JUNIPER NETWORKS

Administration Guide for CSE2000

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Administration Guide for CSE2000

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.

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Documentation and Release Notes

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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:

- PTX5000

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 ix defines notice icons used in this guide.

Table 1: Notice Icons

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

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

Table 2: Text and Syntax Conventions

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

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

Convention	Description	Examples
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**.
> (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 send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at

https://www.juniper.net/cgi-bin/docbugreport/. If you are using e-mail, be sure to include the following information with your comments:

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

Requesting Technical Support

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

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

Self-Help Online Tools and Resources

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

- Find CSC offerings: http://www.juniper.net/customers/support/
- Search for known bugs: http://www2.juniper.net/kb/
- Find product documentation: http://www.juniper.net/techpubs/
- Find solutions and answer questions using our Knowledge Base: http://kb.juniper.net/
- Download the latest versions of software and review release notes: http://www.juniper.net/customers/csc/software/
- Search technical bulletins for relevant hardware and software notifications: https://www.juniper.net/alerts/
- Join and participate in the Juniper Networks Community Forum: http://www.juniper.net/company/communities/
- Open a case online in the CSC Case Management tool: http://www.juniper.net/cm/

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

Opening a Case with JTAC

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

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

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

PART 1

Overview

CHAPTER 1

Introduction to CSE2000

CSE2000 Overview

Juniper Networks Carrier-Grade Service Engine (CSE) is a solution that enables Juniper Networks PTX5000 Packet Transport Routers to provide high-performance flow monitoring and accounting services. The CSE2000 device is tethered to PTX5000 routers and provides support for active flow monitoring version 9. The CSE2000 allows scaling of control plane and service plane, without adding components to the existing PTX5000 routers.

Using the CSE2000 tethered to a PTX5000, you can perform the following operations:

- Traffic sampling—You can create a copy of traffic and send it to the CSE2000, which performs flow accounting while the PTX5000 router forwards the packet to its original destination.
- Active flow monitoring—Active monitoring implies that flow monitoring is carried out on the same router (the CSE2000 is treated as a part of the router) that forwards the packets being monitored.
- Flow aggregation—You can collect an aggregate of sampled flows and send the aggregate to a specified host that runs the version 9 format defined in *RFC 3954, Cisco Systems NetFlow Services Export Version 9*. With the version 9 format, you can sample MPLS, IPv4, and IPv6 traffic.

Related Documentation

- *Example: Configuring Active Flow Monitoring Version 9 for IPv4*
- *Example: Configuring Active Flow Monitoring Version 9 for IPv6*
- *Example: Configuring Active Flow Monitoring Version 9 for MPLS*
- *Example: Configuring Active Flow Monitoring Version 9 for MPLS and IPv4*
- *Example: Configuring Active Flow Monitoring Version 9 for Simultaneous IPv4, MPLS, and IPv6 Sampling*

PART 2

Administration

CHAPTER 2

Operational Mode Commands

- request chassis beacon service-node
- request chassis service-node
- show chassis alarms
- show chassis beacon service-node
- show chassis environment service-node
- show chassis hardware
- show chassis service-node
- show system alarms

request chassis beacon service-node

Syntax request chassis beacon service-node *slot-number* (off | on)

Release Information Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description Turn the Locator LED either on or off. The Locator LED is small blue LED in the front of the CSE2000 service card.

Options ***slot-number***—Turn the Locator LED either on or off for the specified CSE2000 service card. Replace *slot-number* with 0 or 1.

off—Turn off the Locator LED.

on—Turn on the Locator LED.

Required Privilege Level maintenance

Related Documentation
- show chassis beacon service-node on page 12
- *Activating the LOCATOR LED*
- *CSE2000 Front Panel Features*

List of Sample Output
request chassis beacon service-node 0 on on page 8
request chassis beacon service-node 1 off on page 8

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

Sample Output

request chassis beacon service-node 0 on

```
user@host> request chassis beacon service-node 0 on

ESC 0 ON
```

request chassis beacon service-node 1 off

```
user@host> request chassis beacon service-node 1 off

ESC 1 OFF
```

request chassis service-node

Syntax request chassis service-node slot *slot-number* (offline | online | restart)

Release Information Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description Control the operation of the CSE2000.

Options **slot *slot-number***—Slot number for a CSE2000 service card. Replace ***slot-number*** with the value 0 or 1.

offline—Take the CSE2000 service card offline.

online—Bring the CSE2000 service card online.

restart—Restart the CSE2000 service card.

Required Privilege Level maintenance

Related Documentation
- show chassis service-node on page 22

List of Sample Output request chassis service-node slot 0 offline on page 9

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

Sample Output

request chassis service-node slot 0 offline

```
user@host> request chassis service-node slot 0 offline
Offline initiated, use "show chassis service-node" to verify
```

show chassis alarms

Syntax show chassis alarms

Release Information Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description Display information about the CSE2000 chassis conditions that have been configured to trigger alarms.

Options This command has no options.

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 CSE2000 in a manner that we do not recommend.

Required Privilege Level view

Related Documentation

- *CSE2000 Chassis Overview*
- *CSE2000 Front Panel Features*
- show chassis service-node on page 22

List of Sample Output

show chassis alarms on page 11
show chassis alarms (No Alarms Active) on page 11

Output Fields Table 3 on page 10 lists the output fields for the **show chassis alarms** command. Output fields are listed in the approximate order in which they appear.

Table 3: 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**.

Table 3: show chassis alarms Output Fields *(continued)*

Field Name	Field Description
Description	Information about the alarm. • **ESC *<number>* Version Mismatch** : Software version mismatch (software version installed on CSE2000 is not supported by Junos OS software installed on PTX5000 router). • **ESC *<number>* Temperature Too Hot**: CSE2000 service card temperature has exceeded the allowed temperature threshold. • **ESC *<number>* Jflow crash**: The active flow monitoring service has stopped on specified service card. The active flow monitoring service should restart within a few minutes. If the problem still persists, contact Juniper Networks Technical Assistance Center (JTAC). • **ESC *<number>* PS*<number>* Absent**: Power supply unit is absent. • **ESC *<number>* Temperature Sensor Failure**: CSE2000 service card temperature sensor has failed. • **ESC *<number>* Voltage Sensor Failure**: CSE2000 service card voltage sensor has failed. • **ESC *<number>* Fan Failure**: CSE2000 service card fan has failed. • **ESC *<number>* PS*<number>* Input Absent**: Input for power supply unit is absent for the CSE2000 service card.

Sample Output

show chassis alarms

```
user@host> show chassis alarms
2 alarms are currently active
Alarm time               Class  Description
2013-08-08 02:04:44 PDT  Minor  ESC 0 PS0 Absent
2013-08-08 01:59:19 PDT  Minor  ESC 0 PS1 Absent
```

show chassis alarms (No Alarms Active)

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

show chassis beacon service-node

show chassis beacon

show chassis beacon
<service-node *slot-number*>
<all (on | off)>

Release Information

Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description

Display the Locator LED status on a CSE2000 service card.

Options

none—Display the status of the Locator LEDs for both the service cards.

service-node *slot-number*—(Optional) Display the status of the Locator LEDs for the CSE2000 service card.

all on—(Optional) Display the status of the Locator LEDs that are turned on for both the service cards.

all off—(Optional) Display the status of the Locator LEDs that are turned off for both the service cards.

Required Privilege Level

view

Related Documentation

- request chassis beacon service-node on page 8
- *Activating the LOCATOR LED*
- *CSE2000 Front Panel Features*

List of Sample Output

show chassis beacon on page 13
show chassis beacon service-node 0 on page 13
show chassis beacon service-node 1 on page 13
show chassis beacon all off on page 13
show chassis beacon all on on page 13

Output Fields

Table 4 on page 12 lists the output fields for the **show chassis beacon** command. Output fields are listed in the approximate order in which they appear.

Table 4: show chassis beacon Output Fields

Field Name	Field Description
ESC *service-card-number*	Service card number of the CSE2000 whose content is being displayed.
OFF	The Locator LED is turned off.
ON	The Locator LED is turned on.

Sample Output

show chassis beacon

```
user@host> show chassis beacon
ESC 0                 ON
ESC 1                 OFF
```

show chassis beacon service-node 0

```
user@host> show chassis beacon service-node 0
ESC 0                 ON
```

show chassis beacon service-node 1

```
user@host> show chassis beacon service-node 1
ESC 1                 OFF
```

show chassis beacon all off

```
user@host> show chassis beacon all off

ESC 1                 OFF
```

show chassis beacon all on

```
user@host> show chassis beacon all on

ESC 0                 ON
```

show chassis environment service-node

Syntax show chassis environment service-node
<slot *slot-number*>

Release Information Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description Display environmental information about the CSE2000 service cards.

Options **none**—Display environmental information about both the service cards of CSE2000.

slot *slot-number*—(Optional) Slot number for the CSE2000 service card. Replace *slot-number* with 0 or 1.

Required Privilege Level view

Related Documentation
- show chassis service-node on page 22

List of Sample Output
show chassis environment service-node slot 1 on page 17
show chassis environment service-node on page 17

Output Fields Table 5 on page 14 lists the output fields for the **show chassis environment service-node** command. Output fields are listed in the approximate order in which they appear.

Table 5: show chassis environment service-node Output Fields

Field Name	Field Description
State	State of the service card: • **Offline**: Service card is powered down. • **Ready**: Service card is in intermediate or transition state. • **Online**: Service card is online and running. • **Empty**: No service card is present.
D_SAS2308_TEMP_D Temperature	Temperature of sensors near the Serial Attached SCSI (SAS) controller for the bottom service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 75ºC or 167ºF.
D_PCH_TEMP_DET Temperature	Temperature of sensors near the Platform Controller Hub for the bottom service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 75ºC or 167ºF.

Table 5: show chassis environment service-node Output Fields *(continued)*

Field Name	Field Description
D_DDR3_TEMP_DET Temperature	Temperature of sensors near the DDR3 memory for the bottom service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 75ºC or 167ºF.
D_CPU0_TEMP_DET Temperature	Temperature of the CPU0 for the bottom service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 85ºC or 185ºF.
D_CPU1_TEMP_DET Temperature	Temperature of the CPU1 for the bottom service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 85ºC or 185ºF.
U_SAS2308_TEMP_D Temperature	Temperature of sensors near the Serial Attached SCSI (SAS) controller for the upper service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 75ºC or 167ºF.
U_PCH_TEMP_DET Temperature	Temperature of sensors near the Platform Controller Hub for the upper service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 75ºC or 167ºF.
U_DDR3_TEMP_DET Temperature	Temperature of sensors near the DDR3 memory for the upper service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 75ºC or 167ºF.
U_CPU0_TEMP_DET Temperature	Temperature of the CPU0 for the upper service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 85ºC or 185ºF.

Table 5: show chassis environment service-node Output Fields *(continued)*

Field Name	Field Description
U_CPU1_TEMP_DET Temperature	Temperature of the CPU1 for the upper service card. The temperature threshold values: • Lower temperature threshold: 5ºC or 41ºF. • Upper temperature threshold: 85ºC or 185ºF.
Power	The left column displays the label assigned to the voltage sensor. The right column displays the current reading from the voltage sensor. List of voltage sensors: NOTE: The prefix **D** indicates the voltage sensor for the bottom service card and the prefix **U** indicates the voltage sensor for the upper service card. • **P1V5_VDDQ_CPU0**: I/O supply voltage for the CPU0. • **P1V5_VDDQ_CPU1**: I/O supply voltage for the CPU1. • **PVTT_CPU0**: CPU0 uncore voltage. The PVTT_CPUx provides power to the VCCPPA, VCCPCA, VCCPDTTA pins of the CPU. • **PVTT_CPU1**: CPU1 uncore voltage. The PVTT_CPUx provides power to the VCCPPA, VCCPCA, VCCPDTTA pins of the CPU. • **PVCCP_CPU0**: CPU0 core voltage. The PVCCP_CPUx voltage regulator provides power to the processor's cores. • **PVCCP_CPU1**: CPU1 core voltage. The PVCCP_CPUx voltage regulator provides power to the processor's cores. • **P3V3**: 3.3 VDC power rail. • **P5V**: 5 VDC power rail. • **P12V**: 12 VDC power rail. • **PSU1_5VSB**: PSU1 5v standby power rail. • **PSU1_+12V**: PSU1 12 VDC power rail. • **PSU2_5VSB**: PSU2 5 V standby power rail. • **PSU2_+12V**: PSU2 12 VDC power rail.
Item	Fan item identifier.
Status	Status of the fan: • **OK** • **Failed**
RPM	Fan speed in revolutions per minute (RPM).
Measurement	Fan speed status based on different chassis cooling requirements: • **Spinning at normal speed**—The fan is running at the normal speed (within the available range of 0 through 17,400 RPM). • **Spinning at high speed**—The fan is running at high speed that exceeds 75% of the available range of the fan (0 through the maximum speed of the fan). The maximum speed of a fan on the service card is 23,200 RPM. This means, if the speed of the fan is more than or equal to 17,400 RPM, then it is labeled as running at high speed. • **Failure**—The fan is not working or is removed.

Sample Output

show chassis environment service-node slot 1

```
user@host> show chassis environment service-node slot 1
ESC 1 status:
  State                      Online
  D_SAS2308_TEMP_D Temperature38 degrees C / 100 degrees F
  D_PCH_TEMP_DET Temperature 38 degrees C / 100 degrees F
  D_DDR3_TEMP_DET Temperature36 degrees C / 96 degrees F
  D_CPU0_TEMP_DET Temperature51 degrees C / 123 degrees F
  D_CPU1_TEMP_DET Temperature54 degrees C / 129 degrees F
  Power
    D_P1V5_VDDQ_CPU0          1470 mV
    D_P1V5_VDDQ_CPU1          1480 mV
    D_PVTT_CPU0               1040 mV
    D_PVTT_CPU1               1050 mV
    D_PVCCP_CPU0               860 mV
    D_PVCCP_CPU1               880 mV
    D_P3V3                    3360 mV
    D_P5V                     5040 mV
    D_P12V                   12100 mV
    D_PSU1_5VSB               5000 mV
    D_PSU1_+12V              12000 mV
    D_PSU2_5VSB               5000 mV
    D_PSU2_+12V              12000 mV
      Item                     Status   RPM     Measurement
      D_FAN1                   OK       22800   Spinning at high speed
      D_FAN2                   Failed   0       Failure
      D_FAN3                   OK       23600   Spinning at high speed
      D_FAN4                   OK       23200   Spinning at high speed
      D_FAN5                   OK       23200   Spinning at high speed
      D_FAN6                   OK       23600   Spinning at high speed
```

Sample Output

show chassis environment service-node

```
user@host> show chassis environment service-node
ESC 0 status:
  State                      Online
  U_SAS2308_TEMP_D Temperature40 degrees C / 104 degrees F
  U_PCH_TEMP_DET Temperature 40 degrees C / 104 degrees F
  U_DDR3_TEMP_DET Temperature39 degrees C / 102 degrees F
  U_CPU0_TEMP_DET Temperature64 degrees C / 147 degrees F
  U_CPU1_TEMP_DET Temperature55 degrees C / 131 degrees F
  Power
    U_P1V5_VDDQ_CPU0          1480 mV
    U_P1V5_VDDQ_CPU1          1480 mV
    U_PVTT_CPU0               1040 mV
    U_PVTT_CPU1               1050 mV
    U_PVCCP_CPU0               880 mV
    U_PVCCP_CPU1               870 mV
    U_P3V3                    3360 mV
    U_P5V                     5040 mV
    U_P12V                   12000 mV
      Item                     Status   RPM     Measurement
      U_FAN1                   OK       18200   Spinning at high speed
      U_FAN2                   OK       18700   Spinning at high speed
      U_FAN3                   OK       18200   Spinning at high speed
      U_FAN4                   OK       19000   Spinning at high speed
```

```
      U_FAN5                    OK       19200   Spinning at high speed
      U_FAN6                    OK       18400   Spinning at high speed
ESC 1 status:
  State                       Online
  D_SAS2308_TEMP_D Temperature40 degrees C / 104 degrees F
  D_PCH_TEMP_DET Temperature 39 degrees C / 102 degrees F
  D_DDR3_TEMP_DET Temperature38 degrees C / 100 degrees F
  D_CPU0_TEMP_DET Temperature61 degrees C / 141 degrees F
  D_CPU1_TEMP_DET Temperature54 degrees C / 129 degrees F
  Power
    D_P1V5_VDDQ_CPU0          1470 mV
    D_P1V5_VDDQ_CPU1          1480 mV
    D_PVTT_CPU0               1040 mV
    D_PVTT_CPU1               1050 mV
    D_PVCCP_CPU0               850 mV
    D_PVCCP_CPU1               880 mV
    D_P3V3                    3360 mV
    D_P5V                     5040 mV
    D_P12V                   12100 mV
    D_PSU1_5VSB               5000 mV
    D_PSU1_+12V              12000 mV
    D_PSU2_5VSB               5000 mV
    D_PSU2_+12V              12000 mV
      Item                      Status   RPM     Measurement
      D_FAN1                    OK       18400   Spinning at high speed
      D_FAN2                    OK       19200   Spinning at high speed
      D_FAN3                    OK       18200   Spinning at high speed
      D_FAN4                    OK       19200   Spinning at high speed
      D_FAN5                    OK       18700   Spinning at high speed
      D_FAN6                    OK       18700   Spinning at high speed
```

show chassis hardware

Syntax
show chassis hardware
<detail | extensive>
<clei-models>
<models>

Release Information
Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description
Display a list of all Flexible Flexible PIC Concentrators (FPCs), PICs, and CSE2000 service cards installed in the router, including the hardware version level and serial number.

Options
none—Display information about hardware.

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.

models—(Optional) Display model numbers and part numbers for orderable FRUs and, for components that use ID EEPROM format v2, the CLEI code.

Required Privilege Level
view

Related Documentation
- show chassis service-node on page 22

List of Sample Output
show chassis hardware (PTX5000 router with CSE2000) on page 20

Output Fields
Table 6 on page 19 lists the output fields for the **show chassis hardware** command. Output fields are listed in the approximate order in which they appear.

Table 6: show chassis hardware Output Fields

Field Name	Field Description	Level of Output
Item	Chassis component: • (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). • (PTX5000 routers with CSE2000)—Information about the CSE2000 service cards.	All levels
Version	Revision level of the chassis component.	All levels
Part number	Part number of the chassis component.	All levels

Table 6: 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:	All levels

Sample Output

show chassis hardware (PTX5000 router with CSE2000)

```
user@host> show chassis hardware

Hardware inventory:
Item             Version  Part number  Serial number     Description
Chassis                                JN1208F1AAJA      PTX5000
Midplane         REV 13   750-035893   ACAB2167          Midplane-8S
FPM              REV 12   760-030647   BBAZ2448          Front Panel Display
PDU 0            Rev 05   740-042365   1EBD2480010       DC PDU 2x60A
  PSM 0          Rev 05   740-042319   1EBA2440076       DC 12V PSM 2x60A
  PSM 1          Rev 05   740-042319   1EBA2440122       DC 12V PSM 2x60A
  PSM 2          Rev 05   740-042319   1EBA2440080       DC 12V PSM 2x60A
  PSM 3          Rev 05   740-042319   1EBA2440088       DC 12V PSM 2x60A
PDU 1            Rev 05   740-042365   1EBD2480008       DC PDU 2x60A
  PSM 0          Rev 05   740-042319   1EBA2440079       DC 12V PSM 2x60A
  PSM 2          Rev 05   740-042319   1EBA2440147       DC 12V PSM 2x60A
CCG 0            REV 09   750-030653   BBBA3152          Clock Generator
CCG 1            REV 09   750-030653   BBBA3682          Clock Generator
Routing Engine 0 REV 10   740-026942   P737A-003620      RE-DUO-2600
Routing Engine 1 REV 10   740-026942   P737A-003427      RE-DUO-2600
CB 0             REV 16   750-030625   BBBA4181          Control Board
  Xcvr 2         0 REV    077-0209-0   PJL573U           SFP-T
    Xcvr 3
CB 1             REV 16   750-030625   BBBA4187          Control Board
```

```
    Xcvr 2
  Xcvr 3          0 REV    077-0209-0   PJL573S          SFP-T
FPC 0             REV 23   750-036844   BBAW6875         FPC
  CPU             REV 13   711-030686   BBAW6792         SNG PMB
  PIC 0           REV 21   750-031913   BBAS1654         24x 10GE(LAN) SFP+
    Xcvr 0        REV 01   740-031980   AN304EX          SFP+-10G-SR
    Xcvr 1        REV 01   740-031980   AHN0LQH          SFP+-10G-SR
    Xcvr 4        REV 01   740-031980   1Y3363A02307     SFP+-10G-SR
    Xcvr 5        REV 01   740-031980   AM20A7R          SFP+-10G-SR
    Xcvr 12       REV 01   740-031980   B10E00418        SFP+-10G-SR
    Xcvr 13       REV 01   740-031980   AMG0Q2X          SFP+-10G-SR
FPC 1             REV 24   750-036844   BBBB6127         FPC
  CPU
FPC 2             REV 24   750-036844   BBBB6178         FPC
  CPU
FPC 3             REV 22   750-036844   BBAX3758         FPC
  CPU             REV 13   711-030686   BBAV7013         SNG PMB
  PIC 0           REV 21   750-031913   BBAZ9874         24x 10GE(LAN) SFP+
    Xcvr 0        REV 01   740-031980   AN303RX          SFP+-10G-SR
    Xcvr 1        REV 01   740-031980   B11G00106        SFP+-10G-SR
  PIC 1           REV 18   750-031916   BBAZ1242         2x 100GE CFP
FPC 4             REV 24   750-036844   BBBB5449         FPC
  CPU             REV 14   711-030686   BBBB4912         SNG PMB
ESC 0             REV 00   650-049328   CJ2313AL0019     CSE2000-32G-S
  Backplane       REV 00   650-049327   CH2313AL0050     CSE2000 Chassis
ESC 1             REV 00   650-049328   CJ2313AL0019     CSE2000-32G-S
  Backplane       REV 00   650-049327   CH2313AL0050     CSE2000 Chassis
SPMB 0            REV 13   711-030686   BBBA3409         SNG PMB
SPMB 1            REV 13   711-030686   BBBA3388         SNG PMB
SIB 0             REV 12   750-030631   BBAW4395         SIB-I-8S
SIB 1             REV 12   750-030631   BBAX3650         SIB-I-8S
SIB 2             REV 12   750-030631   BBBA4156         SIB-I-8S
SIB 3             REV 12   750-030631   BBAW8863         SIB-I-8S
SIB 4             REV 12   750-030631   BBAW4304         SIB-I-8S
SIB 5             REV 12   750-030631   BBAW4389         SIB-I-8S
SIB 6             REV 12   750-030631   BBBA1994         SIB-I-8S
SIB 7             REV 12   750-030631   BBBA1943         SIB-I-8S
SIB 8             REV 12   750-030631   BBAZ8865         SIB-I-8S
Fan Tray 0        REV 11   760-032784   BBBA0184         Vertical Fan Tray
Fan Tray 1        REV 13   760-030642   BBAZ5331         Horizontal Fan Tray
Fan Tray 2        REV 13   760-030642   BBAZ5371         Horizontal Fan Tray
```

show chassis service-node

Syntax show chassis service-node <slot *slot-number* >

Release Information Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description Display information about the CSE2000 service cards.

Options **none**—Display information about both the service cards installed in the CSE2000.

<slot *slot-number*>—(Optional) Display information about the service card in the specified slot. Replace ***slot-number*** with **0** or **1**.

Required Privilege Level view

Related Documentation

- request chassis service-node on page 9
- show chassis environment service-node on page 14

List of Sample Output show chassis service-node on page 23

Output Fields Table 7 on page 22 lists the output fields for the **show chassis service-node** command. Output fields are listed in the approximate order in which they appear.

Table 7: show chassis service-node Output Fields

Field Name	Field Description
Slot	CSE2000 service card slot number.
Current state	Current state of the specified service card slot: • **Offline**: Service card is powered down. • **Ready**: Service card is in intermediate or transition state. • **Online**: Service card is online and running. • **Empty**: No service card is present.
CPU utilization	Percentage of CPU being used by the service card processor.
Total Memory	Total RAM on the CSE2000 for the specified service card.
Memory utilization	Amount of memory that is currently in use.
Uptime	Time duration for which the service card has been online.
PSU details	
Slot	Power supply unit slot number.
Model	Power supply unit model number.

Table 7: show chassis service-node Output Fields *(continued)*

Field Name	Field Description
Serial Number	Power supply unit serial number.
Rev	Power supply unit revision number.
Type	Power supply unit type (AC or DC).
Status	Status of power supply unit: • **Present** • **Absent**

Sample Output

show chassis service-node

```
user@host> show chassis service-node slot 1
Service Node status:
  Slot 1:
    Current state               Online
    CPU utilization              81 percent
    Total Memory                31 GB
    Memory utilization           14 percent
    Start time                  2013-09-25 05:44:55 PDT
    Uptime                      5 hours, 25 minutes, 25 seconds
    PSU details
    Slot Model         Serial Number   Rev     Type   Status
      0  FSAK1200F     948506          A-02    A/C    Present
      1  FSAK1200F     948490          A-02    A/C    Present
```

show system alarms

Syntax show system alarms

Release Information Command introduced in Junos OS Release 13.3 for PTX5000 routers with CSE2000.

Description Display information about the 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.

Required Privilege Level admin

Related Documentation

- *CSE2000 Front Panel Features*
- show chassis service-node on page 22

List of Sample Output

show system alarms on page 25
show system alarms (No Alarms Active) on page 25

Output Fields Table 8 on page 24 lists the output fields for the **show system alarms** command. Output fields are listed in the approximate order in which they appear.

Table 8: show system 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**.

Table 8: show system alarms Output Fields *(continued)*

Field Name	Field Description
Description	Information about the alarm. • **ESC *<number>* Version Mismatch** : Software version mismatch (software version installed on CSE2000 is not supported by Junos OS software installed on PTX5000 router). • **ESC *<number>* Temperature Too Hot**: CSE2000 service card temperature has exceeded the allowed temperature threshold. • **ESC *<number>* Jflow crash**: The active flow monitoring service has stopped on specified service card. The active flow monitoring service should restart within a few minutes. If the problem still persists, contact Juniper Networks Technical Assistance Center (JTAC). • **ESC *<number>* PS*<number>* Absent**: Power supply unit is absent. • **ESC *<number>* Temperature Sensor Failure**: CSE2000 service card temperature sensor has failed. • **ESC *<number>* Voltage Sensor Failure**: CSe2000 service card voltage sensor has failed. • **ESC *<number>* Fan Failure**: CSE2000 service card fan has failed. • **ESC *<number>* PS*<number>* Input Absent**: Input for power supply unit is absent for the CSE2000 service card.

Sample Output

show system alarms

```
user@host> show system alarms
2 alarms are currently active
Alarm time               Class  Description
2013-08-08 02:04:44 PDT  Minor  ESC 0 PS0 Absent
2013-08-08 01:59:19 PDT  Minor  ESC 0 PS1 Absent
```

show system alarms (No Alarms Active)

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

PART 3

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