB 0             REV 11   710-022597   EH4805            LCC Control Board
```

```
CB 1             REV 11   710-022597   EH4786           LCC Control Board
FPC 1            REV 01   710-033873   BBAH0320         FPC Type 3-ES
  CPU            REV 11   710-016744   BBAF3281         ST-PMB2
  MMB 0          REV 06   710-025563   BBAF5061         ST-MMB2
FPC 5            REV 04   710-033871   BBAM5070         FPC Type 4-ES
  CPU            REV 11   710-016744   BBAM6653         ST-PMB2
  PIC 1          REV 20   750-017405   BBAM1296         4x 10GE (LAN/WAN) XFP
    Xcvr 0       REV 03   740-014289   T10B42981        XFP-10G-SR
  MMB 0          REV 07   710-025563   BBAN2631         ST-MMB2
  MMB 1          REV 07   710-025563   BBAN2538         ST-MMB2
SPMB 0           REV 05   710-023321   EH3903           LCC Switch CPU
SPMB 1           REV 05   710-023321   EH3902           LCC Switch CPU
SIB 0            REV 01   750-041657   EH8019           LCC SIB 3D
  B Board        REV 01   711-042424   EH7680           LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB04F        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB04S        CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB04B        CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB043        CXP Module
SIB 1            REV 01   750-041657   EH8012           LCC SIB 3D
  B Board        REV 01   711-042424   EH7658           LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB05E        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01Z        CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB018        CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB054        CXP Module
SIB 2            REV 01   750-041657   EH7993           LCC SIB 3D
  B Board        REV 01   711-042424   EH7678           LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB05C        CXP Module
  Xcvr 2         REV 01   740-047547   XB47FB00N        CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB05U        CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB05L        CXP Module
Fan Tray 0                                              Front Top Fan Tray
Fan Tray 1                                              Front Bottom Fan Tray
Fan Tray 2                                              Rear Fan Tray -- Rev 4
```

show chassis hardware clei-models (TX Matrix Plus router with 3D SIBs)

```
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 09   710-024027                    CRAFT-TXP-S
CIP 0            REV 12   710-023792                    CIP-TXP-S
CIP 1            REV 12   710-023792                    CIP-TXP-S
PEM 0            Rev 06   740-027463   IPUPAFGKTA       PWR-TXP-7-60-DC-S
Routing Engine 0 REV 07   740-026942                    RE-DUO-C2600-16G-S
Routing Engine 1 REV 07   740-026942                    RE-DUO-C2600-16G-S
CB 0             REV 13   710-022606                    CB-TXP-S
CB 1             REV 14   710-022606                    CB-TXP-S
SIB F13 0        REV 10   750-035002   PROTOXCLEI       SIB-TXP-3D-F13-S
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
  Xcvr 8         REV 01   740-047547                    CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                    CXP-TXP-3D
```

```
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
SIB F13 1        REV 10   750-035002   PROTOXCLEI        SIB-TXP-3D-F13-S
  Xcvr 0         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 1         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 2         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 3         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 4         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 5         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 6         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 7         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
  Xcvr 8         REV 01   740-048813
  Xcvr 10        REV 01   740-048813
  Xcvr 12        REV 01   740-048813
  Xcvr 14        REV 01   740-048813
  Xcvr 0         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 1         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 2         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 3         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 4         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 5         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 6         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 7         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
SIB F13 6        REV 16   750-035002   PROTOXCLEI        SIB-TXP-3D-F13
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
SIB F13 7        REV 10   750-035002   PROTOXCLEI        SIB-TXP-3D-F13-S
  Xcvr 0         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 1         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 2         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 3         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 4         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 5         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 6         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 7         REV 01   740-047547                     CXP-TXP-3D
```

```
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 6         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 7         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
SIB F13 9        REV 16   750-035002   PROTOXCLEI        SIB-TXP-3D-F13
  Xcvr 0         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 1         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 2         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 3         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 4         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 5         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 6         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 7         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
SIB F13 11       REV 10   750-035002   PROTOXCLEI        750-035002
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 7         REV 01   740-048813
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
SIB F13 12       REV 16   750-035002   PROTOXCLEI        SIB-TXP-3D-F13
  Xcvr 0         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 1         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 2         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 3         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 4         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 5         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 6         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 7         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 8         REV 01   740-047547                     CXP-TXP-3D
  Xcvr 10        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 12        REV 01   740-047547                     CXP-TXP-3D
  Xcvr 14        REV 01   740-047547                     CXP-TXP-3D
SIB F2S 0/0      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 0/2      REV 07   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 0/4      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 0/6      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 1/0      REV 07   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 1/2      REV 07   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 1/4      REV 07   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
```

```
SIB F2S 1/6      REV 08   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 2/0      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 2/2      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 2/4      REV 07   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 2/6      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 3/0      REV 07   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 3/2      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 3/4      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 3/6      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 4/0      REV 07   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 4/2      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 4/4      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
SIB F2S 4/6      REV 06   750-034978   PROTOXCLEI        SIB-TXP-3D-F2S
Fan Tray 0       REV 10   760-024497                     FANTRAY-TXP-H-S
Fan Tray 1       REV 10   760-024497                     FANTRAY-TXP-H-S
Fan Tray 2       REV 10   760-024502                     FANTRAY-TXP-V-S
Fan Tray 3       REV 10   760-024502                     FANTRAY-TXP-V-S
Fan Tray 4       REV 10   760-024502                     FANTRAY-TXP-V-S
Fan Tray 5       REV 10   760-024502                     FANTRAY-TXP-V-S

lcc0-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  CLEI code         FRU model number
Midplane         REV 01   710-027486   IPMJ700DRD        CHAS-BP-T1600-S
FPM Display      REV 04   710-021387                     CRAFT-T1600-S
CIP              REV 06   710-002895                     CIP-L-T640-S
PEM 0            REV 05   740-036442   IPUPAG6KAA        PWR-T-6-60-DC-S
PEM 1            REV 05   740-036442   IPUPAG6KAA        PWR-T-6-60-DC-S
SCG 0            REV 18   710-003423                     SCG-T-S
SCG 1            REV 18   710-003423                     SCG-T-S
Routing Engine 0 REV 10   740-026941                     RE-DUO-C1800-8G-S
Routing Engine 1 REV 07   740-026941                     RE-DUO-C1800-8G-S
CB 0             REV 11   710-022597                     CB-LCC-S
CB 1             REV 11   710-022597                     CB-LCC-S
FPC 0            REV 01   750-045173   IP9IAL4DAB        T4000-FPC5-3D
  PIC 0          REV 17   750-034624   IP9IAL2DAA        PF-12XGE-SFPP
  PIC 1          REV 17   750-034624   IP9IAL2DAA        PF-12XGE-SFPP
FPC 3            REV 01   750-045173   IP9IAL4DAB        T4000-FPC5-3D
  PIC 0          REV 13   750-033423   XXXXXXXXDD        PF-12-24XGE-SFPP
FPC 4            REV 02   750-045173   IP9IAL4DAC        T4000-FPC5-3D
  PIC 0          REV 17   750-034624   IP9IAL2DAA        PF-12XGE-SFPP
  PIC 1          REV 17   750-034624   IP9IAL2DAA        PF-12XGE-SFPP
FPC 5            REV 01   750-045173   IP9IAL4DAB        T4000-FPC5-3D
  PIC 0          REV 17   750-034624   IP9IAL2DAA        PF-12XGE-SFPP
  PIC 1          REV 17   750-034624   IP9IAL2DAA        PF-12XGE-SFPP
FPC 6            REV 01   750-045173   IP9IAL4DAB        T4000-FPC5-3D
  PIC 0          REV 17   750-034624   IP9IAL2DAA        PF-12XGE-SFPP
  PIC 1          REV 10   750-035293   IP9IAL3DAA        PF-1CGE-CFP
SIB 0            REV 06   750-041657   PROTOXCLEI        SIB-TXP-3D-LCC
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
SIB 1            REV 06   750-041657   PROTOXCLEI        SIB-TXP-3D-LCC
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
```

```
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
SIB 2            REV 06   750-041657   PROTOXCLEI        SIB-TXP-3D-LCC
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
SIB 3            REV 07   750-041657   PROTOXCLEI        SIB-TXP-3D-LLC
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
SIB 4            REV 06   750-041657   PROTOXCLEI        SIB-TXP-3D-LCC
  Xcvr 0         REV 01   740-048813
  Xcvr 1         REV 01   740-048813
  Xcvr 2         REV 01   740-048813
  Xcvr 3         REV 01   740-048813
  Xcvr 4         REV 01   740-048813
  Xcvr 5         REV 01   740-048813
  Xcvr 6         REV 01   740-048813
  Xcvr 7         REV 01   740-048813
Fan Tray 0                                            FANTRAY-T-S
Fan Tray 1                                            FANTRAY-T-S
Fan Tray 2                                            FANTRAY-TXP3D-LCC-R-S
[Output Truncated]
```

show chassis hardware detail (TX Matrix Plus router with 3D SIBs)

```
user@host> show chassis hardware detail
sfc0-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN11CAAA4AHB      TXP
Midplane         REV 05   710-022574   ABAC4696          SFC Midplane
FPM Display      REV 09   710-024027   EH3138            TXP FPM Display
CIP 0            REV 12   710-023792   EF6349            TXP CIP
CIP 1            REV 12   710-023792   EG5294            TXP CIP
PEM 0            Rev 06   740-027463   XH04595           Power Entry Module
PEM 1            Rev 06   740-027463   XH04592           Power Entry Module
Routing Engine 0 REV 07   740-026942   P737A-002541      RE-DUO-2600
  ad0    3823 MB  SMART CF             2011030400062C132C13 Compact Flash
  ad1   62720 MB  SMART Lite SATA Drive 201105100009A452A452 Disk 1
Routing Engine 1 REV 07   740-026942   P737A-002602      RE-DUO-2600
  ad0    3823 MB  SMART CF             20110508085EE471E471 Compact Flash
  ad1   62720 MB  SMART Lite SATA Drive 201110210089DF39DF39 Disk 1
CB 0             REV 15   710-022606   EH4376            SFC Control Board
CB 1             REV 15   710-022606   EH4379            SFC Control Board
SPMB 0                    BUILTIN                        SFC Switch CPU
```

```
SPMB 1                    BUILTIN                       SFC Switch CPU
SIB F13 0        REV 10   750-035002   EM9305           F13 SIB 3D
  B Board        REV 06   711-035082   EM9667           F13 SIB 3D Mezz
  P Board        REV 05   711-043544   EM9708           F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB34FB00S        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01H        CXP Module
  Xcvr 4         REV 01   740-047547   XB34FB02W        CXP Module
  Xcvr 6         REV 01   740-047547   XB34FB01T        CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB00W        CXP Module
  Xcvr 10        REV 01   740-047547   XB34FB01S        CXP Module
  Xcvr 12        REV 01   740-047547   XB34FB03H        CXP Module
  Xcvr 14        REV 01   740-047547   XB34FB023        CXP Module
SIB F13 3        REV 01   710-035001   EJ2612           F13 SIB 3D
  B Board        REV 01   711-035082   EJ3815           F13 SIB 3D Mezz
  P Board        REV 01   711-043544   EJ2678           F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB48FB04C        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB00Z        CXP Module
  Xcvr 4         REV 01   740-047547   XB47FB036        CXP Module
  Xcvr 6         REV 01   740-047547   XB47FB029        CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB02N        CXP Module
  Xcvr 10        REV 01   740-047547   XB42FB0CS        CXP Module
  Xcvr 12        REV 01   740-047547   XB47FB01X        CXP Module
  Xcvr 14        REV 01   740-047547   XB48FB02F        CXP Module
SIB F13 6        REV 05   750-035002   EK2675           F13 SIB 3D
  B Board        REV 03   711-035082   EK2612           F13 SIB 3D Mezz
  P Board        REV 04   711-043544   EK1179           F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB48FB01T        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB02M        CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB031        CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB04P        CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB02T        CXP Module
  Xcvr 10        REV 01   740-047547   XB34FB01V        CXP Module
  Xcvr 12        REV 01   740-047547   XB48FB02C        CXP Module
  Xcvr 14                 NON-JNPR                      No Module
SIB F13 12       REV 01   710-035001   EJ2631           F13 SIB 3D
  B Board        REV 01   711-035082   EJ3808           F13 SIB 3D Mezz
  P Board        REV 01   711-043544   EJ2676           F13 SIB 3D Power
SIB F2S 0/0      REV 01   711-034977   EH9829           F2S SIB 3D
  B Board        REV 01   711-034979   EH9927           F2S SIB 3D Mezz
SIB F2S 0/2      REV 01   711-034977   EH9791           F2S SIB 3D
  B Board        REV 01   711-034979   EH9852           F2S SIB 3D Mezz
SIB F2S 0/4      REV 01   711-034977   EH9803           F2S SIB 3D
  B Board        REV 01   711-034979   EH9915           F2S SIB 3D Mezz
SIB F2S 0/6      REV 01   711-034977   EH9763           F2S SIB 3D
  B Board        REV 01   711-034979   EH9880           F2S SIB 3D Mezz
SIB F2S 1/0      REV 01   711-034977   EH9757           F2S SIB 3D
  B Board        REV 01   711-034979   EH9889           F2S SIB 3D Mezz
SIB F2S 1/2      REV 01   711-034977   EH9815           F2S SIB 3D
  B Board        REV 01   711-034979   EH9890           F2S SIB 3D Mezz
SIB F2S 1/4      REV 08   750-034978   EN1954           F2S SIB 3D
  B Board        REV 02   711-034979   EN1436           F2S SIB 3D Mezz
SIB F2S 1/6      REV 01   711-034977   EJ7054           F2S SIB 3D
  B Board        REV 01   711-034979   EJ8238           F2S SIB 3D Mezz
SIB F2S 2/0      REV 01   711-034977   EH9830           F2S SIB 3D
  B Board        REV 01   711-034979   EH9844           F2S SIB 3D Mezz
SIB F2S 2/2      REV 01   711-034977   EH9818           F2S SIB 3D
  B Board        REV 01   711-034979   EH9888           F2S SIB 3D Mezz
SIB F2S 2/4      REV 01   711-034977   EH9795           F2S SIB 3D
  B Board        REV 01   711-034979   EH9869           F2S SIB 3D Mezz
SIB F2S 2/6      REV 01   711-034977   EJ7026           F2S SIB 3D
  B Board        REV 01   711-034979   EJ8273           F2S SIB 3D Mezz
```

```
SIB F2S 3/0      REV 01   711-034977   EH9811            F2S SIB 3D
  B Board        REV 01   711-034979   EH9892            F2S SIB 3D Mezz
SIB F2S 3/2      REV 01   711-034977   EH9812            F2S SIB 3D
  B Board        REV 01   711-034979   EH9877            F2S SIB 3D Mezz
SIB F2S 3/4      REV 08   750-034978   EN1947            F2S SIB 3D
  B Board        REV 02   711-034979   EN1471            F2S SIB 3D Mezz
Fan Tray 0       REV 10   760-024497   EH3313            Front Fan Tray
Fan Tray 1       REV 10   760-024497   EH3290            Front Fan Tray
Fan Tray 2       REV 10   760-024502   EH3292            Rear Fan Tray
Fan Tray 3       REV 10   760-024502   EH3287            Rear Fan Tray
Fan Tray 4       REV 10   760-024502   EH3286            Rear Fan Tray
Fan Tray 5       REV 10   760-024502   EH3285            Rear Fan Tray

lcc0-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN11B23FEAHA      T1600
Midplane         REV 01   710-027486   RC9787            T-series Backplane
FPM GBUS         REV 13   710-002901   BBAG5132          T640 FPM Board
FPM Display      REV 04   710-021387   BBAL9612          T1600 FPM Display
CIP              REV 06   710-002895   BBAN0605          T-series CIP
PEM 0            REV 05   740-036442   1G022060143       Power Entry Module 6x60
PEM 1            REV 05   740-036442   1G022060011       Power Entry Module 6x60
SCG 0            REV 18   710-003423   BBAL7318          T640 Sonet Clock Gen.
SCG 1            REV 18   710-003423   BBAL7255          T640 Sonet Clock Gen.
Routing Engine 0 REV 07   740-026941   P737F-002933      RE-DUO-1800
  ad0    3823 MB  SMART CF             201103030490604E604E Compact Flash
  ad1   62720 MB  SMART Lite SATA Drive 20110729028B11D411D4 Disk 1
Routing Engine 1 REV 06   740-026941   P737F-002749      RE-DUO-1800
  ad0    3823 MB  SMART CF             2011010504EB99649964 Compact Flash
  ad1   62720 MB  SMART Lite SATA Drive 201102140058934A934A Disk 1
CB 0             REV 11   710-022597   EH3611            LCC Control Board
CB 1             REV 11   710-022597   EH4798            LCC Control Board
FPC 5            REV 17   710-013037   BBAC5333          FPC Type 4-ES
  CPU            REV 10   710-016744   BBAB7619          ST-PMB2
  PIC 0          REV 18   750-017405   BBAE3420          4x 10GE (LAN/WAN) XFP
    Xcvr 0       REV 03   740-014289   T10C90659         XFP-10G-SR
  MMB 0          REV 05   710-025563   BBAB9538          ST-MMB2
  MMB 1          REV 05   710-025563   BBAB9502          ST-MMB2
FPC 7            REV 01   750-045173   BBAV0032          FPC Type 5-3D
  CPU
SPMB 0           REV 05   710-023321   EG9434            LCC Switch CPU
SPMB 1           REV 05   710-023321   EH3878            LCC Switch CPU
SIB 0            REV 01   750-041657   EH7997            LCC SIB 3D
  B Board        REV 01   711-042424   EH7674            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB014         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB05A         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB052         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB01B         CXP Module
SIB 1            REV 01   750-041657   EH8023            LCC SIB 3D
  B Board        REV 01   711-042424   EH7659            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB05J         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01E         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB01J         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB02S         CXP Module
SIB 2            REV 03   750-041657   EJ6554            LCC SIB 3D
  B Board        REV 02   711-042424   EJ5756            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB34FB01Z         CXP Module
  Xcvr 2         REV 01   740-047547   XB34FB013         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB04Z         CXP Module
```



```
  Xcvr 6         REV 01   740-047547   XB48FB05N         CXP Module
Fan Tray 0                                                Front Top Fan Tray
Fan Tray 1                                                Front Bottom Fan Tray
Fan Tray 2                                                Rear Fan Tray -- Rev 4

lcc2-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN11B3975AHA      T1600
Midplane         REV 01   710-027486   RC9826            T-series Backplane
FPM GBUS         REV 13   710-002901   BBAG5124          T640 FPM Board
FPM Display      REV 03   710-021387   BBAJ1112          T1600 FPM Display
CIP              REV 06   710-002895   BBAL3744          T-series CIP
PEM 0            REV 05   740-036442   1G022060081       Power Entry Module 6x60
PEM 1            REV 05   740-036442   1G022060188       Power Entry Module 6x60
SCG 0            REV 18   710-003423   BBAH8775          T640 Sonet Clock Gen.
SCG 1            REV 18   710-003423   BBAL7272          T640 Sonet Clock Gen.
Routing Engine 0 REV 07   740-026941   P737F-002992      RE-DUO-1800
  ad0    3823 MB  SMART CF             20110303035632 9E329E Compact Flash
  ad1   62720 MB  SMART Lite SATA Drive 2011051000488D8B8D8B Disk 1
Routing Engine 1 REV 07   740-026941   P737F-002938      RE-DUO-1800
  ad0    3823 MB  SMART CF             20110304000F02680268 Compact Flash
  ad1   62720 MB  SMART Lite SATA Drive 201105300A70F325F325 Disk 1
CB 0             REV 11   710-022597   EH4805            LCC Control Board
CB 1             REV 11   710-022597   EH4786            LCC Control Board
FPC 1            REV 01   710-033873   BBAH0320          FPC Type 3-ES
  CPU            REV 11   710-016744   BBAF3281          ST-PMB2
  MMB 0          REV 06   710-025563   BBAF5061          ST-MMB2
FPC 5            REV 04   710-033871   BBAM5070          FPC Type 4-ES
  CPU            REV 11   710-016744   BBAM6653          ST-PMB2
  PIC 1          REV 20   750-017405   BBAM1296          4x 10GE (LAN/WAN) XFP
    Xcvr 0       REV 03   740-014289   T10B42981         XFP-10G-SR
  MMB 0          REV 07   710-025563   BBAN2631          ST-MMB2
  MMB 1          REV 07   710-025563   BBAN2538          ST-MMB2
SPMB 0           REV 05   710-023321   EH3903            LCC Switch CPU
SPMB 1           REV 05   710-023321   EH3902            LCC Switch CPU
SIB 0            REV 01   750-041657   EH8019            LCC SIB 3D
  B Board        REV 01   711-042424   EH7680            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB04F         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB04S         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB04B         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB043         CXP Module
SIB 1            REV 01   750-041657   EH8012            LCC SIB 3D
  B Board        REV 01   711-042424   EH7658            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB05E         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01Z         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB018         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB054         CXP Module
SIB 2            REV 01   750-041657   EH7993            LCC SIB 3D
  B Board        REV 01   711-042424   EH7678            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB05C         CXP Module
  Xcvr 2         REV 01   740-047547   XB47FB00N         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB05U         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB05L         CXP Module
Fan Tray 0                                                Front Top Fan Tray
Fan Tray 1                                                Front Bottom Fan Tray
Fan Tray 2                                                Rear Fan Tray -- Rev 4
```

show chassis hardware lcc (TX Matrix Plus router with 3D SIBs)

```
user@host> show chassis hardware lcc 0
lcc0-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN11B23FEAHA      T1600
Midplane         REV 01   710-027486   RC9787            T-series Backplane
FPM GBUS         REV 13   710-002901   BBAG5132          T640 FPM Board
FPM Display      REV 04   710-021387   BBAL9612          T1600 FPM Display
CIP              REV 06   710-002895   BBAN0605          T-series CIP
PEM 0            REV 05   740-036442   1G022060143       Power Entry Module 6x60
PEM 1            REV 05   740-036442   1G022060011       Power Entry Module 6x60
SCG 0            REV 18   710-003423   BBAL7318          T640 Sonet Clock Gen.
SCG 1            REV 18   710-003423   BBAL7255          T640 Sonet Clock Gen.
Routing Engine 0 REV 07   740-026941   P737F-002933      RE-DUO-1800
Routing Engine 1 REV 06   740-026941   P737F-002749      RE-DUO-1800
CB 0             REV 11   710-022597   EH3611            LCC Control Board
CB 1             REV 11   710-022597   EH4798            LCC Control Board
FPC 5            REV 17   710-013037   BBAC5333          FPC Type 4-ES
  CPU            REV 10   710-016744   BBAB7619          ST-PMB2
  PIC 0          REV 18   750-017405   BBAE3420          4x 10GE (LAN/WAN) XFP
    Xcvr 0       REV 03   740-014289   T10C90659         XFP-10G-SR
  MMB 0          REV 05   710-025563   BBAB9538          ST-MMB2
  MMB 1          REV 05   710-025563   BBAB9502          ST-MMB2
FPC 7            REV 01   750-045173   BBAV0032          FPC Type 5-3D
  CPU
SPMB 0           REV 05   710-023321   EG9434            LCC Switch CPU
SPMB 1           REV 05   710-023321   EH3878            LCC Switch CPU
SIB 0            REV 01   750-041657   EH7997            LCC SIB 3D
  B Board        REV 01   711-042424   EH7674            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB014         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB05A         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB052         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB01B         CXP Module
SIB 1            REV 01   750-041657   EH8023            LCC SIB 3D
  B Board        REV 01   711-042424   EH7659            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB48FB05J         CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01E         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB01J         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB02S         CXP Module
SIB 2            REV 03   750-041657   EJ6554            LCC SIB 3D
  B Board        REV 02   711-042424   EJ5756            LCC SIB 3D Mezz
  Xcvr 0         REV 01   740-047547   XB34FB01Z         CXP Module
  Xcvr 2         REV 01   740-047547   XB34FB013         CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB04Z         CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB05N         CXP Module
Fan Tray 0                                               Front Top Fan Tray
Fan Tray 1                                               Front Bottom Fan Tray
Fan Tray 2                                               Rear Fan Tray -- Rev 4
```

show chassis hardware sfc (TX Matrix Plus router with 3D SIBs)

```
user@host> show chassis hardware sfc 0
sfc0-re0:
--------------------------------------------------------------------------
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN11CAAA4AHB      TXP
Midplane         REV 05   710-022574   ABAC4696          SFC Midplane
```

```
FPM Display      REV 09   710-024027   EH3138           TXP FPM Display
CIP 0            REV 12   710-023792   EF6349           TXP CIP
CIP 1            REV 12   710-023792   EG5294           TXP CIP
PEM 0            Rev 06   740-027463   XH04595          Power Entry Module
PEM 1            Rev 06   740-027463   XH04592          Power Entry Module
Routing Engine 0 REV 07   740-026942   P737A-002541     RE-DUO-2600
Routing Engine 1 REV 07   740-026942   P737A-002602     RE-DUO-2600
CB 0             REV 15   710-022606   EH4376           SFC Control Board
CB 1             REV 15   710-022606   EH4379           SFC Control Board
SPMB 0                    BUILTIN                       SFC Switch CPU
SPMB 1                    BUILTIN                       SFC Switch CPU
SIB F13 0        REV 10   750-035002   EM9305           F13 SIB 3D
  B Board        REV 06   711-035082   EM9667           F13 SIB 3D Mezz
  P Board        REV 05   711-043544   EM9708           F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB34FB00S        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB01H        CXP Module
  Xcvr 4         REV 01   740-047547   XB34FB02W        CXP Module
  Xcvr 6         REV 01   740-047547   XB34FB01T        CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB00W        CXP Module
  Xcvr 10        REV 01   740-047547   XB34FB01S        CXP Module
  Xcvr 12        REV 01   740-047547   XB34FB03H        CXP Module
  Xcvr 14        REV 01   740-047547   XB34FB023        CXP Module
SIB F13 3        REV 01   710-035001   EJ2612           F13 SIB 3D
  B Board        REV 01   711-035082   EJ3815           F13 SIB 3D Mezz
  P Board        REV 01   711-043544   EJ2678           F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB48FB04C        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB00Z        CXP Module
  Xcvr 4         REV 01   740-047547   XB47FB036        CXP Module
  Xcvr 6         REV 01   740-047547   XB47FB029        CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB02N        CXP Module
  Xcvr 10        REV 01   740-047547   XB42FB0CS        CXP Module
  Xcvr 12        REV 01   740-047547   XB47FB01X        CXP Module
  Xcvr 14        REV 01   740-047547   XB48FB02F        CXP Module
SIB F13 6        REV 05   750-035002   EK2675           F13 SIB 3D
  B Board        REV 03   711-035082   EK2612           F13 SIB 3D Mezz
  P Board        REV 04   711-043544   EK1179           F13 SIB 3D Power
  Xcvr 0         REV 01   740-047547   XB48FB01T        CXP Module
  Xcvr 2         REV 01   740-047547   XB48FB02M        CXP Module
  Xcvr 4         REV 01   740-047547   XB48FB031        CXP Module
  Xcvr 6         REV 01   740-047547   XB48FB04P        CXP Module
  Xcvr 8         REV 01   740-047547   XB48FB02T        CXP Module
  Xcvr 10        REV 01   740-047547   XB34FB01V        CXP Module
  Xcvr 12        REV 01   740-047547   XB48FB02C        CXP Module
  Xcvr 14                 NON-JNPR                      No Module
SIB F13 12       REV 01   710-035001   EJ2631           F13 SIB 3D
  B Board        REV 01   711-035082   EJ3808           F13 SIB 3D Mezz
  P Board        REV 01   711-043544   EJ2676           F13 SIB 3D Power
SIB F2S 0/0      REV 01   711-034977   EH9829           F2S SIB 3D
  B Board        REV 01   711-034979   EH9927           F2S SIB 3D Mezz
SIB F2S 0/2      REV 01   711-034977   EH9791           F2S SIB 3D
  B Board        REV 01   711-034979   EH9852           F2S SIB 3D Mezz
SIB F2S 0/4      REV 01   711-034977   EH9803           F2S SIB 3D
  B Board        REV 01   711-034979   EH9915           F2S SIB 3D Mezz
SIB F2S 0/6      REV 01   711-034977   EH9763           F2S SIB 3D
  B Board        REV 01   711-034979   EH9880           F2S SIB 3D Mezz
SIB F2S 1/0      REV 01   711-034977   EH9757           F2S SIB 3D
  B Board        REV 01   711-034979   EH9889           F2S SIB 3D Mezz
SIB F2S 1/2      REV 01   711-034977   EH9815           F2S SIB 3D
  B Board        REV 01   711-034979   EH9890           F2S SIB 3D Mezz
SIB F2S 1/4      REV 08   750-034978   EN1954           F2S SIB 3D
  B Board        REV 02   711-034979   EN1436           F2S SIB 3D Mezz
```

```
SIB F2S 1/6      REV 01   711-034977   EJ7054            F2S SIB 3D
  B Board        REV 01   711-034979   EJ8238            F2S SIB 3D Mezz
SIB F2S 2/0      REV 01   711-034977   EH9830            F2S SIB 3D
  B Board        REV 01   711-034979   EH9844            F2S SIB 3D Mezz
SIB F2S 2/2      REV 01   711-034977   EH9818            F2S SIB 3D
  B Board        REV 01   711-034979   EH9888            F2S SIB 3D Mezz
SIB F2S 2/4      REV 01   711-034977   EH9795            F2S SIB 3D
  B Board        REV 01   711-034979   EH9869            F2S SIB 3D Mezz
SIB F2S 2/6      REV 01   711-034977   EJ7026            F2S SIB 3D
  B Board        REV 01   711-034979   EJ8273            F2S SIB 3D Mezz
SIB F2S 3/0      REV 01   711-034977   EH9811            F2S SIB 3D
  B Board        REV 01   711-034979   EH9892            F2S SIB 3D Mezz
SIB F2S 3/2      REV 01   711-034977   EH9812            F2S SIB 3D
  B Board        REV 01   711-034979   EH9877            F2S SIB 3D Mezz
SIB F2S 3/4      REV 08   750-034978   EN1947            F2S SIB 3D
  B Board        REV 02   711-034979   EN1471            F2S SIB 3D Mezz
Fan Tray 0       REV 10   760-024497   EH3313            Front Fan Tray
Fan Tray 1       REV 10   760-024497   EH3290            Front Fan Tray
Fan Tray 2       REV 10   760-024502   EH3292            Rear Fan Tray
Fan Tray 3       REV 10   760-024502   EH3287            Rear Fan Tray
Fan Tray 4       REV 10   760-024502   EH3286            Rear Fan Tray
Fan Tray 5       REV 10   760-024502   EH3285            Rear Fan Tray
```

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    ULH0KG3           CFP-100G-LR4
  MIC 1           REV 02   750-033199    YG3245            1X100GE CFP
   PIC 2                   BUILTIN       BUILTIN           1X100GE CFP
    Xcvr 0        REV 01   740-032210    ULH0KGF           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 Airlfow
Fan Tray 1                                               QFX Fan Tray, Back to
Front Airlfow
Fan Tray 2                                               QFX Fan Tray, Back to
Front Airlfow
```

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 models (QFX3500 Switches)

```
user@switch> show chassis hardware models
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          BUILTIN
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                                  QFX_olive
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                     BUILTIN      BUILTIN           FPC CPU
  PIC 0                   BUILTIN      BUILTIN           48x 10G-SFP+
    Xcvr 8       REV 01   740-030658   AD0946A028B       SFP+-10G-USR
...
```

show chassis hardware (PTX5000 Packet Transport Router)

```
user@host> show chassis hardware
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
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 (PTX5000 Packet Transport Router with FPC2-PTX-P1A)

```
user@host> show chassis hardware
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN1204FC0AJA      PTX5000
Midplane         REV 11   750-035893   ACAB8038          Midplane-8S
FPM              REV 12   760-030647   BBBD5619          Front Panel
Display
PDU 0            Rev 04   740-048336   1GB93470043       High Capacity DC PDU
  PSM 0          Rev 04   740-046988   1GB63500184       High Capacity DC PSM
  PSM 2          Rev 04   740-046988   1GB63500169       High Capacity DC PSM
  PSM 4          Rev 04   740-046988   1GB63500306       High Capacity DC PSM
  PSM 6          Rev 04   740-046988   1GB63500074       High Capacity DC PSM
PDU 1            Rev 04   740-048336   1GB93470045       High Capacity DC PDU
  PSM 1          Rev 04   740-046988   1GB63500193       High Capacity DC PSM
  PSM 3          Rev 04   740-046988   1GB63500143       High Capacity DC PSM
  PSM 5          Rev 04   740-046988   1GB63500146       High Capacity DC PSM
  PSM 7          Rev 04   740-046988   1GB63500192       High Capacity DC PSM
CCG 0            REV 09   750-030653   BBBC1909          Clock Generator
CCG 1            REV 09   750-030653   BBBD2970          Clock Generator
...
```

show chassis hardware clei-models (PTX5000 Packet Transport Router)

```
user@host> 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 clei-models (PTX5000 Packet Transport Router with FPC2-PTX-P1A)

```
user@host> show chassis hardware clei-models
Hardware inventory:
Item             Version  Part number  CLEI code         FRU model number
Midplane         REV 11   750-035893   IPMUN00ARA        CHAS-MP-PTX5000-S
FPM              REV 12   760-030647   IPUCA7SCAA        CRAFT-PTX5000-S
PDU 0            Rev 04   740-048336   IPUPAL7KAA        PDU2-PTX-DC-S
  PSM 0          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
  PSM 2          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
  PSM 4          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
  PSM 6          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
PDU 1            Rev 04   740-048336   IPUPAL7KAA        PDU2-PTX-DC-S
  PSM 1          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
  PSM 3          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
  PSM 5          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
  PSM 7          Rev 04   740-046988   IPUPAL8KAA        PSM2-PTX-DC-S
CCG 0            REV 09   750-030653   IPUCA7DCAA        CCG-PTX-S
CCG 1            REV 09   750-030653   IPUCA7DCAA        CCG-PTX-S
...
```

show chassis hardware detail (PTX5000 Packet Transport Router)

```
user@host> 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   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 detail (PTX5000 Packet Transport Router with FPC2-PTX-P1A)

```
user@host> show chassis hardware detail
Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN1204FC0AJA      PTX5000
Midplane         REV 11   750-035893   ACAB8038          Midplane-8S
FPM              REV 12   760-030647   BBBD5619          Front Panel
Display
PDU 0            Rev 04   740-048336   1GB93470043       High Capacity DC PDU
  PSM 0          Rev 04   740-046988   1GB63500184       High Capacity DC PSM
  PSM 2          Rev 04   740-046988   1GB63500169       High Capacity DC PSM
  PSM 4          Rev 04   740-046988   1GB63500306       High Capacity DC PSM
  PSM 6          Rev 04   740-046988   1GB63500074       High Capacity DC PSM
PDU 1            Rev 04   740-048336   1GB93470045       High Capacity DC PDU
  PSM 1          Rev 04   740-046988   1GB63500193       High Capacity DC PSM
  PSM 3          Rev 04   740-046988   1GB63500143       High Capacity DC PSM
  PSM 5          Rev 04   740-046988   1GB63500146       High Capacity DC PSM
  PSM 7          Rev 04   740-046988   1GB63500192       High Capacity DC PSM
CCG 0            REV 09   750-030653   BBBC1909          Clock Generator
CCG 1            REV 09   750-030653   BBBD2970          Clock Generator
...
```

show chassis hardware models (PTX5000 Packet Transport Router)

```
user@host> show chassis hardware models
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 models (PTX5000 Packet Transport Router with FPC2-PTX-P1A)

```
user@host> show chassis hardware models
Hardware inventory:
Item             Version  Part number  Serial number     FRU model number
Midplane         REV 11   750-035893   ACAB8038          CHAS-MP-PTX5000-S
FPM              REV 12   760-030647   BBBD5619          CRAFT-PTX5000-S
PDU 0            Rev 04   740-048336   1GB93470043       PDU2-PTX-DC-S
  PSM 0          Rev 04   740-046988   1GB63500184       PSM2-PTX-DC-S
  PSM 2          Rev 04   740-046988   1GB63500169       PSM2-PTX-DC-S
  PSM 4          Rev 04   740-046988   1GB63500306       PSM2-PTX-DC-S
  PSM 6          Rev 04   740-046988   1GB63500074       PSM2-PTX-DC-S
PDU 1            Rev 04   740-048336   1GB93470045       PDU2-PTX-DC-S
  PSM 1          Rev 04   740-046988   1GB63500193       PSM2-PTX-DC-S
  PSM 3          Rev 04   740-046988   1GB63500143       PSM2-PTX-DC-S
  PSM 5          Rev 04   740-046988   1GB63500146       PSM2-PTX-DC-S
  PSM 7          Rev 04   740-046988   1GB63500192       PSM2-PTX-DC-S
CCG 0            REV 09   750-030653   BBBC1909          CCG-PTX-S
CCG 1            REV 09   750-030653   BBBD2970          CCG-PTX-S
...
```

show chassis hardware extensive (PTX5000 Packet Transport Router)

```
user@host> 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:               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:               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 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:               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:               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:               ZW3574
Assembly ID:  0x0a44            Assembly Version:  01.06
Date:         02-19-2012        Assembly Flags:    0x00
Version:      REV 06            CLEI Code:         PROTOXCLEI
ID: AS-MSC          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 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 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-MSC
 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 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 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 c0 02 e6 6c 7f b0 02 ff 0a 44 01 06
  PIC 2                 BUILTIN      BUILTIN           AS-MXC
```

show chassis location

List of Syntax

Syntax on page 497
Syntax (TX Matrix Router) on page 497
Syntax (TX Matrix Plus Router) on page 497
Syntax (MX Series Router) on page 497
Syntax (QFX Series) on page 497

Syntax

show chassis location

Syntax (TX Matrix Router)

show chassis location
<fpc | interface (by-name *name* | by-slot fpc *number* lcc *number*) | lcc *number* | scc>

Syntax (TX Matrix Plus Router)

show chassis location
<fpc | interface (by-name *name* | by-slot fpc *number* lcc *number*) | lcc *number* | sfc *number*>

Syntax (MX Series Router)

show chassis location
<all-members>
<local>
<member *member-id*>

Syntax (QFX Series)

show chassis location
<interconnect-device *name*>
<node-device *name*>

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

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 routers.

all-members—(MX Series routers only) (Optional) Display the physical location of the chassis for all the member routers in the Virtual Chassis configuration.

fpc—(TX Matrix router and TX Matrix Plus router only) (Optional) Display the physical location of all Flexible PIC Concentrators (FPCs).

interconnect-device *name*—(QFabric systems only) (Optional) Display the physical location of the Interconnect device.

interface by-name *name*—(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 (line-card chassis) number associated

with the specified interface. On a TX Matrix Plus router, this option displays the FPC number and router (line-card chassis) number associated with the specified interface.

interface by-slot fpc *number* lcc *number*—(TX Matrix and TX Matrix Plus router only) (Optional) On a TX Matrix router, display the global FPC number of an interface by specifying its local FPC number and T640 router (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 router (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**. On TX Matrix Plus router with 3D SIBs, the value is **0** through **63**. 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 **7**.

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 (line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router , display the physical location of a specified router (line-card chassis) that is connected to a TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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 (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

Related Documentation
- *Displaying Chassis Physical Locations for a Routing Matrix with a TX Matrix Plus Router*

List of Sample Output

Output Fields Table 24 on page 499 lists the output fields for the **show chassis location** command. Output fields are listed in the approximate order in which they appear.

Table 24: show chassis location Output Fields

Field Name	Field Description
country-code	Country code information.
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**. On TX Matrix Plus router with 3D SIBs the value is **0** through **63**.
LATA	Local access transport area information.
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 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 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 fpc (TX Matrix Router)

```
user@host> show chassis location fpc
Global FPC    LCC     Local FPC
    17          2         1
    21          2         5
```

show chassis location interface by-slot (TX Matrix Router)

```
user@host> show chassis location interface by-slot fpc 1 lcc 1
Global FPC: 9
```

show chassis location fpc (TX Matrix Plus Router)

```
user@host> show chassis location fpc
Global FPC    LCC     Local FPC
     0          0         0
     1          0         1
```

show chassis location interface by-slot (TX Matrix Plus Router)

```
user@host> show chassis location interface by-slot fpc 2 lcc 1
Global FPC: 10
```

show chassis location (QFX3500 Switches)

```
user@switch> show chassis location
country-code: US
postal-code: 94404
Building: Building 2, Floor: 2
```

show chassis location (QFabric Systems)

```
user@switch> show chassis location interconnect-device interconnect1
country-code: US
postal-code: 94404
Building: Building 2, Floor: 2
```

show chassis pic

List of Syntax

Syntax

show chassis pic fpc-slot *slot-number* pic-slot *slot-number*

Syntax (TX Matrix and TX Matrix Plus Routers)

show chassis pic fpc-slot *slot-number* pic-slot *slot-number*
<lcc *number*>

Syntax (MX Series Routers)

show chassis pic fpc-slot *slot-number* pic-slot *slot-number*
<all-members>
<local>
<member *member-id*>

Syntax (MX104, MX2010 and MX2020 3D Universal Edge Routers)

show chassis pic fpc-slot *slot-number* pic-slot *slot-number*

Syntax (PTX Series Packet Transport Router)

show chassis pic transport fpc-slot *slot-number* pic-slot *slot-number*

Syntax (QFX Series)

show chassis pic
<interconnect-device *name* (fpc-slot *slot-number* | pic-slot *slot-number*)>
<node-device *name* pic-slot *slot-number*>

Syntax (ACX Series Universal Access Routers)

show chassis pic fpc-slot *slot-number* pic-slot *slot-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 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.
Command introduced in Junos OS Release 13.2 for PTX Series Packet Transport Routers.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

Description

Display status information about the PIC installed in the specified Flexible PIC Concentrator (FPC) and PIC slot.

Options

fpc-slot *slot-number*—Display information about the PIC in this particular FPC slot:

- 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> show chassis pic fpc-slot 1 lcc 1 pic-slot 1
  user@host> show chassis pic fpc-slot 9 pic-slot 1
  ```

- 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**.
- MX104 routers only—Replace ***slot-number*** with a value from **0** through **2**.
- 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**.
- MX2010 routers only—Replace ***slot-number*** with a value from **0** through **9**.
- 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 and QFX5100 standalone 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 and EX Series switches 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 (line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display PIC information for a specified router (line-card chassis) that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

local—(MX Series routers and EX Series switches only) (Optional) Display PIC information for the local Virtual Chassis member.

member ***member-id***—(MX Series routers and EX Series switches 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.

transport—Display PIC information for optical transport network.

Required Privilege Level

view

Related Documentation

- *request chassis pic*
- show chassis hardware on page 369
- *Configuring the PIC Type*
- *100-Gigabit Ethernet Type 4 PIC with CFP Overview*

List of Sample Output

show chassis pic fpc-slot pic-slot on page 506

Output Fields Table 25 on page 505 lists the output fields for the **show chassis pic** command. Output fields are listed in the approximate order in which they appear.

Table 25: 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**.
Account Layer2 Overhead	(MX Series routers) Indicates whether functionality to count the Layer 2 overhead bytes in the interface statistics at the PIC level is enabled or disabled.
ASIC type	Type of ASIC on the PIC.
State	Status of the PIC. State is displayed only when a PIC is in the slot. • **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. • 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 25: show chassis pic Output Fields *(continued)*

Field Name	Field Description

PIC Port Information (MX960 Router Bidirectional Optics)	Port-level information for the PIC.
	• 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.
	  ◦ 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. • 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.
Pic port information (MX104 router)	Port-level information for the PIC. • 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. • Xcvr Firmware—Firmware version of the transceiver.
Multirate Mode	Rate-selectabilty 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 pic-slot (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 (MX104 Router)

```
user@host> show chassis pic fpc-slot 1 pic-slot 1
FPC slot 1, PIC slot 1 information:
  Type                               10x 1GE(LAN) -E  SFP
  State                              Online
  PIC version                  1.1
  Uptime                         1 hour, 30 minutes, 59 seconds

PIC port information:
                         Fiber                    Xcvr vendor       Wave-    Xcvr

  Port Cable type        type  Xcvr vendor        part number       length
Firmware
  3    GIGE 1000T        n/a   Methode Elec.      SP7041-M1-JN      n/a      0.0
```

```
  6    GIGE 1000LX10     SM    FINISAR CORP.      FTLF1318P2BTL-J1  1310 nm  0.0

  8    GIGE 1000T        n/a   Methode Elec.      SP7041-M1-JN      n/a      0.0

  9    GIGE 1000T        n/a   Methode Elec.      SP7041-M1-JN      n/a      0.0
```

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)
  Account Layer2 Overhead         Enabled
  State                           Online
  PIC version                     0.0
  Uptime                          18 days, 5 hours, 41 minutes, 54 seconds

PIC port information:
                          Fiber                     Xcvr vendor
  Port  Cable type        type  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                     Xcvr vendor
  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 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 pic-slot (MX480 Router with MPC4E)

```
user@host> show chassis pic fpc-slot 3 pic-slot 0
FPC slot 3, PIC slot 0 information:
  Type                            4x10GE SFPP
  State                           Online
  PIC version                 0.0
  Uptime                        41 seconds

PIC port information:
                        Fiber                    Xcvr vendor       Wave-    Xcvr

  Port Cable type        type  Xcvr vendor        part number       length
Firmware
  0    10GBASE SR        MM    OPNEXT, INC.       TRS2001EM-0014    850 nm   0.0

  1    10GBASE SR        MM    OPNEXT, INC.       TRS2001EM-0014    850 nm   0.0
```

show chassis pic 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
  Account Layer2 Overhead         Enabled
  State                           Online
  PIC version                     0.0
  Uptime                          14 hours, 51 seconds
```

show chassis pic 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+
  Account Layer2 Overhead         Enabled
  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 pic-slot (MX2020 Routers with MPC4E)

```
user@host> show chassis pic fpc-slot 14 pic-slot 0
FPC slot 14, PIC slot 2 information:
  Type                            4x10GE SFPP
  State                           Online
  PIC version                 0.0
  Uptime                        1 day, 14 hours, 49 minutes, 9 seconds
```

```
PIC port information:
                        Fiber                    Xcvr vendor       Wave-    Xcvr

  Port Cable type        type  Xcvr vendor        part number       length
Firmware
  0    10GBASE SR        MM    SumitomoElectric   SPP5100SR-J3      850 nm   0.0

  1    10GBASE SR        MM    SumitomoElectric   SPP5100SR-J3      850 nm   0.0

  3    10GBASE SR        MM    SumitomoElectric   SPP5100SR-J3      850 nm   0.0
```

show chassis pic 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
  Port  Cable type        type  Xcvr vendor        part number       Wavelength
  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:
                          Fiber
  Port  Cable type        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:
                           Fiber                    Xcvr vendor
  Port  Cable type         type  Xcvr vendor        part number       Wavelength

  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 pic-slot (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:
                           Fiber                    Xcvr vendor
  Port  Cable type         type  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 pic-slot (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-8OC3OC12-4OC48
  State                            Online
  PIC version                  1.8
  Uptime                         3 days, 22 hours, 3 minutes, 50 seconds

PIC port information:
                           Fiber                    Xcvr vendor
```

```
  Port  Cable type        type  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 pic-slot (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:
                           Fiber                     Xcvr vendor
  Port  Cable type         type  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 pic-slot (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:
                           Fiber                     Xcvr vendor
  Port  Cable type         type  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 pic-slot (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-1OC192-XFP
  State                             Online
  PIC version                       1.2
  Uptime                            1 day, 11 hours, 4 minutes, 6 seconds

PIC port information:
                           Fiber                     Xcvr vendor
  Port  Cable type         type  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 fpc-slot pic-slot (QFX5100 Standalone Switch)

```
user@switch> show chassis pic fpc-slot 0 pic-slot 0
FPC slot 0, PIC slot 0 information:
  Type                            Unknown Builtin
  State                           Online
  Uptime                        1 day, 17 hours, 5 minutes, 9 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-GEBuiltin
  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:
                          Fiber                    Xcvr vendor
  Port  Cable type        type  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 pic-slot (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 Builtin
  State                             Online
  Uptime                          6 days, 2 hours, 51 minutes, 11 seconds
```

show chassis pic fpc-slot pic-slot (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 PIC slot (MX Routers with Media Services Blade [MSB])

```
user@switch> show chassis pic fpc-slot 1 pic-slot 2
Type                            AS-MXC
  State                           Online
  PIC version                  1.0
  Uptime                          11 hours, 18 minutes, 3 seconds
```


show chassis pic transport fpc-slot pic-slot (PTX Series Packet Transport Routers)

```
user@host> show chassis pic transport fpc-slot 2 pic-slot 0
Administrative State:      In Service
Operational    State:      Normal
```

show chassis routing-engine

List of Syntax

Syntax

show chassis routing-engine
<bios | *slot*>

Syntax (EX Series Switches)

show chassis routing-engine
<*slot*>

Syntax (T Series routers)

show chassis routing-engine
<bios | *slot*>

Syntax (TX Matrix Routers)

show chassis routing-engine
<bios | *slot*>
<lcc *number* | scc>

Syntax (TX Matrix Plus Routers)

show chassis routing-engine
<bios | *slot*>
<lcc *number* | sfc *number*>

Syntax (QFX Series)

show chassis routing-engine
<interconnect-device *name*>
<node-device *name*>

Syntax (MX Series Routers)

show chassis routing-engine
<bios | *slot*>
<all-members>
<local>
<member *member-id*>

Syntax (MX2010 3D Universal Edge Routers)

show chassis routing-engine
<bios | *slot*>

Syntax (MX2020 3D Universal Edge Routers)

show chassis routing-engine
<bios | *slot*>

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 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 (line-card chassis) that is connected to the TX Matrix router. On a TX Matrix Plus router, display Routing Engine information for a specified router (line-card chassis) that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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 (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*
- *Configuring Routing Engine Redundancy*
- *Switching the Global Master and Backup Roles in a Virtual Chassis Configuration*

List of Sample Output

Output Fields

Table 26 on page 519 lists the output fields for the **show chassis routing-engine** command. Output fields are listed in the approximate order in which they appear.

Table 26: 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. Starting with Junos OS Release 12.3R1, the DRAM field displays both available memory and installed memory.
Memory utilization	Percentage of Routing Engine memory being used.
CPU utilization	Information about the Routing Engine's CPU utilization: • **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 26: show chassis routing-engine Output Fields *(continued)*

Field Name	Field Description
Last reboot reason	Reason for last reboot, including: • **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 (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 (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 routing-engine (M40 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 (M120 Router)

```
user@host> show chassis routing-engine
Routing Engine status:
  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 routing-engine (M160 Router)

```
user@host> show chassis routing-engine
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 routing-engine (MX240 Router)

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

```
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 (T640 router)

```
user@host> show chassis routing-engine
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 (T1600 router)

```
user@host> show chassis routing-engine
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 (T4000 router)

```
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-DUO-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-DUO-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

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                       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

lcc2-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 interconnect-device (QFabric systems)

```
user@switch> show chassis routing-engine
Routing Engine status:
  Slot 0:
    Current state                  Master
    Election priority              Master (default)
    Temperature                 48 degrees C / 118 degrees F
    DRAM                      3312 MB
    Memory utilization          63 percent
    CPU utilization:
      User                      14 percent
      Background                 0 percent
      Kernel                     5 percent
      Interrupt                  0 percent
      Idle                      81 percent
    Model                          RE-QFXC08-CB4S
    Serial ID                      BUILTIN
    Start time                     2011-07-06 13:26:15 UTC
    Uptime                         11 hours, 24 minutes, 57 seconds
    Last reboot reason             0x4:reset-button reset
    Load averages:                 1 minute   5 minute  15 minute
                                       2.62       2.31       2.28
Routing Engine status:
  Slot 1:
    Current state                  Backup
    Election priority              Backup (default)
    Temperature                 39 degrees C / 102 degrees F
    DRAM                      3312 MB
    Memory utilization          59 percent
    CPU utilization:
      User                       9 percent
      Background                 0 percent
      Kernel                     1 percent
      Interrupt                  0 percent
      Idle                      91 percent
    Model                          RE-QFXC08-CB4S
    Serial ID                      BUILTIN
    Start time                     2011-07-06 13:24:58 UTC
    Uptime                         11 hours, 26 minutes, 18 seconds
    Last reboot reason             0x4:reset-button reset
```

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-DUO-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 (EX9200 Switch)

```
user@switch> show chassis routing-engine
Routing Engine status:
Slot 0:
  Current state                  Master
  Election priority              Master (default)
  Temperature                 35 degrees C / 95 degrees F
  CPU temperature             33 degrees C / 91 degrees F
  DRAM                      8157 MB
    Installed Memory        8192 MB
  Memory utilization          18 percent
CPU utilization:
  User                       1 percent
  Background                 0 percent
  Kernel                     4 percent
  Interrupt                  1 percent
  Idle                      94 percent
Model                          RE-S-EX9200-1800X4
Serial ID                      9009119555
Start time                     2014-03-12 14:58:05 UTC
Uptime                         1 hour, 41 minutes, 51 seconds
Last reboot reason             Router rebooted after a normal shutdown.
Load averages:                 1 minute   5 minute  15 minute
                               0.02       0.02       0.00
Routing Engine status:
```

```
Slot 1:
  Current state                  Backup
  Election priority              Backup (default)

[...Output truncasted...]
```

show chassis routing-engine (ACX2000 Universal Access Router)

```
user@host> show chassis routing-engine
Routing Engine status:
    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 (ACX1000 Universal Access Router)

```
user@host> show chassis routing-engine
Routing Engine status:
    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 temperature-thresholds

List of Syntax

Syntax

show chassis temperature-thresholds

Syntax (TX Matrix Routers)

show chassis temperature-thresholds
<lcc *number* | scc>

Syntax (TX Matrix Plus Routers)

show chassis temperature-thresholds
<lcc *number* | sfc *number*>

Syntax (MX Series Routers)

show chassis temperature-thresholds
<all-members>
<local>
<member *member-id*>

Syntax (MX104, MX2010, and MX2020 3D Universal Edge Routers)

show chassis temperature-thresholds

Syntax (QFX Series)

show chassis temperature-thresholds
<interconnect-device *name*>
<node-device *name*>

Release Information

Command introduced in Junos OS Release 8.0.
Command introduced in Junos OS Release 9.0 for EX Series switches.
sfc command introduced for the TX Matrix Plus router in Junos OS Release 9.6.
Command introduced in Junos OS Release 11.1 for QFX Series.
Command introduced in Junos OS Release 12.1 for T4000 Core Routers.
Command introduced in Junos OS Release 12.1x48 for PTX Series Packet Transport 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.
Command introduced in Junos OS Release 13.2 for MX104 3D Universal Edge Routers.

Description

Display chassis temperature threshold settings, in degrees Celsius.

Options

none—Display the temperature threshold details.

all-members—(MX Series routers only) (Optional) Display the chassis temperature threshold settings of all member routers in the Virtual Chassis configuration.

interconnect-device *name*—(QFabric systems only) (Optional) Display the chassis temperature threshold settings of the Interconnect device.

lcc ***number***—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display the temperature threshold details of a specified T640 router (line-card chassis) that is connected to a TX Matrix router. On a TX Matrix Plus router, display the temperature threshold details of a specified router (line-card chassis) that is connected to a TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

local—(MX Series routers only) (Optional) Display the chassis temperature threshold settings of the local Virtual Chassis member.

member ***member-id***—(MX Series routers only) (Optional) Display the chassis temperature threshold settings of 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 chassis temperature threshold settings of the Node device.

scc—(TX Matrix routers only) (Optional) Display the temperature threshold details of the TX Matrix router (switch-card chassis).

sfc ***number***—(TX Matrix Plus routers only) (Optional) On TX Matrix Plus routers, display the temperature threshold details of the TX Matrix Plus router, which is the switch-fabric chassis. Replace *number* with **0**.

Required Privilege Level

view

Related Documentation

- *Defining Alarm Thresholds for System Temperature Sensors*

List of Sample Output

show chassis temperature-thresholds lcc (TX Matrix Plus Router) on page 550
show chassis temperature-thresholds sfc (TX Matrix Plus Router) on page 550
show chassis temperature-thresholds (TX Matrix Plus routers with 3D SIBs) on page 551
show chassis temperature-thresholds (QFX3500 Switch and QFX3600) on page 552
show chassis temperature-thresholds interconnect-device (QFabric System) on page 553
show chassis temperature-thresholds (PTX5000 Packet Transport Router) on page 553
show chassis temperature-thresholds (MX Routers with Media Services Blade [MSB]) on page 554

Output Fields Table 27 on page 539 lists the output fields for the **show chassis temperature-thresholds** command. Output fields are listed in the approximate order in which they appear.

Table 27: show chassis temperature-thresholds Output Fields

Field name	Field Description
Item	Chassis component. If per FRU per slot thresholds are configured, the components about which information is displayed include the chassis, the Routing Engines, FPCs, and FEBs. If per FRU per slot thresholds are not configured, the components about which information is displayed include the chassis and the Routing Engines.
Fan speed	NOTE: On the QFX3500 switch and QFX3600 switch, there are four fan speeds: **low**, **medium-low**, **medium-high**, and **high**. The fan speed changes at the threshold when going from a low speed to a higher speed. When the fan speed changes from a higher speed to a lower speed, the temperature changes two degrees below the threshold. Temperature threshold settings, in degrees Celsius, for the fans to operate at normal and high speeds. • **Normal**—The fans operate at normal speed if the component is at or below this temperature and all the fans are present and functioning normally. NOTE: On a TX Matrix Plus router with 3D SIBs, the threshold temperature at the XF junction is set to 70ºC for **Normal** fan speed, which is less than or equal to 4800 RPM. • **High**—The fans operate at high speed if the component has exceeded this temperature or a fan has failed or is missing. NOTE: On a TX Matrix Plus router with 3D SIBs, the threshold temperature at the XF junction is set to 75ºC for **High** fan speed, which is greater than or equal to 5000 RPM. NOTE: For MX480 Routers, there are three fan speeds: **Low**, **Medium**, and **High**. An alarm is not triggered until the temperature exceeds the threshold settings for a yellow alarm or a red alarm.
Yellow alarm	Temperature threshold settings, in degrees Celsius, that trigger a yellow alarm. • **Normal**—The temperature that must be exceeded on the component to trigger a yellow alarm when the fans are running at full speed. • **Bad fan**—The temperature that must be exceeded on the component to trigger a yellow alarm when one or more fans have failed or are missing.

Table 27: show chassis temperature-thresholds Output Fields *(continued)*

Field name	Field Description
Red alarm	Temperature threshold settings, in degrees Celsius, that trigger a red alarm. • **Normal**—The temperature that must be exceeded on the component to trigger a red alarm when the fans are running at full speed. • **Bad fan**—The temperature that must be exceeded on the component to trigger a red alarm when one or more fans have failed or are missing.
Fire Shutdown	(T4000 routers, TX Matrix Plus router with 3D SIBs, and PTX Series Packet Transport Routers only)—Temperature threshold settings, in degrees Celsius, for the network device to shut down.

Sample Output

show chassis temperature-thresholds

```
user@host> show chassis temperature-thresholds

                          Fan speed        Yellow alarm         Red alarm
                         (degrees C)        (degrees C)        (degrees C)
Item                    Normal   High     Normal   Bad fan    Normal   Bad fan
Chassis default             48     54        65        55        75        65
Routing Engine 0            70     80        95        95       110       110
Routing Engine 1            70     80        95        95       110       110
FPC 0                       55     60        75        65        90        80
FPC 1                       55     60        75        65        90        80
FPC 2                       55     60        75        65        90        80
FPC 3                       55     60        75        65        90        80
FPC 4                       55     60        75        65        90        80
FPC 5                       55     60        75        65        90        80
FPC 6                       55     60        75        65        90        80
FPC 7                       55     60        75        65        90        80
FPC 8                       55     60        75        65        90        80
FPC 9                       55     60        75        65        90        80
FPC 10                      55     60        75        65        90        80
FPC 11                      55     60        75        65        90        80
```

show chassis temperature-thresholds (MX104 Router)

```
user@host> show chassis temperature-thresholds
       Fan speed      Yellow alarm      Red alarm      Fire Shutdown
                         (degrees C)      (degrees C)     (degrees C)
(degrees C)
Item                    Normal  High   Normal  Bad fan   Normal  Bad fan
Normal
Chassis default             48    54       65       55       75       65
100
Routing Engine 0            55    80       95       95      105      100
108
```

show chassis temperature-thresholds (MX240, MX480, MX960 Routers with Application Services Modular Line Card)

```
user@host> show chassis temperature-thresholds
Fan speed      Yellow alarm      Red alarm      Fire Shutdown
                  (degrees C)      (degrees C)     (degrees C)
(degrees C)
```

```
Item                      Normal  High   Normal  Bad fan   Normal  Bad fan
Normal
Chassis default               48    54       65       55       75       65
100
Routing Engine 0              70    80       95       95      110      110
112
Routing Engine 1              70    80       95       95      110      110
112
FPC 0                         55    60       75       65       90       80
95
FPC 1                         55    60       75       65       90       80
95
FPC 2                         55    60       75       65       90       80
95
FPC 4                         55    60       75       65       90       80
95
FPC 5                         55    60       75       65       90       80
95
```

show chassis temperature-thresholds (MX480 Router with MPC4E)

```
user@ host> show chassis temperature-thresholds
       Fan speed      Yellow alarm      Red alarm      Fire Shutdown
                          (degrees C)      (degrees C)     (degrees C)
(degrees C)
Item                      Normal  High   Normal  Bad fan   Normal  Bad fan
Normal
Chassis default               48    54       65       55       75       65
100
Routing Engine 0              70    80       95       95      110      110
112
Routing Engine 1              70    80       95       95      110      110
112
FPC 2                         55    60       75       65       95       80
100
FPC 3                         55    60       75       65       95       80
100
FPC 4                         55    60       75       65       90       80
95
```

show chassis temperature-thresholds (MX2010 Router)

```
user@host> show chassis temperature-thresholds
                  Fan speed       Yellow alarm      Red alarm     Fire Shutdown
                  (degrees C)     (degrees C)      (degrees C)    (degrees C)
Item                Normal  High   Normal  Bad fan   Normal  Bad fan  Normal
Routing Engine 0      70    80       95       95      110      110      112
Routing Engine 1      70    80       95       95      110      110      112
CB 0 IntakeA-Zone0    60    65       78       75       85       80       95
CB 0 IntakeB-Zone1    60    65       78       75       85       80       95
CB 0 IntakeC-Zone0    60    65       78       75       85       80       95
CB 0 ExhaustA-Zone0   60    65       78       75       85       80       95
CB 0 ExhaustB-Zone1   60    65       78       75       85       80       95
CB 0 TCBC-Zone0       60    65       78       75       85       80       95
CB 1 IntakeA-Zone0    60    65       78       75       85       80       95
CB 1 IntakeB-Zone1    60    65       78       75       85       80       95
CB 1 IntakeC-Zone0    60    65       78       75       85       80       95
CB 1 ExhaustA-Zone0   60    65       78       75       85       80       95
CB 1 ExhaustB-Zone1   60    65       78       75       85       80       95
CB 1 TCBC-Zone0       60    65       78       75       85       80       95
SPMB 0 Intake         56    62       75       63       83       76       95
```

SPMB 1 Intake	56	62	75	63	83	76	95
SFB 0 Intake-Zone0	56	62	75	63	82	70	87
SFB 0 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 0 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 0 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 0 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 0 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 0 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 0 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 1 Intake-Zone0	56	62	75	63	82	70	87
SFB 1 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 1 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 1 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 1 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 1 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 1 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 1 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 2 Intake-Zone0	56	62	75	63	82	70	87
SFB 2 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 2 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 2 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 2 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 2 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 2 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 2 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 3 Intake-Zone0	56	62	75	63	82	70	87
SFB 3 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 3 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 3 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 3 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 3 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 3 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 3 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 4 Intake-Zone0	56	62	75	63	82	70	87
SFB 4 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 4 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 4 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 4 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 4 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 4 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 4 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 5 Intake-Zone0	56	62	75	63	82	70	87
SFB 5 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 5 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 5 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 5 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 5 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 5 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 5 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 6 Intake-Zone0	56	62	75	63	82	70	87
SFB 6 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 6 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 6 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 6 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 6 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 6 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 6 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 7 Intake-Zone0	56	62	75	63	82	70	87
SFB 7 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 7 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 7 IntakeB-Zone1	56	62	75	63	82	70	87

```
SFB 7 Exhaust-Zone0     56     62        75        63        82        70        87
SFB 7 SFB-XF2-Zone1     70     80        90        90       107       107       115
SFB 7 SFB-XF1-Zone0     70     80        90        90       107       107       115
SFB 7 SFB-XF0-Zone0     70     80        90        90       107       107       115
FPC 0                   55     60        75        65        95        80       100
FPC 1                   55     60        75        65        90        80        95
FPC 2                   55     60        75        65        95        80       100
FPC 3                   55     60        75        65        90        80        95
FPC 4                   55     60        75        65        90        80        95
FPC 5                   55     60        75        65        95        80       100
FPC 6                   55     60        75        65        90        80        95
FPC 7                   55     60        75        65        95        80       100
FPC 8                   55     60        75        65        90        80        95
FPC 9                   55     60        75        65        95        80       100
ADC 0 Intake            56     62        75        63        83        76        95
ADC 0 Exhaust           56     62        75        63        83        76        95
ADC 0 ADC-XF1           70     80        90        90       107       107       115
ADC 0 ADC-XF0           70     80        90        90       107       107       115
ADC 1 Intake            56     62        75        63        83        76        95
ADC 1 Exhaust           56     62        75        63        83        76        95
ADC 1 ADC-XF1           70     80        90        90       107       107       115
ADC 1 ADC-XF0           70     80        90        90       107       107       115
ADC 2 Intake            56     62        75        63        83        76        95
ADC 2 Exhaust           56     62        75        63        83        76        95
ADC 2 ADC-XF1           70     80        90        90       107       107       115
ADC 2 ADC-XF0           70     80        90        90       107       107       115
ADC 3 Intake            56     62        75        63        83        76        95
ADC 3 Exhaust           56     62        75        63        83        76        95
ADC 3 ADC-XF1           70     80        90        90       107       107       115
ADC 3 ADC-XF0           70     80        90        90       107       107       115
ADC 4 Intake            56     62        75        63        83        76        95
ADC 4 Exhaust           56     62        75        63        83        76        95
ADC 4 ADC-XF1           70     80        90        90       107       107       115
ADC 4 ADC-XF0           70     80        90        90       107       107       115
ADC 5 Intake            56     62        75        63        83        76        95
ADC 5 Exhaust           56     62        75        63        83        76        95
ADC 5 ADC-XF1           70     80        90        90       107       107       115
ADC 5 ADC-XF0           70     80        90        90       107       107       115
ADC 6 Intake            56     62        75        63        83        76        95
ADC 6 Exhaust           56     62        75        63        83        76        95
ADC 6 ADC-XF1           70     80        90        90       107       107       115
ADC 6 ADC-XF0           70     80        90        90       107       107       115
ADC 7 Intake            56     62        75        63        83        76        95
ADC 7 Exhaust           56     62        75        63        83        76        95
ADC 7 ADC-XF1           70     80        90        90       107       107       115
ADC 7 ADC-XF0           70     80        90        90       107       107       115
ADC 8 Intake            56     62        75        63        83        76        95
ADC 8 Exhaust           56     62        75        63        83        76        95
ADC 8 ADC-XF1           70     80        90        90       107       107       115
ADC 8 ADC-XF0           70     80        90        90       107       107       115
ADC 9 Intake            56     62        75        63        83        76        95
ADC 9 Exhaust           56     62        75        63        83        76        95
ADC 9 ADC-XF1           70     80        90        90       107       107       115
ADC 9 ADC-XF0           70     80        90        90       107       107       115
```

show chassis temperature-thresholds (MX2020 Router)

```
user@host> show chassis temperature-thresholds
                    Fan speed        Yellow alarm      Red alarm    Fire Shutdown

                   (degrees C)     (degrees C)      (degrees C)     (degrees C)
```

Item	Normal	High	Normal	Bad fan	Normal	Bad fan	Normal
Routing Engine 0	70	80	95	95	110	110	112
Routing Engine 1	70	80	95	95	110	110	112
CB 0 IntakeA-Zone0	60	65	78	75	85	80	95
CB 0 IntakeB-Zone1	60	65	78	75	85	80	95
CB 0 IntakeC-Zone0	60	65	78	75	85	80	95
CB 0 ExhaustA-Zone0	60	65	78	75	85	80	95
CB 0 ExhaustB-Zone1	60	65	78	75	85	80	95
CB 0 TCBC-Zone0	60	65	78	75	85	80	95
CB 1 IntakeA-Zone0	60	65	78	75	85	80	95
CB 1 IntakeB-Zone1	60	65	78	75	85	80	95
CB 1 IntakeC-Zone0	60	65	78	75	85	80	95
CB 1 ExhaustA-Zone0	60	65	78	75	85	80	95
CB 1 ExhaustB-Zone1	60	65	78	75	85	80	95
CB 1 TCBC-Zone0	60	65	78	75	85	80	95
SPMB 0 Intake	56	62	75	63	83	76	95
SPMB 1 Intake	56	62	75	63	83	76	95
SFB 0 Intake-Zone0	56	62	75	63	82	70	87
SFB 0 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 0 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 0 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 0 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 0 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 0 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 0 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 1 Intake-Zone0	56	62	75	63	82	70	87
SFB 1 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 1 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 1 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 1 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 1 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 1 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 1 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 2 Intake-Zone0	56	62	75	63	82	70	87
SFB 2 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 2 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 2 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 2 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 2 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 2 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 2 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 3 Intake-Zone0	56	62	75	63	82	70	87
SFB 3 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 3 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 3 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 3 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 3 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 3 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 3 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 4 Intake-Zone0	56	62	75	63	82	70	87
SFB 4 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 4 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 4 IntakeB-Zone1	56	62	75	63	82	70	87
SFB 4 Exhaust-Zone0	56	62	75	63	82	70	87
SFB 4 SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 4 SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 4 SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 5 Intake-Zone0	56	62	75	63	82	70	87
SFB 5 Exhaust-Zone1	56	62	75	63	82	70	87
SFB 5 IntakeA-Zone0	56	62	75	63	82	70	87
SFB 5 IntakeB-Zone1	56	62	75	63	82	70	87

SFB 5	Exhaust-Zone0	56	62	75	63	82	70	87
SFB 5	SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 5	SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 5	SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 6	Intake-Zone0	56	62	75	63	82	70	87
SFB 6	Exhaust-Zone1	56	62	75	63	82	70	87
SFB 6	IntakeA-Zone0	56	62	75	63	82	70	87
SFB 6	IntakeB-Zone1	56	62	75	63	82	70	87
SFB 6	Exhaust-Zone0	56	62	75	63	82	70	87
SFB 6	SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 6	SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 6	SFB-XF0-Zone0	70	80	90	90	107	107	115
SFB 7	Intake-Zone0	56	62	75	63	82	70	87
SFB 7	Exhaust-Zone1	56	62	75	63	82	70	87
SFB 7	IntakeA-Zone0	56	62	75	63	82	70	87
SFB 7	IntakeB-Zone1	56	62	75	63	82	70	87
SFB 7	Exhaust-Zone0	56	62	75	63	82	70	87
SFB 7	SFB-XF2-Zone1	70	80	90	90	107	107	115
SFB 7	SFB-XF1-Zone0	70	80	90	90	107	107	115
SFB 7	SFB-XF0-Zone0	70	80	90	90	107	107	115
FPC 0		55	60	75	65	90	80	95
FPC 1		55	60	75	65	90	80	95
FPC 2		55	60	75	65	90	80	95
FPC 3		55	60	75	65	90	80	95
FPC 4		55	60	75	65	90	80	95
FPC 5		55	60	75	65	90	80	95
FPC 6		55	60	75	65	90	80	95
FPC 7		55	60	75	65	90	80	95
FPC 8		55	60	75	65	90	80	95
FPC 9		55	60	75	65	90	80	95
FPC 10		55	60	75	65	90	80	95
FPC 11		55	60	75	65	90	80	95
FPC 12		55	60	75	65	90	80	95
FPC 13		55	60	75	65	90	80	95
FPC 14		55	60	75	65	90	80	95
FPC 15		55	60	75	65	90	80	95
FPC 16		55	60	75	65	90	80	95
FPC 17		55	60	75	65	90	80	95
FPC 18		55	60	75	65	90	80	95
FPC 19		55	60	75	65	90	80	95
ADC 0	Intake	56	62	75	63	83	76	95
ADC 0	Exhaust	56	62	75	63	83	76	95
ADC 0	ADC-XF1	70	80	90	90	107	107	115
ADC 0	ADC-XF0	70	80	90	90	107	107	115
ADC 1	Intake	56	62	75	63	83	76	95
ADC 1	Exhaust	56	62	75	63	83	76	95
ADC 1	ADC-XF1	70	80	90	90	107	107	115
ADC 1	ADC-XF0	70	80	90	90	107	107	115
ADC 2	Intake	56	62	75	63	83	76	95
ADC 2	Exhaust	56	62	75	63	83	76	95
ADC 2	ADC-XF1	70	80	90	90	107	107	115
ADC 2	ADC-XF0	70	80	90	90	107	107	115
ADC 3	Intake	56	62	75	63	83	76	95
ADC 3	Exhaust	56	62	75	63	83	76	95
ADC 3	ADC-XF1	70	80	90	90	107	107	115
ADC 3	ADC-XF0	70	80	90	90	107	107	115
ADC 4	Intake	56	62	75	63	83	76	95
ADC 4	Exhaust	56	62	75	63	83	76	95
ADC 4	ADC-XF1	70	80	90	90	107	107	115
ADC 4	ADC-XF0	70	80	90	90	107	107	115
ADC 5	Intake	56	62	75	63	83	76	95

ADC 5 Exhaust	56	62	75	63	83	76	95
ADC 5 ADC-XF1	70	80	90	90	107	107	115
ADC 5 ADC-XF0	70	80	90	90	107	107	115
ADC 6 Intake	56	62	75	63	83	76	95
ADC 6 Exhaust	56	62	75	63	83	76	95
ADC 6 ADC-XF1	70	80	90	90	107	107	115
ADC 6 ADC-XF0	70	80	90	90	107	107	115
ADC 7 Intake	56	62	75	63	83	76	95
ADC 7 Exhaust	56	62	75	63	83	76	95
ADC 7 ADC-XF1	70	80	90	90	107	107	115
ADC 7 ADC-XF0	70	80	90	90	107	107	115
ADC 8 Intake	56	62	75	63	83	76	95
ADC 8 Exhaust	56	62	75	63	83	76	95
ADC 8 ADC-XF1	70	80	90	90	107	107	115
ADC 8 ADC-XF0	70	80	90	90	107	107	115
ADC 9 Intake	56	62	75	63	83	76	95
ADC 9 Exhaust	56	62	75	63	83	76	95
ADC 9 ADC-XF1	70	80	90	90	107	107	115
ADC 9 ADC-XF0	70	80	90	90	107	107	115
ADC 10 Intake	56	62	75	63	83	76	95
ADC 10 Exhaust	56	62	75	63	83	76	95
ADC 10 ADC-XF1	70	80	90	90	107	107	115
ADC 10 ADC-XF0	70	80	90	90	107	107	115
ADC 11 Intake	56	62	75	63	83	76	95
ADC 11 Exhaust	56	62	75	63	83	76	95
ADC 11 ADC-XF1	70	80	90	90	107	107	115
ADC 11 ADC-XF0	70	80	90	90	107	107	115
ADC 12 Intake	56	62	75	63	83	76	95
ADC 12 Exhaust	56	62	75	63	83	76	95
ADC 12 ADC-XF1	70	80	90	90	107	107	115
ADC 12 ADC-XF0	70	80	90	90	107	107	115
ADC 13 Intake	56	62	75	63	83	76	95
ADC 13 Exhaust	56	62	75	63	83	76	95
ADC 13 ADC-XF1	70	80	90	90	107	107	115
ADC 13 ADC-XF0	70	80	90	90	107	107	115
ADC 14 Intake	56	62	75	63	83	76	95
ADC 14 Exhaust	56	62	75	63	83	76	95
ADC 14 ADC-XF1	70	80	90	90	107	107	115
ADC 14 ADC-XF0	70	80	90	90	107	107	115
ADC 15 Intake	56	62	75	63	83	76	95
ADC 15 Exhaust	56	62	75	63	83	76	95
ADC 15 ADC-XF1	70	80	90	90	107	107	115
ADC 15 ADC-XF0	70	80	90	90	107	107	115
ADC 16 Intake	56	62	75	63	83	76	95
ADC 16 Exhaust	56	62	75	63	83	76	95
ADC 16 ADC-XF1	70	80	90	90	107	107	115
ADC 16 ADC-XF0	70	80	90	90	107	107	115
ADC 17 Intake	56	62	75	63	83	76	95
ADC 17 Exhaust	56	62	75	63	83	76	95
ADC 17 ADC-XF1	70	80	90	90	107	107	115
ADC 17 ADC-XF0	70	80	90	90	107	107	115
ADC 18 Intake	56	62	75	63	83	76	95
ADC 18 Exhaust	56	62	75	63	83	76	95
ADC 18 ADC-XF1	70	80	90	90	107	107	115
ADC 18 ADC-XF0	70	80	90	90	107	107	115
ADC 19 Intake	56	62	75	63	83	76	95
ADC 19 Exhaust	56	62	75	63	83	76	95
ADC 19 ADC-XF1	70	80	90	90	107	107	115
ADC 19 ADC-XF0	70	80	90	90	107	107	115

show chassis temperature-thresholds (MX2020 Router with MPC4E)

```
user@host> show chassis temperature-thresholds
     Fan speed       Yellow alarm      Red alarm      Fire Shutdown
                      (degrees C)      (degrees C)     (degrees C)      (degrees
C)
Item                 Normal  High   Normal  Bad fan   Normal  Bad fan     Normal
Routing Engine 0        70    80       95       95      110      110        112
Routing Engine 1        70    80       95       95      110      110        112
CB 0 IntakeA-Zone0      60    65       78       75       85       80         95
CB 0 IntakeB-Zone1      60    65       78       75       85       80         95
CB 0 IntakeC-Zone0      60    65       78       75       85       80         95
CB 0 ExhaustA-Zone0     60    65       78       75       85       80         95
CB 0 ExhaustB-Zone1     60    65       78       75       85       80         95
CB 0 TCBC-Zone0         60    65       78       75       85       80         95
CB 1 IntakeA-Zone0      60    65       78       75       85       80         95
CB 1 IntakeB-Zone1      60    65       78       75       85       80         95
CB 1 IntakeC-Zone0      60    65       78       75       85       80         95
CB 1 ExhaustA-Zone0     60    65       78       75       85       80         95
CB 1 ExhaustB-Zone1     60    65       78       75       85       80         95
CB 1 TCBC-Zone0         60    65       78       75       85       80         95
SPMB 0 Intake           56    62       75       63       83       76         95
SPMB 1 Intake           56    62       75       63       83       76         95
SFB 0 Intake-Zone0      56    62       70       70       85       85         89
SFB 0 Exhaust-Zone1     56    62       70       70       85       85         89
SFB 0 IntakeA-Zone0     56    62       70       70       85       85         89
SFB 0 IntakeB-Zone1     56    62       70       70       85       85         89
SFB 0 Exhaust-Zone0     56    62       70       70       85       85         89
SFB 0 SFB-XF2-Zone1     70    75       90       85       95       90        100
SFB 0 SFB-XF1-Zone0     70    75       90       85       95       90        100
SFB 0 SFB-XF0-Zone0     70    75       90       85       95       90        100
SFB 1 Intake-Zone0      56    62       70       70       85       85         89
SFB 1 Exhaust-Zone1     56    62       70       70       85       85         89
SFB 1 IntakeA-Zone0     56    62       70       70       85       85         89
SFB 1 IntakeB-Zone1     56    62       70       70       85       85         89
SFB 1 Exhaust-Zone0     56    62       70       70       85       85         89
SFB 1 SFB-XF2-Zone1     70    75       90       85       95       90        100
SFB 1 SFB-XF1-Zone0     70    75       90       85       95       90        100
SFB 1 SFB-XF0-Zone0     70    75       90       85       95       90        100
SFB 2 Intake-Zone0      56    62       70       70       85       85         89
SFB 2 Exhaust-Zone1     56    62       70       70       85       85         89
SFB 2 IntakeA-Zone0     56    62       70       70       85       85         89
SFB 2 IntakeB-Zone1     56    62       70       70       85       85         89
SFB 2 Exhaust-Zone0     56    62       70       70       85       85         89
SFB 2 SFB-XF2-Zone1     70    75       90       85       95       90        100
SFB 2 SFB-XF1-Zone0     70    75       90       85       95       90        100
SFB 2 SFB-XF0-Zone0     70    75       90       85       95       90        100
SFB 3 Intake-Zone0      56    62       70       70       85       85         89
SFB 3 Exhaust-Zone1     56    62       70       70       85       85         89
SFB 3 IntakeA-Zone0     56    62       70       70       85       85         89
SFB 3 IntakeB-Zone1     56    62       70       70       85       85         89
SFB 3 Exhaust-Zone0     56    62       70       70       85       85         89
SFB 3 SFB-XF2-Zone1     70    75       90       85       95       90        100
SFB 3 SFB-XF1-Zone0     70    75       90       85       95       90        100
SFB 3 SFB-XF0-Zone0     70    75       90       85       95       90        100
SFB 4 Intake-Zone0      56    62       70       70       85       85         89
SFB 4 Exhaust-Zone1     56    62       70       70       85       85         89
SFB 4 IntakeA-Zone0     56    62       70       70       85       85         89
SFB 4 IntakeB-Zone1     56    62       70       70       85       85         89
SFB 4 Exhaust-Zone0     56    62       70       70       85       85         89
SFB 4 SFB-XF2-Zone1     70    75       90       85       95       90        100
```

```
SFB 4 SFB-XF1-Zone0     70    75      90      85      95      90     100
SFB 4 SFB-XF0-Zone0     70    75      90      85      95      90     100
SFB 5 Intake-Zone0      56    62      70      70      85      85      89
SFB 5 Exhaust-Zone1     56    62      70      70      85      85      89
SFB 5 IntakeA-Zone0     56    62      70      70      85      85      89
SFB 5 IntakeB-Zone1     56    62      70      70      85      85      89
SFB 5 Exhaust-Zone0     56    62      70      70      85      85      89
SFB 5 SFB-XF2-Zone1     70    75      90      85      95      90     100
SFB 5 SFB-XF1-Zone0     70    75      90      85      95      90     100
SFB 5 SFB-XF0-Zone0     70    75      90      85      95      90     100
SFB 6 Intake-Zone0      56    62      70      70      85      85      89
SFB 6 Exhaust-Zone1     56    62      70      70      85      85      89
SFB 6 IntakeA-Zone0     56    62      70      70      85      85      89
SFB 6 IntakeB-Zone1     56    62      70      70      85      85      89
SFB 6 Exhaust-Zone0     56    62      70      70      85      85      89
SFB 6 SFB-XF2-Zone1     70    75      90      85      95      90     100
SFB 6 SFB-XF1-Zone0     70    75      90      85      95      90     100
SFB 6 SFB-XF0-Zone0     70    75      90      85      95      90     100
SFB 7 Intake-Zone0      56    62      70      70      85      85      89
SFB 7 Exhaust-Zone1     56    62      70      70      85      85      89
SFB 7 IntakeA-Zone0     56    62      70      70      85      85      89
SFB 7 IntakeB-Zone1     56    62      70      70      85      85      89
SFB 7 Exhaust-Zone0     56    62      70      70      85      85      89
SFB 7 SFB-XF2-Zone1     70    75      90      85      95      90     100
SFB 7 SFB-XF1-Zone0     70    75      90      85      95      90     100
SFB 7 SFB-XF0-Zone0     70    75      90      85      95      90     100
FPC 0                   55    60      75      65      90      80      95
FPC 9                   55    60      75      65      90      80      95
FPC 10                  55    60      75      65      90      80      95
FPC 14                  55    60      75      65      95      80     100
FPC 19                  55    60      75      65      90      80      95
ADC 0 Intake            50    55      60      60      65      65      80
ADC 0 Exhaust           50    55      60      60      65      65      80
ADC 0 ADC-XF1           70    75      90      85      95      90     100
ADC 0 ADC-XF0           70    75      90      85      95      90     100
ADC 9 Intake            50    55      60      60      65      65      80
ADC 9 Exhaust           50    55      60      60      65      65      80
ADC 9 ADC-XF1           70    75      90      85      95      90     100
ADC 9 ADC-XF0           70    75      90      85      95      90     100
ADC 10 Intake           50    55      60      60      65      65      80
ADC 10 Exhaust          50    55      60      60      65      65      80
ADC 10 ADC-XF1          70    75      90      85      95      90     100
ADC 10 ADC-XF0          70    75      90      85      95      90     100
ADC 14 Intake           50    55      60      60      65      65      80
ADC 14 Exhaust          50    55      60      60      65      65      80
ADC 14 ADC-XF1          70    75      90      85      95      90     100
ADC 14 ADC-XF0          70    75      90      85      95      90     100
ADC 19 Intake           50    55      60      60      65      65      80
ADC 19 Exhaust          50    55      60      60      65      65      80
ADC 19 ADC-XF1          70    75      90      85      95      90     100
ADC 19 ADC-XF0          70    75      90      85      95      90     100
```

show chassis temperature-thresholds (T4000 Core Routers)

```
user@host> show chassis temperature-thresholds

                     Fan speed      Yellow alarm       Red alarm   Fire Shutdown

                    (degrees C)     (degrees C)      (degrees C)    (degrees C)
Item                Normal  High   Normal  Bad fan   Normal  Bad fan     Normal
Chassis default        48    54       65       55       75       65       100
```

```
Routing Engine 0        55    65        85        85       100       100       102
Routing Engine 1        55    65        85        85       100       100       102
FPC 0                   63    68        75        70        90        83        95
FPC 3                   63    68        75        70        90        83        95
FPC 5                   56    62        75        63        83        76        95
FPC 6                   63    68        75        70        90        83        95
SIB 0                   64    70        76        72        87        84        95
SIB 1                   64    70        76        72        87        84        95
SIB 2                   64    70        76        72        87        84        95
SIB 3                   64    70        76        72        87        84        95
SIB 4                   64    70        76        72        87        84        95
```

show chassis temperature-thresholds (TX Matrix Plus Router)

```
user@host> show chassis temperature-thresholds
sfc0-re0:
--------------------------------------------------------------------------
                          Fan speed        Yellow alarm         Red alarm
                         (degrees C)        (degrees C)        (degrees C)
Item                    Normal   High     Normal   Bad fan    Normal   Bad fan
Chassis default             48     54        65        55        75        65
Routing Engine 0            55     65        85        85       100       100
Routing Engine 1            55     65        85        85       100       100
SIB F13 0                   64     70        76        72        90        84
SIB F13 3                   64     70        76        72        90        84
SIB F13 6                   64     70        76        72        90        84
SIB F13 8                   64     70        76        72        90        84
SIB F13 11                  64     70        76        72        90        84
SIB F13 12                  64     70        76        72        90        84
SIB F2S 16                  64     70        76        72        90        84
SIB F2S 17                  64     70        76        72        90        84
SIB F2S 18                  64     70        76        72        90        84
SIB F2S 19                  64     70        76        72        90        84
SIB F2S 20                  64     70        76        72        90        84
SIB F2S 21                  64     70        76        72        90        84
SIB F2S 22                  64     70        76        72        90        84
SIB F2S 23                  64     70        76        72        90        84
SIB F2S 24                  64     70        76        72        90        84
SIB F2S 25                  64     70        76        72        90        84
SIB F2S 26                  64     70        76        72        90        84
SIB F2S 27                  64     70        76        72        90        84
SIB F2S 28                  64     70        76        72        90        84
SIB F2S 29                  64     70        76        72        90        84
SIB F2S 30                  64     70        76        72        90        84
SIB F2S 31                  64     70        76        72        90        84
SIB F2S 32                  64     70        76        72        90        84
SIB F2S 33                  64     70        76        72        90        84
SIB F2S 34                  64     70        76        72        90        84
SIB F2S 35                  64     70        76        72        90        84

lcc0-re0:
--------------------------------------------------------------------------
                          Fan speed        Yellow alarm         Red alarm
                         (degrees C)        (degrees C)        (degrees C)
Item                    Normal   High     Normal   Bad fan    Normal   Bad fan
Chassis default             48     54        65        55        75        65
Routing Engine 0            55     65        85        85       100       100
Routing Engine 1            55     65        85        85       100       100
FPC 1                       56     62        75        63        83        76
FPC 3                       56     62        75        63        83        76
FPC 4                       56     62        75        63        83        76
```

```
FPC 6                        56     62        75        63        83        76
FPC 7                        56     62        75        63        83        76
SIB 0                        48     54        65        60        80        75
SIB 1                        48     54        65        60        80        75
SIB 2                        48     54        65        60        80        75
SIB 3                        48     54        65        60        80        75
SIB 4                        48     54        65        60        80        75

lcc1-re0:
--------------------------------------------------------------------------
                           Fan speed        Yellow alarm         Red alarm
                          (degrees C)        (degrees C)        (degrees C)
Item                     Normal   High    Normal   Bad fan    Normal   Bad fan
Chassis default              48     54        65        55        75        65
Routing Engine 0             55     65        85        85       100       100
Routing Engine 1             55     65        85        85       100       100
FPC 1                        56     62        75        63        83        76
FPC 3                        56     62        75        63        83        76
FPC 4                        56     62        75        63        83        76
FPC 6                        56     62        75        63        83        76
...
```

show chassis temperature-thresholds lcc (TX Matrix Plus Router)

```
user@host> show chassis temperature-thresholds lcc 1
lcc1-re0:
--------------------------------------------------------------------------
                           Fan speed        Yellow alarm         Red alarm
                          (degrees C)        (degrees C)        (degrees C)
Item                     Normal   High    Normal   Bad fan    Normal   Bad fan
Chassis default              48     54        65        55        75        65
Routing Engine 0             55     65        85        85       100       100
Routing Engine 1             55     65        85        85       100       100
FPC 1                        56     62        75        63        83        76
FPC 3                        56     62        75        63        83        76
FPC 4                        56     62        75        63        83        76
FPC 6                        56     62        75        63        83        76
SIB 0                        48     54        65        60        80        75
SIB 1                        48     54        65        60        80        75
SIB 2                        48     54        65        60        80        75
SIB 3                        48     54        65        60        80        75
SIB 4                        48     54        65        60        80        75
```

show chassis temperature-thresholds sfc (TX Matrix Plus Router)

```
user@host> show chassis temperature-thresholds sfc 0
sfc0-re0:
--------------------------------------------------------------------------
                           Fan speed        Yellow alarm         Red alarm
                          (degrees C)        (degrees C)        (degrees C)
Item                     Normal   High    Normal   Bad fan    Normal   Bad fan
Chassis default              48     54        65        55        75        65
Routing Engine 0             55     65        85        85       100       100
Routing Engine 1             55     65        85        85       100       100
SIB F13 0                    64     70        76        72        90        84
SIB F13 3                    64     70        76        72        90        84
SIB F13 6                    64     70        76        72        90        84
SIB F13 8                    64     70        76        72        90        84
SIB F13 11                   64     70        76        72        90        84
SIB F13 12                   64     70        76        72        90        84
SIB F2S 16                   64     70        76        72        90        84
```

```
SIB F2S 17                    64      70         76         72         90         84
SIB F2S 18                    64      70         76         72         90         84
SIB F2S 19                    64      70         76         72         90         84
SIB F2S 20                    64      70         76         72         90         84
SIB F2S 21                    64      70         76         72         90         84
SIB F2S 22                    64      70         76         72         90         84
SIB F2S 23                    64      70         76         72         90         84
SIB F2S 24                    64      70         76         72         90         84
SIB F2S 25                    64      70         76         72         90         84
SIB F2S 26                    64      70         76         72         90         84
SIB F2S 27                    64      70         76         72         90         84
SIB F2S 28                    64      70         76         72         90         84
SIB F2S 29                    64      70         76         72         90         84
SIB F2S 30                    64      70         76         72         90         84
SIB F2S 31                    64      70         76         72         90         84
SIB F2S 32                    64      70         76         72         90         84
SIB F2S 33                    64      70         76         72         90         84
SIB F2S 34                    64      70         76         72         90         84
SIB F2S 35                    64      70         76         72         90         84
```

show chassis temperature-thresholds (TX Matrix Plus routers with 3D SIBs)

```
user@host> show chassis temperature-thresholds
sfc0-re0:
--------------------------------------------------------------------------
                          Fan speed      Yellow alarm      Red alarm      Fire
Shutdown
                         (degrees C)      (degrees C)     (degrees C)
(degrees C)
Item                    Normal  High   Normal  Bad fan   Normal  Bad fan
Normal
Chassis default             48    54       65       55       75       65
100
Routing Engine 0            70    75       90       87      102       97
115
Routing Engine 1            70    75       90       87      102       97
115
SIB F13 0 Board             60    65       78       75       85       80
95
SIB F13 0 XF Junction       70    75       82       74      105      100
107
SIB F13 4 Board             60    65       78       75       85       80
95
SIB F13 4 XF Junction       70    75       82       74      105      100
107
SIB F13 6 Board             60    65       78       75       85       80
95
SIB F13 6 XF Junction       70    75       82       74      105      100
107
SIB F2S 16 Board            60    65       78       75       85       80
95
SIB F2S 16 XF Junction      70    75       82       74      105      100
107
SIB F2S 17 Board            60    65       78       75       85       80
95
SIB F2S 17 XF Junction      70    75       82       74      105      100
107
SIB F2S 18 Board            60    65       78       75       85       80
95
SIB F2S 18 XF Junction      70    75       82       74      105      100
107
```

```
SIB F2S 19 Board             60    65       78       75       85       80
95
SIB F2S 19 XF Junction       70    75       82       74      105      100
107
SIB F2S 24 Board             60    65       78       75       85       80
95
SIB F2S 24 XF Junction       70    75       82       74      105      100
107
SIB F2S 25 Board             60    65       78       75       85       80
95
SIB F2S 25 XF Junction       70    75       82       74      105      100
107
SIB F2S 26 Board             60    65       78       75       85       80
95
SIB F2S 26 XF Junction       70    75       82       74      105      100
107
SIB F2S 27 Board             60    65       78       75       85       80
95
SIB F2S 27 XF Junction       70    75       82       74      105      100
107

lcc0-re0:
--------------------------------------------------------------------------
                           Fan speed      Yellow alarm      Red alarm      Fire
Shutdown
                          (degrees C)      (degrees C)     (degrees C)
(degrees C)
Item                     Normal  High   Normal  Bad fan   Normal  Bad fan
Normal
Chassis default              48    54       65       55       75       65
100
Routing Engine 0             55    65       85       85      100      100
102
FPC 0                        63    68       75       70       90       83
95
FPC 1                        56    62       75       63       83       76
95
FPC 7                        56    62       75       63       83       76
95
SIB 0                        64    70       76       72       87       84
95
SIB 0 ASIC Junction          63    68       75       70      105      100
107
SIB 2                        64    70       76       72       87       84
95
SIB 2 ASIC Junction          63    68       75       70      105      100
107
SIB 3                        64    70       76       72       87       84
95
SIB 3 ASIC Junction          63    68       75       70      105      100
107
```

show chassis temperature-thresholds (QFX3500 Switch and QFX3600)

```
user@switch> show chassis temperature-thresholds
                           Fan speed      Yellow alarm      Red alarm
                          (degrees C)      (degrees C)     (degrees C)
Item                     Normal  High   Normal  Bad fan   Normal  Bad fan
rmal
FPC Sensor TopLeft I         48    56       53       43       56       46
FPC Sensor TopRight I        46    54       51       41       54       44
```

```
FPC Sensor TopLeft E          58    65       62       52       65       55
FPC Sensor TopRight E         56    64       61       51       64       54
FPC Sensor TopMiddle I        58    64       61       51       64       54
FPC Sensor TopMiddle E        67    74       71       61       74       64
FPC Sensor Bottom I           59    67       64       54       67       57
FPC Sensor Bottom E           66    73       70       60       73       63
FPC Sensor Die Temp           69    75       72       62       75       65
FPC Sensor Mgmnt Brd I        46    54       51       41       54       44
FPC Sensor Switch I           56    63       60       50       63       53
```

show chassis temperature-thresholds interconnect-device (QFabric System)

```
user@switch> show chassis temperature-thresholds interconnect-device interconnect1
temperature-thresholds interconnect-device interconnect1
                          Fan speed        Yellow alarm         Red alarm
Item                    Normal   High    Normal   Bad fan    Normal   Bad fan
Chassis default             48     54        65        55        75        65
```

show chassis temperature-thresholds (PTX5000 Packet Transport Router)

```
user@switch> show chassis temperature-thresholds
user@switch> show chassis temperature-thresholds
                     Fan speed      Yellow alarm       Red alarm   Fire Shutdown
                    (degrees C)     (degrees C)      (degrees C)    (degrees C)
Item                Normal  High   Normal  Bad fan   Normal  Bad fan     Normal
Routing Engine 0       70    75       90       87      102       97      115
Routing Engine 1       70    75       90       87      102       97      115
CB 0 Exhaust A         60    65       78       75       85       80       95
CB 0 Exhaust B         60    65       78       75       85       80       95
CB 1 Exhaust A         60    65       78       75       85       80       95
CB 1 Exhaust B         20    25       65       60       80       75      100
FPC 1 Exhaust A        60    65       78       75       85       80       95
FPC 1 Exhaust B        60    65       78       75       85       80       95
FPC 1 TL0              70    75       90       87      102       97      115
FPC 1 TQ0              70    75       90       87      102       97      115

FPC 1 TL1              70    75       90       87      102       97      115
FPC 1 TQ1              70    75       90       87      102       97      115
FPC 1 TL2              70    75       90       87      102       97      115
FPC 1 TQ2              70    75       90       87      102       97      115
FPC 1 TL3              70    75       90       87      102       97      115
FPC 1 TQ3              70    75       90       87      102       97      115
FPC 2 Exhaust A        60    65       78       75       85       80       95
FPC 2 Exhaust B        60    65       78       75       85       80       95
FPC 2 TL0              70    75       90       87      102       97      115
FPC 2 TQ0              70    75       90       87      102       97      115
FPC 2 TL1              70    75       90       87      102       97      115
FPC 2 TQ1              70    75       90       87      102       97      115
FPC 2 TL2              70    75       90       87      102       97      115
FPC 2 TQ2              70    75       90       87      102       97      115
FPC 2 TL3              70    75       90       87      102       97      115
FPC 2 TQ3              70    75       90       87      102       97      115
PIC 2/0 Ambient        60    65       78       75       85       80       95
PIC 2/0 cfp-2/0/1      60    65       70       67       75       72       85
PIC 2/1 Ambient        60    65       78       75       85       80       95
SIB 0 Exhaust          60    65       78       75       85       80       95
SIB 0 Junction         70    75       90       87      102       97      115
SIB 1 Exhaust          60    65       78       75       85       80       95
SIB 1 Junction         70    75       90       87      102       97      115
SIB 2 Exhaust          60    65       78       75       85       80       95
SIB 2 Junction         70    75       90       87      102       97      115
```

```
SIB 3 Exhaust          60    65       78       75       85       80       95
SIB 3 Junction         70    75       90       87      102       97      115
SIB 4 Exhaust          60    65       78       75       85       80       95
SIB 4 Junction         70    75       90       87      102       97      115
SIB 5 Exhaust          60    65       78       75       85       80       95
SIB 5 Junction         70    75       90       87      102       97      115
SIB 6 Exhaust          60    65       78       75       85       80       95
SIB 6 Junction         70    75       90       87      102       97      115
SIB 7 Exhaust          60    65       78       75       85       80       95
SIB 7 Junction         70    75       90       87      102       97      115
SIB 8 Exhaust          60    65       78       75       85       80       95
SIB 8 Junction         70    75       90       87      102       97      115
```

show chassis temperature-thresholds (MX Routers with Media Services Blade [MSB])

```
user@switch> show chassis temperature-thresholds
  Fan speed      Yellow alarm      Red alarm      Fire Shutdown
                      (degrees C)      (degrees C)     (degrees C)
(degrees C)
Item                   Normal  High   Normal  Bad fan   Normal  Bad fan
Normal
Chassis default            48    54       65       55       75       65
100
Routing Engine 0           70    80       95       95      110      110
112
Routing Engine 1           70    80       95       95      110      110
112
FPC 0                      55    60       75       65       90       80
95
FPC 1                      55    60       75       65       90       80
95
FPC 2                      55    60       75       65       90       80
95
FPC 4                      55    60       75       65       90       80
95
FPC 5                      55    60       75       65       90       80
95
```

show log

List of Syntax

Syntax on page 555
Syntax (QFabric System) on page 555
Syntax (TX Matrix Routers) on page 555

Syntax

show log
<*filename* | user <*username*>>

Syntax (QFabric System)

show log *filename*
<*device-type (device-id* | *device-alias*)>

Syntax (TX Matrix Routers)

show log
<all-lcc | lcc *number* | scc>
<*filename* | user <*username*>>

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.
Option *device-type (device-id* | *device-alias*) is introduced in Junos OS Release 13.1 for the QFX Series.

Description

List log files, display log file contents, or display information about users who have logged in to the router or switch.

Options

none—List all log files.

<all-lcc | lcc *number* | scc>—(TX Matrix routers only)(Optional) Display logging information about all T640 routers (or line-card chassis) or a specific T640 router (replace ***number*** with a value from 0 through 3) connected to a TX Matrix router. Or, display logging information about the TX Matrix router (or switch-card chassis).

device-type—(QFabric system only) (Optional) Display log messages for only one of the following device types:

- **director-device**—Display logs for Director devices.
- **infrastructure-device**—Display logs for the logical components of the QFabric system infrastructure, including the diagnostic Routing Engine, fabric control Routing Engine, fabric manager Routing Engine, and the default network Node group and its backup (NW-NG-0 and NW-NG-0-backup).
- **interconnect-device**—Display logs for Interconnect devices.
- **node-device**—Display logs for Node devices.

NOTE: If you specify the **device-type** optional parameter, you must also specify either the **device-id** or **device-alias** optional parameter.

(***device-id*** **|** ***device-alias***)—If a device type is specified, display logs for a device of that type. Specify either the device ID or the device alias (if configured).

filename—(Optional) Display the log messages in the specified log file. For the routing matrix, the filename must include the chassis information.

NOTE: The *filename* parameter is mandatory for the QFabric system. If you did not configure a syslog filename, specify the default filename of messages.

user <*username*>—(Optional) Display logging information about users who have recently logged in to the router or switch. If you include ***username***, display logging information about the specified user.

Required Privilege Level trace

List of Sample Output

show log on page 556
show log filename on page 556
show log filename (QFabric System) on page 557
show log user on page 557

Sample Output

show log

```
user@host> show log
total 57518
-rw-r--r--  1 root  bin      211663 Oct  1 19:44 dcd
-rw-r--r--  1 root  bin      999947 Oct  1 19:41 dcd.0
-rw-r--r--  1 root  bin      999994 Oct  1 17:48 dcd.1
-rw-r--r--  1 root  bin      238815 Oct  1 19:44 rpd
-rw-r--r--  1 root  bin     1049098 Oct  1 18:00 rpd.0
-rw-r--r--  1 root  bin     1061095 Oct  1 12:13 rpd.1
-rw-r--r--  1 root  bin     1052026 Oct  1 06:08 rpd.2
-rw-r--r--  1 root  bin     1056309 Sep 30 18:21 rpd.3
-rw-r--r--  1 root  bin     1056371 Sep 30 14:36 rpd.4
-rw-r--r--  1 root  bin     1056301 Sep 30 10:50 rpd.5
-rw-r--r--  1 root  bin     1056350 Sep 30 07:04 rpd.6
-rw-r--r--  1 root  bin     1048876 Sep 30 03:21 rpd.7
-rw-rw-r--  1 root  bin       19656 Oct  1 19:37 wtmp
```

show log filename

```
user@host> show log rpd
Oct  1 18:00:18 trace_on: Tracing to ?/var/log/rpd? started
Oct  1 18:00:18 EVENT <MTU> ds-5/2/0.0 index 24 <Broadcast PointToPoint Multicast
Oct  1 18:00:18
Oct  1 18:00:19 KRT recv len 56 V9 seq 148 op add Type route/if af 2 addr
13.13.13.21 nhop type local nhop 13.13.13.21
Oct  1 18:00:19 KRT recv len 56 V9 seq 149 op add Type route/if af 2 addr
13.13.13.22 nhop type unicast nhop 13.13.13.22
Oct  1 18:00:19 KRT recv len 48 V9 seq 150 op add Type ifaddr index 24 devindex
43
Oct  1 18:00:19 KRT recv len 144 V9 seq 151 op chnge Type ifdev devindex 44
```

```
Oct  1 18:00:19 KRT recv len 144 V9 seq 152 op chnge Type ifdev devindex 45
Oct  1 18:00:19 KRT recv len 144 V9 seq 153 op chnge Type ifdev devindex 46
Oct  1 18:00:19 KRT recv len 1272 V9 seq 154 op chnge Type ifdev devindex 47
...
```

show log filename (QFabric System)

```
user@qfabric> show log messages
Mar 28 18:00:06 qfabric chassisd: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:06 ED1486
 chassisd: CHASSISD_SNMP_TRAP10: SNMP trap generated: FRU power on
(jnxFruContentsIndex 8, jnxFruL1Index 1, jnxFruL2Index 1, jnxFruL3Index 0,
jnxFruName PIC: 48x 10G-SFP+ @ 0/0/*, jnxFruType 11, jnxFruSlot 0,
jnxFruOfflineReason 2, jnxFruLastPowerOff 0, jnxFruLastPowerOn 2159)
Mar 28 18:00:07 qfabric chassisd: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:07 ED1486
 chassisd: CHASSISD_SNMP_TRAP10: SNMP trap generated: FRU power on
(jnxFruContentsIndex 8, jnxFruL1Index 1, jnxFruL2Index 2, jnxFruL3Index 0,
jnxFruName PIC:  @ 0/1/*, jnxFruType 11, jnxFruSlot 0, jnxFruOfflineReason 2,
jnxFruLastPowerOff 0, jnxFruLastPowerOn 2191)
Mar 28 18:00:07 qfabric chassisd: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:07 ED1492
 chassisd: CHASSISD_SNMP_TRAP10: SNMP trap generated: FRU power on
(jnxFruContentsIndex 8, jnxFruL1Index 1, jnxFruL2Index 1, jnxFruL3Index 0,
jnxFruName PIC: 48x 10G-SFP+ @ 0/0/*, jnxFruType 11, jnxFruSlot 0,
jnxFruOfflineReason 2, jnxFruLastPowerOff 0, jnxFruLastPowerOn 242726)
Mar 28 18:00:07 qfabric chassisd: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:07 ED1492
 chassisd: CHASSISD_SNMP_TRAP10: SNMP trap generated: FRU power on
(jnxFruContentsIndex 8, jnxFruL1Index 1, jnxFruL2Index 2, jnxFruL3Index 0,
jnxFruName PIC:  @ 0/1/*, jnxFruType 11, jnxFruSlot 0, jnxFruOfflineReason 2,
jnxFruLastPowerOff 0, jnxFruLastPowerOn 242757)
Mar 28 18:00:16 qfabric file: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:16 ED1486
file: UI_COMMIT: User 'root' requested 'commit' operation (comment: none)
Mar 28 18:00:27 qfabric file: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:27 ED1486
file: UI_COMMIT: User 'root' requested 'commit' operation (comment: none)
Mar 28 18:00:50 qfabric file: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:50
_DCF_default___NW-INE-0_RE0_ file: UI_COMMIT: User 'root' requested 'commit'
operation (comment: none)
Mar 28 18:00:50 qfabric file: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:50
_DCF_default___NW-INE-0_RE0_ file: UI_COMMIT: User 'root' requested 'commit'
operation (comment: none)
Mar 28 18:00:55 qfabric file: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:00:55 ED1492
file: UI_COMMIT: User 'root' requested 'commit' operation (comment: none)
Mar 28 18:01:10 qfabric file: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:01:10 ED1492
file: UI_COMMIT: User 'root' requested 'commit' operation (comment: none)
Mar 28 18:02:37 qfabric chassisd: QFABRIC_INTERNAL_SYSLOG: Mar 28 18:02:37 ED1491
 chassisd: CHASSISD_SNMP_TRAP10: SNMP trap generated: FRU power on
(jnxFruContentsIndex 8, jnxFruL1Index 1, jnxFruL2Index 1, jnxFruL3Index 0,
jnxFruName PIC: 48x 10G-SFP+ @ 0/0/*, jnxFruType 11, jnxFruSlot 0,
jnxFruOfflineReason 2, jnxFruLastPowerOff 0, jnxFruLastPowerOn 33809)
```

show log user

```
user@host> show log user
darius   mg2546                    Thu Oct  1 19:37   still logged in
darius   mg2529                    Thu Oct  1 19:08 - 19:36  (00:28)
darius   mg2518                    Thu Oct  1 18:53 - 18:58  (00:04)
root     mg1575                    Wed Sep 30 18:39 - 18:41  (00:02)
root     ttyp2    jun.site.per    Wed Sep 30 18:39 - 18:41  (00:02)
alex     ttyp1    192.168.1.2      Wed Sep 30 01:03 - 01:22  (00:19)
```

show system alarms

Syntax show system alarms

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 active system alarms.

Options This command has no options.

Additional Information System alarms are preset. They include a **configuration** alarm that appears when no rescue configuration alarm is set and a **license** alarm that appears when a software feature is configured and no valid license is configured for the feature. For more information about system alarms, see the *Junos OS Administration Library for Routing Devices*.

In Junos OS release 11.1 and later, alarms for fans also show the slot number of the fans in the CLI output.

Starting with Junos OS Release 13.2, you can view degraded fabric alarms on a routing matrix based on TX Matrix Plus router with 3D SIBs. The alarm indicates that the source FPC is running with a degraded fabric condition. This alarm is an early warning of a possible fabric black-hole condition. When the degraded fabric alarm is raised on the source FPC, you can take remedial action to avoid a fabric black-hole condition. The degraded fabric alarm is raised on the source FPC if both the following conditions are met:

- The active Packet Forwarding Engine destinations are reachable on one or no active switching planes.
- At least one of the inactive switching planes has a fault that causes the destination Packet Forwarding Engine to become unreachable.

Required Privilege Level admin

List of Sample Output

Sample Output

show system alarms

```
user@host> show system alarms
2 alarms currently active
Alarm time                    Class     Description
2005-02-24 17:29:34 UTC       Minor     IPsec VPN tunneling usage requires a
license
2005-02-24 17:29:34 UTC       Minor     Rescue configuration is not sent
```


show system alarms (Fan Tray)

```
user@host> show system alarms
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 system alarms (QFX Series)

```
user@switches> show system alarms
2 alarms currently active
Alarm time Class Description
2005-02-24 17:29:34 UTC Minor Rescue configuration is not sent
```

show system alarms (TX Matrix Plus router with 3D SIBs)

```
user@router> show system alarms

sfc0-re0:
--------------------------------------------------------------------------
2 alarms currently active
Alarm time               Class  Description
2013-05-08 18:13:58 UTC  Major  LCC 0 Major Errors
2013-05-08 17:48:46 UTC  Major  LCC 7 Major Errors

lcc0-re1:
--------------------------------------------------------------------------
1 alarm currently active
Alarm time               Class  Description
2013-05-08 18:19:24 UTC  Major  FPC 1 degraded fabric condition detected

lcc7-re0:
--------------------------------------------------------------------------
1 alarm currently active
Alarm time               Class  Description
2013-05-08 18:19:24 UTC  Major  FPC 7 degraded fabric condition detected
```

show system processes

List of Syntax

Syntax

show system processes
<brief | detail | extensive | summary>
<health (pid *process-identifer* | process-name *process-name*)>
<providers>
<resource-limits (brief | detail) *process-name*>
<wide>

Syntax (EX Series Switches)

show system processes
<all-members>
<brief | detail | extensive | summary>
<health (pid *process-identifer* | process-name *process-name*)>
<local>
<member *member-id*>
<providers>
<resource-limits (brief | detail) *process-name*>
<wide>

Syntax (MX Series Routers)

show system processes
<all-members>
<brief | detail | extensive | summary>
<health (pid *process-identifer* | process-name *process-name*)>
<local>
<member *member-id*>
<providers>
<resource-limits (brief | detail) *process-name*>
<wide>

Syntax (QFX Series)

show system processes
<brief | detail | extensive | summary >
<health (pid *process-identifer* | process-name *process-name*)>
<interconnect-device *name*>
<node-group *name*>
<providers>
<resource-limits>
<wide>

Syntax (TX Matrix Routers)

show system processes
<brief | detail | extensive | summary>
<all-chassis| all-lcc | lcc *number* | scc>
<wide>

Syntax (TX Matrix Plus Router)

show system processes
<brief | detail | extensive | summary>
<all-chassis| all-lcc | lcc *number* | sfc *number*>

<wide>

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.

Description Display information about software processes that are running on the router or switch and that have controlling terminals.

Options **none**—Display standard information about system processes.

brief | detail | extensive | summary—(Optional) Display the specified level of detail.

adaptive-services—(Optional) Display 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.

alarm-control—(Optional) Display the process to configure the system alarm.

all-chassis—(TX Matrix routers and TX Matrix Plus routers only) (Optional) Display standard system process information about all the T640 routers (in a routing matrix based on the TX Matrix router) or all the T1600 or T4000 routers (in a routing matrix based on the TX Matrix Plus router) in the chassis.

all-lcc—(TX Matrix routers and TX Matrix Plus router only) (Optional) Display standard system process information for all T640 routers (or line-card chassis) connected to the TX Matrix router. Display standard system process information for all connected T1600 or T4000 LCCs.

all-members—(EX4200 switches and MX Series routers only) (Optional) Display standard system process information for all members of the Virtual Chassis configuration.

ancpd-service—Display 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 —Display 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) Display the RADIUS accounting process.

auto-configuration—Display the Interface Auto-Configuration process.

bootp—Display the process that enables a router, switch, or interface to act as a Dynamic Host Configuration Protocol (DHCP) or bootstrap protocol (BOOTP) relay agent. DHCP relaying is disabled.

captive-portal-content-delivery—Display 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—(Optional) (M10, M10i, M7i, and MX Series routers only) Display the Universal Edge Layer 2 Tunneling Protocol (L2TP) process, which establishes L2TP tunnels and Point-to-Point Protocol (PPP) sessions through L2TP tunnels.

cfm—Display Ethernet Operations, Administration, and Maintenance (OAM) connectivity fault management (CFM) process, which can be used to monitor the physical link between two switches.

chassis-control—(Optional) Display the chassis management process.

class-of-service—(Optional) Display the class-of-service (CoS) process, which controls the router's or switch's CoS configuration.

clksyncd-service—Display the external clock synchronization process, which uses synchronous Ethernet (SyncE).

craft-control—Display the process for the I/O of the craft interface.

database-replication—(EX Series switches and MX Series routers only) (Optional) Display the database replication process.

datapath-trace-service—Display the packet path tracing process.

dhcp-service—(EX Series switches and MX Series routers only) (Optional) Display the Dynamic Host Configuration Protocol process, which enables a DHCP server to allocate network IP addresses and deliver configuration settings to client hosts without user intervention.

diameter-service—(Optional) Display the diameter process.

disk-monitoring—(Optional) Display the disk monitoring process, which checks the health of the hard disk drive on the Routing Engine.

dynamic-flow-capture—(Optional) Display the dynamic flow capture (DFC) process, which controls DFC configurations on Monitoring Services III PICs.

ecc-error-logging—(Optional) Display the error checking and correction (ECC) process, which logs ECC parity errors in memory on the Routing Engine.

ethernet-connectivity-fault-management— Display the process that provides IEEE 802.1ag 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) Display the process that provides the OAM link fault management (LFM) information for Ethernet interfaces.

event-processing—(Optional) Display the event process (eventd).

firewall—(Optional) Display 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) Display the general authentication process.

health (pid *process-identifer* | process-name *process-name*)—(Optional) Display process health information, either by process id (PID) or by process name.

iccp-service—Display the Inter-Chassis Communication Protocol (ICCP) process.

idp-policy—Display the intrusion detection and prevention (IDP) protocol process.

ilmi—Display the Integrated Local Management Interface (ILMI) protocol process, which provides bidirectional exchange of management information between two ATM interfaces across a physical connection.

inet-process—Display the IP multicast family process.

init—Display the process that initializes the USB modem.

interface-control—(Optional) Display the interface process, which controls the router's or switch's physical interface devices and logical interfaces.

kernel-replication—(Optional) Display the kernel replication process, which replicates the state of the backup Routing Engine when graceful Routing Engine switchover (GRES) is configured.

l2-learning—(Optional) Display the Layer 2 address flooding and learning process.

l2cpd-service—Display the Layer 2 Control Protocol process, which enables features such as Layer 2 protocol tunneling and nonstop bridging.

lacp—(Optional) Display 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 routers and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display standard system process information for a specific T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, display standard system process information for a specific router that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.

- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

local—(EX4200 switches and MX Series routers only) (Optional) Display standard system process information for the local Virtual Chassis member.

local-policy-decision-function—Display 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.

logical-system-mux—Display the logical router multiplexer process (lrmuxd), which manages the multiple instances of the routing protocols process (rpd) on a machine running logical routers.

mac-validation—Display the 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*—(EX4200 switches and MX Series routers only) (Optional) Display standard system process 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.

mib-process—(Optional) Display the MIB II process, which provides the router's MIB II agent.

mobile-ip—(Optional) Display the Mobile IP process, which configures Junos OS Mobile IP features.

mountd-service—(EX Series switches and MX Series routers only) (Optional) Display the service for NFS mounts requests.

mpls-traceroute—(Optional) Display the MPLS Periodic Traceroute process.

mspd—(Optional) Display the Multiservice process.

multicast-snooping—(EX Series switches and MX Series routers only) (Optional) Display 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) Display the DNS Server process, which is used by a router or a switch to resolve hostnames into addresses.

neighbor-liveness—Display the process, which specifies the maximum length of time that the router waits for its neighbor to re-establish an LDP session.

nfsd-service—(Optional) Display the Remote NFS Server process, which provides remote file access for applications that need NFS-based transport.

ntp—Display the Network Time Protocol (NTP) process, which provides the mechanisms to synchronize time and coordinate time distribution in a large, diverse network.

packet-triggered-subscribers—Display the packet-triggered subcribers 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) Display the Peer Selection Service process.

periodic-packet-services—Display the Periodic packet management process, which is responsible for processing a variety of time-sensitive periodic tasks so that other processes can more optimally direct their resources.

pfe—Display the Packet Forwarding Engine management process.

pgcp-service—(Optional) Display the pgcpd service process running on the Routing Engine.

pgm—Display the Pragmatic General Multicast (PGM) protocol process, which enables a reliable transport layer for multicast applications.

pic-services-logging—(Optional) Display 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.

ppp—(Optional) Display the Point-to-Point Protocol (PPP) process, which is the encapsulation protocol process for transporting IP traffic across point-to-point links.

ppp-service—Display the Universal edge PPP process, which is the encapsulation protocol process for transporting IP traffic across universal edge routers.

pppoe—(Optional) Display 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.

process-monitor—Display the process health monitor process (pmond).

providers—(Optional) Display provider processes.

redundancy-interface-process—(Optional) Display the ASP redundancy process.

remote-operations—(Optional) Display the remote operations process, which provides the ping and traceroute MIBs.

resource-cleanup—Display the resource cleanup process.

resource-limits (brief | detail) ***process-name***—(Optional) Display process resource limits.

routing—(Optional) Display the routing protocol process.

sampling—(Optional) Display the sampling process, which performs packet sampling based on particular input interfaces and various fields in the packet header.

sbc-configuration-process—Display the session border controller (SBC) process of the border signaling gateway (BSG).

scc—(TX Matrix routers only) (Optional) Display standard system process information for the TX Matrix router (or switch-card chassis).

sdk-service—Display 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—(EX Series switches and MX Series routers only) (Optional) Display the secure Neighbor Discovery Protocol (NDP) process, which provides support for protecting NDP messages.

send—(Optional) Display the Secure Neighbor Discovery Protocol (SEND) process, which provides support for protecting Neighbor Discovery Protocol (NDP) messages.

service-deployment—(Optional) Display the service deployment process, which enables Junos OS to work with the Session and Resource Control (SRC) software.

sfc ***number***—(TX Matrix Plus routers only) (Optional) Display system process information for the TX Matrix Plus router. Replace ***number*** with 0.

snmp—Display 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.

sonet-aps—Display the SONET Automatic Protection Switching (APS) process, which monitors any SONET interface that participates in APS.

static-subscribers—(Optional) Display the Static subscribers process, which associates subscribers with statically configured interfaces and provides dynamic service activation and activation for these subscribers.

tunnel-oamd—(Optional) Display 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 protocol data units (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.

vrrp—(EX Series switches and MX Series routers only) (Optional) Display 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.

watchdog—Display the watchdog timer process, which enables the watchdog timer when Junos OS encounters a problem.

wide—(Optional) Display process information that might be wider than 80 columns.

Additional Information

By default, when you issue the **show system processes** command on the master Routing Engine of a TX Matrix router or a TX Matrix Plus router, the command is broadcast to all the master Routing Engines of the LCCs connected to it in the routing matrix. Likewise,

if you issue the same command on the backup Routing Engine of a TX Matrix or a TX Matrix Plus router, the command is broadcast to all backup Routing Engines of the LCCs that are connected to it in the routing matrix.

Required Privilege Level view

Related Documentation

- *List of Junos OS Processes*
- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output

show system processes on page 569
show system processes brief on page 569
show system processes detail on page 570
show system processes extensive on page 570
show system processes extensive (EX9200 Switch) on page 571
show system processes lcc wide (TX Matrix Routing Matrix) on page 571
show system processes summary on page 572
show system processes (TX Matrix Plus Router) on page 572
show system processes sfc (TX Matrix Plus Router) on page 579
show system processes lcc wide (TX Matrix Plus Routing Matrix) on page 582
show system processes (QFX Series) on page 584

Output Fields Table 28 on page 567 describes the output fields for the **show system processes** command. Output fields are listed in the approximate order in which they appear.

Table 28: show system processes Output Fields

Field Name	Field Description	Level of Output
last pid	Last process identifier assigned to the process.	**brief extensive summary**
load averages	Three load averages followed by the current time.	**brief extensive summary**
processes	Number of existing processes and the number of processes in each state (**sleeping, running, starting, zombies**, and **stopped**).	**brief extensive summary**
Mem	Information about physical and virtual memory allocation.	**brief extensive summary**
Swap	Information about physical and virtual memory allocation.	**brief extensive summary**
PID	Process identifier.	**detail extensive summary**
TT	Control terminal name.	none **detail**

Table 28: show system processes Output Fields *(continued)*

Field Name	Field Description	Level of Output
STAT	Symbolic process state. The state is given by a sequence of letters. The first letter indicates the run state of the process: • **D**—In disk or other short-term, uninterruptible wait • **I**—Idle (sleeping longer than about 20 seconds) • **R**—Runnable • **S**—Sleeping for less than 20 seconds • **T**—Stopped • **Z**—Dead (zombie) • **+** —The process is in the foreground process group of its control terminal. • **<**—The process has raised CPU scheduling priority. • **>**—The process has specified a soft limit on memory requirements and is currently exceeding that limit; such a process is not swapped. • **A**—The process requested random page replacement. • **E**—The process is trying to exit. • **L**—The process has pages locked in core. • **N**—The process has reduced CPU scheduling priority. • **S**—The process requested first-in, first-out (FIFO) page replacement. • **s**—The process is a session leader. • **V**—The process is temporarily suspended. • **W**—The process is swapped out. • **X**—The process is being traced or debugged.	none **detail**
UID	User identifier.	**detail**
USERNAME	Process owner.	**extensive summary**
PPID	Parent process identifier.	**detail**
CPU	(D)—Short-term CPU usage. (E and S)—Raw (unweighted) CPU usage. The value of this field is used to sort the processes in the output.	**detail extensive summary**
RSS	Resident set size.	**detail**
WCHAN	Symbolic name of the wait channel.	**detail**
STARTED	Local time when the process started running.	**detail**
PRI	Current priority of the process. A lower number indicates a higher priority.	**detail extensive summary**
NI or NICE	UNIX "niceness" value. A lower number indicates a higher priority.	**detail extensive summary**
SIZE	Total size of the process (text, data, and stack), in kilobytes.	**extensive summary**

Table 28: show system processes Output Fields *(continued)*

Field Name	Field Description	Level of Output
RES	Current amount of resident memory, in kilobytes.	**extensive summary**
STATE	Current state of the process (for example, **sleep**, **wait**, **run**, **idle**, **zombie**, or **stop**).	**extensive summary**
TIME	(S)—Number of system and user CPU seconds that the process has used. (None, D, and E)—Total amount of time that the command has been running.	**detail extensive summary**
WCPU	Weighted CPU usage.	**extensive summary**
COMMAND	Command that is currently running.	**detail extensive summary**
THR	Number of threads in the process	extensive

Sample Output

show system processes

```
user@host> show system processes
PID  TT  STAT      TIME COMMAND
    0  ??  DLs    0:00.70  (swapper)
    1  ??  Is     0:00.35 /sbin/init --
    2  ??  DL     0:00.00  (pagedaemon)
    3  ??  DL     0:00.00  (vmdaemon)
    4  ??  DL     0:42.37  (update)
    5  ??  DL     0:00.00  (if_jnx)
   80  ??  Ss     0:14.66 syslogd -s
   96  ??  Is     0:00.01 portmap
  128  ??  Is     0:02.70 cron
  173  ??  Is     0:02.24 /usr/local/sbin/sshd (sshd1)
  189  ??  S      0:03.80 /sbin/watchdog -t180
  190  ??  I      0:00.03 /usr/sbin/tnetd -N
  191  ??  S      2:24.76 /sbin/ifd -N
  192  ??  S<     0:55.44 /usr/sbin/xntpd -N
  195  ??  S      0:53.11 /usr/sbin/snmpd -N
  196  ??  S      1:15.73 /usr/sbin/mib2d -N
  198  ??  I      0:00.75 /usr/sbin/inetd -N
 2677  ??  I      0:00.01 /usr/sbin/mgd -N
 2712  ??  Ss     0:00.24 rlogind
 2735  ??  R      0:00.00 /bin/ps -ax
 1985  p0- S      0:07.41 ./rpd -N
 2713  p0  Is     0:00.24 -tcsh (tcsh)
 2726  p0  S+     0:00.07 cli
```

show system processes brief

```
user@host> show system processes brief
last pid:   543;  load averages:  0.00,  0.00,  0.00    18:29:47
37 processes:  1 running, 36 sleeping

Mem: 25M Active, 3976K Inact, 19M Wired, 8346K Buf, 202M Free
Swap: 528M Total, 64K Used, 528M Free
```

show system processes detail

```
user@host> show system processes detail
PID   UID  PPID CPU PRI NI  RSS WCHAN  STARTED   TT  STAT      TIME COMMAND
 3151  1049  3129   2  28  0  672 -       1:13PM   p0  R+     0:00.00 ps -ax -r
    1     0     0   0  10  0  376 wait    1:51PM   ??  Is     0:00.29 /sbin/ini
    2     0     0   0 -18  0   12 psleep  1:51PM   ??  DL     0:00.00  (pagedae
    3     0     0   0  28  0   12 psleep  1:51PM   ??  DL     0:00.00  (vmdaemo
    4     0     0   0  28  0   12 update  1:51PM   ??  DL     0:07.15  (update)
    5     0     0   0   2  0   12 pfesel  1:51PM   ??  IL     0:02.90  (if_pfe)
   27     0     1   0  10  0 17936 mfsidl  1:51PM  ??  Is     0:00.46 mfs /dev/
   81     0     1   0   2  0  496 select  1:52PM   ??  Ss     0:31.21 syslogd -
  119     1     1   0   2  0  492 select  1:52PM   ??  Is     0:00.00 portmap
  134     0     1   0   2  0  580 select  1:52PM   ??  S      0:02.95 amd -p -a
  151     0     1   0  18  0  532 pause   1:52PM   ??  Is     0:00.34 cron
  183     0     1   0   2  0  420 select  1:52PM   ??  Ss     0:00.07 /usr/loca
  206     0     1   0  18  0   72 pause   1:52PM   ??  S      0:00.51 /sbin/wat
  207     0     1   0   2  0  520 select  1:52PM   ??  I      0:00.16 /usr/sbin
  208     0     1   0   2  0  536 select  1:52PM   ??  S      0:08.21 /sbin/dcd
  210     0     1 255   2 -12  740 select  1:52PM  ??  S<     0:05.83 /usr/sbin
  211     0     1   0   2  0  376 select  1:52PM   ??  S      0:00.03 /usr/sbin
  215     0     1   0   2  0  548 select  1:52PM   ??  I      0:00.50 /usr/sbin
  219     0     1   0   3  0  540 ttyin   1:52PM   v0  Is+    0:00.02 /usr/libe
  220     0     1   0   3  0  540 ttyin   1:52PM   v1  Is+    0:00.01 /usr/libe
  221     0     1   0   3  0  540 ttyin   1:52PM   v2  Is+    0:00.01 /usr/libe
  222     0     1   0   3  0  540 ttyin   1:52PM   v3  Is+    0:00.01 /usr/libe
  735     0     1   0   2  0  468 select  2:47PM   ??  S      0:19.14 /usr/sbin
  736     0     1   0   2  0  212 select  2:47PM   ??  S      0:14.13 /usr/sbin
 1380     0     1   0   3  0  888 ttyin   7:32PM   d0  Is+    0:00.46 bash
 3019     0   207   0   2  0  636 select 10:49AM   ??  Ss     0:02.93 tnp.chass
 3122     0  1380   0   2  0 1764 select 12:33PM   d0  S      0:00.77 ./rpd -N
 3128     0   215   0   2  0  580 select 12:45PM   ??  Ss     0:00.12 rlogind
 3129  1049  3128   0  18  0  944 pause  12:45PM   p0  Ss     0:00.14 -tcsh (tc
    0     0     0   0 -18  0    0 sched   1:51PM   ??  DLs    0:00.10  (swapper
```

show system processes extensive

```
user@host> show system processes extensive
Mem: 241M Active, 99M Inact, 78M Wired, 325M Cache, 69M Buf, 1251M Free
Swap: 2048M Total, 2048M Free


  PID USERNAME  THR PRI NICE   SIZE    RES STATE    TIME   WCPU COMMAND
   11 root        1 171   52     0K    12K RUN    807.5H 98.73% idle
   13 root        1 -20 -139     0K    12K WAIT    36:17  0.00% swi7: clock sio
 1499 root        1  96    0  7212K  3040K select  34:01  0.00% license-check
 1621 root        1  96    0 20968K 11216K select  20:25  0.00% mib2d
 1465 root        2   8  -88   115M 11748K nanslp  14:32  0.00% chassisd
 1478 root        1  96    0  6336K  3816K select  11:28  0.00% ppmd
   20 root        1 -68 -187     0K    12K WAIT    10:28  0.00% irq10: em0 em1+++*

 1490 root        1  96    0 11792K  4336K select   9:44  0.00% shm-rtsdbd
 1618 root        1  96    0 39584K  7464K select   8:47  0.00% pfed
 1622 root        1  96    0 15268K 10988K select   6:16  0.00% snmpd
 1466 root        1  96    0  7408K  2896K select   5:44  0.00% alarmd
    7 root        1 -16    0     0K    12K client   5:09  0.00% ifstate notify
 1480 root        1  96    0  5388K  2660K select   4:29  0.00% ksyncd
   12 root        1 -40 -159     0K    12K WAIT     4:15  0.00% swi2: netisr 0
 1462 root        1  96    0  1836K  1240K select   3:57  0.00% bslockd
   55 root        1 -16    0     0K    12K -        3:44  0.00% schedcpu
 1392 root        1  16    0     0K    12K bcmsem   3:37  0.00% bcmLINK.0
```

```
   47 root        1 -16    0     0K    12K psleep   3:25  0.00% vmkmemdaemon
   36 root        1  20    0     0K    12K syncer   2:46  0.00% syncer
 1484 root        1  96    0  7484K  3428K select   2:38  0.00% clksyncd
 1616 root        1  96    0  4848K  2848K select   2:18  0.00% irsd
 1487 root        1  96    0 32800K  6992K select   2:10  0.00% smid
 1623 root        1  96    0 34616K  5464K select   2:01  0.00% dcd
   15 root        1 -16    0     0K    12K -        1:59  0.00% yarrow
   49 root        1 -16    0     0K    12K .        1:51  0.00% ddostasks
```

show system processes extensive (EX9200 Switch)

```
user@switch> show system processes extensive
last pid:  3372;  load averages:  0.02,  0.02,  0.00  up 0+01:42:22    16:39:57
151 processes: 4 running, 131 sleeping, 1 zombie, 15 waiting

Mem: 935M Active, 122M Inact, 108M Wired, 838M Cache, 214M Buf, 5872M Free
Swap: 8192M Total, 8192M Free

 PID USERNAME  THR PRI NICE   SIZE    RES STATE    TIME   WCPU COMMAND
  10 root        1 171   52     0K    16K RUN     96:34 92.19% idle
3317 root        1  97    0 40412K 30944K select   0:00  5.13% mgd
3316 root        1  96    0 26672K 20516K select   0:00  3.08% cli
1626 root        2   8  -88   124M 20332K nanslp   3:19  2.39% chassisd
 260 root        1  -8    0     0K    16K mdwait   0:16  0.00% md16
  19 root        1 -68 -187     0K    16K WAIT     0:12  0.00% irq11: em0 em1
em2*
1642 root        1  96    0  8052K  3936K RUN      0:10  0.00% clksyncd
  11 root        1 -20 -139     0K    16K WAIT     0:07  0.00% swi7: clock sio
 154 root        1  -8    0     0K    16K mdwait   0:06  0.00% md8
1784 root        1  96    0    98M 33720K select   0:05  0.00% authd
1646 root        1  96    0  7776K  2944K select   0:03  0.00% license-check
1807 root        1  96    0 41340K  9944K select   0:02  0.00% mib2d

[...Output truncated...]
```

show system processes lcc wide (TX Matrix Routing Matrix)

```
user@host> show system processes lcc 2 wide
lcc2-re0:
--------------------------------------------------------------------------
  PID  TT  STAT      TIME COMMAND
    0  ??  DLs    0:00.00  (swapper)
    1  ??  ILs    0:00.10 /sbin/preinit -- (init)
    2  ??  DL     0:00.00  (pagedaemon)
    3  ??  DL     0:00.00  (vmdaemon)
    4  ??  DL     0:00.00  (bufdaemon)
    5  ??  DL     0:00.04  (syncer)
    6  ??  DL     0:00.00  (netdaemon)
    7  ??  IL     0:00.00  (if_pic_listen)
    8  ??  IL     0:00.00  (scs_housekeeping)
    9  ??  IL     0:00.00  (if_pfe_listen)
   10  ??  DL     0:00.00  (vmuncachedaemon)
   11  ??  SL     0:00.02  (cb_poll)
  172  ??  ILs    0:00.21 mfs -o noauto /dev/ad1s1b /tmp (newfs)
 2909  ??  Is     0:00.00 pccardd
 2932  ??  Ss     0:00.07 syslogd -r -s
 3039  ??  Is     0:00.00 cron
 3217  ??  I      0:00.00 /sbin/watchdog -d
 3218  ??  I      0:00.02 /usr/sbin/tnetd -N
 3221  ??  S      0:00.11 /usr/sbin/alarmd -N
 3222  ??  S      0:00.85 /usr/sbin/craftd -N
```

```
 3223  ??  S      0:00.05 /usr/sbin/mgd -N
 3224  ??  I      0:00.02 /usr/sbin/inetd -N
 3225  ??  I      0:00.00 /usr/sbin/tnp.sntpd -N
 3226  ??  I      0:00.01 /usr/sbin/tnp.sntpc -N
 3228  ??  I      0:00.01 /usr/sbin/smartd -N
 3231  ??  I      0:00.01 /usr/sbin/eccd -N
 3425  ??  S      0:00.09 /usr/sbin/dfwd -N
 3426  ??  S      0:00.19 /sbin/dcd -N
 3427  ??  I      0:00.04 /usr/sbin/pfed -N
 3430  ??  S      0:00.10 /usr/sbin/ksyncd -N
 3482  ??  S      1:53.63 /usr/sbin/chassisd -N
 4285  ??  SL     0:00.01  (peer proxy)
 4286  ??  SL     0:00.00  (peer proxy)
 4303  ??  Ss     0:00.00 mgd: (mgd) (root) (mgd)
 4304  ??  R      0:00.00 /bin/ps -ax -ww
 3270  d0  Is+    0:00.00 /usr/libexec/getty std.9600 ttyd0
```

show system processes summary

```
user@host> show system processes summary
last pid:   543;  load averages:  0.00,  0.00,  0.00    18:29:47
37 processes:  1 running, 36 sleeping

Mem: 25M Active, 3976K Inact, 19M Wired, 8346K Buf, 202M Free
Swap: 528M Total, 64K Used, 528M Free

  PID USERNAME PRI NICE SIZE    RES STATE    TIME   WCPU    CPU COMMAND
  527 root      2   0   176K   580K select   0:00  0.04%  0.04% rlogind
  543 root     30   0   604K   768K RUN      0:00  0.00%  0.00% top
```

show system processes (TX Matrix Plus Router)

```
user@host> show system processes
sfc0-re0:
--------------------------------------------------------------------------
  PID  TT  STAT      TIME COMMAND
    0  ??  WLs    0:00.00 [swapper]
    1  ??  ILs    0:00.18 /packages/mnt/jbase/sbin/init --
    2  ??  DL     0:00.20 [g_event]
    3  ??  DL     0:00.39 [g_up]
    4  ??  DL     0:00.32 [g_down]
    5  ??  DL     0:00.00 [thread taskq]
    6  ??  DL     0:00.09 [kqueue taskq]
    7  ??  DL     0:00.01 [pagedaemon]
    8  ??  DL     0:00.00 [vmdaemon]
    9  ??  DL     0:06.63 [pagezero]
   10  ??  DL     0:00.00 [ktrace]
   11  ??  RL   310:52.98 [idle]
   12  ??  WL     0:11.03 [swi2: net]
   13  ??  WL     0:27.58 [swi7: clock sio]
   14  ??  WL     0:00.00 [swi6: vm]
   15  ??  DL     0:03.02 [yarrow]
   16  ??  WL     0:00.00 [swi9: +]
   17  ??  WL     0:00.00 [swi8: +]
   18  ??  WL     0:00.00 [swi5: cambio]
   19  ??  WL     0:00.00 [swi9: task queue]
   20  ??  WL     0:11.41 [irq16: uhci0 uhci*]
   21  ??  DL     0:00.00 [usb0]
   22  ??  DL     0:00.00 [usbtask]
   23  ??  WL     0:39.51 [irq17: uhci1 uhci*]
   24  ??  DL     0:00.00 [usb1]
```

```
   25  ??  WL     0:00.00 [irq18: uhci2 uhci*]
   26  ??  DL     0:00.83 [usb2]
   27  ??  DL     0:00.00 [usb3]
   28  ??  DL     0:00.00 [usb4]
   29  ??  DL     0:00.00 [usb5]
   30  ??  DL     0:00.73 [usb6]
   31  ??  DL     0:00.00 [usb7]
   32  ??  WL     0:00.00 [irq14: ata0]
   33  ??  WL     0:00.00 [irq15: ata1]
   34  ??  WL     0:00.00 [irq1: atkbd0]
   35  ??  WL     0:00.00 [swi0: sio]
   36  ??  WL     0:00.00 [irq11: isab0]
   37  ??  WL     0:00.00 [swi3: ip6opt ipopt]
   38  ??  WL     0:00.00 [swi4: ip6mismatch+]
   39  ??  WL     0:00.00 [swi1: ipfwd]
   40  ??  DL     0:00.02 [bufdaemon]
   41  ??  DL     0:00.02 [vnlru]
   42  ??  DL     0:00.39 [syncer]
   43  ??  DL     0:00.05 [softdepflush]
   44  ??  DL     0:00.00 [netdaemon]
   45  ??  DL     0:00.02 [vmuncachedaemon]
   46  ??  DL     0:00.00 [if_pic_listen]
   47  ??  DL     0:00.35 [vmkmemdaemon]
   48  ??  DL     0:00.00 [cb_poll]
   49  ??  DL     0:00.06 [if_pfe_listen]
   50  ??  DL     0:00.00 [scs_housekeeping]
   51  ??  IL     0:00.00 [kern_dump_proc]
   52  ??  IL     0:00.00 [nfsiod 0]
   53  ??  IL     0:00.00 [nfsiod 1]
   54  ??  IL     0:00.00 [nfsiod 2]
   55  ??  IL     0:00.00 [nfsiod 3]
   56  ??  DL     0:00.37 [schedcpu]
   57  ??  DL     0:00.56 [md0]
   79  ??  DL     0:02.58 [md1]
  100  ??  DL     0:00.03 [md2]
  118  ??  DL     0:00.01 [md3]
  139  ??  DL     0:00.95 [md4]
  160  ??  DL     0:00.12 [md5]
  181  ??  DL     0:00.00 [md6]
  217  ??  DL     0:00.02 [md7]
  227  ??  DL     0:00.05 [md8]
 1341  ??  SL     0:01.34 [bcmTX]
 1342  ??  SL     0:01.68 [bcmXGS3AsyncTX]
 1343  ??  SL     0:41.40 [bcmLINK.0]
 1345  ??  SL     0:33.83 [bcmLINK.1]
 1350  ??  Is     0:00.01 /usr/sbin/cron
 1502  ??  S      0:00.01 /sbin/watchdog -t-1
 1503  ??  S      0:00.86 /usr/libexec/bslockd -mp -N
 1504  ??  S      0:00.01 /usr/sbin/tnetd -N
 1507  ??  S      0:01.32 /usr/sbin/alarmd -N
 1508  ??  S      0:14.54 /usr/sbin/craftd -N
 1509  ??  S      0:01.19 /usr/sbin/mgd -N
 1512  ??  I      0:00.05 /usr/sbin/inetd -N
 1513  ??  S      0:00.10 /usr/sbin/tnp.sntpd -N
 1517  ??  S      0:00.11 /usr/sbin/smartd -N
 1525  ??  S      0:01.10 /usr/sbin/idpd -N
 1526  ??  S      0:01.43 /usr/sbin/license-check -U -M -p 10 -i 10
 1527  ??  I      0:00.01 /usr/libexec/getty Pc ttyv0
 1616  ??  DL     0:00.30 [peer proxy]
 1617  ??  DL     0:00.32 [peer proxy]
 1618  ??  DL     0:00.34 [peer proxy]
```

```
 1619  ??  DL     0:00.30 [peer proxy]
 2391  ??  Is     0:00.01 telnetd
 7331  ??  Ss     0:00.03 telnetd
 9538  ??  DL     0:01.16 [jsr_kkcm]
 9613  ??  DL     0:00.18 [peer proxy]
23781  ??  Ss     0:00.01 telnetd
23926  ??  Ss     0:00.01 mgd: (mgd) (regress)/dev/ttyp2 (mgd)
36867  ??  S      0:03.14 /usr/sbin/rpd -N
36874  ??  S      0:00.08 /usr/sbin/lmpd
36876  ??  S      0:00.17 /usr/sbin/lacpd -N
36877  ??  S      0:00.15 /usr/sbin/bfdd -N
36878  ??  S      0:05.05 /usr/sbin/ppmd -N
36907  ??  S      0:25.07 /usr/sbin/chassisd -N
37775  ??  S      0:00.01 /usr/sbin/bdbrepd -N
45727  ??  S      0:00.02 /usr/sbin/xntpd -j -N -g (ntpd)
45729  ??  S      0:00.38 /usr/sbin/l2ald -N
45730  ??  S<     0:00.12 /usr/sbin/apsd -N
45731  ??  SN     0:00.10 /usr/sbin/sampled -N
45732  ??  S      0:00.03 /usr/sbin/ilmid -N
45733  ??  S      0:00.09 /usr/sbin/rmopd -N
45734  ??  S      0:00.30 /usr/sbin/cosd
45735  ??  I      0:00.00 /usr/sbin/rtspd -N
45736  ??  S      0:00.06 /usr/sbin/fsad -N
45737  ??  S      0:00.05 /usr/sbin/rdd -N
45738  ??  S      0:00.10 /usr/sbin/pppd -N
45739  ??  S      0:00.05 /usr/sbin/dfcd -N
45740  ??  S      0:00.07 /usr/sbin/lfmd -N
45741  ??  S      0:00.01 /usr/sbin/mplsoamd -N
45742  ??  I      0:00.01 /usr/sbin/sendd -N
45743  ??  S      0:00.08 /usr/sbin/appidd -N
45744  ??  S      0:00.05 /usr/sbin/mspd -N
45745  ??  S      0:00.25 /usr/sbin/jdiameterd -N
45746  ??  S      0:00.10 /usr/sbin/pfed -N
45747  ??  S      0:00.19 /usr/sbin/lpdfd -N
45748  ??  S      0:00.63 /sbin/dcd -N
45750  ??  S      0:00.45 /usr/sbin/mib2d -N
45751  ??  S      0:00.15 /usr/sbin/dfwd -N
45752  ??  S      0:00.15 /usr/sbin/irsd -N
45764  ??  S      0:20.59 /usr/sbin/snmpd -N
56479  ??  Ss     0:00.00 mgd: (mgd) (root) (mgd)
56480  ??  R      0:00.00 /bin/ps -ax
 1142  d0- I      0:00.01 /usr/sbin/usbd -N
 1160  d0- S      0:29.17 /usr/sbin/eventd -N -r -s -A
 6527  d0  Is+    0:00.00 /usr/libexec/getty std.9600 ttyd0
 2392  p1  Is     0:00.00 login [pam] (login)
 2393  p1  I      0:00.00 -csh (csh)
 2394  p1  I      0:00.00 su -
 2395  p1  I+     0:00.01 -su (csh)
23782  p2  Is     0:00.00 login [pam] (login)
23881  p2  I      0:00.00 -csh (csh)
23925  p2  S+     0:00.03 cli
 7332  p3  Is     0:00.00 login [pam] (login)
 7333  p3  I      0:00.00 -csh (csh)
23780  p3  S+     0:00.02 telnet aj

lcc0-re0:
--------------------------------------------------------------------------
  PID  TT  STAT      TIME COMMAND
    0  ??  WLs    0:00.00 [swapper]
    1  ??  ILs    0:00.16 /packages/mnt/jbase/sbin/init --
    2  ??  DL     0:00.01 [g_event]
```

```
  3  ??  DL     0:00.16 [g_up]
  4  ??  DL     0:00.11 [g_down]
  5  ??  DL     0:00.00 [thread taskq]
  6  ??  DL     0:00.00 [kqueue taskq]
  7  ??  DL     0:00.00 [pagedaemon]
  8  ??  DL     0:00.00 [vmdaemon]
  9  ??  DL     0:01.77 [pagezero]
 10  ??  DL     0:00.00 [ktrace]
 11  ??  RL    17:22.31 [idle]
 12  ??  WL     0:00.32 [swi2: net]
 13  ??  WL     0:01.21 [swi7: clock sio]
 14  ??  WL     0:00.00 [swi6: vm]
 15  ??  DL     0:00.10 [yarrow]
 16  ??  WL     0:00.00 [swi9: +]
 17  ??  WL     0:00.00 [swi8: +]
 18  ??  WL     0:00.00 [swi5: cambio]
 19  ??  WL     0:00.00 [swi9: task queue]
 20  ??  WL     0:02.73 [irq10: bcm0 uhci1*]
 21  ??  WL     0:00.02 [irq11: cb0 uhci0+*]
 22  ??  DL     0:00.00 [usb0]
 23  ??  DL     0:00.00 [usbtask]
 24  ??  DL     0:00.00 [usb1]
 25  ??  DL     0:00.05 [usb2]
 26  ??  DL     0:00.00 [usb3]
 27  ??  DL     0:00.00 [usb4]
 28  ??  DL     0:00.00 [usb5]
 29  ??  DL     0:00.04 [usb6]
 30  ??  DL     0:00.00 [usb7]
 31  ??  WL     0:00.00 [irq14: ata0]
 32  ??  WL     0:00.00 [irq15: ata1]
 33  ??  WL     0:00.00 [irq1: atkbd0]
 34  ??  WL     0:00.00 [swi0: sio]
 35  ??  WL     0:00.00 [swi3: ip6opt ipopt]
 36  ??  WL     0:00.00 [swi4: ip6mismatch+]
 37  ??  WL     0:00.00 [swi1: ipfwd]
 38  ??  DL     0:00.00 [bufdaemon]
 39  ??  DL     0:00.00 [vnlru]
 40  ??  DL     0:00.01 [syncer]
 41  ??  DL     0:00.00 [softdepflush]
 42  ??  DL     0:00.00 [netdaemon]
 43  ??  DL     0:00.00 [vmuncachedaemon]
 44  ??  DL     0:00.00 [if_pic_listen]
 45  ??  DL     0:00.02 [vmkmemdaemon]
 46  ??  DL     0:00.01 [cb_poll]
 47  ??  DL     0:00.00 [if_pfe_listen]
 48  ??  DL     0:00.00 [scs_housekeeping]
 49  ??  IL     0:00.00 [kern_dump_proc]
 50  ??  IL     0:00.00 [nfsiod 0]
 51  ??  IL     0:00.00 [nfsiod 1]
 52  ??  IL     0:00.00 [nfsiod 2]
 53  ??  IL     0:00.00 [nfsiod 3]
 54  ??  DL     0:00.01 [schedcpu]
 55  ??  DL     0:00.73 [md0]
 77  ??  DL     0:03.54 [md1]
 98  ??  DL     0:00.37 [md2]
116  ??  DL     0:00.02 [md3]
137  ??  DL     0:00.56 [md4]
158  ??  DL     0:00.15 [md5]
179  ??  DL     0:00.00 [md6]
215  ??  DL     0:00.03 [md7]
225  ??  DL     0:00.03 [md8]
```

```
 1078  ??  DL     0:00.00 [jsr_kkcm]
 1363  ??  SL     0:00.09 [bcmTX]
 1364  ??  SL     0:00.10 [bcmXGS3AsyncTX]
 1365  ??  SL     0:03.08 [bcmLINK.0]
 1370  ??  Is     0:00.00 /usr/sbin/cron
 1522  ??  S      0:00.00 /sbin/watchdog -t-1
 1523  ??  S      0:00.05 /usr/libexec/bslockd -mp -N
 1524  ??  I      0:00.01 /usr/sbin/tnetd -N
 1526  ??  S      0:04.98 /usr/sbin/chassisd -N
 1527  ??  S      0:00.04 /usr/sbin/alarmd -N
 1528  ??  I      0:00.40 /usr/sbin/craftd -N
 1529  ??  S      0:00.08 /usr/sbin/mgd -N
 1532  ??  I      0:00.04 /usr/sbin/inetd -N
 1533  ??  I      0:00.00 /usr/sbin/tnp.sntpd -N
 1534  ??  I      0:00.00 /usr/sbin/tnp.sntpc -N
 1536  ??  S      0:00.01 /usr/sbin/smartd -N
 1540  ??  I      0:00.07 /usr/sbin/jcsd -N
 1541  ??  S      0:00.11 /usr/sbin/idpd -N
 1542  ??  I      0:00.00 /usr/libexec/getty Pc ttyv0
 2089  ??  DL     0:00.01 [peer proxy]
 2090  ??  DL     0:00.01 [peer proxy]
 2091  ??  DL     0:00.01 [peer proxy]
 2657  ??  S      0:00.02 /usr/sbin/dfwd -N
 2658  ??  S      0:00.02 /sbin/dcd -N
 2659  ??  S      0:00.05 /usr/sbin/snmpd -N
 2660  ??  S      0:00.01 /usr/sbin/mib2d -N
 2661  ??  S      0:00.01 /usr/sbin/pfed -N
 2662  ??  S      0:00.01 /usr/sbin/irsd -N
 2667  ??  S      0:00.13 /usr/sbin/ksyncd -N
 2690  ??  Ss     0:00.00 mgd: (mgd) (root) (mgd)
 2691  ??  R      0:00.00 /bin/ps -ax
 1164  d0- S      0:00.00 /usr/sbin/usbd -N
 1182  d0- S      0:00.34 /usr/sbin/eventd -N -r -s -A
 1543  d0  Is+    0:00.00 /usr/libexec/getty std.9600 ttyd0

lcc1-re0:
--------------------------------------------------------------------------
  PID  TT  STAT      TIME COMMAND
    0  ??  WLs    0:00.00 [swapper]
    1  ??  ILs    0:00.17 /packages/mnt/jbase/sbin/init --
    2  ??  DL     0:00.01 [g_event]
    3  ??  DL     0:00.16 [g_up]
    4  ??  DL     0:00.11 [g_down]
    5  ??  DL     0:00.00 [thread taskq]
    6  ??  DL     0:00.00 [kqueue taskq]
    7  ??  DL     0:00.00 [pagedaemon]
    8  ??  DL     0:00.00 [vmdaemon]
    9  ??  DL     0:01.77 [pagezero]
   10  ??  DL     0:00.00 [ktrace]
   11  ??  RL    17:22.83 [idle]
   12  ??  WL     0:00.35 [swi2: net]
   13  ??  WL     0:01.20 [swi7: clock sio]
   14  ??  WL     0:00.00 [swi6: vm]
   15  ??  DL     0:00.10 [yarrow]
   16  ??  WL     0:00.00 [swi9: +]
   17  ??  WL     0:00.00 [swi8: +]
   18  ??  WL     0:00.00 [swi5: cambio]
   19  ??  WL     0:00.00 [swi9: task queue]
   20  ??  WL     0:02.87 [irq10: bcm0 uhci1*]
   21  ??  WL     0:00.02 [irq11: cb0 uhci0+*]
   22  ??  DL     0:00.00 [usb0]
```

```
   23  ??  DL     0:00.00 [usbtask]
   24  ??  DL     0:00.00 [usb1]
   25  ??  DL     0:00.05 [usb2]
   26  ??  DL     0:00.00 [usb3]
   27  ??  DL     0:00.00 [usb4]
   28  ??  DL     0:00.00 [usb5]
   29  ??  DL     0:00.04 [usb6]
   30  ??  DL     0:00.00 [usb7]
   31  ??  WL     0:00.00 [irq14: ata0]
   32  ??  WL     0:00.00 [irq15: ata1]
   33  ??  WL     0:00.00 [irq1: atkbd0]
   34  ??  WL     0:00.00 [swi0: sio]
   35  ??  WL     0:00.00 [swi3: ip6opt ipopt]
   36  ??  WL     0:00.00 [swi4: ip6mismatch+]
   37  ??  WL     0:00.00 [swi1: ipfwd]
   38  ??  DL     0:00.00 [bufdaemon]
   39  ??  DL     0:00.00 [vnlru]
   40  ??  DL     0:00.01 [syncer]
   41  ??  DL     0:00.00 [softdepflush]
   42  ??  DL     0:00.00 [netdaemon]
   43  ??  DL     0:00.00 [vmuncachedaemon]
   44  ??  DL     0:00.00 [if_pic_listen]
   45  ??  DL     0:00.02 [vmkmemdaemon]
   46  ??  DL     0:00.01 [cb_poll]
   47  ??  DL     0:00.00 [if_pfe_listen]
   48  ??  DL     0:00.00 [scs_housekeeping]
   49  ??  IL     0:00.00 [kern_dump_proc]
   50  ??  IL     0:00.00 [nfsiod 0]
   51  ??  IL     0:00.00 [nfsiod 1]
   52  ??  IL     0:00.00 [nfsiod 2]
   53  ??  IL     0:00.00 [nfsiod 3]
   54  ??  DL     0:00.02 [schedcpu]
   55  ??  DL     0:00.75 [md0]
   77  ??  DL     0:03.40 [md1]
   98  ??  DL     0:00.37 [md2]
  116  ??  DL     0:00.02 [md3]
  137  ??  DL     0:00.56 [md4]
  158  ??  DL     0:00.15 [md5]
  179  ??  DL     0:00.00 [md6]
  215  ??  DL     0:00.03 [md7]
  225  ??  DL     0:00.03 [md8]
 1052  ??  DL     0:00.00 [jsr_kkcm]
 1337  ??  SL     0:00.09 [bcmTX]
 1338  ??  SL     0:00.10 [bcmXGS3AsyncTX]
 1339  ??  SL     0:03.10 [bcmLINK.0]
 1344  ??  Is     0:00.00 /usr/sbin/cron
 1496  ??  S      0:00.00 /sbin/watchdog -t-1
 1497  ??  S      0:00.05 /usr/libexec/bslockd -mp -N
 1498  ??  I      0:00.01 /usr/sbin/tnetd -N
 1500  ??  S      0:04.97 /usr/sbin/chassisd -N
 1501  ??  S      0:00.04 /usr/sbin/alarmd -N
 1502  ??  I      0:00.40 /usr/sbin/craftd -N
 1503  ??  S      0:00.08 /usr/sbin/mgd -N
 1506  ??  I      0:00.04 /usr/sbin/inetd -N
 1507  ??  I      0:00.00 /usr/sbin/tnp.sntpd -N
 1508  ??  I      0:00.00 /usr/sbin/tnp.sntpc -N
 1510  ??  S      0:00.01 /usr/sbin/smartd -N
 1514  ??  I      0:00.07 /usr/sbin/jcsd -N
 1515  ??  S      0:00.18 /usr/sbin/idpd -N
 1516  ??  I      0:00.00 /usr/libexec/getty Pc ttyv0
 2068  ??  DL     0:00.01 [peer proxy]
```

```
 2069  ??  DL     0:00.01 [peer proxy]
 2070  ??  DL     0:00.01 [peer proxy]
 2666  ??  S      0:00.02 /sbin/dcd -N
 2667  ??  S      0:00.01 /usr/sbin/irsd -N
 2668  ??  S      0:00.01 /usr/sbin/pfed -N
 2669  ??  S      0:00.05 /usr/sbin/snmpd -N
 2670  ??  S      0:00.01 /usr/sbin/mib2d -N
 2671  ??  S      0:00.02 /usr/sbin/dfwd -N
 2675  ??  S      0:00.13 /usr/sbin/ksyncd -N
 2699  ??  Ss     0:00.00 mgd: (mgd) (root) (mgd)
 2700  ??  R      0:00.00 /bin/ps -ax
 1138  d0- S      0:00.00 /usr/sbin/usbd -N
 1156  d0- S      0:00.37 /usr/sbin/eventd -N -r -s -A
 1517  d0  Is+    0:00.00 /usr/libexec/getty std.9600 ttyd0

lcc2-re0:
--------------------------------------------------------------------------
  PID  TT  STAT      TIME COMMAND
    0  ??  WLs    0:00.00 [swapper]
    1  ??  ILs    0:00.18 /packages/mnt/jbase/sbin/init --
    2  ??  DL     0:00.01 [g_event]
    3  ??  DL     0:00.17 [g_up]
    4  ??  DL     0:00.12 [g_down]
    5  ??  DL     0:00.00 [thread taskq]
    6  ??  DL     0:00.00 [kqueue taskq]
    7  ??  DL     0:00.00 [pagedaemon]
    8  ??  DL     0:00.00 [vmdaemon]
    9  ??  DL     0:01.77 [pagezero]
   10  ??  DL     0:00.00 [ktrace]
   11  ??  RL    17:19.13 [idle]
   12  ??  WL     0:00.36 [swi2: net]
   13  ??  WL     0:01.20 [swi7: clock sio]
   14  ??  WL     0:00.00 [swi6: vm]
   15  ??  DL     0:00.13 [yarrow]
   16  ??  WL     0:00.00 [swi9: +]
   17  ??  WL     0:00.00 [swi8: +]
   18  ??  WL     0:00.00 [swi5: cambio]
   19  ??  WL     0:00.00 [swi9: task queue]
   20  ??  WL     0:03.03 [irq10: bcm0 uhci1*]
   21  ??  WL     0:00.02 [irq11: cb0 uhci0+*]
   22  ??  DL     0:00.00 [usb0]
   23  ??  DL     0:00.00 [usbtask]
   24  ??  DL     0:00.00 [usb1]
   25  ??  DL     0:00.05 [usb2]
   26  ??  DL     0:00.00 [usb3]
   27  ??  DL     0:00.00 [usb4]
   28  ??  DL     0:00.00 [usb5]
   29  ??  DL     0:00.04 [usb6]
   30  ??  DL     0:00.00 [usb7]
   31  ??  WL     0:00.00 [irq14: ata0]
   32  ??  WL     0:00.00 [irq15: ata1]
   33  ??  WL     0:00.00 [irq1: atkbd0]
   34  ??  WL     0:00.00 [swi0: sio]
   35  ??  WL     0:00.00 [swi3: ip6opt ipopt]
   36  ??  WL     0:00.00 [swi4: ip6mismatch+]
   37  ??  WL     0:00.00 [swi1: ipfwd]
   38  ??  DL     0:00.00 [bufdaemon]
   39  ??  DL     0:00.00 [vnlru]
   40  ??  DL     0:00.01 [syncer]
   41  ??  DL     0:00.00 [softdepflush]
   42  ??  DL     0:00.00 [netdaemon]
```

```
   43  ??  DL     0:00.00 [vmuncachedaemon]
   44  ??  DL     0:00.00 [if_pic_listen]
   45  ??  DL     0:00.02 [vmkmemdaemon]
   46  ??  DL     0:00.01 [cb_poll]
   47  ??  DL     0:00.00 [if_pfe_listen]
   48  ??  DL     0:00.00 [scs_housekeeping]
   49  ??  IL     0:00.00 [kern_dump_proc]
   50  ??  IL     0:00.00 [nfsiod 0]
   51  ??  IL     0:00.00 [nfsiod 1]
   52  ??  IL     0:00.00 [nfsiod 2]
   53  ??  IL     0:00.00 [nfsiod 3]
   54  ??  DL     0:00.02 [schedcpu]
   55  ??  DL     0:00.75 [md0]
   77  ??  DL     0:03.48 [md1]
   98  ??  DL     0:00.59 [md2]
  116  ??  DL     0:00.02 [md3]
  137  ??  DL     0:00.56 [md4]
  158  ??  DL     0:00.15 [md5]
  179  ??  DL     0:00.00 [md6]
  215  ??  DL     0:00.03 [md7]
  225  ??  DL     0:00.03 [md8]
 1052  ??  DL     0:00.00 [jsr_kkcm]
 1337  ??  SL     0:00.09 [bcmTX]
 1338  ??  SL     0:00.10 [bcmXGS3AsyncTX]
 1339  ??  SL     0:03.22 [bcmLINK.0]
 1344  ??  Is     0:00.00 /usr/sbin/cron
 1496  ??  S      0:00.00 /sbin/watchdog -t-1
 1497  ??  S      0:00.05 /usr/libexec/bslockd -mp -N
 1498  ??  S      0:00.01 /usr/sbin/tnetd -N
 1500  ??  R      0:05.17 /usr/sbin/chassisd -N
 1501  ??  S      0:00.04 /usr/sbin/alarmd -N
 1502  ??  I      0:00.39 /usr/sbin/craftd -N
 1503  ??  S      0:00.08 /usr/sbin/mgd -N
 1506  ??  I      0:00.05 /usr/sbin/inetd -N
 1507  ??  I      0:00.00 /usr/sbin/tnp.sntpd -N
 1508  ??  I      0:00.00 /usr/sbin/tnp.sntpc -N
 1510  ??  S      0:00.01 /usr/sbin/smartd -N
 1514  ??  I      0:00.07 /usr/sbin/jcsd -N
 1515  ??  S      0:00.17 /usr/sbin/idpd -N
 1516  ??  I      0:00.00 /usr/libexec/getty Pc ttyv0
 2591  ??  DL     0:00.01 [peer proxy]
 2592  ??  DL     0:00.01 [peer proxy]
 2593  ??  DL     0:00.01 [peer proxy]
 2597  ??  DL     0:00.00 [peer proxy]
 3192  ??  S      0:00.01 /usr/sbin/irsd -N
 3193  ??  S      0:00.05 /usr/sbin/snmpd -N
 3194  ??  S      0:00.02 /sbin/dcd -N
 3195  ??  S      0:00.01 /usr/sbin/pfed -N
 3196  ??  S      0:00.01 /usr/sbin/mib2d -N
 3197  ??  S      0:00.02 /usr/sbin/dfwd -N
 3198  ??  S      0:00.13 /usr/sbin/ksyncd -N
 3228  ??  Ss     0:00.00 mgd: (mgd) (root) (mgd)
 3229  ??  R      0:00.00 /bin/ps -ax
 1138  d0- S      0:00.00 /usr/sbin/usbd -N
 1156  d0- S      0:00.42 /usr/sbin/eventd -N -r -s -A
 1517  d0  Is+    0:00.00 /usr/libexec/getty std.9600 ttyd0
...
```

show system processes sfc (TX Matrix Plus Router)

```
user@host> show system processes sfc 0
```

```
sfc0-re0:
--------------------------------------------------------------------------
  PID  TT  STAT      TIME COMMAND
    0  ??  WLs    0:00.00 [swapper]
    1  ??  SLs    0:00.18 /packages/mnt/jbase/sbin/init --
    2  ??  DL     0:00.20 [g_event]
    3  ??  DL     0:00.39 [g_up]
    4  ??  DL     0:00.32 [g_down]
    5  ??  DL     0:00.00 [thread taskq]
    6  ??  DL     0:00.09 [kqueue taskq]
    7  ??  DL     0:00.01 [pagedaemon]
    8  ??  DL     0:00.00 [vmdaemon]
    9  ??  DL     0:06.63 [pagezero]
   10  ??  DL     0:00.00 [ktrace]
   11  ??  RL   312:09.00 [idle]
   12  ??  WL     0:11.07 [swi2: net]
   13  ??  WL     0:27.70 [swi7: clock sio]
   14  ??  WL     0:00.00 [swi6: vm]
   15  ??  DL     0:03.03 [yarrow]
   16  ??  WL     0:00.00 [swi9: +]
   17  ??  WL     0:00.00 [swi8: +]
   18  ??  WL     0:00.00 [swi5: cambio]
   19  ??  WL     0:00.00 [swi9: task queue]
   20  ??  WL     0:11.46 [irq16: uhci0 uhci*]
   21  ??  DL     0:00.00 [usb0]
   22  ??  DL     0:00.00 [usbtask]
   23  ??  WL     0:39.63 [irq17: uhci1 uhci*]
   24  ??  DL     0:00.00 [usb1]
   25  ??  WL     0:00.00 [irq18: uhci2 uhci*]
   26  ??  DL     0:00.84 [usb2]
   27  ??  DL     0:00.00 [usb3]
   28  ??  DL     0:00.00 [usb4]
   29  ??  DL     0:00.00 [usb5]
   30  ??  DL     0:00.73 [usb6]
   31  ??  DL     0:00.00 [usb7]
   32  ??  WL     0:00.00 [irq14: ata0]
   33  ??  WL     0:00.00 [irq15: ata1]
   34  ??  WL     0:00.00 [irq1: atkbd0]
   35  ??  WL     0:00.00 [swi0: sio]
   36  ??  WL     0:00.00 [irq11: isab0]
   37  ??  WL     0:00.00 [swi3: ip6opt ipopt]
   38  ??  WL     0:00.00 [swi4: ip6mismatch+]
   39  ??  WL     0:00.00 [swi1: ipfwd]
   40  ??  DL     0:00.02 [bufdaemon]
   41  ??  DL     0:00.02 [vnlru]
   42  ??  DL     0:00.39 [syncer]
   43  ??  DL     0:00.05 [softdepflush]
   44  ??  DL     0:00.00 [netdaemon]
   45  ??  DL     0:00.02 [vmuncachedaemon]
   46  ??  DL     0:00.00 [if_pic_listen]
   47  ??  DL     0:00.35 [vmkmemdaemon]
   48  ??  DL     0:00.00 [cb_poll]
   49  ??  DL     0:00.06 [if_pfe_listen]
   50  ??  DL     0:00.00 [scs_housekeeping]
   51  ??  IL     0:00.00 [kern_dump_proc]
   52  ??  IL     0:00.00 [nfsiod 0]
   53  ??  IL     0:00.00 [nfsiod 1]
   54  ??  IL     0:00.00 [nfsiod 2]
   55  ??  IL     0:00.00 [nfsiod 3]
   56  ??  DL     0:00.37 [schedcpu]
   57  ??  DL     0:00.56 [md0]
```



```
   79  ??  DL     0:02.58 [md1]
  100  ??  DL     0:00.03 [md2]
  118  ??  DL     0:00.01 [md3]
  139  ??  DL     0:00.95 [md4]
  160  ??  DL     0:00.12 [md5]
  181  ??  DL     0:00.00 [md6]
  217  ??  DL     0:00.02 [md7]
  227  ??  DL     0:00.05 [md8]
 1341  ??  SL     0:01.35 [bcmTX]
 1342  ??  SL     0:01.69 [bcmXGS3AsyncTX]
 1343  ??  SL     0:41.57 [bcmLINK.0]
 1345  ??  SL     0:33.97 [bcmLINK.1]
 1350  ??  Is     0:00.01 /usr/sbin/cron
 1502  ??  S      0:00.01 /sbin/watchdog -t-1
 1503  ??  S      0:00.86 /usr/libexec/bslockd -mp -N
 1504  ??  I      0:00.01 /usr/sbin/tnetd -N
 1507  ??  S      0:01.32 /usr/sbin/alarmd -N
 1508  ??  S      0:14.54 /usr/sbin/craftd -N
 1509  ??  S      0:01.20 /usr/sbin/mgd -N
 1512  ??  S      0:00.05 /usr/sbin/inetd -N
 1513  ??  S      0:00.10 /usr/sbin/tnp.sntpd -N
 1517  ??  S      0:00.11 /usr/sbin/smartd -N
 1525  ??  S      0:01.11 /usr/sbin/idpd -N
 1526  ??  S      0:01.43 /usr/sbin/license-check -U -M -p 10 -i 10
 1527  ??  I      0:00.01 /usr/libexec/getty Pc ttyv0
 1616  ??  DL     0:00.30 [peer proxy]
 1617  ??  DL     0:00.32 [peer proxy]
 1618  ??  DL     0:00.34 [peer proxy]
 1619  ??  DL     0:00.30 [peer proxy]
 2391  ??  Is     0:00.01 telnetd
 7331  ??  Ss     0:00.03 telnetd
 9538  ??  DL     0:01.16 [jsr_kkcm]
 9613  ??  DL     0:00.18 [peer proxy]
23781  ??  Ss     0:00.01 telnetd
23926  ??  Ss     0:00.03 mgd: (mgd) (regress)/dev/ttyp2 (mgd)
36867  ??  S      0:03.14 /usr/sbin/rpd -N
36874  ??  S      0:00.08 /usr/sbin/lmpd
36876  ??  S      0:00.17 /usr/sbin/lacpd -N
36877  ??  S      0:00.15 /usr/sbin/bfdd -N
36878  ??  S      0:05.05 /usr/sbin/ppmd -N
36907  ??  S      0:26.63 /usr/sbin/chassisd -N
37775  ??  S      0:00.01 /usr/sbin/bdbrepd -N
45727  ??  S      0:00.02 /usr/sbin/xntpd -j -N -g (ntpd)
45729  ??  S      0:00.40 /usr/sbin/l2ald -N
45730  ??  S<     0:00.13 /usr/sbin/apsd -N
45731  ??  SN     0:00.10 /usr/sbin/sampled -N
45732  ??  S      0:00.03 /usr/sbin/ilmid -N
45733  ??  S      0:00.09 /usr/sbin/rmopd -N
45734  ??  S      0:00.31 /usr/sbin/cosd
45735  ??  I      0:00.00 /usr/sbin/rtspd -N
45736  ??  S      0:00.06 /usr/sbin/fsad -N
45737  ??  S      0:00.05 /usr/sbin/rdd -N
45738  ??  S      0:00.10 /usr/sbin/pppd -N
45739  ??  S      0:00.05 /usr/sbin/dfcd -N
45740  ??  S      0:00.08 /usr/sbin/lfmd -N
45741  ??  S      0:00.01 /usr/sbin/mplsoamd -N
45742  ??  I      0:00.01 /usr/sbin/sendd -N
45743  ??  S      0:00.08 /usr/sbin/appidd -N
45744  ??  S      0:00.05 /usr/sbin/mspd -N
45745  ??  S      0:00.27 /usr/sbin/jdiameterd -N
45746  ??  S      0:00.10 /usr/sbin/pfed -N
```

```
45747  ??  S      0:00.19 /usr/sbin/lpdfd -N
45748  ??  S      0:00.64 /sbin/dcd -N
45750  ??  S      0:00.46 /usr/sbin/mib2d -N
45751  ??  S      0:00.16 /usr/sbin/dfwd -N
45752  ??  S      0:00.15 /usr/sbin/irsd -N
45764  ??  S      0:20.60 /usr/sbin/snmpd -N
56481  ??  Ss     0:00.02 telnetd
56548  ??  Rs     0:00.19 mgd: (mgd) (regress)/dev/ttyp0 (mgd)
56577  ??  Ss     0:00.00 mgd: (mgd) (root) (mgd)
56578  ??  R      0:00.00 /bin/ps -ax
 1142  d0- S      0:00.01 /usr/sbin/usbd -N
 1160  d0- S      0:29.71 /usr/sbin/eventd -N -r -s -A
 6527  d0  Is+    0:00.00 /usr/libexec/getty std.9600 ttyd0
56482  p0  Is     0:00.00 login [pam] (login)
56483  p0  S      0:00.01 -csh (csh)
56547  p0  S+     0:00.02 cli
 2392  p1  Is     0:00.00 login [pam] (login)
 2393  p1  I      0:00.00 -csh (csh)
 2394  p1  I      0:00.00 su -
 2395  p1  I+     0:00.01 -su (csh)
23782  p2  Is     0:00.00 login [pam] (login)
23881  p2  I      0:00.00 -csh (csh)
23925  p2  S+     0:00.03 cli
 7332  p3  Is     0:00.00 login [pam] (login)
 7333  p3  I      0:00.00 -csh (csh)
23780  p3  S+     0:00.02 telnet aj
```

show system processes lcc wide (TX Matrix Plus Routing Matrix)

```
user@host> show system processes lcc 2 wide
lcc2-re0:
--------------------------------------------------------------------------
  PID  TT  STAT      TIME PROVIDER COMMAND
    0  ??  WLs    0:00.00 (null)   [swapper]
    1  ??  ILs    0:00.19          /packages/mnt/jbase/sbin/init --
    2  ??  DL     0:00.02          [g_event]
    3  ??  DL     0:00.19          [g_up]
    4  ??  DL     0:00.13          [g_down]
    5  ??  DL     0:00.00          [thread taskq]
    6  ??  DL     0:00.00          [kqueue taskq]
    7  ??  DL     0:00.00          [pagedaemon]
    8  ??  DL     0:00.00          [vmdaemon]
    9  ??  DL     0:01.77          [pagezero]
   10  ??  DL     0:00.00          [ktrace]
   11  ??  RL    20:33.81          [idle]
   12  ??  WL     0:00.38          [swi2: net]
   13  ??  WL     0:01.43          [swi7: clock sio]
   14  ??  WL     0:00.00          [swi6: vm]
   15  ??  DL     0:00.14          [yarrow]
   16  ??  WL     0:00.00          [swi9: +]
   17  ??  WL     0:00.00          [swi8: +]
   18  ??  WL     0:00.00          [swi5: cambio]
   19  ??  WL     0:00.00          [swi9: task queue]
   20  ??  WL     0:03.18          [irq10: bcm0 uhci1*]
   21  ??  WL     0:00.03          [irq11: cb0 uhci0+*]
   22  ??  DL     0:00.00          [usb0]
   23  ??  DL     0:00.00          [usbtask]
   24  ??  DL     0:00.00          [usb1]
   25  ??  DL     0:00.06          [usb2]
   26  ??  DL     0:00.00          [usb3]
   27  ??  DL     0:00.00          [usb4]
```

```
   28  ??  DL     0:00.00          [usb5]
   29  ??  DL     0:00.05          [usb6]
   30  ??  DL     0:00.00          [usb7]
   31  ??  WL     0:00.00          [irq14: ata0]
   32  ??  WL     0:00.00          [irq15: ata1]
   33  ??  WL     0:00.00          [irq1: atkbd0]
   34  ??  WL     0:00.00          [swi0: sio]
   35  ??  WL     0:00.00          [swi3: ip6opt ipopt]
   36  ??  WL     0:00.00          [swi4: ip6mismatch+]
   37  ??  WL     0:00.00          [swi1: ipfwd]
   38  ??  DL     0:00.00          [bufdaemon]
   39  ??  DL     0:00.00          [vnlru]
   40  ??  DL     0:00.02          [syncer]
   41  ??  DL     0:00.01          [softdepflush]
   42  ??  DL     0:00.00          [netdaemon]
   43  ??  DL     0:00.00          [vmuncachedaemon]
   44  ??  DL     0:00.00          [if_pic_listen]
   45  ??  DL     0:00.03          [vmkmemdaemon]
   46  ??  DL     0:00.01          [cb_poll]
   47  ??  DL     0:00.00          [if_pfe_listen]
   48  ??  DL     0:00.00          [scs_housekeeping]
   49  ??  IL     0:00.00          [kern_dump_proc]
   50  ??  IL     0:00.00          [nfsiod 0]
   51  ??  IL     0:00.00          [nfsiod 1]
   52  ??  IL     0:00.00          [nfsiod 2]
   53  ??  IL     0:00.00          [nfsiod 3]
   54  ??  DL     0:00.02          [schedcpu]
   55  ??  DL     0:00.75          [md0]
   77  ??  DL     0:03.84          [md1]
   98  ??  DL     0:00.59          [md2]
  116  ??  DL     0:00.02          [md3]
  137  ??  DL     0:00.72          [md4]
  158  ??  DL     0:00.15          [md5]
  179  ??  DL     0:00.00          [md6]
  215  ??  DL     0:00.03          [md7]
  225  ??  DL     0:00.03          [md8]
 1052  ??  DL     0:00.00          [jsr_kkcm]
 1337  ??  SL     0:00.11          [bcmTX]
 1338  ??  SL     0:00.12          [bcmXGS3AsyncTX]
 1339  ??  SL     0:03.82          [bcmLINK.0]
 1344  ??  Is     0:00.00          /usr/sbin/cron
 1496  ??  I      0:00.00          /sbin/watchdog -t-1
 1497  ??  S      0:00.06          /usr/libexec/bslockd -mp -N
 1498  ??  I      0:00.01          /usr/sbin/tnetd -N
 1500  ??  S      0:09.93          /usr/sbin/chassisd -N
 1501  ??  S      0:00.05          /usr/sbin/alarmd -N
 1502  ??  I      0:00.39          /usr/sbin/craftd -N
 1503  ??  S      0:00.09          /usr/sbin/mgd -N
 1506  ??  I      0:00.05          /usr/sbin/inetd -N
 1507  ??  I      0:00.00          /usr/sbin/tnp.sntpd -N
 1508  ??  I      0:00.00          /usr/sbin/tnp.sntpc -N
 1510  ??  S      0:00.01          /usr/sbin/smartd -N
 1514  ??  I      0:00.07          /usr/sbin/jcsd -N
 1515  ??  S      0:00.17          /usr/sbin/idpd -N
 1516  ??  I      0:00.00          /usr/libexec/getty Pc ttyv0
 2591  ??  DL     0:00.01          [peer proxy]
 2592  ??  DL     0:00.01          [peer proxy]
 2593  ??  DL     0:00.01          [peer proxy]
 2597  ??  DL     0:00.01          [peer proxy]
 3192  ??  S      0:00.02          /usr/sbin/irsd -N
 3193  ??  S      0:00.05          /usr/sbin/snmpd -N
```

```
 3194  ??  S      0:00.04          /sbin/dcd -N
 3195  ??  I      0:00.01          /usr/sbin/pfed -N
 3196  ??  S      0:00.02          /usr/sbin/mib2d -N
 3197  ??  I      0:00.03          /usr/sbin/dfwd -N
 3198  ??  S      0:00.15          /usr/sbin/ksyncd -N
 3559  ??  Ss     0:00.00          mgd: (mgd) (root) (mgd)
 3560  ??  R      0:00.00          /bin/ps -ax -Jpww
 1138  d0- S      0:00.00          /usr/sbin/usbd -N
 1156  d0- S      0:00.50          /usr/sbin/eventd -N -r -s -A
 1517  d0  Is+    0:00.00          /usr/libexec/getty std.9600 ttyd0
```

show system processes (QFX Series)

```
user@switch> show system processes
PID  TT  STAT      TIME COMMAND
    0  ??  WLs  -2341043:-31.01 [swapper]
    1  ??  SLs    0:01.34 /packages/mnt/jbase/sbin/init --
    2  ??  DL     2:48.31 [g_event]
    3  ??  DL     1:47.44 [g_up]
    4  ??  DL     1:37.82 [g_down]
    5  ??  DL     0:00.00 [kdm_tcp_poller]
    6  ??  DL     0:00.00 [thread taskq]
    7  ??  DL     0:04.86 [kqueue taskq]
    9  ??  DL     0:03.94 [pagedaemon]
   10  ??  DL     0:00.00 [ktrace]
   11  ??  RL     0:00.00 [idle: cpu31]
   12  ??  RL     0:00.00 [idle: cpu30]
   13  ??  RL     0:00.00 [idle: cpu29]
   14  ??  RL     0:00.00 [idle: cpu28]
   15  ??  RL     0:00.00 [idle: cpu27]
   16  ??  RL     0:00.00 [idle: cpu26]
   17  ??  RL     0:00.00 [idle: cpu25]
   18  ??  RL     0:00.00 [idle: cpu24]
   19  ??  RL     0:00.00 [idle: cpu23]
   20  ??  RL     0:00.00 [idle: cpu22]
   21  ??  RL     0:00.00 [idle: cpu21]
   22  ??  RL     0:00.00 [idle: cpu20]
   23  ??  RL     0:00.00 [idle: cpu19]
   24  ??  RL     0:00.00 [idle: cpu18]
   25  ??  RL     0:00.00 [idle: cpu17]
   26  ??  RL     0:00.00 [idle: cpu16]
   27  ??  RL     0:00.00 [idle: cpu15]
   28  ??  RL     0:00.00 [idle: cpu14]
   29  ??  RL     0:00.00 [idle: cpu13]
   30  ??  RL     0:00.00 [idle: cpu12]
   31  ??  RL     0:00.00 [idle: cpu11]
   32  ??  RL     0:00.00 [idle: cpu10]
   33  ??  RL     0:00.00 [idle: cpu9]
   34  ??  RL   18184:07.25 [idle: cpu8]
   35  ??  RL     0:00.00 [idle: cpu7]
   36  ??  RL   17862:11.31 [idle: cpu6]
   37  ??  RL   19343:45.16 [idle: cpu5]
   38  ??  RL   5192:38.30 [idle: cpu4]
   39  ??  RL     0:00.00 [idle: cpu3]
   40  ??  RL   19278:02.24 [idle: cpu2]
   41  ??  RL   19291:00.72 [idle: cpu1]
   42  ??  RL   18910:31.21 [idle: cpu0]
   43  ??  WL    19:03.74 [swi2: net]
   44  ??  WL   261:43.82 [swi7: clock sio]
   45  ??  WL     0:00.00 [swi6: vm]
   46  ??  DL     2:18.57 [yarrow]
```

```
 47  ??  WL     0:00.00 [swi9: +]
 48  ??  WL     0:00.00 [swi8: +]
 49  ??  WL     0:12.36 [swi5: cambio]
 50  ??  WL     0:00.00 [swi9: task queue]
 51  ??  WL     0:00.00 [swi0: sio]
 52  ??  WL     0:32.40 [irq39: ehci0]
 53  ??  DL     0:00.21 [usb0]
 54  ??  DL     0:00.00 [usbtask]
 55  ??  WL     0:00.00 [irq22: xlr_lbus0]
 56  ??  WL     0:00.00 [irq38: xlr_lbus0]
 57  ??  WL     0:00.00 [swi3: ip6opt ipopt]
 58  ??  WL     0:00.00 [swi4: ip6mismatch+]
 59  ??  WL     0:00.00 [swi1: ipfwd]
 60  ??  DL     0:18.65 [pagezero]
 61  ??  DL     0:18.59 [bufdaemon]
 62  ??  DL     1:10.44 [vnlru_mem]
 63  ??  DL     1:51.66 [syncer]
 64  ??  DL     0:20.22 [vnlru]
 65  ??  DL     0:40.48 [softdepflush]
 66  ??  DL     0:00.00 [netdaemon]
 67  ??  DL    20:47.67 [vmkmemdaemon]
 68  ??  DL     0:00.00 [if_pfe_listen]
 69  ??  SL     0:02.80 [kdm_checkkcore]
 70  ??  SL     0:03.34 [kdm_savekcore]
 71  ??  SL     0:04.31 [kdm_livekcore]
 72  ??  SL     0:06.14 [kdm_logger]
 73  ??  SL     0:04.31 [kdm_kdb]
 74  ??  SL     0:00.02 [devrt_kernel_thread]
 75  ??  DL     0:21.54 [vmuncachedaemon]
 76  ??  DL     0:00.00 [if_pic_listen0]
 77  ??  SL     0:00.00 [nfsiod 0]
 78  ??  SL     0:00.00 [nfsiod 1]
 79  ??  SL     0:00.00 [nfsiod 2]
 80  ??  SL     0:00.00 [nfsiod 3]
 81  ??  WL     5:59.98 [irq13: +]
 82  ??  RL   105:06.81 [pkt_sender: cpu0]
 83  ??  DL     0:03.62 [md0]
 95  ??  DL     0:37.04 [md1]
115  ??  DL     0:06.01 [md2]
135  ??  DL     0:00.75 [md3]
155  ??  DL     0:21.17 [md4]
175  ??  DL     0:01.90 [md5]
195  ??  DL     0:06.26 [md6]
231  ??  DL     0:00.01 [md7]
755  ??  Ss     0:04.17 /usr/sbin/cron
847  ??  S      0:00.10 /usr/sbin/tnetd -N
849  ??  S      0:06.82 /usr/sbin/mgd -N
850  ??  S      0:00.32 /usr/sbin/inetd -N
852  ??  S      1:05.34 /usr/sbin/dhcpd -N
853  ??  S      0:00.18 /usr/sbin/inetd -p /var/run/inetd_4.pid -N -JU __juni
855  ??  L    1181:02.21 /usr/sbin/dc-pfe -N (pafxpc)
857  ??  S     17:55.86 /usr/sbin/vccpd -N
896  ??  S     93:43.45 /usr/sbin/chassism -N
953  ??  S      0:02.89 /sbin/watchdog -t-1
954  ??  S      3:34.00 /sbin/dcd -N
955  ??  S     10:30.13 /usr/sbin/chassisd -N
956  ??  DL     0:00.21 [peer proxy]
957  ??  S      4:07.43 /usr/sbin/alarmd -N
958  ??  S      0:31.69 /usr/sbin/craftd -N
959  ??  S      0:55.16 /usr/sbin/mib2d -N
960  ??  S      3:40.64 /usr/sbin/rpd -N
```

```
  961  ??  S      0:00.03 /usr/sbin/tnp.sntpd -N
  962  ??  S      0:51.94 /usr/sbin/pfed -N
  963  ??  S      0:47.31 /usr/sbin/rmopd -N
  964  ??  S      0:33.65 /usr/sbin/cosd
  965  ??  S      1:48.41 /usr/sbin/ppmd -N
  966  ??  S      0:07.18 /usr/sbin/dfwd -N
  967  ??  S      1:02.56 /usr/sbin/bfdd -N
  968  ??  S      0:00.63 /usr/sbin/rdd -N
  969  ??  S      0:40.61 /usr/sbin/dfcd -N
  971  ??  S      0:07.81 /usr/sbin/bdbrepd -N
  972  ??  S      0:00.28 /usr/sbin/sendd -N
  973  ??  S      1:37.69 /usr/sbin/xntpd -j -N -g -JU __juniper_private4__ (nt
  974  ??  S      5:56.28 /usr/sbin/snmpd -N -JU __juniper_private4__
  975  ??  S     16:46.82 /usr/sbin/jdiameterd -N
  976  ??  S      2:34.13 /usr/sbin/eswd -N
  977  ??  S      1:03.05 /usr/sbin/sflowd -N
  978  ??  S      0:22.30 /usr/sbin/fcd -N
  979  ??  S      1:07.01 /usr/sbin/vccpdf -N
  982  ??  S      0:25.25 /usr/sbin/mcsnoopd -N
  983  ??  S      3:45.68 /usr/sbin/rpdf -N
 1043  ??  S      0:37.87 /usr/sbin/lacpd -N
 1048  ??  DL     0:01.29 [peer proxy]
 1111  ??  WL     0:00.00 [swi2: FMNITHRD+]
 1112  ??  DL     0:00.03 [peer proxy]
12816  ??  S     15:35.32 /usr/sbin/sfid -N
30893  ??  Ss     0:00.65 sshd: tlewis@ttyp0 (sshd)
30897  ??  Ss     0:00.15 mgd: (mgd) (tlewis)/dev/ttyp0 (mgd)
30905  ??  Ss     0:00.64 sshd: tlewis@ttyp1 (sshd)
30909  ??  Ss     0:00.15 mgd: (mgd) (tlewis)/dev/ttyp1 (mgd)
30910  ??  Ss     0:01.26 sshd: tcheng@ttyp2 (sshd)
30914  ??  Ss     0:00.80 mgd: (mgd) (tcheng)/dev/ttyp2 (mgd)
30937  ??  R      0:00.03 /bin/ps -ax
  661  d0- S      0:21.24 /usr/sbin/eventd -N -r -s -A
  860  d0  Ss+    0:00.07 /usr/libexec/getty std.9600 ttyd0
30896  p0  Ss+    0:00.55 -cli (cli)
30908  p1  Ss+    0:00.50 -cli (cli)
30913  p2  Ss+    0:00.85 -cli (cli)
```

show system statistics

List of Syntax

Syntax on page 587
Syntax (EX Series Switches) on page 587
Syntax (TX Matrix Router) on page 587
Syntax (TX Matrix Plus Router) on page 587
Syntax (MX Series Router) on page 587
Syntax (QFX Series) on page 587

Syntax

show system statistics

Syntax (EX Series Switches)

show system statistics
<all-members>
<local>
<member *member-id*>

Syntax (TX Matrix Router)

show system statistics
<all-chassis | all-lcc | lcc *number* | scc>

Syntax (TX Matrix Plus Router)

show system statistics
<all-chassis | all-lcc | lcc *number* | sfc *number*>

Syntax (MX Series Router)

show system statistics
<all-members>
<local>
<member *member-id*>

Syntax (QFX Series)

show system statistics

Release Information

Command introduced before JUNOS 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 system-wide protocol-related statistics.

Options

none—Display system statistics for all the following protocols:

- **arp**—Address Resolution Protocol
- **bridge**—IEEE 802.1 Bridging
- **clns**—Connectionless Network Service
- **esis**—End System-to-Intermediate System
- **ethoamcfm**—Ethernet OAM protocol for connectivity fault management
- **ethoamlfm**—Ethernet OAM protocol for link fault management
- **icmp**—Internet Control Message Protocol
- **icmp6**—Internet Control Message Protocol version 6
- **igmp**—Internet Group Management Protocol

- **ip**—Internet Protocol version 4
- **ip6**—Internet Protocol version 6
- **mpls**—Multiprotocol Label Switching
- **rdp**—Reliable Datagram Protocol
- **tcp**—Transmission Control Protocol
- **tnp**—Trivial Network Protocol
- **ttp**—TNP Tunneling Protocol
- **tudp**—Trivial User Datagram Protocol
- **udp**—User Datagram Protocol
- **vpls**—Virtual Private LAN Service

all-chassis—(TX Matrix and TX Matrix Plus routers only) (Optional) Display system statistics for a protocol for all the routers in the chassis.

all-lcc—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display system statistics for a protocol for all T640 routers (or line-card chassis) connected to the TX Matrix router. On a TX Matrix Plus router, display system statistics for a protocol for all routers (line-card chassis) connected to the TX Matrix Plus router

all-members—(EX4200 switches and MX Series routers only) (Optional) Display system statistics for a protocol for all members of the Virtual Chassis configuration.

lcc ***number***—(TX Matrix and TX Matrix Plus routers only) (Optional) On a TX Matrix router, display system statistics for a protocol for a specific T640 router that is connected to the TX Matrix router. On a TX Matrix Plus router, display system statistics for a protocol for a specific router that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

local—(EX4200 switches and MX Series routers only) (Optional) Display system statistics for a protocol for the local Virtual Chassis member.

member ***member-id***—(EX4200 switches and MX Series routers only) (Optional) Display system statistics for a protocol 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.

scc—(TX Matrix routers only) (Optional) Display system statistics for a protocol for the TX Matrix router (or switch-card chassis).

sfc ***number***—(TX Matrix Plus routers only) (Optional) Display system statistics for a protocol for the TX Matrix Plus router (or switch-fabric chassis). Replace ***number*** with 0.

Additional Information

By default, when you issue the **show system statistics** 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 the TX Matrix router) or T1600 (in a routing matrix based on the 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 the TX Matrix router) or T1600 (in a routing matrix based on the TX Matrix Plus router) backup Routing Engines that are connected to it.

Required Privilege Level

view

List of Sample Output

show system statistics on page 589
show system statistics (EX Series Switches) on page 596
show system statistics (TX Matrix Router) on page 605
show system statistics (QFX Series) on page 612

Sample Output

show system statistics

```
user@host> show system statistics
ip:
        3682087 total packets received
        0 bad header checksums
        0 with size smaller than minimum
        0 with data size < data length
        0 with header length < data size
        0 with data length < header length
        0 with incorrect version number
        0 packets destined to dead next hop
        0 fragments received
        0 fragments dropped (dup or out of space)
        0 fragments dropped (queue overflow)
        0 fragments dropped after timeout
        0 fragments dropped due to over limit
        0 packets reassembled ok
        3664774 packets for this host
        17316 packets for unknown/unsupported protocol
        0 packets forwarded
        0 packets not forwardable
        0 redirects sent
        6528 packets sent from this host
        0 packets sent with fabricated ip header
        0 output packets dropped due to no bufs
        0 output packets discarded due to no route
```

```
        0 output datagrams fragmented
        0 fragments created
        0 datagrams that can't be fragmented
        0 packets with bad options
        1123 packets with options handled without error
        0 strict source and record route options
        0 loose source and record route options
        0 record route options
        0 timestamp options
        0 timestamp and address options
        0 timestamp and prespecified address options
        0 option packets dropped due to rate limit
        1123 router alert options
        0 multicast packets dropped (no iflist)
        0 packets dropped (src and int don't match)
icmp:
        0 drops due to rate limit
        0 calls to icmp_error
        0 errors not generated because old message was icmp
        Output histogram:
                echo reply: 75
        0 messages with bad code fields
        0 messages less than the minimum length
        0 messages with bad checksum
        0 messages with bad source address
        0 messages with bad length
        0 echo drops with broadcast or multicast destination address
        0 timestamp drops with broadcast or multicast destination address
        Input histogram:
                echo: 75
                router advertisement: 130
        75 message responses generated
tcp:
        3844 packets sent
                3618 data packets (1055596 bytes)
                0 data packets (0 bytes) retransmitted
                0 resends initiated by MTU discovery
                205 ack-only packets (148 packets delayed)
                0 URG only packets
                0 window probe packets
                0 window update packets
                1079 control packets
        5815 packets received
                3377 acks (for 1055657 bytes)
                24 duplicate acks
                0 acks for unsent data
                2655 packets (15004 bytes) received in-sequence
                1 completely duplicate packet  (0 bytes)
                0 old duplicate packets
                0 packets with some dup. data (0 bytes duped)
                0 out-of-order packets (0 bytes)
                0 packets (0 bytes) of data after window
                0 window probes
                7 window update packets
                0 packets received after close
                0 discarded for bad checksums
                0 discarded for bad header offset fields
                0 discarded because packet too short
        1 connection request
        32 connection accepts
        0 bad connection attempts
```



```
        0 listen queue overflows
        33 connections established (including accepts)
        30 connections closed (including 0 drops)
                27 connections updated cached RTT on close
                27 connections updated cached RTT variance on close
                0 connections updated cached ssthresh on close
        0 embryonic connections dropped
        3374 segments updated rtt (of 3220 attempts)
        0 retransmit timeouts
                0 connections dropped by rexmit timeout
        0 persist timeouts
                0 connections dropped by persist timeout
        344 keepalive timeouts
                0 keepalive probes sent
                0 connections dropped by keepalive
        1096 correct ACK header predictions
        1314 correct data packet header predictions
        32 syncache entries added
                0 retransmitted
                0 dupsyn
                0 dropped
                32 completed
                0 bucket overflow
                0 cache overflow
                0 reset
                0 stale
                0 aborted
                0 badack
                0 unreach
                0 zone failures
        0 cookies sent
        0 cookies received
        0 ACKs sent in response to in-window but not exact RSTs
        0 ACKs sent in response to in-window SYNs on established connections
        0 rcv packets dropped by TCP due to bad address
        0 out-of-sequence segment drops due to insufficient memory
        1058 RST packets
        0 ICMP packets ignored by TCP
        0 send packets dropped by TCP due to auth errors
        0 rcv packets dropped by TCP due to auth errors
udp:
        3658884 datagrams received
        0 with incomplete header
        0 with bad data length field
        0 with bad checksum
        3657342 dropped due to no socket
        3657342 broadcast/multicast datagrams dropped due to no socket
        0 dropped due to full socket buffers
        0 not for hashed pcb
        4291311496 delivered
        1551 datagrams output
ipsec:
        0 inbound packets processed successfully
        0 inbound packets violated process security policy
        0 inbound packets with no SA available
        0 invalid inbound packets
        0 inbound packets failed due to insufficient memory
        0 inbound packets failed getting SPI
        0 inbound packets failed on AH replay check
        0 inbound packets failed on ESP replay check
        0 inbound AH packets considered authentic
```

```
        0 inbound AH packets failed on authentication
        0 inbound ESP packets considered authentic
        0 inbound ESP packets failed on authentication
        0 outbound packets processed successfully
        0 outbound packets violated process security policy
        0 outbound packets with no SA available
        0 invalid outbound packets
        0 outbound packets failed due to insufficient memory
        0 outbound packets with no route
igmp:
        17186 messages received
        0 messages received with too few bytes
        0 messages received with bad checksum
        0 membership queries received
        0 membership queries received with invalid field(s)
        0 membership reports received
        0 membership reports received with invalid field(s)
        0 membership reports received for groups to which we belong
        0 membership reports sent
arp:
        44181302 datagrams received
        2 ARP requests received
        2028 ARP replies received
        3156 resolution requests received
        0 unrestricted proxy requests
        0 received proxy requests
        0 proxy requests not proxied
        0 with bogus interface
        787 with incorrect length
        712 for non-IP protocol
        0 with unsupported op code
        0 with bad protocol address length
        0 with bad hardware address length
        0 with multicast source address
        7611 with multicast target address
        0 with my own hardware address
        14241699 for an address not on the interface
        0 with a broadcast source address
        0 with source address duplicate to mine
        29929250 which were not for me
        0 packets discarded waiting for resolution
        6 packets sent after waiting for resolution
        17812 ARP requests sent
        2 ARP replies sent
        0 requests for memory denied
        0 requests dropped on entry
        0 requests dropped during retry
ip6:
        0 total packets received
        0 with size smaller than minimum
        0 with data size < data length
        0 with bad options
        0 with incorrect version number
        0 fragments received
        0 fragments dropped (dup or out of space)
        0 fragments dropped after timeout
        0 fragments that exceeded limit
        0 packets reassembled ok
        0 packets for this host
        0 packets forwarded
        0 packets not forwardable
```

```
        0 redirects sent
        0 packets sent from this host
        0 packets sent with fabricated ip header
        0 output packets dropped due to no bufs, etc.
        0 output packets discarded due to no route
        0 output datagrams fragmented
        0 fragments created
        0 datagrams that can't be fragmented
        0 packets that violated scope rules
        0 multicast packets which we don't join
        Mbuf statistics:
        0 packets whose headers are not continuous
        0 tunneling packets that can't find gif
        0 packets discarded due to too may headers
        0 failures of source address selection
        0 forward cache hit
        0 forward cache miss
        0 packets destined to dead next hop
        0 option packets dropped due to rate limit
        0 packets dropped (src and int don't match)
        0 packets dropped due to bad protocol
icmp6:
        0 calls to icmp_error
        0 errors not generated because old message was icmp error or so
        0 errors not generated because rate limitation
        0 messages with bad code fields
        0 messages < minimum length
        0 bad checksums
        0 messages with bad length
        Histogram of error messages to be generated:
                0 no route
                0 administratively prohibited
                0 beyond scope
                0 address unreachable
                0 port unreachable
                0 packet too big
                0 time exceed transit
                0 time exceed reassembly
                0 erroneous header field
                0 unrecognized next header
                0 unrecognized option
                0 redirect
                0 unknown
        0 message responses generated
        0 messages with too many ND options
ipsec6:
        0 inbound packets processed successfully
        0 inbound packets violated process security policy
        0 inbound packets with no SA available
        0 invalid inbound packets
        0 inbound packets failed due to insufficient memory
        0 inbound packets failed getting SPI
        0 inbound packets failed on AH replay check
        0 inbound packets failed on ESP replay check
        0 inbound AH packets considered authentic
        0 inbound AH packets failed on authentication
        0 inbound ESP packets considered authentic
        0 inbound ESP packets failed on authentication
        0 outbound packets processed successfully
        0 outbound packets violated process security policy
        0 outbound packets with no SA available
```

```
        0 invalid outbound packets
        0 outbound packets failed due to insufficient memory
        0 outbound packets with no route
clnl:
        0 total packets received
        0 packets delivered
        0 too small
        0 bad header length
        0 bad checksum
        0 bad version
        0 unknown or unsupported protocol
        0 bogus sdl size
        0 no free memory in socket buffer
        0 send packets discarded
        0 sbappend failure
        0 mcopy failure
        0 address fields were not reasonable
        0 segment information forgotten
        0 forwarded packets
        0 total packets sent
        0 output packets discarded
        0 non-forwarded packets
        0 packets fragmented
        0 fragments sent
        0 fragments discarded
        0 fragments timed out
        0 fragmentation prohibited
        0 packets reconstructed
        0 packets destined to dead nexthop
        0 packets discarded due to no route
        0 Error pdu rate drops
        0 ER pdu generation failure
esis:
        0 total pkts received
        0 total packets consumed by protocol
        0 pdus received with bad checksum
        0 pdus received with bad version number
        0 pdus received with bad type field
        0 short pdus received
        0 bogus sdl size
        0 bad header length
        0 unknown or unsupported protocol
        0 no free memory in socket buffer
        0 send packets discarded
        0 sbappend failure
        0 mcopy failure
        0 ISO family not configured
tnp:
        146776365 unicast packets received
        0 broadcast packets received
        0 fragmented packets received
        0 hello packets dropped
        0 fragments dropped
        0 fragment reassembly queue flushes
        0 hello packets received
        0 control packets received
        49681642 rdp packets received
        337175 udp packets received
        96757548 tunnel packets received
        0 input packets discarded with no protocol
        98397591 unicast packets sent
```



```
        0 broadcast packets sent
        0 fragmented packets sent
        0 hello packets dropped
        0 fragments dropped
        0 hello packets sent
        0 control packets sent
        49681642 rdp packets sent
        337175 udp packets sent
        48378774 tunnel packets sent
        0 packets sent with unknown protocol
rdp:
        49681642 input packets
        0 discards for bad checksum
        0 discards bad sequence number
        0 refused connections
        2031964 acks received
        0 dropped due to full socket buffers
        49692 retransmits
        49681642 output packets
        24815968 acks sent
        28 connects
        0 closes
        22783990 keepalives received
        22783990 keepalives sent
tudp:
        337175 datagrams received
        0 with incomplete header
        0 with bad data length field
        0 with bad checksum
        0 dropped due to no socket
        0 broadcast/multicast datagrams dropped due to no socket
        0 dropped due to full socket buffers
        337175 delivered
        337175 datagrams output
ttp:
        398749 packets sent
        0 packets sent while unconnected
        0 packets sent while interface down
        0 packets sent couldn't get buffer
        0 packets sent couldn't find neighbor
        44696687 L2 packets received
        0 unknown L3 packets received
        3682087 IPv4 L3 packets received
        0 MPLS L3 packets received
        0 MPLS->IPv4 L3 packets received
        0 IPv4->MPLS L3 packets received
        0 IPv6 L3 packets received
        0 ARP L3 packets received
        0 CLNP L3 packets received
        0 TNP L3 packets received
        0 NULL L3 packets received
        0 cyclotron cycle L3 packets received
        0 cyclotron send L3 packets received
        0 packets received while unconnected
        0 packets received from unknown ifl
        0 input packets couldn't get buffer
        0 input packets with bad type
        0 input packets with discard type
        0 Input packets with too many tlvs
        0 Input packets with bad tlv header
        70633 Input packets with bad tlv type
```

```
        68877 Input packets dropped based on tlv result
        0 input packets for which rt lookup is bypassed
mpls:
        0 total mpls packets received
        0 packets forwarded
        0 packets dropped
        0 with header too small
        0 after tagging, can't fit link MTU
        0 with IPv4 explicit NULL tag
        0 with IPv4 explicit NULL cksum errors
        0 with router alert tag
        0 lsp ping packets (ttl-expired/router alert)
        0 with ttl expired
        0 with tag encoding error
        0 packets discarded, no route
vpls:
        0 total packets received
        0 with size smaller than minimum
        0 with incorrect version number
        0 packets for this host
        0 packets with no logical interface
        0 packets with no family
        0 packets with no route table
        0 packets with no auxiliary table
        0 packets with no corefacing entry
        0 packets with no CE-facing entry
        0 mac route learning requests
        0 mac routes learnt
        0 requests to learn an existing route
        0 learning requests while learning disabled on interface
        0 learning requests over capacity
        0 mac routes moved
        0 requests to move static route
        0 mac route aging requests
        0 mac routes aged
        0 bogus address in aging requests
        0 requests to age static route
        0 requests to re-ageout aged route
        0 requests involving multiple peer FEs
        0 aging acks from PFE
        0 aging non-acks from PFE
        0 aging requests timed out waiting on FEs
        0 aging requests over max-rate
        0 errors finding peer FEs
```

show system statistics (EX Series Switches)

```
user@host> show system statistics
Tcp:
         571779 packets sent
                 21517 data packets (1797102 bytes)
                 2 data packets retransmitted (20 bytes)
                 0 resends initiated by MTU discovery
                 3708 ack only packets (531 packets delayed)
                 0 URG only packets
                 1 window probe packets
                 1 window update packets
                 1093063 control packets
         1132541 packets received
                 20961 acks(for 1796102 bytes)
                 5861 duplicate acks
```

```
        0 acks for unsent data
        19556  packets received in-sequence(232079 bytes)
        3018 completely duplicate packets(0 bytes)
        0 old duplicate packets
        4 packets with some duplicate data(4 bytes duped)
        2 out-of-order packets(2 bytes)
        0 packets of data after window(0 bytes)
        0 window probes
        39 window update packets
        0 packets received after close
        0 discarded for bad checksums
        0 discarded for bad header offset fields
        0 discarded because packet too short
546519 connection requests
78 connection accepts
0 bad connection attempts
0 listen queue overflows
100 connections established (including accepts)
546596 connections closed (including 6 drops)
        47 connections updated cached RTT on close
        47 connections updated cached RTT variance on close
        0 connections updated cached ssthresh on close
546497 embryonic connections dropped
20453 segments updated rtt(of 566914 attempts)
2 retransmit timeouts
        0 connections dropped by retransmit timeout
0 persist timeouts
        0 connections dropped by persist timeout
3028 keepalive timeouts
        3027 keepalive probes sent
        1 connections dropped by keepalive
7515 correct ACK header predictions
12258 correct data packet header predictions
78 syncache entries added
        0 retransmitted
        0 dupsyn
        4 dropped
        78 completed
        0 bucket overflow
        0 cache overflow
        0 reset
        0 stale
        0 aborted
        0 badack
        0 unreach
        0 zone failures
0 cookies sent
0 cookies received
1 SACK recovery episodes
1 segment retransmits in SACK recovery episodes
1 byte retransmits in SACK recovery episodes
71 SACK options (SACK blocks) received
1 SACK options (SACK blocks) sent
0 SACK scoreboard overflow
0 ACKs sent in response to in-window but not exact RSTs
0 ACKs sent in response to in-window SYNs on established connections
0 rcv packets dropped by TCP due to bad address
0 out-of-sequence segment drops due to insufficient memory
546544 RST packets
0 ICMP packets ignored by TCP
0 send packets dropped by TCP due to auth errors
```

```
        0 rcv packets dropped by TCP due to auth errors
        0 outgoing segments dropped due to policing
udp:
        147 datagrams received
        0 with incomplete header
        0 with bad data length field
        0 with bad checksum
        9 dropped due to no socket
        0 broadcast/multicast datagrams dropped due to no socket
        0 dropped due to full socket buffers
        0 not for hashed pcb
        138 delivered
        0 datagrams output
ip:
        73704 total packets received
        0 bad header checksums
        0 with size smaller than minimum
        0 with data size < data length
        0 with header length < data size
        0 with data length < header length
        0 with incorrect version number
        0 packets destined to dead next hop
        0 fragments received
        0 fragments dropped (dup or out of space)
        0 fragments dropped (queue overflow)
        0 fragments dropped after timeout
        0 fragments dropped due to over limit
        0 packets reassembled ok
        1133057 packets for this host
        0 packets for unknown/unsupported protocol
        40146 packets forwarded
        0 packets not forwardable
        40146 redirects sent
        1121700 packets sent from this host
        0 packets sent with fabricated ip header
        0 output packets dropped due to no bufs
        0 output packets discarded due to no route
        0 output datagrams fragmented
        0 fragments created
        0 datagrams that can't be fragmented
        0 packets with bad options
        0 packets with options handled without error
        0 strict source and record route options
        0 loose source and record route options
        0 record route options
        0 timestamp options
        0 timestamp and address options
        0 timestamp and prespecified address options
        0 option packets dropped due to rate limit
        0 router alert options
        0 multicast packets dropped (no iflist)
        0 packets dropped (src and int don't match)
        0 transit re packets dropped on mgmt i/f
        0 packets used first nexthop in ecmp unilist
        0 incoming ttpoip packets received
        0 incoming ttpoip packets dropped
         0 outgoing TTPoIP packets sent
        0 outgoing TTPoIP packets dropped
icmp:
        0 drops due to rate limit
        9 calls to icmp_error
```

```
        0 errors not generated because old message was icmp
        Output histogram:
                295 echo reply
                9 destination unreachable
        0 messages with bad code fields
        0 messages less than the minimum length
        0 messages with bad checksum
        0 messages with bad source address
        0 messages with bad length
        0 echo drops with broadcast or multicast destinaton address
        0 timestamp drops with broadcast or multicast destination address
        Input histogram:
                295 echo
        295 message responses generated
igmp:
        0 messages received
        0 messages received with too few bytes
        0 messages received with bad checksum
        0 membership queries received
        0 membership queries received with invalid fields
        0 membership reports received
        0 membership reports received with invalid fields
        0 membership reports received for groups to which we belong
        0 Membership reports sent
raw_if:
        0 RAW packets transmitted
        0 PPPOE packets transmitted
        0 ISDN packets transmitted
        0 DIALER packets transmitted
        0 PPP packets transmitted to pppd
        0 PPP packets transmitted to jppd
        0 IGMPL2 packets transmitted
        13 output drops due to tx error
        0 MPU packets transmitted
        0 PPPOE packets received
        0 ISDN packets received
        0 DIALER packets received
        0 PPP packets received from pppd
        0 MPU packets received
        0 PPP packets received from jppd
        0 IGMPL2 packets received
        0 Input drops due to bogus protocol
        0 input drops due to no mbufs available
        0 input drops due to no space in socket
        0 input drops due to no socket
arp:
        186413 datagrams received
        88 ARP requests received
        88 ARP replies received
        0 resolution request  received
        0 unrestricted proxy requests
        0 restricted proxy requests
        0 received proxy requests
        0 proxy requests not proxied
        0 restricted proxy requests not proxied
        0 datagrams with bogus interface
        0 datagrams with incorrect length
        0 datagrams for non-IP protocol
        0 datagrams with unsupported op code
        0 datagrams with bad protocol address length
         0 datagrams with bad hardware address length
```

```
            0 datagrams with multicast source address
            0 datagrams with multicast source address
            0 datagrams with my own hardware address
            164 datagrams for an address not on the interface
            0 datagrams with a broadcast source address
            0 datagrams with source address duplicate to mine
            186065 datagrams which were not for me
            0 packets discarded waiting for resolution
            0 packets sent after waiting for resolution
            50 ARP requests sent
            88 ARP replies sent
            0 requests for memory denied
            0 requests dropped on entry
            0 requests dropped during retry
            0 requests dropped due to interface deletion
            0 requests on unnumbered interfaces
            0 new requests on unnumbered interfaces
            0 replies for from unnumbered interfaces
            0 requests on unnumbered interface with non-subnetted donor
            0 replies from unnumbered interface with non-subnetted donor
ip6:
            0 total packets received
            0 packets with size smaller than minimum
            0 packets with data size < data length
            0 packets with bad options
            0 packets with incorrect version number
            0 fragments received
            0 fragments dropped (dup or out of space)
            0 fragments dropped after timeout
            0 fragments that exceeded limit
            0 packets reassembled ok
            0 packets for this host
            0 packets forwarded
            0 packets not forwardable
            0 redirects sent
            0 packets sent from this host
            0 packets sent with fabricated ip header
            0 output packets dropped due to no bufs, etc.
            0 output datagrams fragmented
            0 fragments created
            0 datagrams that can't be fragmented
            0 packets that violated scope rules
            0 multicast packets which we don't join
            0 packets whose headers are not continuous
            0 tunneling packets that can't find gif
            0 packets discarded due to too may headers
            0 failures of source address selection
            0 forward cache hit
            0 forward cache miss
            0 Packets destined to dead next hop
            0 option packets dropped due to rate limit
            0 Packets dropped (src and int don't match)
            0 packets dropped due to bad protocol
            0 transit re packet(null) dropped on mgmt i/f
icmp6:
            0 Calls to icmp_error
            0 Errors not generated because old message was icmp error
            0 Errors not generated because rate limitation
            0 Messages with bad code fields
            0 Messages < minimum length
            0 Bad checksums
```



```
        0 Messages with bad length
                0 No route
                0 Administratively prohibited
                 0 Beyond scope
                0 Address unreachable
                0 Port unreachable
                0 packet too big
                0 Time exceed transit
                0 Time exceed reassembly
                0 Erroneous header field
                0 Unrecognized next header
                0 Unrecognized option
                0 redirect
                0 Unknown
        0 Message responses generated
        0 Messages with too many ND options
pfkey:
        0 Requests sent from userland
        0 Bytes sent from userland
        histogram by message type:
                0 reserved
                0 dump
        0 Messages with invalid length field
        0 Messages with invalid version field
        0 Messages with invalid message type field
        0 Messages too short
        0 Messages with memory allocation failure
        0 Messages with duplicate extension
        0 Messages with invalid extension type
        0 Messages with invalid sa type
        0 Messages with invalid address extension
        0 Requests sent to userland
        0 Bytes sent to userland
        histogram by message type:
                0 reserved
                0 dump
        0 Messages toward single socket
        0 Messages toward all sockets
        0 Messages toward registered sockets
        0 Messages with memory allocation failure
clnl:
        0 Total packets received
        0 Packets delivered
        0 Too small packets
        0 Packets with bad header length
        0 Packets with bad checksum
        0 Bad version packets
        0 Unknown or unsupported protocol packets
        0 Packets with bogus sdl size
        0 No free memory in socket buffer
        0 Send packets discarded
        0 Sbappend failure
        0 Mcopy failure
        0 Address fields were not reasonable
        0 Segment information forgotten
        0 Forwarded packets
        0 Total packets sent
        0 Output packets discarded
        0 Non-forwarded packets
        0 Packets fragmented
        0 Fragments sent
```

```
            0 Fragments discarded
            0 Fragments timed out
            0 Fragmentation prohibited
            0 Packets reconstructed
            0 Packets destined to dead nexthop
            0 Packets discarded due to no route
            0 Error pdu rate drops
             0 ER pdu generation failure
esis:
            0 Total pkts received
            0 Total packets consumed by protocol
            0 Pdus received with bad checksum
            0 Pdus received with bad version number
            0 Pdus received with bad type field
            0 Short pdus received
            0 Pdus withbogus sdl size
            0 Pdus with bad header length
            0 Pdus with unknown or unsupport protocol
            0 No free memory in socket buffer
            0 Send packets discarded
            0 Sbappend failure
            0 Mcopy failure
            0 ISO family not configured
tnp:
            0 Unicast packets received
            0 Broadcast packets received
            0 Fragmented packets received
            0 Hello packets dropped
            0 Fragments dropped
            0 Fragment reassembly queue flushes
            0 Packets with tnp src address collision received
            0 Hello packets received
            0 Control packets received
            0 Rdp packets received
            0 Udp packets received
            0 Tunnel packets received
            0 Input packets discarded with no protocol
            0 Packets of version unspecified received
            0 Packets of version 1 received
            0 Packets of version 2 received
            0 Packets of version 3 received
            0 Unicast packets sent
            0 Broadcast packets sent
            0 Fragmented packets sent
            0 Hello packets dropped
            0 Fragments dropped
            0 Hello packets sent
            0 Control packets sent
            0 Rdp packets sent
            0 Udp packets sent
            0 Tunnel packets sent
            0 Packets sent with unknown protocol
            0 Packets of version unspecified sent
            0 Packets of version 1 sent
            0 Packets of version 2 sent
            0 Packets of version 3 sent
rdp:
            0 Input packets
            0 Packets discarded for bad checksum
            0 Packets discarded due to bad sequence number
            0 Refused connections
```



```
            0 Acks received
            0 Packets dropped due to full socket buffers
            0 Retransmits
            0 Output packets
            0 Acks sent
            0 Connects
            0 Closes
            0 Keepalives received
            0 Keepalives sent
    tudp:
            67 Datagrams received
            0 Datagrams with incomplete header
            0 Datagrams with bad data length field
            0 Datagrams with bad checksum
            0 Datagrams dropped due to no socket
            0 Broadcast/multicast datagrams dropped due to no socket
            0 Datagrams dropped due to full socket buffers
            67 Delivered
            68 Datagrams output
    ttp:
            0 Packets sent
            0 Packets sent while unconnected
            0 Packets sent while interface down
            0 Packets sent couldn't get buffer
            0 Packets sent couldn't find neighbor
            0 L2 packets received
            0 Unknown L3 packets received
            0 IPv4 L3 packets received
            0 MPLS L3 packets received
            0 MPLS->IPV4 L3 packets received
            0 IPv4->MPLS L3 packets received
            0 IPv6 L3 packets received
            0 ARP L3 packets received
            0 CLNP L3 packets received
            0 TNP L3 packets received
            0 NULL L3 packets received
            0 Cyclotron cycle L3 packets received
            0 Cyclotron send L3 packets received
            0 Packets received while unconnected
            0 Packets received from unknown ifl
            0 Input packets couldn't get buffer
            0 Input packets with bad type
            0 Input packets with discard type
            0 Input packets with too many tlvs
            0 Input packets with bad tlv header
            70633 Input packets with bad tlv type
            68877 Input packets dropped based on tlv result
            0 Input packets for which rt lookup is bypassed
    mpls:
            0 Total MPLS packets received
            0 Packets forwarded
            0 Packets dropped
            0 Packets with header too small
            0 After tagging, packets can't fit link MTU
            0 Packets with IPv4 explicit NULL tag
            0 Packets with IPv4 explicit NULL cksum errors
            0 Packets with router alert tag
            0 LSP ping packets (ttl-expired/router alert)
            0 Packets with ttl expired
            0 Packets with tag encoding error
            0 Packets discarded due to no route
```

```
            0 Packets used first nexthop in ecmp unilist
vpls:
            0 Total packets received
            0 Packets with size smaller than minimum
            0 Packets with incorrect version number
            0 Packets for this host
            0 Packets with no logical interface
            0 Packets with no family
            0 Packets with no route table
            0 Packets with no auxiliary table
            0 Packets with no corefacing entry
            0 packets with no CE-facing entry
            0 MAC route learning requests
            0 MAC routes learnt
            0 Requests to learn an existing route
            0 Learning requests while learning disabled on interface
            0 Learning requests over capacity
            0 MAC routes moved
            0 Requests to move static route
            0 MAC route aging requests
            0 MAC routes aged
            0 Bogus address in aging requests
            0 Requests to age static route
            0 Requests to re-ageout aged route
            0 Requests involving multiple peer FEs
            0 Aging acks from PFE
            0 Aging non-acks from PFE
            0 Aging requests timed out waiting on FEs
            0 Aging requests over max-rate
            0 Errors finding peer FEs
            0 Unsupported platform
            0 Packets dropped due to no l3 route table
            0 Packets dropped due to no local ifl
            0 Packets punted
            0 Packets dropped due to no socket
bridge:
            Input:
            0 packets received
            0 packets forwarded
            0 packets failed to forward
            0 packets dropped
            0 packets with vmember lookup failures
            0 packets with vlan lookup failures
            0 packets with stp state lookup failures
            0 packets dropped due to stp blocked/listening
            0 packets dropped due to stp learning
            0 packets with src MAC learning failures
            0 packets with input control processing failures
            Forward:
            0 packets sent successfully
            0 packets with send failures
            0 packets forwarded to l3 interface
            0 packets with l3 send failures
            0 packets discarded
            0 packets with l2ifl store failures
            0 packets with ifl mismatch failures
            0 packets with packet duplication failures
            0 packets with tag lookup failures
            0 packets with no route for DMAC
            0 packets with no route table
            0 packets with no nexthop
```



```
0 packets with dead nexthop
0 packets with eof reached error
Learning:
0 MACs learned
0 packets sent to l3 interface
0 packets with l3 send failures
0 packets hit holdq while learning
0 MAC moves
0 packets discarded
0 packets with no route for SMAC
0 packets with no nexthop
0 packets with dead nexthop
0 packets dropped due to no resolve route
0 packets with l3 ifd lookup failures
0 packets with l3 ifl lookup failures
0 packets with l3 invalid rnh
0 packets with no route for SMAC in clone learning
0 packets with no nexhop in clone learning
0 packets with dead nexthop in clone learning
0 packets dropped due to no resolve nh in clone learning
Output:
0 packets forwarded
0 packets failed to forward
0 packets with vmember lookup failures
 0 packets with vlan lookup failures
0 packets with input control processing failures
Send:
0 packets sent successfully
0 packets with send failures
0 packets dropped due to interface down
0 packets with dev output failures
0 blocked ifl discards
0 packets with tag lookup failures
0 packets with stp state lookup failures
0 packets with tag insertion failures
0 packets with tag removal failures
Flood:
0 packets flooded
0 flood failures
IGMP:
0 packets sent successfully
0 packets with send failures
0 packets forwarded
0 packets failed to forward
0 packets with mpull failures
0 packets with vmember lookup failures
0 packets with vlan lookup failures
0 packets with ifl lookup failures
0 packets with tag lookup failures
Misc:
0 packets with size smaller than minimum
0 packets with double tags
0 packets with no ifl
0 packets with no family
0 packets with no route table
```

show system statistics (TX Matrix Router)

```
user@host> show system statistics
sfc0-re0:
--------------------------------------------------------------------------
```

```
Tcp:
        361694 packets sent
                326507 data packets (103237236 bytes)
                2343 data packets retransmitted (2673324 bytes)
                0 resends initiated by MTU discovery
                33857 ack only packets (31613 packets delayed)
                0 URG only packets
                14 window probe packets
                387 window update packets
                1108 control packets
        345879 packets received
                298207 acks(for 103141728 bytes)
                438 duplicate acks
                0 acks for unsent data
                204578  packets received in-sequence(13820995 bytes)
                6 completely duplicate packets(18 bytes)
                0 old duplicate packets
                0 packets with some duplicate data(0 bytes duped)
                0 out-of-order packets(0 bytes)
                0 packets of data after window(0 bytes)
                0 window probes
                899 window update packets
                166 packets received after close
                0 discarded for bad checksums
                0 discarded for bad header offset fields
                0 discarded because packet too short
        406 connection requests
        233 connection accepts
        0 bad connection attempts
        0 listen queue overflows
        616 connections established (including accepts)
        911 connections closed (including 41 drops)
                346 connections updated cached RTT on close
                346 connections updated cached RTT variance on close
                200 connections updated cached ssthresh on close
        23 embryonic connections dropped
        298155 segments updated rtt(of 287216 attempts)
        1163 retransmit timeouts
                27 connections dropped by retransmit timeout
        0 persist timeouts
                0 connections dropped by persist timeout
        5 keepalive timeouts
                5 keepalive probes sent
                0 connections dropped by keepalive
        69922 correct ACK header predictions
        34993 correct data packet header predictions
        233 syncache entries added
                0 retransmitted
                0 dupsyn
                0 dropped
                233 completed
                0 bucket overflow
                0 cache overflow
                0 reset
                0 stale
                0 aborted
                0 badack
                0 unreach
                0 zone failures
        0 cookies sent
        0 cookies received
```

```
        23 SACK recovery episodes
        68 segment retransmits in SACK recovery episodes
        71542 byte retransmits in SACK recovery episodes
        158 SACK options (SACK blocks) received
        0 SACK options (SACK blocks) sent
        0 SACK scoreboard overflow
        0 ACKs sent in response to in-window but not exact RSTs
        0 ACKs sent in response to in-window SYNs on established connections
        0 rcv packets dropped by TCP due to bad address
        0 out-of-sequence segment drops due to insufficient memory
        259 RST packets
        0 ICMP packets ignored by TCP
        0 send packets dropped by TCP due to auth errors
        0 rcv packets dropped by TCP due to auth errors
        0 outgoing segments dropped due to policing

lcc0-re0:
--------------------------------------------------------------------------
Tcp:
        346 packets sent
                222 data packets (22894 bytes)
                0 data packets retransmitted (0 bytes)
                0 resends initiated by MTU discovery
                80 ack only packets (12 packets delayed)
                0 URG only packets
                0 window probe packets
                5 window update packets
                42 control packets
        358 packets received
                268 acks(for 22939 bytes)
                9 duplicate acks
                0 acks for unsent data
                203  packets received in-sequence(33820 bytes)
                0 completely duplicate packets(0 bytes)
                0 old duplicate packets
                0 packets with some duplicate data(0 bytes duped)
                0 out-of-order packets(0 bytes)
                0 packets of data after window(0 bytes)
                0 window probes
                6 window update packets
                0 packets received after close
                0 discarded for bad checksums
                0 discarded for bad header offset fields
                0 discarded because packet too short
        13 connection requests
        18 connection accepts
        0 bad connection attempts
        0 listen queue overflows
        31 connections established (including accepts)
        35 connections closed (including 2 drops)
                3 connections updated cached RTT on close
                3 connections updated cached RTT variance on close
                0 connections updated cached ssthresh on close
        0 embryonic connections dropped
        268 segments updated rtt(of 247 attempts)
        0 retransmit timeouts
                0 connections dropped by retransmit timeout
        0 persist timeouts
                0 connections dropped by persist timeout
        0 keepalive timeouts
                0 keepalive probes sent
```

```
                0 connections dropped by keepalive
        0 correct ACK header predictions
        42 correct data packet header predictions
        18 syncache entries added
                0 retransmitted
                0 dupsyn
                0 dropped
                18 completed
                0 bucket overflow
                0 cache overflow
                0 reset
                0 stale
                0 aborted
                0 badack
                0 unreach
                0 zone failures
        0 cookies sent
        0 cookies received
        0 SACK recovery episodes
        0 segment retransmits in SACK recovery episodes
        0 byte retransmits in SACK recovery episodes
        0 SACK options (SACK blocks) received
        0 SACK options (SACK blocks) sent
        0 SACK scoreboard overflow
        0 ACKs sent in response to in-window but not exact RSTs
        0 ACKs sent in response to in-window SYNs on established connections
        0 rcv packets dropped by TCP due to bad address
        0 out-of-sequence segment drops due to insufficient memory
        5 RST packets
        0 ICMP packets ignored by TCP
        0 send packets dropped by TCP due to auth errors
        0 rcv packets dropped by TCP due to auth errors
        0 outgoing segments dropped due to policing

lcc1-re0:
--------------------------------------------------------------------------
Tcp:
        348 packets sent
                223 data packets (22895 bytes)
                0 data packets retransmitted (0 bytes)
                0 resends initiated by MTU discovery
                81 ack only packets (13 packets delayed)
                0 URG only packets
                0 window probe packets
                5 window update packets
                42 control packets
        360 packets received
                269 acks(for 22940 bytes)
                9 duplicate acks
                0 acks for unsent data
                203  packets received in-sequence(33820 bytes)
                0 completely duplicate packets(0 bytes)
                0 old duplicate packets
                0 packets with some duplicate data(0 bytes duped)
                0 out-of-order packets(0 bytes)
                0 packets of data after window(0 bytes)
                0 window probes
                6 window update packets
                0 packets received after close
                0 discarded for bad checksums
                0 discarded for bad header offset fields
```



```
                0 discarded because packet too short
        13 connection requests
        18 connection accepts
        0 bad connection attempts
        0 listen queue overflows
        31 connections established (including accepts)
        36 connections closed (including 2 drops)
                3 connections updated cached RTT on close
                3 connections updated cached RTT variance on close
                0 connections updated cached ssthresh on close
        0 embryonic connections dropped
        269 segments updated rtt(of 248 attempts)
        0 retransmit timeouts
                0 connections dropped by retransmit timeout
        0 persist timeouts
                0 connections dropped by persist timeout
        0 keepalive timeouts
                0 keepalive probes sent
                0 connections dropped by keepalive
        0 correct ACK header predictions
        43 correct data packet header predictions
        18 syncache entries added
                0 retransmitted
                0 dupsyn
                0 dropped
                18 completed
                0 bucket overflow
                0 cache overflow
                0 reset
                0 stale
                0 aborted
                0 badack
                0 unreach
                0 zone failures
        0 cookies sent
        0 cookies received
        0 SACK recovery episodes
        0 segment retransmits in SACK recovery episodes
        0 byte retransmits in SACK recovery episodes
        0 SACK options (SACK blocks) received
        0 SACK options (SACK blocks) sent
        0 SACK scoreboard overflow
        0 ACKs sent in response to in-window but not exact RSTs
        0 ACKs sent in response to in-window SYNs on established connections
        0 rcv packets dropped by TCP due to bad address
        0 out-of-sequence segment drops due to insufficient memory
        5 RST packets
        0 ICMP packets ignored by TCP
        0 send packets dropped by TCP due to auth errors
        0 rcv packets dropped by TCP due to auth errors
        0 outgoing segments dropped due to policing

lcc2-re0:
--------------------------------------------------------------------------
Tcp:
        405 packets sent
                271 data packets (23926 bytes)
                0 data packets retransmitted (0 bytes)
                0 resends initiated by MTU discovery
                86 ack only packets (13 packets delayed)
                0 URG only packets
```

```
        0 window probe packets
        5 window update packets
        46 control packets
418 packets received
        321 acks(for 23975 bytes)
        9 duplicate acks
        0 acks for unsent data
        234  packets received in-sequence(34403 bytes)
        0 completely duplicate packets(0 bytes)
        0 old duplicate packets
        0 packets with some duplicate data(0 bytes duped)
        0 out-of-order packets(0 bytes)
        0 packets of data after window(0 bytes)
        0 window probes
        7 window update packets
        0 packets received after close
        0 discarded for bad checksums
        0 discarded for bad header offset fields
        0 discarded because packet too short
15 connection requests
19 connection accepts
0 bad connection attempts
0 listen queue overflows
34 connections established (including accepts)
39 connections closed (including 2 drops)
        4 connections updated cached RTT on close
        4 connections updated cached RTT variance on close
        0 connections updated cached ssthresh on close
0 embryonic connections dropped
321 segments updated rtt(of 299 attempts)
0 retransmit timeouts
        0 connections dropped by retransmit timeout
0 persist timeouts
        0 connections dropped by persist timeout
0 keepalive timeouts
        0 keepalive probes sent
        0 connections dropped by keepalive
0 correct ACK header predictions
48 correct data packet header predictions
19 syncache entries added
        0 retransmitted
        0 dupsyn
        0 dropped
        19 completed
        0 bucket overflow
        0 cache overflow
        0 reset
        0 stale
        0 aborted
        0 badack
        0 unreach
        0 zone failures
0 cookies sent
0 cookies received
0 SACK recovery episodes
0 segment retransmits in SACK recovery episodes
0 byte retransmits in SACK recovery episodes
0 SACK options (SACK blocks) received
0 SACK options (SACK blocks) sent
0 SACK scoreboard overflow
0 ACKs sent in response to in-window but not exact RSTs
```

```
        0 ACKs sent in response to in-window SYNs on established connections
        0 rcv packets dropped by TCP due to bad address
        0 out-of-sequence segment drops due to insufficient memory
        5 RST packets
        0 ICMP packets ignored by TCP
        0 send packets dropped by TCP due to auth errors
        0 rcv packets dropped by TCP due to auth errors
        0 outgoing segments dropped due to policing

lcc3-re0:
--------------------------------------------------------------------------
Tcp:
        346 packets sent
                221 data packets (22895 bytes)
                0 data packets retransmitted (0 bytes)
                0 resends initiated by MTU discovery
                81 ack only packets (13 packets delayed)
                0 URG only packets
                0 window probe packets
                5 window update packets
                42 control packets
        360 packets received
                267 acks(for 22940 bytes)
                9 duplicate acks
                0 acks for unsent data
                203  packets received in-sequence(33820 bytes)
                0 completely duplicate packets(0 bytes)
                0 old duplicate packets
                0 packets with some duplicate data(0 bytes duped)
                0 out-of-order packets(0 bytes)
                0 packets of data after window(0 bytes)
                0 window probes
                6 window update packets
                0 packets received after close
                0 discarded for bad checksums
                0 discarded for bad header offset fields
                0 discarded because packet too short
        13 connection requests
        18 connection accepts
        0 bad connection attempts
        0 listen queue overflows
        31 connections established (including accepts)
        35 connections closed (including 2 drops)
                3 connections updated cached RTT on close
                3 connections updated cached RTT variance on close
                0 connections updated cached ssthresh on close
        0 embryonic connections dropped
        267 segments updated rtt(of 246 attempts)
        0 retransmit timeouts
                0 connections dropped by retransmit timeout
        0 persist timeouts
                0 connections dropped by persist timeout
        0 keepalive timeouts
                0 keepalive probes sent
                0 connections dropped by keepalive
        0 correct ACK header predictions
        43 correct data packet header predictions
        18 syncache entries added
                0 retransmitted
                0 dupsyn
                0 dropped
```

```
                18 completed
                0 bucket overflow
                0 cache overflow
                0 reset
                0 stale
                0 aborted
                0 badack
                0 unreach
                0 zone failures
        0 cookies sent
        0 cookies received
        0 SACK recovery episodes
        0 segment retransmits in SACK recovery episodes
        0 byte retransmits in SACK recovery episodes
        0 SACK options (SACK blocks) received
        0 SACK options (SACK blocks) sent
        0 SACK scoreboard overflow
        0 ACKs sent in response to in-window but not exact RSTs
        0 ACKs sent in response to in-window SYNs on established connections
        0 rcv packets dropped by TCP due to bad address
        0 out-of-sequence segment drops due to insufficient memory
        5 RST packets
        0 ICMP packets ignored by TCP
        0 send packets dropped by TCP due to auth errors
        0 rcv packets dropped by TCP due to auth errors
        0 outgoing segments dropped due to policing
```

show system statistics (QFX Series)

```
user@switch> show system statistics
Tcp:
571779 packets sent
21517 data packets (1797102 bytes)
2 data packets retransmitted (20 bytes)
0 resends initiated by MTU discovery
3708 ack only packets (531 packets delayed)
0 URG only packets
1 window probe packets
1 window update packets
1093063 control packets
1132541 packets received
20961 acks(for 1796102 bytes)
5861 duplicate acks
0 acks for unsent data
19556 packets received in-sequence(232079 bytes)
3018 completely duplicate packets(0 bytes)
0 old duplicate packets
4 packets with some duplicate data(4 bytes duped)
2 out-of-order packets(2 bytes)
0 packets of data after window(0 bytes)
0 window probes
39 window update packets
0 packets received after close
0 discarded for bad checksums
0 discarded for bad header offset fields
0 discarded because packet too short
546519 connection requests
78 connection accepts
0 bad connection attempts
0 listen queue overflows
100 connections established (including accepts)
```

```
546596 connections closed (including 6 drops)
47 connections updated cached RTT on close
47 connections updated cached RTT variance on close
0 connections updated cached ssthresh on close
546497 embryonic connections dropped
20453 segments updated rtt(of 566914 attempts)
2 retransmit timeouts
0 connections dropped by retransmit timeout
0 persist timeouts
0 connections dropped by persist timeout
3028 keepalive timeouts
3027 keepalive probes sent
1 connections dropped by keepalive
7515 correct ACK header predictions
12258 correct data packet header predictions
78 syncache entries added
0 retransmitted
0 dupsyn
4 dropped
78 completed
0 bucket overflow
0 cache overflow
0 reset
0 stale
0 aborted
0 badack
0 unreach
0 zone failures
0 cookies sent
0 cookies received
1 SACK recovery episodes
1 segment retransmits in SACK recovery episodes
1 byte retransmits in SACK recovery episodes
71 SACK options (SACK blocks) received
1 SACK options (SACK blocks) sent
0 SACK scoreboard overflow
0 ACKs sent in response to in-window but not exact RSTs
0 ACKs sent in response to in-window SYNs on established connections
0 rcv packets dropped by TCP due to bad address
0 out-of-sequence segment drops due to insufficient memory
546544 RST packets
0 ICMP packets ignored by TCP
0 send packets dropped by TCP due to auth errors
0 rcv packets dropped by TCP due to auth errors
0 outgoing segments dropped due to policing
udp:
147 datagrams received
0 with incomplete header
0 with bad data length field
0 with bad checksum
9 dropped due to no socket
0 broadcast/multicast datagrams dropped due to no socket
0 dropped due to full socket buffers
0 not for hashed pcb
138 delivered
0 datagrams output
ip:
73704 total packets received
0 bad header checksums
0 with size smaller than minimum
0 with data size < data length
```

```
0 with header length < data size
0 with data length < header length
0 with incorrect version number
0 packets destined to dead next hop
0 fragments received
0 fragments dropped (dup or out of space)
0 fragments dropped (queue overflow)
0 fragments dropped after timeout
0 fragments dropped due to over limit
0 packets reassembled ok
1133057 packets for this host
0 packets for unknown/unsupported protocol
40146 packets forwarded
0 packets not forwardable
40146 redirects sent
1121700 packets sent from this host
0 packets sent with fabricated ip header
0 output packets dropped due to no bufs
0 output packets discarded due to no route
0 output datagrams fragmented
0 fragments created
0 datagrams that can't be fragmented
0 packets with bad options
0 packets with options handled without error
0 strict source and record route options
0 loose source and record route options
0 record route options
0 timestamp options
0 timestamp and address options
0 timestamp and prespecified address options
0 option packets dropped due to rate limit
0 router alert options
0 multicast packets dropped (no iflist)
0 packets dropped (src and int don't match)
0 transit re packets dropped on mgmt i/f
0 packets used first nexthop in ecmp unilist
0 incoming ttpoip packets received
0 incoming ttpoip packets dropped
0 outgoing TTPoIP packets sent
0 outgoing TTPoIP packets dropped
icmp:
0 drops due to rate limit
9 calls to icmp_error
0 errors not generated because old message was icmp
Output histogram:
295 echo reply
9 destination unreachable
0 messages with bad code fields
0 messages less than the minimum length
0 messages with bad checksum
0 messages with bad source address
0 messages with bad length
0 echo drops with broadcast or multicast destinaton address
0 timestamp drops with broadcast or multicast destination address
Input histogram:
295 echo
295 message responses generated
igmp:
0 messages received
0 messages received with too few bytes
0 messages received with bad checksum
```



```
0 membership queries received
0 membership queries received with invalid fields
0 membership reports received
0 membership reports received with invalid fields
0 membership reports received for groups to which we belong
0 Membership reports sent
raw_if:
0 RAW packets transmitted
0 PPPOE packets transmitted
0 ISDN packets transmitted
0 DIALER packets transmitted
0 PPP packets transmitted to pppd
0 PPP packets transmitted to jppd
0 IGMPL2 packets transmitted
13 output drops due to tx error
0 MPU packets transmitted
0 PPPOE packets received
0 ISDN packets received
0 DIALER packets received
0 PPP packets received from pppd
0 MPU packets received
0 PPP packets received from jppd
0 IGMPL2 packets received
0 Input drops due to bogus protocol
0 input drops due to no mbufs available
0 input drops due to no space in socket
0 input drops due to no socket
arp:
186413 datagrams received
88 ARP requests received
88 ARP replies received
0 resolution request received
0 unrestricted proxy requests
0 restricted proxy requests
0 received proxy requests
0 proxy requests not proxied
0 restricted proxy requests not proxied
0 datagrams with bogus interface
0 datagrams with incorrect length
0 datagrams for non-IP protocol
0 datagrams with unsupported op code
0 datagrams with bad protocol address length
0 datagrams with bad hardware address length
0 datagrams with multicast source address
0 datagrams with multicast source address
0 datagrams with my own hardware address
164 datagrams for an address not on the interface
0 datagrams with a broadcast source address
0 datagrams with source address duplicate to mine
186065 datagrams which were not for me
0 packets discarded waiting for resolution
0 packets sent after waiting for resolution
50 ARP requests sent
88 ARP replies sent
0 requests for memory denied
0 requests dropped on entry
0 requests dropped during retry
0 requests dropped due to interface deletion
0 requests on unnumbered interfaces
0 new requests on unnumbered interfaces
0 replies for from unnumbered interfaces
```

```
0 requests on unnumbered interface with non-subnetted donor
0 replies from unnumbered interface with non-subnetted donor
ip6:
0 total packets received
0 packets with size smaller than minimum
0 packets with data size < data length
0 packets with bad options
0 packets with incorrect version number
0 fragments received
0 fragments dropped (dup or out of space)
0 fragments dropped after timeout
0 fragments that exceeded limit
0 packets reassembled ok
0 packets for this host
0 packets forwarded
0 packets not forwardable
0 redirects sent
0 packets sent from this host
0 packets sent with fabricated ip header
0 output packets dropped due to no bufs, etc.
0 output datagrams fragmented
0 fragments created
0 datagrams that can't be fragmented
0 packets that violated scope rules
0 multicast packets which we don't join
0 packets whose headers are not continuous
0 tunneling packets that can't find gif
0 packets discarded due to too may headers
0 failures of source address selection
0 forward cache hit
0 forward cache miss
0 Packets destined to dead next hop
0 option packets dropped due to rate limit
0 Packets dropped (src and int don't match)
0 packets dropped due to bad protocol
0 transit re packet(null) dropped on mgmt i/f
icmp6:
0 Calls to icmp_error
0 Errors not generated because old message was icmp error
0 Errors not generated because rate limitation
0 Messages with bad code fields
0 Messages < minimum length
0 Bad checksums
0 Messages with bad length
0 No route
0 Administratively prohibited
0 Beyond scope
0 Address unreachable
0 Port unreachable
0 packet too big
0 Time exceed transit
0 Time exceed reassembly
0 Erroneous header field
0 Unrecognized next header
0 Unrecognized option
0 redirect
0 Unknown
0 Message responses generated
0 Messages with too many ND options
pfkey:
0 Requests sent from userland
```



```
0 Bytes sent from userland
histogram by message type:
0 reserved
0 dump
0 Messages with invalid length field
0 Messages with invalid version field
0 Messages with invalid message type field
0 Messages too short
0 Messages with memory allocation failure
0 Messages with duplicate extension
0 Messages with invalid extension type
0 Messages with invalid sa type
0 Messages with invalid address extension
0 Requests sent to userland
0 Bytes sent to userland
histogram by message type:
0 reserved
0 dump
0 Messages toward single socket
0 Messages toward all sockets
0 Messages toward registered sockets
0 Messages with memory allocation failure
clnl:
0 Total packets received
0 Packets delivered
0 Too small packets
0 Packets with bad header length
0 Packets with bad checksum
0 Bad version packets
0 Unknown or unsupported protocol packets
0 Packets with bogus sdl size
0 No free memory in socket buffer
0 Send packets discarded
0 Sbappend failure
0 Mcopy failure
0 Address fields were not reasonable
0 Segment information forgotten
0 Forwarded packets
0 Total packets sent
0 Output packets discarded
0 Non-forwarded packets
0 Packets fragmented
0 Fragments sent
0 Fragments discarded
0 Fragments timed out
0 Fragmentation prohibited
0 Packets reconstructed
0 Packets destined to dead nexthop
0 Packets discarded due to no route
0 Error pdu rate drops
0 ER pdu generation failure
esis:
0 Total pkts received
0 Total packets consumed by protocol
0 Pdus received with bad checksum
0 Pdus received with bad version number
0 Pdus received with bad type field
0 Short pdus received
0 Pdus withbogus sdl size
0 Pdus with bad header length
0 Pdus with unknown or unsupport protocol
```

```
0 No free memory in socket buffer
0 Send packets discarded
0 Sbappend failure
0 Mcopy failure
0 ISO family not configured
tnp:
0 Unicast packets received
0 Broadcast packets received
0 Fragmented packets received
0 Hello packets dropped
0 Fragments dropped
0 Fragment reassembly queue flushes
0 Packets with tnp src address collision received
0 Hello packets received
0 Control packets received
0 Rdp packets received
0 Udp packets received
0 Tunnel packets received
0 Input packets discarded with no protocol
0 Packets of version unspecified received
0 Packets of version 1 received
0 Packets of version 2 received
0 Packets of version 3 received
0 Unicast packets sent
0 Broadcast packets sent
0 Fragmented packets sent
0 Hello packets dropped
0 Fragments dropped
0 Hello packets sent
0 Control packets sent
0 Rdp packets sent
0 Udp packets sent
0 Tunnel packets sent
0 Packets sent with unknown protocol
0 Packets of version unspecified sent
0 Packets of version 1 sent
0 Packets of version 2 sent
0 Packets of version 3 sent
rdp:
0 Input packets
0 Packets discarded for bad checksum
0 Packets discarded due to bad sequence number
0 Refused connections
0 Acks received
0 Packets dropped due to full socket buffers
0 Retransmits
0 Output packets
0 Acks sent
0 Connects
0 Closes
0 Keepalives received
0 Keepalives sent
tudp:
67 Datagrams received
0 Datagrams with incomplete header
0 Datagrams with bad data length field
0 Datagrams with bad checksum
0 Datagrams dropped due to no socket
0 Broadcast/multicast datagrams dropped due to no socket
0 Datagrams dropped due to full socket buffers
67 Delivered
```



```
68 Datagrams output
ttp:
0 Packets sent
0 Packets sent while unconnected
0 Packets sent while interface down
0 Packets sent couldn't get buffer
0 Packets sent couldn't find neighbor
0 L2 packets received
0 Unknown L3 packets received
0 IPv4 L3 packets received
0 MPLS L3 packets received
0 MPLS->IPV4 L3 packets received
0 IPv4->MPLS L3 packets received
0 IPv6 L3 packets received
0 ARP L3 packets received
0 CLNP L3 packets received
0 TNP L3 packets received
0 NULL L3 packets received
0 Cyclotron cycle L3 packets received
0 Cyclotron send L3 packets received
0 Packets received while unconnected
0 Packets received from unknown ifl
0 Input packets couldn't get buffer
0 Input packets with bad type
0 Input packets with discard type
0 Input packets with too many tlvs
0 Input packets with bad tlv header
70633 Input packets with bad tlv type
68877 Input packets dropped based on tlv result0 Input packets for which rt lookup
 is bypassed
mpls:
0 Total MPLS packets received
0 Packets forwarded
0 Packets dropped
0 Packets with header too small
0 After tagging, packets can't fit link MTU
0 Packets with IPv4 explicit NULL tag
0 Packets with IPv4 explicit NULL cksum errors
0 Packets with router alert tag
0 LSP ping packets (ttl-expired/router alert)
0 Packets with ttl expired
0 Packets with tag encoding error
0 Packets discarded due to no route
0 Packets used first nexthop in ecmp unilist
vpls:
0 Total packets received
0 Packets with size smaller than minimum
0 Packets with incorrect version number
0 Packets for this host
0 Packets with no logical interface
0 Packets with no family
0 Packets with no route table
582 Copyright © 2010, Juniper Networks, Inc.
0 Packets with no auxiliary table
0 Packets with no corefacing entry
0 packets with no CE-facing entry
0 MAC route learning requests
0 MAC routes learnt
0 Requests to learn an existing route
0 Learning requests while learning disabled on interface
0 Learning requests over capacity
```

```
0 MAC routes moved
0 Requests to move static route
0 MAC route aging requests
0 MAC routes aged
0 Bogus address in aging requests
0 Requests to age static route
0 Requests to re-ageout aged route
0 Requests involving multiple peer FEs
0 Aging acks from PFE
0 Aging non-acks from PFE
0 Aging requests timed out waiting on FEs
0 Aging requests over max-rate
0 Errors finding peer FEs
0 Unsupported platform
0 Packets dropped due to no l3 route table
0 Packets dropped due to no local ifl
0 Packets punted
0 Packets dropped due to no socket
bridge:
Input:
0 packets received
0 packets forwarded
0 packets failed to forward
0 packets dropped
0 packets with vmember lookup failures
0 packets with vlan lookup failures
0 packets with stp state lookup failures
0 packets dropped due to stp blocked/listening
0 packets dropped due to stp learning
0 packets with src MAC learning failures
0 packets with input control processing failures
Forward:
0 packets sent successfully
0 packets with send failures
0 packets forwarded to l3 interface
0 packets with l3 send failures
0 packets discarded
0 packets with l2ifl store failures
0 packets with ifl mismatch failures
0 packets with packet duplication failures
0 packets with tag lookup failures
0 packets with no route for DMAC
0 packets with no route table
0 packets with no nexthop
0 packets with dead nexthop
0 packets with eof reached error
Learning:
0 MACs learned
0 packets sent to l3 interface
0 packets with l3 send failures
0 packets hit holdq while learning
0 MAC moves
0 packets discarded
0 packets with no route for SMAC
0 packets with no nexthop
0 packets with dead nexthop
0 packets dropped due to no resolve route
0 packets with l3 ifd lookup failures
0 packets with l3 ifl lookup failures
0 packets with l3 invalid rnh
0 packets with no route for SMAC in clone learning
```



```
0 packets with no nexhop in clone learning
0 packets with dead nexthop in clone learning
0 packets dropped due to no resolve nh in clone learning
Output:
0 packets forwarded
0 packets failed to forward
0 packets with vmember lookup failures
0 packets with vlan lookup failures
0 packets with input control processing failures
Send:
0 packets sent successfully
0 packets with send failures
0 packets dropped due to interface down
0 packets with dev output failures
0 blocked ifl discards
0 packets with tag lookup failures
0 packets with stp state lookup failures
0 packets with tag insertion failures
0 packets with tag removal failures
Flood:
0 packets flooded
0 flood failures
IGMP:
0 packets sent successfully
0 packets with send failures
0 packets forwarded
0 packets failed to forward
0 packets with mpull failures
0 packets with vmember lookup failures
0 packets with vlan lookup failures
0 packets with ifl lookup failures
0 packets with tag lookup failures
Misc:
0 packets with size smaller than minimum
0 packets with double tags
0 packets with no ifl
0 packets with no family
0 packets with no route table
```

show system uptime

List of Syntax

Syntax on page 622
Syntax (EX Series Switches) on page 622
Syntax (QFX Series) on page 622
Syntax (TX Matrix Router) on page 622
Syntax (TX Matrix Plus Router) on page 622
Syntax (MX Series Router) on page 622

Syntax

show system uptime

Syntax (EX Series Switches)

show system uptime
<all-members>
<local>
<member *member-id*>

Syntax (QFX Series)

show system uptime
<director-group *name*>
<infrastructure *name*>
<interconnect-device *name*>
<node-group *name*>

Syntax (TX Matrix Router)

show system uptime
<all-chassis | all-lcc | lcc *number* | scc>

Syntax (TX Matrix Plus Router)

show system uptime
<detail>
<all-chassis | all-lcc | lcc *number* | sfc *number*>

Syntax (MX Series Router)

show system uptime
<all-members>
<invoke-on>
<local>
<member *member-id*>

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

none—Show time since the system rebooted and processes started.

all-chassis—(TX Matrix routers and TX Matrix Plus routers only) (Optional) Show time since the system rebooted and processes started on all the routers in the chassis.

all-lcc—(TX Matrix routers 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 connected T1600 or T4000 LCCs.

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.

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 routers 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 router that is connected to the TX Matrix Plus router.

Replace *number* with the following values depending on the LCC configuration:

- 0 through 3, when T640 routers are connected to a TX Matrix router in a routing matrix.
- 0 through 3, when T1600 routers are connected to a TX Matrix Plus router in a routing matrix.
- 0 through 7, when T1600 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.
- 0, 2, 4, or 6, when T4000 routers are connected to a TX Matrix Plus router with 3D SIBs in a routing matrix.

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. Replace *number* with 0.

Additional Information

By default, when you issue the **show system uptime** command on the master Routing Engine of a TX Matrix router or a TX Matrix Plus router, the command is broadcast to all the master Routing Engines of the LCCs connected to it in the routing matrix. Likewise, if you issue the same command on the backup Routing Engine of a TX Matrix or a TX Matrix Plus router, the command is broadcast to all backup Routing Engines of the LCCs that are connected to it in the routing matrix.

Required Privilege Level

view

Related Documentation

- *Monitoring System Process Information*
- *Monitoring System Properties*
- *10-Gigabit Ethernet LAN/WAN PIC with XFP (T640 Router)*
- *Routing Matrix with a TX Matrix Plus Router Solutions Page*

List of Sample Output

show system uptime on page 625
show system uptime all-lcc (TX Matrix Router) on page 625
show system uptime all-lcc (TX Matrix Plus Router) on page 625
show system uptime (EX Series) on page 626
show system uptime (QFX Series) on page 626

Output Fields

Table 29 on page 624 describes the output fields for the **show system uptime** command. Output fields are listed in the approximate order in which they appear.

Table 29: 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 all-lcc (TX Matrix Router)

```
user@host> show system uptime all-lcc
lcc0-re0:
--------------------------------------------------------------------------
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 (EX Series)

```
user@switch> show system uptime
Current time: 2014-03-12 16:39:56 UTC
System booted: 2014-03-12 14:58:05 UTC (01:41:51 ago)
Protocols started: 2014-03-12 14:59:48 UTC (01:40:08 ago)
Last configured: 2014-03-12 14:58:58 UTC (01:40:58 ago) by root
 4:39PM  up 1:42, 4 users, load averages: 0.02, 0.02, 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
```