

Chapter 7

Chassis Monitoring and Troubleshooting

From the command-line interface (CLI), you can display information about the chassis components—including the Flexible PIC Concentrators (FPCs), Physical Interface Cards (PICs), System Control Board (SCB) or System and Switch Board (SSB), fans, and power supplies—using the commands in the `show chassis` hierarchy. These commands get their information from the chassis software process, which runs when the SCB or SSB is up and running. If the SCB or SSB is not running, no information about chassis components is available through the CLI.

Table 23 summarizes the CLI commands you can use to monitor the router chassis. In the table, the commands are grouped by functionality. In the remainder of this chapter, they are explained alphabetically.

Table 23: Commands for Monitoring the Chassis

Task or Information to Monitor	CLI Command
Chassis alarm status.	<code>show chassis alarms</code> on page 304
Clear the chassis alarms.	<code>clear chassis alarms air-filter</code> on page 298
Clear the chassis craft-interface display	<code>clear chassis craft-interface display</code> on page 298
Class-of-service configuration.	<code>show chassis cos</code> on page 305
Chassis clock-source configuration.	<code>request chassis pcg slot</code> on page 299
Information currently on craft display.	<code>show chassis craft-interface</code> on page 306
Environmental information.	<code>show chassis environment</code> on page 308 <code>show chassis environment fpc</code> on page 310 <code>show chassis environment fpm</code> on page 311 <code>show chassis environment mcs</code> on page 312 <code>show chassis environment pcg</code> on page 313 <code>show chassis environment pem</code> on page 314 <code>show chassis environment routing engine</code> on page 315 <code>show chassis environment sfm</code> on page 316
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FPC and PIC status.	<code>show chassis fpc</code> on page 318 <code>request chassis fpc slot</code> on page 299
Hardware inventory.	<code>show chassis hardware</code> on page 320
MAC address.	<code>show chassis mac-addresses</code> on page 324
Routing Engine.	<code>show chassis routing-engine</code> on page 325 <code>request chassis routing-engine master</code> on page 300

Task or Information to Monitor	CLI Command
SCB, SFM, or SSB status.	show chassis scb on page 328
	show chassis sfm on page 329 request chassis sfm slot on page 301
	show chassis ssb on page 331 request chassis system-switch-board master switch on page 301
Display a message on the router's craft interface.	set chassis display on page 302

clear chassis alarms air-filter

Syntax clear chassis alarms air-filter

Description Clear the air-filter alarm and reset the timer on this alarm. Issue this command after you have replaced the router's air filter.

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) nor extinguish the alarm LEDs. In addition, new alarms that occur after silencing an external device reactivate the external device.

Required Privilege Level clear

Sample Output

```

user@host> show chassis alarms
1 alarm is currently active
Alarm time Class Description
2000-09-01 02:03:23 UTC Minor Air filter needs changing

user@host> clear chassis alarms air-filter
user@host>

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

```

See Also show chassis alarms on page 304

clear chassis craft-interface display

Syntax clear chassis craft-interface display

Description Clear all user-defined messages displayed. Issue this command after resolving causes of alarm.

Required Privilege Level clear

Sample Output

```

user@host> clear chassis craft-interface display
user@host>

```

request chassis fpc slot

Syntax request chassis fpc slot < slot number> (offline | online | restart>

Description Control the operation of the FPC.

Options offline—Take the FPC offline.

online—Put the FPC online.

restart—Restart the FPC.

slot *slot number*—FPC slot number. It can be 0, 1, 2, 3, 4, 5, 6, or 7.

Required Privilege Level maintenance

request chassis pcg slot

Syntax request chassis pcg slot < slot number> (offline | online>

Description Control the operation of the PCG.

Options offline—Take the PCG offline.

online—Put the PCG online.

restart—Restart the PCG.

slot *slot number*—PCG slot number. It can be 0 or 1.

Required Privilege Level maintenance

request chassis routing-engine master

Syntax request chassis routing engine master < acquire (force)| release | switch> < no-confirm>

Description For routers with multiple Routing Engines only, control which Routing Engine is master.

Options acquire—Attempt to become the master Routing Engine.

release—Request the other Routing Engine become master.

switch—Toggle mastership between Routing Engines.

no-confirm—(Optional) Do not ask for confirmation.

force—(M20 routers only) Reset other Routing Engine and become master.

Required Privilege Level maintenance

Sample Output user@m20-host> **request chassis routing-engine master acquire force**

```
warning: Traffic will be interrupted while the PFE is re-initialized
```

```
warning: The other routing engine's file system could be corrupted
Reset other routing engine and become master ? [yes,no] (no)
```

In the following example, M20-host-0 is the master Routing Engine:

```
root@m20-host-0> request chassis routing-engine master switch
```

```
warning: Traffic will be interrupted while the PFE is re-
initialized
```

```
Toggle mastership between routing engines ? [yes,no] (no) yes
```

```
Resolving mastership...
```

```
Complete. The other routing engine becomes the master.
```

```
root@m20-host-0>
```

In the following example, M20-host-0 is the backup Routing Engine:

```
root@m20-host-0> request chassis routing-engine master switch
```

```
warning: Traffic will be interrupted while the PFE is re-
initialized
```

```
Toggle mastership between routing engines ? [yes,no] (no) yes
```

```
Resolving mastership...
```

```
Complete. The local routing engine becomes the master.
```

```
root@m20-host-0>
```

request chassis sfm slot

Syntax request chassis sfm slot < slot number> (offline | online | restart>

Description Control the operation of an SFM.

offline—Take the SFM offline.

online—Put the SFM online.

restart—Restart the SFM.

slot *slot number*—SFM slot number. It can be 0, 1, 2, or 3.

Required Privilege Level maintenance

request chassis system-switch-board master switch

Syntax request chassis system-switch-board master switch

Description For M20 routers only, control which system switch board is master.

Required Privilege Level maintenance

Sample Output

```
user@m20-host> request chassis system-switch-board master switch
warning: Traffic will be interrupted while the PFE is re-initialized
Toggle mastership between system switch boards ? [yes,no] (no)
```

set chassis display

Syntax set chassis display message "*message*"

Description For M40 and M160 routers only. Display a text message on the craft interface display, which is on the front of the router. The craft interface alternates the display of text message and the standard craft interface messages, switching between messages every 2 seconds.

The text message is displayed for 5 minutes.

The craft interface display has four 20-character lines.

Options message "*message*"—Message to display on the craft interface display. If the message is longer than 20 characters, it wraps onto the next line. If a word does not fit on one line, the entire word moves down to the next line. Any portion of the message that does not fit on the display is truncated. To stop a message, enter the command, omitting the *message* string.

Required Privilege Level clear

Sample Output

```
user@sheep> set chassis display message "NOC contact Dusty (888) 526-1234"
message sent
user@sheep> show chassis craft-interface
```

```
Red alarm:      LED off, relay off
Yellow alarm:   LED off, relay off
Host OK LED:    On
Host fail LED:  Off
```

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

LCD screen:

```
+-----+
|NOC contact Dusty|
|(888) 526-1234  |
|                 |
+-----+
```

```

user@sheep> set chassis display message ""
message sent
user@sheep> show chassis craft-interface

```

```

Red alarm:      LED off, relay off
Yellow alarm:   LED off, relay off
Host OK LED:    On
Host fail LED:  Off

```

```

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

```

LCD screen:

```

+-----+
| sheep  |
| Up: 0+17:05:47 |
|       |
| Temperature OK |
+-----+

```

See Also show chassis craft-interface on page 306

show chassis alarms

Syntax show chassis alarms

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

It is not possible to clear the alarms for chassis components (except for the air filter alarm). This design is intentional; you must remedy the cause of the alarm. The alarm lights on the chassis are bright and are meant to be annoying. When they are lit, it indicates that you are running the router in a manner that we do not recommend.

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) nor extinguish the alarm LEDs. In addition, new alarms that occur after silencing an external device reactivate the external device.

Required Privilege Level view

Sample Output On a router with the lower fan tray removed, PEM 1 removed and the management ethernet disconnected:

```
user@host> show chassis alarm
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
```

After problems have been solved:

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

Output Fields Alarm time—Date and time alarm was first recorded.

Class—Severity class for this alarm. It can be **Minor** or **Major**.

Description—Information about the alarm.

See Also clear chassis alarms air-filter on page 298

show chassis cos

Syntax	show chassis cos
Description	Display information about configured class-of-service parameters, including precedence queue mapping and drop profiles.
Required Privilege Level	view
Sample Output	<pre> user@host> show chassis cos COS information: Global precedence map: Queue 0: Queue 1: 000 010 011 100 101 110 111 Queue 2: 001 Queue 3: Default queue: 1 Slot 1: FPC precedence map: Queue 0: 000 Queue 1: 001 010 011 101 110 111 Queue 2: Queue 3: 100 Stream drop profile: Fill level: 70% Drop probability: 70% Fill level: 80% Drop probability: 92% PLP drop profile: Fill level: 50% Drop probability: 75% Fill level: 80% Drop probability: 99% Non-PLP drop profile: Fill level: 70% Drop probability: 56% Fill level: 89% Drop probability: 98% Slot 2: Stream drop profile: Fill level: 30% Drop probability: 40% Fill level: 50% Drop probability: 50% Fill level: 60% Drop probability: 65% Fill level: 70% Drop probability: 76% </pre>
Output Fields	<p>Global precedence map—Global mappings of ToS values to queues.</p> <p>FPC precedence map—Mapping of ToS values to queues for an individual FPC.</p> <p>Queue, Default queue—Specific queue and ToS value mapped in that queue.</p> <p>Stream drop profile—For RED drop profiles, the drop profile for the entire packet stream passing through a physical output interface.</p> <p>PLP drop profile—For RED drop profiles, the drop profile for queues in which the packet at the head of the queue is a packet in which the PLP bit is set.</p> <p>Non-PLP drop profile—For RED drop profiles, the drop profile for queues in which the packet at the head of the queue is a packet in which the PLP bit is not set.</p>

show chassis craft-interface

Syntax show chassis craft-interface

Description For routers that have a display on the craft interface, show the messages that are currently displayed.

Required Privilege Level view

Sample Output

The following example shows output from the `show chassis craft-interface` command for an M20 router:

```
user@host> show chassis craft-interface
```

```
Red alarm:      LED off, relay off
Yellow alarm:   LED on, relay on
Host OK LED:    On
Host fail LED:  Off
```

```
FPCs      0  1  2  3
-----
Green     .  *  *  .
Red       .  .  .  .
```

LCD screen:

```
+-----+
|tylenol          |
|1 Alarm active   |
|Y: Change air filter|
+-----+
```

The following example shows output from the `show chassis craft-interface` command for an M40 router:

```
user@sheep> show chassis craft-interface
```

```
Front Panel LCD Display: enabled
```

```
Red alarm:      LED off, relay off
Yellow alarm:   LED off, relay off
Host OK LED:    On
Host Fail LED:  Off
```

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

LCD Screen:

```
+-----+
|sheep           |
|Up: 27+18:52:37 |
|52.649kpps Load |
+-----+
```

The following example shows output from the `show chassis craft-interface` command for an M160 router:

```

user@queens> show chassis craft-interface
FPM Display contents:
+-----+
| queens |
| Up: 1+16:46 |
|         |
| Fans OK  |
+-----+

Front Panel System LEDs:
Host      0    1
-----
OK         .    *
Fail       .    .
Master    .    *

Front Panel Alarm Indicators:
-----
Red LED    .
Yellow LED .
Major relay .
Minor relay .

Front Panel FPC LEDs:
FPC      0    1    2    3    4    5    6    7
-----
Red       .    .    .    .    .    .    .    .
Green    *    *    .    .    .    .    .    .

MCS and SFM LEDs:
MCS      0    1      SFM    0    1    2    3
-----
Amber     .           .    .
Green     .           .    .
Blue      *           *    *

```

Output Fields FPM Display contents—Display contents of the Front Panel Module display.

router-name—The first line shows the name of the router.

Up—How long the router has been operational, in days, hours, minutes, and seconds.

message—Information about the router traffic load, the power supply status, the fan status, and the temperature status. The display of this information changes every 2 seconds.

If a text message has been set with the `set chassis display` command, this message appears on all four lines of the craft interface display. The display alternates between the text message and the standard system status messages every 2 seconds.

Front Panel System LEDs—Displays status of the Front Panel System LEDs. A dot (.) indicates the LED is not lit. An asterisk (*) indicates the LED is lit.

Front Panel Alarm Indicators—Displays status of the Front Panel Alarm Indicators. A dot (.) indicates the relay is off. An asterisk (*) indicates the relay is active.

Front Panel FPC LEDs—Displays status of the Front Panel FPC LEDs. A dot (.) indicates the LED is not lit. An asterix (*) indicates the LED is lit.

MCS and SFM LEDs—Displays status of the MCS and SFM LEDs. A dot (.) indicates the LED is not lit. An asterix (*) indicates the LED is lit. When neither a dot nor an asterix are displayed there is no board in that slot.

See Also set chassis display on page 302

show chassis environment

Syntax show chassis environment

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

Required Privilege Level view

Sample Output The following example shows output from the **show chassis environment** command for an M20 router:

```

user@m20-host> show chassis environment
Class Item                Status      Measurement
-----
Power Power Supply A      Absent
      Power Supply B      OK
Temp  FPC Slot 1              OK          37 degrees C / 98 degrees F
      FPC Slot 2              OK          38 degrees C / 100 degrees F
      Power Supply A          Absent
      Power Supply B          OK          37 degrees C / 98 degrees F
      SSB Slot 0              OK          36 degrees C / 96 degrees F
      Backplane              OK          32 degrees C / 89 degrees F
Fans  Rear Fan              OK          Spinning at normal speed
      Upper Fan              OK          Spinning at normal speed
      Middle Fan             OK          Spinning at normal speed
      Bottom Fan             OK          Spinning at normal speed
Misc  Craft Interface       OK
    
```

The following example shows output from the `show chassis environment` command for an M40 router:

```
user@m40-host> show chassis environment
Class Item                Status      Measurement

Power Power Supply A       OK
      Power Supply B       Absent

Temp  FPC Slot 0              OK          34 degrees C / 93 degrees F
      FPC Slot 2              OK          32 degrees C / 89 degrees F
      FPC Slot 4              OK          31 degrees C / 87 degrees F
      FPC Slot 5              OK          39 degrees C / 102 degrees F
      SCB                      OK          28 degrees C / 82 degrees F
      Backplane @ A1          OK          35 degrees C / 95 degrees F
      Backplane @ A2          OK          32 degrees C / 89 degrees F

Fans  Top Impeller           OK          Spinning at normal speed
      Bottom Impeller        OK          Spinning at normal speed
      Rear Fan 1              OK          Spinning at normal speed
      Rear Fan 2              OK          Spinning at normal speed
      Rear Fan 3              OK          Spinning at normal speed

Misc  Craft Interface       OK
```

The following example shows output from the `show chassis environment` command for an M160 router:

```
user@m160-host> show chassis environment
Class Item                Status      Measurement

Power PEM 0                 OK
      PEM 1                 OK

Temp  PCG 0                  OK          41 degrees C / 105 degrees F
      PCG 1                  OK          49 degrees C / 120 degrees F
      Host 0                 Absent
      Host 1                  OK          37 degrees C / 98 degrees F
      MCS 0                  Absent
      MCS 1                  OK          56 degrees C / 132 degrees F
      SPP 0                  OK          40 degrees C / 104 degrees F
      SPR 0                  OK          44 degrees C / 111 degrees F
      SPP 1                  OK          43 degrees C / 109 degrees F
      SPR 1                  OK          47 degrees C / 116 degrees F
      FPC 0                  OK          41 degrees C / 105 degrees F
      FPC 1                  OK          44 degrees C / 111 degrees F
      FPM CMB                OK          33 degrees C / 91 degrees F
      FPM Display            OK          34 degrees C / 93 degrees F

Fans  Rear Bottom Blower    OK          Spinning at high speed
      Rear Top Blower       OK          Spinning at high speed
      Front Top Blower      OK          Spinning at high speed
      Fan Tray Front Left   OK          Spinning at high speed
      Fan Tray Front Right  OK          Spinning at high speed
      Fan Tray Rear Left    OK          Spinning at high speed
      Fan Tray Rear Right   OK          Spinning at high speed

Misc  CIP                    OK
```

- **Output Fields** Power—(M20 and M40 routers only) Information about each power supply. Status can be OK, Testing (during initial power-on), Failed, or Absent.
- (M160 routers only) Information about the Power Entry Modules. Status can be OK, Testing (during initial power-on), Failed, or Absent.
- Temp—Temperature of air flowing through the chassis.
- Fans—Information about the fans. Status can be OK, Testing (during initial power-on), Failed, or Absent. Measurement indicates if spinning at normal or high speed.
- Misc—Information about other components of the chassis. It could indicate the presence of one or more components.
- On the M160 router, Misc includes CIP (Connector Interface Panel). OK indicates the CIP is present.

show chassis environment fpc

Syntax show chassis environment fpc <slot>

Description For M160 routers only, display environmental information about the FPC in the router.

Options none—Display environmental information about all FPCs.

slot—(Optional) Display environmental information about an individual FPC. *slot* can be value from 0 through 7.

Required Privilege Level view

Sample Output

```

user@m160-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
    
```

Output Fields State—Status of the FPC. It can be Unknown, Empty, Present, Ready, Announce online, Online, Offline, or Diagnostics.

Temperature—Temperature of the air flowing past the FPC.

Power—Information about power supplies on the FPC.

CMB Revision—Revision level of the chassis management bus slave.

show chassis environment fpm

Syntax show chassis environment fpm

Description For M160 routers only, display environmental information about the front panel module (craft interface) in the router.

Required Privilege Level view

Sample Output

```

user@m160-host> show chassis environment fpm
FPM status:
  State                               Online
  FPM CMB Voltage:
    5.0 V bias                         5030 mV
    8.0 V bias                         8083 mV
  FPM Display Voltage:
    5.0 V bias                         4998 mV
  FPM CMB temperature                 34 degrees C / 93 degrees F
  FPM Display temperature             35 degrees C / 95 degrees F
  CMB Revision                        12

```

Output Fields State—Status of the Front Panel Module. It can be Online, or Offline.

FPM CMB Voltage—Information about the power supplied to FPM CMB cord.

FPM Display Voltage—Information about FPM display power supply.

FPM CMB Temperature—Temperature of the air flowing past the FPM Chassis Management Bus.

FPM Display Temperature—Temperature of the air flowing past the FPM display.

CMB Revision—Revision level of the chassis management bus slave.

show chassis environment mcs

Syntax show chassis environment fpc <slot>

Description For the M160 router only, display environmental information about the Miscellaneous Control Subsystem (MCS).

Options none—Display environmental information about both MCSs.

slot—(Optional) Display environmental information about an individual MCS. *slot* can be 0 or 1.

Required Privilege Level view

Sample Output

```

user@m160-host> show chassis environment mcs
MCS 0 status:
  State                               Online Master
  Temperature                          0 degrees C / 32 degrees F
  Power:
    3.3 V                               3318 mV
    5.0 V                               5001 mV
    12.0 V                              11833 mV
    5.0 V bias                          4991 mV
    8.0 V bias                          8341 mV
  CMB Revision                          12
  FPGA Revision                         12
MCS 1 status:
  State                               Present
  Power:
    3.3 V                               3308 mV
    5.0 V                               5013 mV
    12.0 V                              11809 mV
    5.0 V bias                          4952 mV
    8.0 V bias                          8346 mV
  CMB Revision                          12
    
```

Output Fields State—Status of the MCS. It can be Present, Online, Offline, or Empty. Also indicates Master.

Temperature—Temperature of the air flowing past the MCS.

Power—Information about MCS power supplies.

FPGA Revision—Field Programmable Gate Array revision information.

CMB Revision—Revision level of the chassis management bus slave.

show chassis environment pcg

Syntax show chassis environment pcg <slot>

Description For the M160 router only, display environmental information about the PFE Clock Generator (PCG).

Options none—Display environmental information about both PCGs.

slot—(Optional) Display environmental information about an individual PCG. *slot* can be 0 or 1.

Required Privilege Level view

Sample Output

```
user@m160-host> show chassis environment pcg
PCG 0 status:
  State                Online - PFE clock source
  Temperature          42 degrees C / 107 degrees F
  Frequency:
    Setting             125 MHz
    Measurement        125 MHz
  Power:
    3.3 V               3267 mV
    5.0 V bias          4932 mV
    8.0 V bias          8224 mV
  CMB Revision         12
PCG 1 status:
  State                Online
  Temperature          49 degrees C / 120 degrees F
  Frequency:
    Setting             125 MHz
    Measurement        125 MHz
  Power:
    3.3 V               3264 mV
    5.0 V bias          4967 mV
    8.0 V bias          8236 mV
  CMB Revision         12
```

Output Fields *PCG slot*—Slot number. It can be 0 or 1.

State—Status of PCG. It can be Present, Online, Offline, or Empty. If Online, it can be the current PFE clock source or backup.

Temperature—Temperature of the air flowing past the PCG.

Frequency—Frequency setting and measurement for PCG.

Power—Information about PCG power supplies.

CMB Revision—Revision level of the chassis management bus slave.

show chassis environment pem

Syntax show chassis environment pem <slot>

Description For the M160 router only, display environmental information about the Power Entry Module (PEM).

Options none—Display environmental information about both PEMs.

slot—(Optional) Display environmental information about an individual PEM. *slot* can be 0 or 1.

Required Privilege Level view

Sample Output

```
user@m160-host> show chassis environment pcg
PEM 0 status:
  State                Online
  Temperature           OK
  DC input              OK
  DC output             OK
  Load                  Less than 20 percent
  Voltage:
    48.0 V input        69028 mV
    48.0 V fan supply   48839 mV
    5.0 V bias          5013 mV
    8.0 V bias          8253 mV
PEM 1 status:
  State                Online
  Temperature           OK
  DC input              OK
  DC output             OK
  Load                  Less than 20 percent
  Voltage:
    48.0 V input        69307 mV
    48.0 V fan supply   49170 mV
    5.0 V bias          4991 mV
    8.0 V bias          8263 mV
```

Output Fields slot—Name of PEM slot.

State—Status of PEM.

Temperature—Temperature of the air flowing past the PEM.

DC Input—Status of DC input.

DC Output—Status of DC output.

Load—Information about the load on supply, in percent of rated current being used.

Voltage—Information about voltage of PEM.

show chassis environment routing engine

Syntax show chassis environment routing engine <slot>

Description For the M160 router only, display environmental information about the Routing Engine (RE).

Options none—Display environmental information about all Routing Engines.

slot—(Optional) Display environmental information about an individual Routing Engine. *slot* can be 0 or 1.

Required Privilege Level view

Sample Output

```
user@m160-host> show chassis environment re
Route engine 0 status:
  State:                Present Master
  Temperature:          0 degrees C / 32 degrees F
Route engine 1 status:
  State:                Present
```

Output Fields Routing engine slot—(For systems with multiple routing engines) Number of the routing engine slot. It can be 0 or 1.

State—Status of routing engine. It can be **Present** or **Empty**. If **Present** it can be **Master**.

Temperature—Temperature of the air flowing past the Routing Engine.

show chassis environment sfm

Syntax show chassis environment sfm

Description For the M160 router only, display environmental information about the Switching and Forwarding Module (SFM).

Options none—Display environmental information about all SFMs.

slot—(Optional) Display environmental information about an individual SFC. *slot* can be 0 through 3.

Required Privilege Level view

Sample Output

```
user@m160-host> show chassis environment sfm 0
SFM 0 status:
  State                               Online
  SPP temperature                       40 degrees C / 104 degrees F
  SPR temperature                       44 degrees C / 111 degrees F
  SPP Power:
    1.5 V                               1504 mV
    2.5 V                               2479 mV
    3.3 V                               3285 mV
    5.0 V                               5028 mV
    5.0 V bias                          4967 mV
  SPR Power:
    1.5 V                               1501 mV
    2.5 V                               2485 mV
    3.3 V                               3291 mV
    5.0 V                               5023 mV
    5.0 V bias                          4967 mV
    8.0 V bias                          8351 mV
  CMB Revision                          12
SFM 1 status:
  State                               Online
  SPP temperature                       44 degrees C / 111 degrees F
  SPR temperature                       47 degrees C / 116 degrees F
  SPP Power:
    1.5 V                               1498 mV
    2.5 V                               2494 mV
    3.3 V                               3293 mV
    5.0 V                               5020 mV
    5.0 V bias                          5001 mV
  SPR Power:
    1.5 V                               1500 mV
    2.5 V                               2496 mV
    3.3 V                               3296 mV
    5.0 V                               5013 mV
    5.0 V bias                          4998 mV
    8.0 V bias                          8358 mV
  CMB Revision                          12
```

- Output Fields**
- sfm plane*—Slot number of SFM. It can be 0, 1, 2, or 3.
 - State—Status of the Switching and Forwarding Module.
 - SPP Temperature—Temperature of the air flowing past the Switch plane Processor card.
 - SPR Temperature—Temperature of the air flowing past the Switch Plane Router.
 - SPP Power—Information about Switch plane Processor card power supplies.
 - SPR Power—Information about Switch Plane Router power supplies.
 - CMB Revision—Chassis Management Bus slave revision identification.

show chassis firmware

Syntax show chassis firmware

Description Display the version levels of the firmware running on the SCB or SSB and FPCs.

Required Privilege Level view

Sample Output

```

user@m20-host> show chassis firmware
Part                Type      Version
System switch board ROM       Juniper ROM Monitor Version 3.4b26
                   O/S      Version 3.4I16 by smackie on 2000-02-29 2
FPC 1               ROM       Juniper ROM Monitor Version 3.0b1
                   O/S      Version 3.4I4 by smackie on 2000-02-25 21
FPC 2               ROM       Juniper ROM Monitor Version 3.0b1
                   O/S      Version 3.4I4 by smackie on 2000-02-25 21

user@m40-host> show chassis firmware
Part                Type      Version
System control board ROM       Juniper ROM Monitor Version 2.0i126Copyri
                   O/S      Version 2.0i1 by root on Thu Jul 23 00:51
FPC 5               ROM       Juniper ROM Monitor Version 2.0i49Copyrig
                   O/S      Version 2.0i1 by root on Thu Jul 23 00:59

user@m160-host> show chassis firmware
Part                Type      Version
SFM 0               ROM       Juniper ROM Monitor Version 4.0b2
                   O/S      Version 4.0I1 by tlim on 2000-02-29 11:50
SFM 1               ROM       Juniper ROM Monitor Version 4.0b2
                   O/S      Version 4.0I1 by tlim on 2000-02-29 11:50
FPC 0               ROM       Juniper ROM Monitor Version 4.0b2
                   O/S      Version 4.0I1 by tlim on 2000-02-29 11:56
FPC 1               ROM       Juniper ROM Monitor Version 4.0b2
                   O/S      Version 4.0I1 by tlim on 2000-02-29 11:56
FPC 2               ROM       Juniper ROM Monitor Version 4.0b3
                   O/S      Version 4.0I1 by tlim on 2000-02-29 11:56

```

show chassis fpc

Syntax show chassis fpc <pic-status <fpc-slot >> <detail <fpc-slot >>

Description Display status information about the installed FPCs and PICs.

Options none—Display brief information about the state of the FPCs.

detail <fpc-slot >—(Optional) Display detailed status information for the all FPCs or for the specified FPC.

pic-status <fpc-slot >—Display information for all PICs or for the PICs in the specified slot.

Required Privilege Level view

Sample Output user@host> **show chassis fpc**

```
FPC status:
      Temp  CPU Utilization (%)  Memory  Utilization (%)
Slot State (C) Total Interrupt  DRAM (MB) Heap Buffer
0 Probed   35      1      0      8      0      2
1 Probed   34     65      0      8      0      2
2 Probed   32      2      0      8      0      2
3 Unknown  0      0      0      0      0      0
4 Probed   33      1      0      8      0      2
5 Unknown  0      0      0      0      0      0
6 Unknown  0      0      0      0      0      0
7 Unknown  0      0      0      0      0      0
```

user@m20-host> **show chassis fpc**

```
FPC status:
      Temp  CPU Utilization (%)  Memory  Utilization (%)
Slot State (C) Total Interrupt  DRAM (MB) Heap Buffer
0 Empty    0      0      0      0      0      0
1 Online   38      0      0      8      0      4
2 Online   35      0      0      8      0      3
3 Empty    0      0      0      0      0      0
```

Output Fields Slot—FPC slot number.

State—State of the FPC in each slot.

Temp (C)—Temperature of the air passing by the FPC, in degrees Centigrade.

Total CPU Utilization (%)—Total percentage of CPU being used by the FPC's processor.

Interrupt CPU Utilization (%)—Of the total CPU being used by the FPC's processor, the percentage being used for interrupts.

Memory DRAM—Total DRAM available to the FPC's processor, in megabytes.

Heap Utilization (%)—Percentage of heap space (dynamic memory) being used by the FPC's processor. If this number exceeds 80%, it might indicate a software problem (memory leak).

Buffer Utilization (%)—Percentage of buffer space being used by the FPC's processor for buffering internal messages.

show chassis fpc detail

```

Sample Output user@host> show chassis fpc detail 1
Slot 1 information:
  State                               Online
  Temperature                          48 degrees C
  Total CPU DRAM                       32 Mbytes
  Total SRAM                           4 Mbytes
  Total SDRAM                          256 Mbytes
  I/O Manager ASICs information        Version 2.0, Foundry IBM, Part number 0
  I/O Manager ASICs information        Version 2.0, Foundry IBM, Part number 0
  Start time                           2000-02-08 02:18:49 UTC
  Uptime                               14 hours, 41 minutes, 41 seconds

```

Output Fields State—State of the FPC slot. It can be one of the following:

dead—Held in reset because of errors.

diag—Slot is being ignored while the FPC is running diagnostics.

dormant—Held in reset.

empty—No FPC is present.

online—FPC is online and running.

probed—Probe is complete; awaiting restart of PFE.

probe-wait—Waiting to be probed.

Logical slot—Slot number.

Temperature—Temperature of the air passing by the FPC, in degrees Centigrade.

Total CPU DRAM—Amount of DRAM available to the FPC's CPU.

Total SRAM—Amount of SRAM used by the FPC's CPU.

Total SDRAM—Total amount of memory used for storing packets and notifications.

Total notification SDRAM—Amount of memory used by the Packet Forwarding Engine for packet buffer and packet notification space.

I/O Manager ASIC information—For the I/O Manager, identifies the version number, manufacturer, and part number.

Start time—Time when the Routing Engine noticed that the FPC was running.

Uptime—How long the Routing Engine has been connected to the FPC and, therefore, how long the FPC has been up and running.

show chassis fpc pic-status

Sample Output user@host> **show chassis fpc pic-status**

```
Slot 0 Online
  PIC 1   1x OC-12 ATM, MM
  PIC 2   1x OC-12 ATM, MM
  PIC 3   1x OC-12 ATM, MM
Slot 1 Online
  PIC 0   1x OC-48 SONET, SMIR
Slot 2 Online
  PIC 0   1x OC-192 SONET, SMSR
```

Output Fields Slot—Slot number and state. The state can be one of the following:

dead—Held in reset because of errors.

diag—Slot is being ignored while the FPC is running diagnostics.

dormant—Held in reset.

empty—No FPC is present.

online—FPC is online and running.

probed—Probe is complete; awaiting restart of PFE.

probe-wait—Waiting to be probed.

PIC type—Type of PIC at each PIC location

show chassis hardware

Syntax show chassis hardware <detail>

Description Display a list of all FPCs and PICs installed in the router chassis, including the hardware version level and serial number.

Options none—Display information about hardware.

detail—Display detailed information about hardware, including memory.

Required Privilege Level view

Sample Output The following example shows output from the **show chassis hardware** command for an M20 router:

```

user@m20-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
SSB slot 0    REV 01   710-001951   S/N AD5905    Internet Processor II
  SSRAM bank 0 REV 01   710-001385   S00480        2 Mbytes
  SSRAM bank 1 REV 01   710-001385   S00490        2 Mbytes
  SSRAM bank 2 REV 01   710-001385   S001:?        2 Mbytes
  SSRAM bank 3 REV 01   710-001385   S00483        2 Mbytes
SSB slot 1    N/A      N/A          N/A           Backup
Slot card 1   REV 01   710-001292   S/N AB7528
  SSRAM        REV 01   710-000077   S/N 304209    1 Mbyte
  SDRAM bank 0 REV 01   710-000099   S/N 000603    64 Mbytes
  SDRAM bank 1 REV 01   710-000099   S/N 000414    64 Mbytes
  Port card 0   REV 03   750-000612   S/N AB8433    2x OC-3 ATM, MM
  Port card 1   REV 01   750-000616   S/N AA1168    1x OC-12 ATM, MM
  Port card 2   REV 01   750-000613   S/N AA1008    1x OC-12 SONET, SMIR
  Port card 3   REV 01   750-002501   S/N AD5810    4x E3
Slot card 2   REV 01   710-001292   S/N AC0119
  SSRAM        REV 01   710-000077   S/N 503241    1 Mbyte
  SDRAM bank 0 REV 01   710-000099   S/N 306835    64 Mbytes
  SDRAM bank 1 REV 01   710-000099   S/N 306832    64 Mbytes

```

The following example shows output from the `show chassis hardware` command for an M40 router:

```

user@m40-host> show chassis hardware
Hardware inventory:
Item          Version  Part number  Serial number  Description
Chassis                               650-526-800  M40
Backplane     REV 03   710-000073   S/N AA2002
Power supply A Rev      740-000235   S/N 000008    DC
Maxicab       REV X1   710-000229   S/N AA0140
Minicab       REV X1   710-000482   S/N AA0205
Display       REV X4   710-000150   S/N AA0458
SCB           REV X4   710-000075   S/N AA0412    Internet Processor I
  SSRAM bank 0 REV 02   710-000077   S/N AA2435    1 Mbyte
  SSRAM bank 1 REV 02   710-000077   S/N AA2294    1 Mbyte
  SSRAM bank 2 REV 02   710-000077   S/N AA2412    1 Mbyte
  SSRAM bank 3 REV 02   710-000077   S/N AA2266    1 Mbyte
Slot card 2   REV 03   710-000175   S/N AA0651
  SSRAM        REV X1   710-000077   S/N AA2376    1 Mbyte
  SDRAM bank 0 REV 01   710-000099   S/N 200091    64 Mbytes
  SDRAM bank 1 REV 01   710-000099   S/N 200086    64 Mbytes
  Port card 0   REV 03   750-000603   S/N AB8896    4x OC-3 SONET, SMIR
  Port card 1   REV 01   750-000603   S/N AA0467    4x OC-3 SONET, SMIR
  Port card 3   REV 01   750-000612   S/N AA1016    2x OC-3 ATM, MM
Slot card 5   REV 03   710-000175   S/N AA0645
  SSRAM        REV 02   710-000077   S/N AA2424    1 Mbyte
  SDRAM bank 0 REV 01   710-000099   S/N 400004    64 Mbytes
  SDRAM bank 1 REV 01   710-000099   S/N 400011    64 Mbytes
  Port card 0   REV 04   750-000613   S/N AA0383    1x OC-12 SONET, SMIR
  Port card 1   REV X1   750-000611   S/N AA0167    4x OC-3 SONET, MM
  Port card 2   REV 02   750-000618   S/N AB9645    4x T3

```

The following example shows output from the `show chassis hardware` command for an M160 router:

```
user@m160-host> show chassis hardware
Hardware inventory:
Item                Version  Part number  Serial number  Description
Chassis              REV 02   710-001245   S/N AB4107     M160
Midplane             REV 01   710-001642   S/N AA2911
FPM CMB              REV 01   710-001647   S/N AA2999
FPM Display          REV 02   710-001593   S/N AA9563
CIP                  Rev 01   740-001243   S/N KJ35769   DC
PEM 0                Rev 01   740-001243   S/N KJ35765   DC
PEM 1                REV 01   710-001568   S/N AA9794
PCG 0                REV 01   710-001568   S/N AA9804
PCG 1                REV 01   710-001568   S/N AA9804
Host 1
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
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
  CPU                 REV 03   710-001255   S/N AA9806
  PIC 0               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
  CPU                 REV 02   710-001611   S/N AA9523
  CPU                 REV 02   710-001217   S/N AA9571
  PIC 0               REV 03   750-001900   S/N AA9626     1x OC-48 SONET, SMIR
FPC 2
  CPU                 REV 03   710-001217   S/N AB3329
  PIC 0               REV 01                       1x OC-192 SONET, SMS
```

Output Fields Item—Chassis component. Information is displayed about the backplane, the power supplies, the maxicab (the connection between the Routing Engine and the backplane), the SCB or SSB, and each of the FPCs and their PICs.

Version—Revision level of the chassis component.

Part number—Part number of the chassis component.

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 technical support about the router chassis.

Description—For the power supplies, the type of supply. For the PICs, the type of PIC.

show chassis hardware detail

Syntax show chassis hardware detail

Description Display a detailed list of all FPCs and PICs installed in the router chassis, including the hardware version level, serial number, and additional information about memory.

Required Privilege Level view

Sample Output

```

user@host> show chassis hardware detail
Hardware inventory:
Item                Version  Part number  Serial number  Description
Chassis
Midplane            REV 02   710-001245   S/N AB4107    M160
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
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 Mbyte
  SSRAM bank 1      REV 01   710-000077   S/N 306474     1 Mbyte
  SSRAM bank 2      REV 01   710-000077   S/N 306388     1 Mbyte
  SSRAM bank 3      REV 01   710-000077   S/N 306392     1 Mbyte
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 Mbyte
  SSRAM bank 1      REV 01   710-000077   S/N 302662     1 Mbyte
  SSRAM bank 2      REV 01   710-000077   S/N 302593     1 Mbyte
  SSRAM bank 3      REV 01   710-000077   S/N 100160     1 Mbyte
FPC 0
CPU                 REV 02   710-001217   S/N AA9590
SSRAM               REV 01   710-000077   S/N 302836     1 Mbyte
SDRAM 0             REV 01   710-001196   S00141         32 Mbytes
SDRAM 1             REV 01   710-001196   S0010;         32 Mbytes
SSRAM               REV 01   710-000077   S/N 302633     1 Mbyte
SDRAM 0             REV 01   710-001196   S00143         32 Mbytes
SDRAM 1             REV 01   710-001196   S00115         32 Mbytes
SSRAM               REV 01   710-000077   S/N 302952     1 Mbyte
SDRAM 0             REV 01   710-001196   S00135         32 Mbytes
SDRAM 1             REV 01   710-001196   S001=3         32 Mbytes
SSRAM               REV 01   710-000077   S/N 302892     1 Mbyte
SDRAM 0             REV 01   710-001196   S000?6        32 Mbytes
SDRAM 1             REV 01   710-001196   S001=5        32 Mbytes
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
CPU                 REV 02   710-001217   S/N AA9571
SSRAM               REV 01   710-000077   S/N 306340     1 Mbyte
SDRAM 0             REV 01   710-001196   S00012        32 Mbytes
SDRAM 1             REV 01   710-001196   S0001?        32 Mbytes
SSRAM               REV 01   710-000077   S/N 306454     1 Mbyte
SDRAM 0             REV 01   710-001196   S00028        32 Mbytes
SDRAM 1             REV 01   710-001196   S0002?        32 Mbytes
SSRAM               REV 01   710-000077   S/N 306492     1 Mbyte
SDRAM 0             REV 01   710-001196   S00015        32 Mbytes

```


show chassis routing-engine

Syntax show chassis routing-engine <slot >

Description Display information about the Routing Engine.

Options none—Display information about all Routing Engines.

slot—(Optional for routers with multiple routing engines) Display information for an individual Routing Engine. *slot* can be 0 or 1.

Required Privilege Level view

Sample Output The following example shows output from the `show chassis routing-engine` command for an M20 router:

```
user@m20-host> show chassis routing-engine
Routing Engine status:
Slot 0:
  Current state           Master
  Election priority      Master (default)
  Temperature             37 Centigrade
  DRAM                   765 Mbytes
  CPU utilization:
    User                  0 percent
    Background            0 percent
    Kernel                0 percent
    Interrupt             0 percent
    Idle                  100 percent
  Serial ID              98000004f8f27501
  Start time             2000-03-01 06:27:42 PST
  Uptime                  5 hours, 3 minutes, 35 seconds
  Load averages:        1 minute   5 minute   15 minute
                       0.00       0.00       0.00

Slot 1:                  Empty
```

The following example shows output from the `show chassis routing-engine` command for an M40 router:

```
user@m40-host> show chassis routing-engine
Routing Engine status:
  Temperature             48 Centigrade
  DRAM                   253 Mbytes
  CPU utilization:
    User                  51 percent
    Background            0 percent
    Kernel                47 percent
    Interrupt             1 percent
    Idle                  0 percent
  Start time             2000-03-01 06:57:08 PST
  Uptime                  4 hours, 45 minutes, 59 seconds
  Load averages:        1 minute   5 minute   15 minute
                       1.62       1.62       1.54
```

The following example shows output from the `show chassis routing-engine` command for an M160 router:

```

user@m160-host> show chassis routing-engine
Routing Engine status
Slot 0
  Current state: Master
  Election priority: Master
  Temperature          41 C / 105 degrees F
  DRAM                 765 Mbytes
  CPU utilization
    User               0 percent
    Background         0 percent
    Kernel              0 percent
    Interrupt          0 percent
    Idle               100 percent
  Serial ID            39000004f8bdec01
  Start time           2000-01-04 22:02:58 UTC
  Uptime               14 hours, 45 minutes, 40 seconds
  Load averages
    1 minute           0.05
    5 minute           0.04
    15 minute          0.01

Slot 1
  Current state Backup
  Election priority Backup (default)
  Temperature          41 C / 105 degrees F
  DRAM                 765 Mbytes
  CPU utilization
    User               0 percent
    Background         0 percent
    Kernel              0 percent
    Interrupt          2 percent
    Idle               98 percent
  Serial ID            f2000004f903a801
  Start time           2000-01-04 01:28:02 UTC
  Uptime               20 hours, 38 minutes, 1 seconds

```

Output Fields Slot—(For routers that support multiple routing engines) Slot number.

Current state—(For routers that support multiple routing engines) Current state of Routing Engine. It can be Master, Backup, or Disabled.

Election priority—(For routers that support multiple routing engines) Election priority for the Routing Engine. It can be Master or Backup.

Temperature—Temperature of the air flowing past the Routing Engine.

DRAM—Total DRAM available to the Routing Engine's processor.

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.

Serial ID—(For routers that support multiple routing engines) Identification number of routing engine in this slot.

Start time—Time at which the Routing Engine started running.

Uptime—How long the Routing Engine has been running.

Load averages—Routing Engine load averages for the last 1, 5, and 15 minutes.

show chassis scb

Syntax show chassis scb

Description For the M40 router only, display status information about the SCB.

Required Privilege Level view

Sample Output

```

user@host> show chassis scb
SCB status:
  Temperature:          30 Centigrade
  CPU utilization:      5 percent
  Interrupt utilization: 0 percent
  Heap utilization:     0 percent
  Buffer utilization:    2 percent
  DRAM:                 64 Mbytes
  Start time:           1998-10-28 18:35:46 UTC
  Uptime:               6 minutes, 16 seconds
  Internet Processor memory:
    IP routes:          16
    MPLS routes:        1
    SRAM banks enabled: [ 1 1 1 1 ]
    SRAM size:          4 Mbytes
    SRAM used:          256 bytes
    SRAM utilization:   0 percent

```

Output Fields Temperature—Temperature of the air passing by the SCB, in degrees Centigrade.

CPU utilization—Total percentage of CPU being used by the SCB's processor.

Interrupt utilization—Of the total CPU being used by the SCB's processor, the percentage being used for interrupts.

Heap utilization—Percentage of heap space being used by the SCB's processor.

Buffer utilization—Percentage of buffer space being used by the SCB's processor.

DRAM—Total DRAM available to the SCB's processor.

Start time—Time when the SCB started running.

Uptime—How long the SCB has been running.

Internet Processor memory—Information about the memory of the Internet Processor ASIC on the SCB:

IP routes—Number of IP routes known to the Internet Processor.

MPLS routes—Number of MPLS routes known to the Internet Processor.

SRAM banks enabled—Which SRAM banks are enabled.

SRAM size—Size of SCB SRAM in bytes.

SRAM used—Amount of SRAM used, in bytes.

SRAM utilization—Percentage of SRAM used.

show chassis sfm

Syntax show chassis sfm <detail>

Description For the M160 router only, display status information about the System Forwarding Modules (SFMs).

Options detail—(Optional) Display detailed information.

Required Privilege Level view

Sample Output

```
user@m160-host> show chassis sfm
SFM status:

```

Slot	State	Temp (C)	CPU Utilization (%) Total	Interrupt	Memory Utilization (%) DRAM (MB)	Heap	Buffer
0	Online	39	0	0	64	0	6
1	Online	43	0	0	64	0	6
2	Empty	0	0	0	0	0	0
3	Empty	0	0	0	0	0	0

```

user@host> show chassis sfm detail
Slot 0 information:
  State:                               Online
  SPP Temperature:                     38 Centigrade
  SPR Temperature:                     48 Centigrade
  Total CPU DRAM:                      64 Mbytes
  Total SRAM:                          4 Mbytes
  Start time:                          2000-01-13 17:58:11 UTC
  Uptime:                              6 hours, 26 minutes, 10 seconds
Slot 1 information:
  State:                               Online
  SPP Temperature:                     42 Centigrade
  SPR Temperature:                     50 Centigrade
  Total CPU DRAM:                      64 Mbytes
  Total SRAM:                          4 Mbytes
  Start time:                          2000-01-13 06:08:02 UTC
  Uptime:                              18 hours, 16 minutes, 19 seconds

```

Output Fields Slot—Slot number. It can be 0, 1, 2 or 3.

Temp—Temperature of air passing by the SFM, in degrees Centigrade.

CPU Utilization (%)—Information about CPU usage.

Total—Total percentage CPU being used by the SFM's processor.

Interrupt—Of the total CPU being used by the SFM's processor, the percentage being used for interrupts.

Memory Utilization (%)—Information about memory usage.

DRAM—Total DRAM available to the SFM's processor, in megabytes.

Heap—Percentage of heap space (dynamic memory) being used by the SFM's processor. If this number exceeds 80%, it might indicate a software problem (memory leak).

Buffer—Percentage of buffer space being used by the SFM's processor for buffering internal messages.

show chassis sfm detail

Syntax show chassis sfm detail

Description For routers with multiple SFMs only, display status information about the Switching and Forwarding Modules.

Required Privilege Level view

Sample Output

```
user@host> show chassis sfm detail
Slot 0 information:
  State:                               Online
  SPP Temperature:                     38 Centigrade
  SPR Temperature:                     48 Centigrade
  Total CPU DRAM:                      64 Mbytes
  Total SRAM:                          4 Mbytes
  Start time:                          2000-01-13 17:58:11 UTC
  Uptime:                               6 hours, 26 minutes, 10 seconds

Slot 1 information:
  State:                               Online
  SPP Temperature:                     42 Centigrade
  SPR Temperature:                     50 Centigrade
  Total CPU DRAM:                      64 Mbytes
  Total SRAM:                          4 Mbytes
  Start time:                          2000-01-13 06:08:02 UTC
  Uptime:                               18 hours, 16 minutes, 19 seconds
```

Output Fields Slot—Slot number. It can be 0, 1, 2 or 3.

State—Status of the Switching and Forwarding Modules. It can be Online, Offline, or Empty.

SPP Temperature—Temperature of air passing by the Switch Plane Processor card, in degrees Centigrade.

SPR Temperature—Temperature of air passing by the Switch Plane Router card, in degrees Centigrade.

Total CPU DRAM—Total amount of CPU DRAM being used by the SFM's processor.

Total SRAM—Total amount of SRAM being used by the SFM's processor.

Start time—Time this SFM became active.

Uptime—How long the SFM has been up and running.

show chassis ssb

Syntax show chassis ssb

Description For the M20 router only, display status information about the SSB.

Options none—Display information about all SSB slots.
slot—(Optional) Display information about specific SSB slot.

Required Privilege Level view

Sample Output

```
user@m20-host> show chassis ssb
SSB status:
  Failover:                0 time
  Slot 0:
    State:                  Master
    Temperature:           33 Centigrade
    CPU utilization:       0 percent
    Interrupt utilization:  0 percent
    Heap utilization:      0 percent
    Buffer utilization:     6 percent
    DRAM:                   64 Mbytes
    Start time:            1999-01-15 22:05:36 UTC
    Uptime:                 21 hours, 21 minutes, 22 seconds
  Slot 1:
    State:                  Backup
```

Output Fields Failover—Number of times the mastership has changed.

Slot—Name of slot. It can be 0 or 1.

State—Current state of SSB in this slot. Can be **Master**, **Backup**, or **Empty**.

Temperature—Temperature of the air passing by the SSB, in degrees Centigrade.

CPU utilization—Total percentage of CPU being used by the SSB's processor.

Interrupt utilization—Of the total CPU being used by the SSB's processor, the percentage being used for interrupts.

Heap utilization—Percentage of heap space being used by the SSB's processor.

Buffer utilization—Percentage of buffer space being used by the SSB's processor.

DRAM—Total DRAM available to the SSB's processor.

Start time—Time when the SSB started running.

Uptime—How long the SSB has been running.

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