

Chapter 13

Monitoring the Router Chassis

You monitor the router to ensure that the installed components are operating normally and that packets are being received and forwarded to their destination. (See Table 30.)

Table 30: Checklist for Monitoring the Router Chassis

Monitor Chassis Tasks	Command or Action
Understanding the Router Chassis on page 108	
M5 and M10 Router Chassis and Components on page 109	
M7i Router Chassis and Components on page 109	
M10i Router Chassis and Components on page 110	
M20 Router Chassis and Components on page 110	
M40 Router Chassis and Components on page 111	
M40e Router Chassis and Components on page 112	
M160 Router Chassis and Components on page 113	
M320 Router Chassis and Components on page 114	
T320 Router Chassis and Components on page 115	
T640 Routing Node and Components on page 116	
Checking the Router Chassis Component Status on page 117	
1. Display the Hardware Components Installed in the Router Chassis on page 117	show chassis hardware
2. Check the Component Environmental Status on page 118	show chassis environment
3. Check the Component Status from the Craft Interface on page 118	show chassis craft-interface
Checking Router Alarms on page 119	
1. Display Current Component Alarms on page 120	show chassis alarms show chassis craft-interface
2. Display Component Error Messages in the System Log File on page 121	show log messages
3. Display Component Errors in the Chassis Daemon Log File on page 122	show log chassisd

Monitor Chassis Tasks	Command or Action
Verifying Router Component Failure on page 122	Replace the failed component with one that you know works and check its status.
Replacing a Failed Component on page 122	<ol style="list-style-type: none">1. Locate the component serial number ID label.2. Obtain a Return Material Authorization (RMA) from JTAC.3. Pack the component and ship it. See “Return the Failed Component” on page 86, or follow the procedures in the appropriate router hardware guide.

Understanding the Router Chassis

Purpose	Monitor the router chassis to ensure that the installed components are operating normally and that packets are being forwarded to their destination.
What Is a Chassis	The router chassis is a rigid sheet-metal structure that houses all of the router hardware components. For more information about the router chassis, see the appropriate router hardware guide.

Figure 24 shows the front and rear of the M5 and M10 Internet router chassis and the installed components.

Figure 24: M5 and M10 Router Chassis and Components

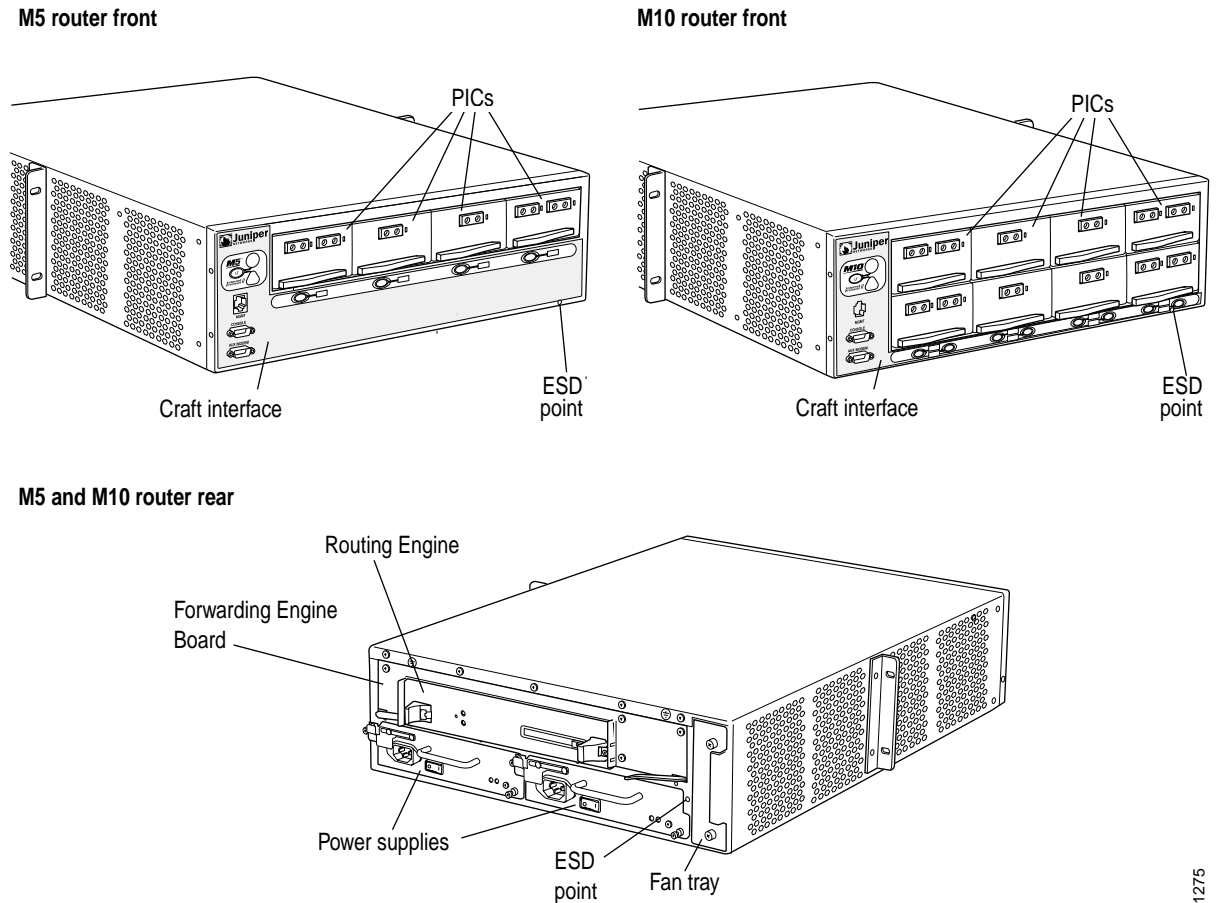


Figure 25 shows the front and rear of the M7i Internet router chassis and the installed components.

Figure 25: M7i Router Chassis and Components

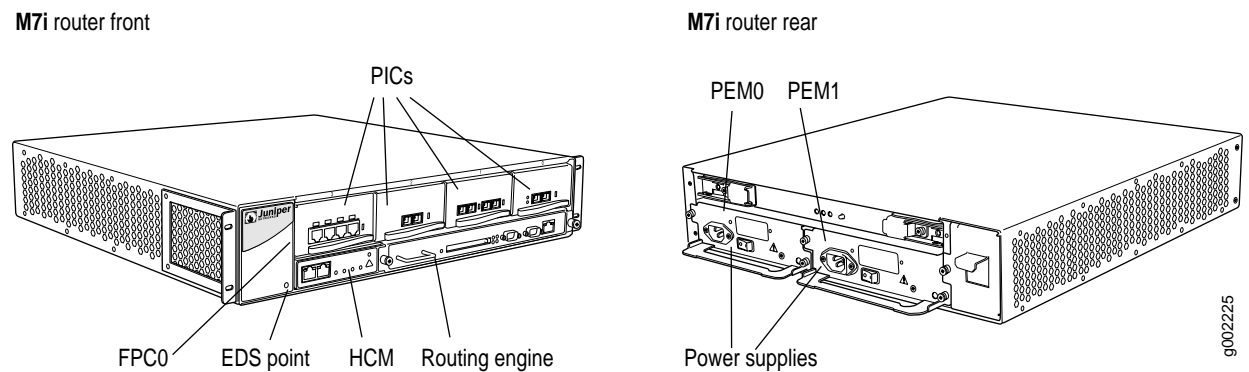
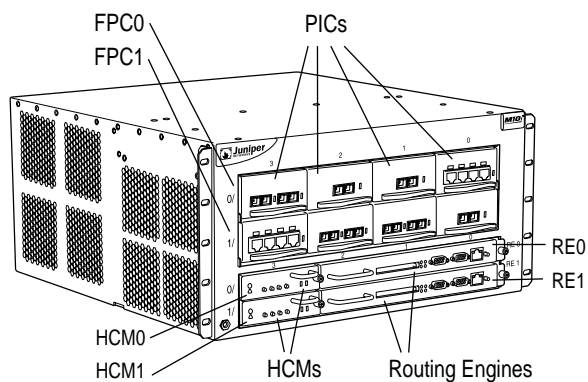


Figure 26 shows the front and rear of the M10i Internet router chassis and the installed components.

Figure 26: M10i Router Chassis and Components

M10i router front



M10i router rear

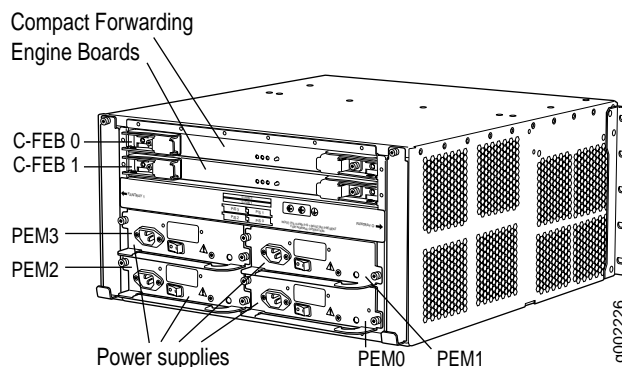
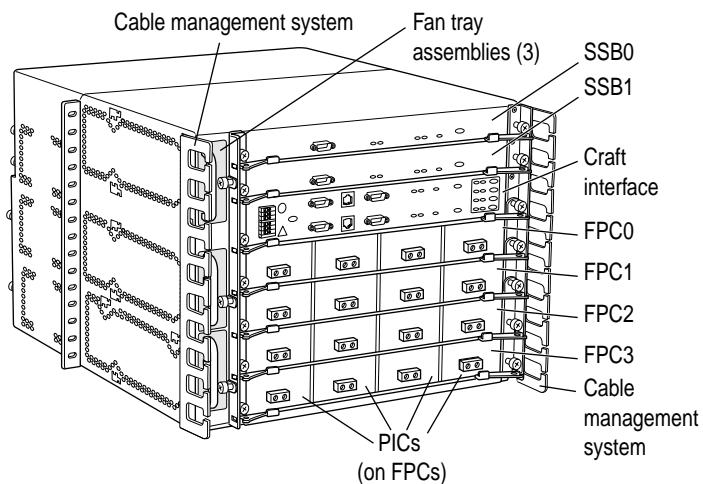


Figure 27 shows the front and rear of the M20 Internet router chassis and the installed components.

Figure 27: M20 Router Chassis and Components

Front



Rear

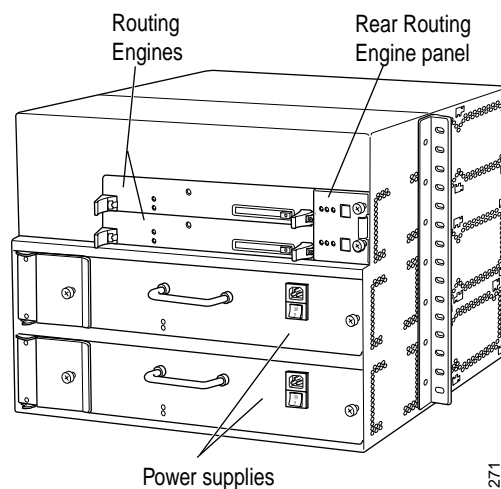


Figure 28 shows the front and rear of the M40 Internet router chassis and the installed components.

Figure 28: M40 Router Chassis and Components

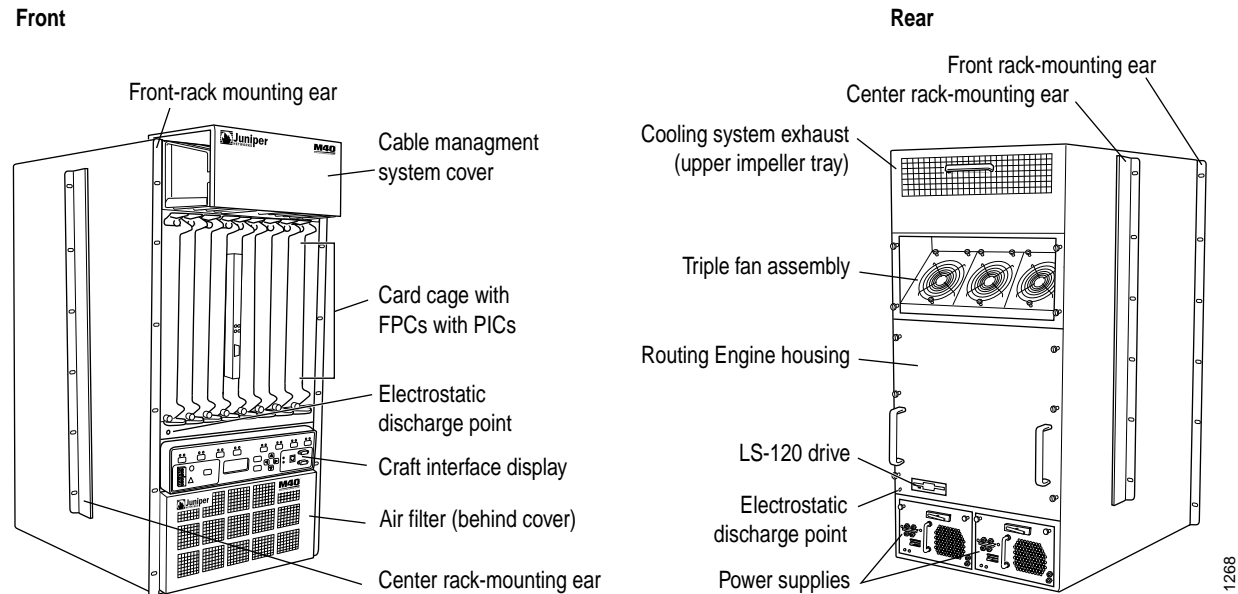
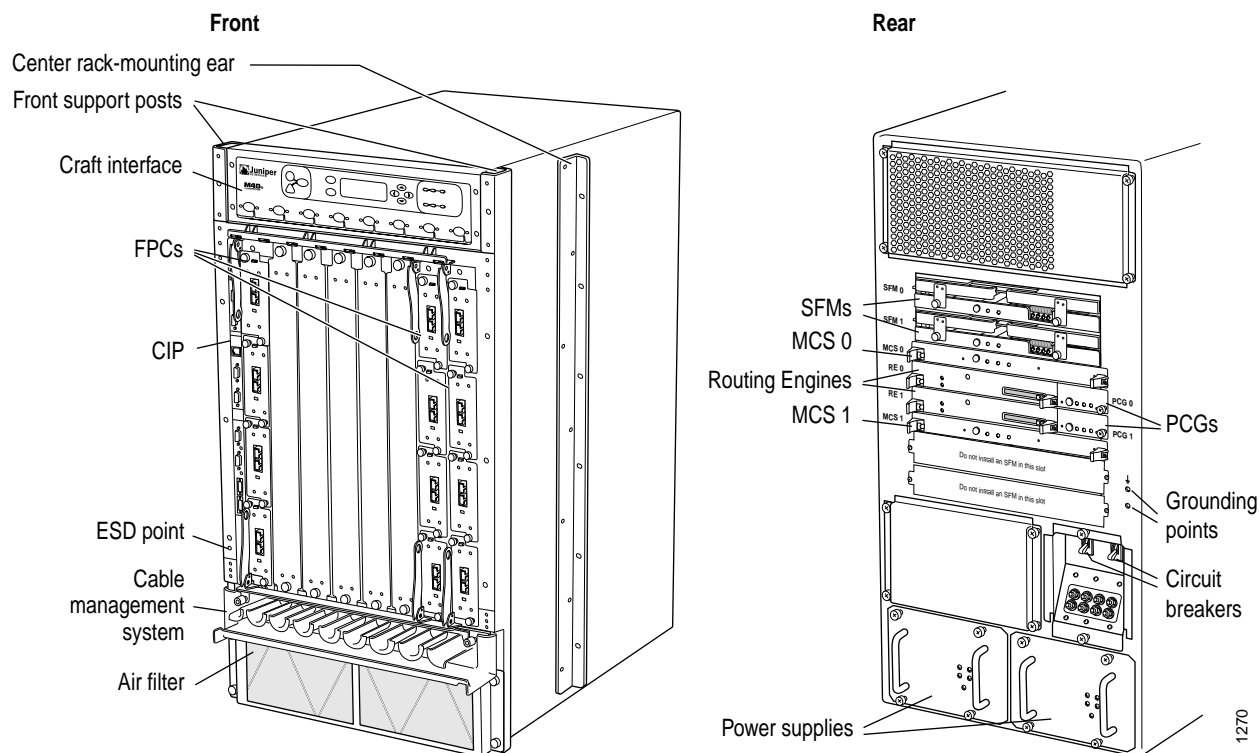


Figure 29 shows the front and rear of the M40e Internet router chassis and the installed components.

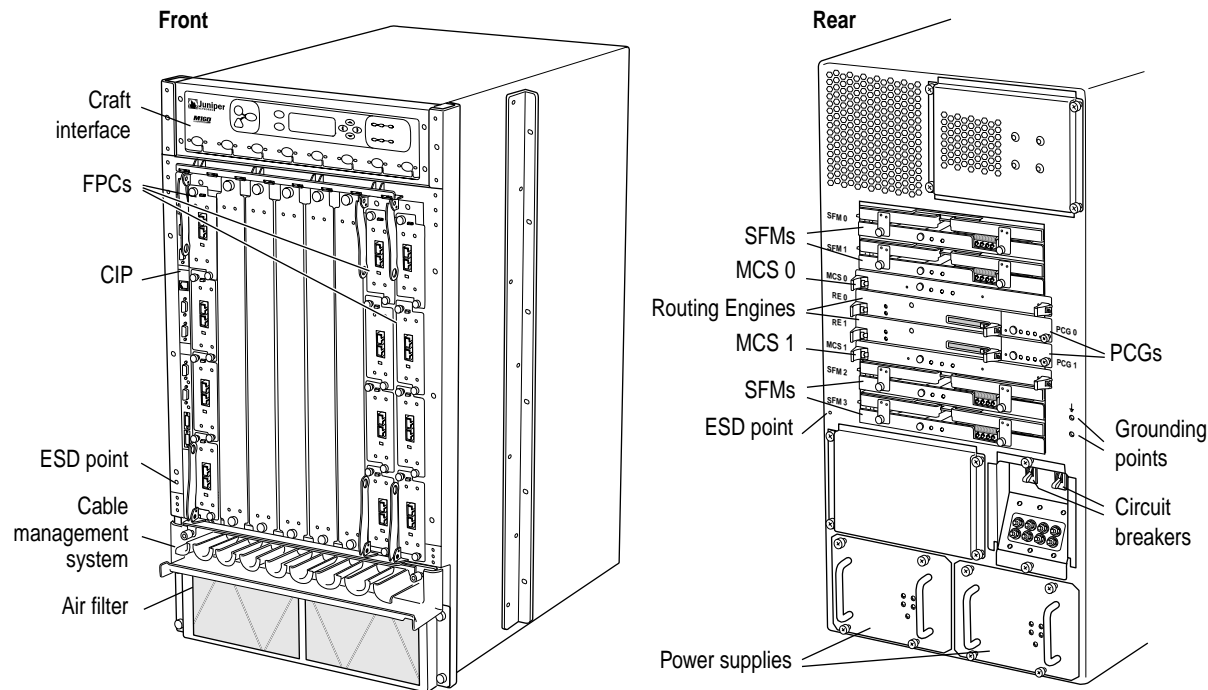
Figure 29: M40e Router Chassis and Components



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Figure 30 shows the front and rear of the M160 Internet router chassis and the installed components.

Figure 30: M160 Router Chassis and Components

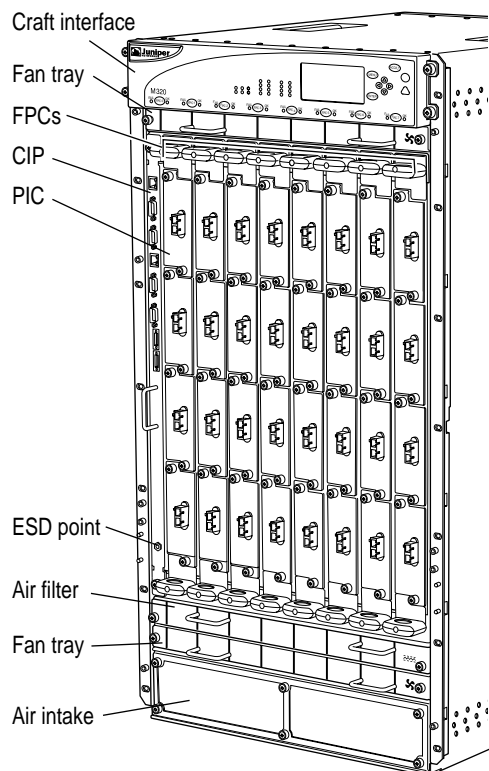


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Figure 26 shows the front and rear of the M320 Internet router chassis and the installed components.

Figure 31: M320 Router Chassis and Components

M320 router front



M320 router rear

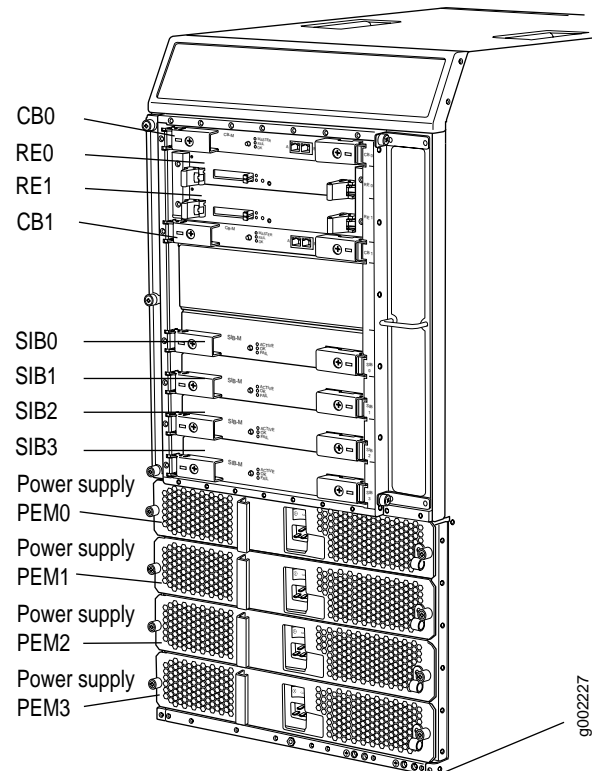


Figure 32 shows the front and rear of the T320 Internet router chassis and installed components.

Figure 32: T320 Router Chassis and Components

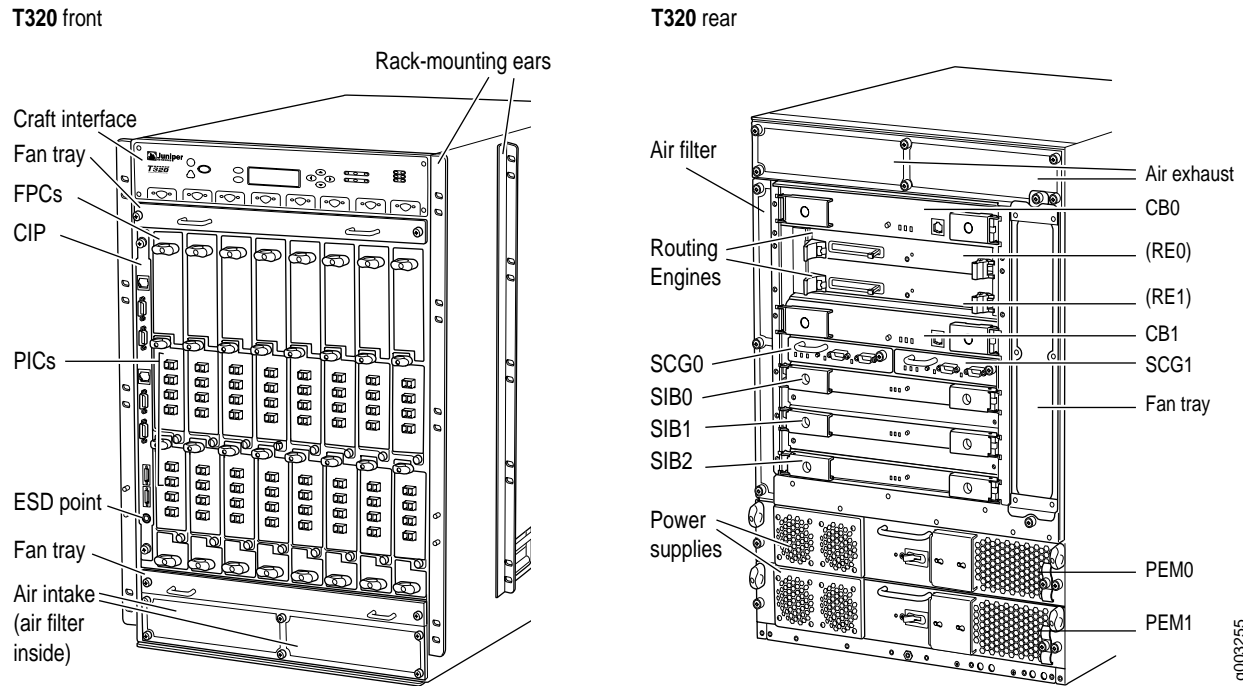
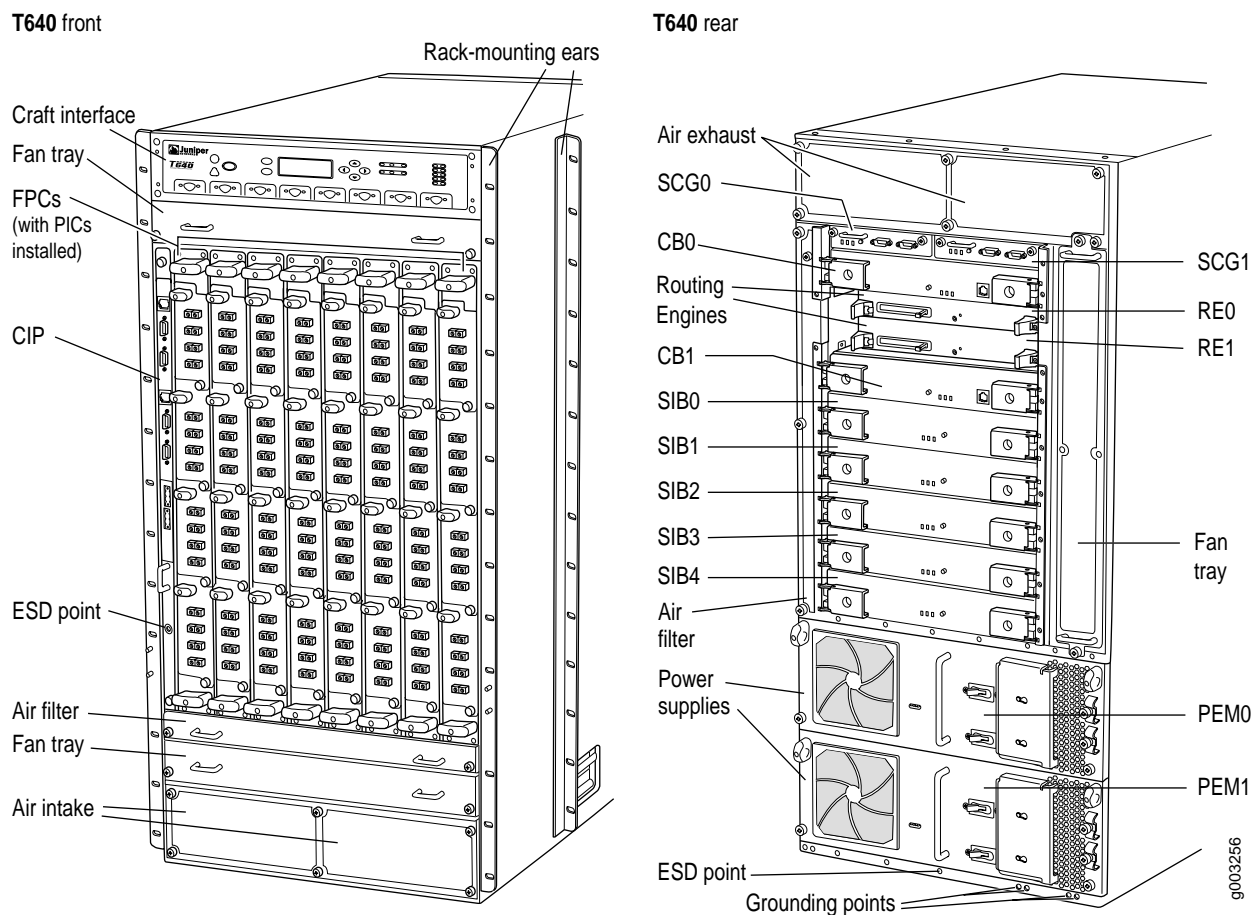


Figure 33 shows the front and rear of the T640 Internet routing node and the frinstalled components.

Figure 33: T640 Routing Node and Components



See Also M5 and M10 Internet Router Overview on page 3

M7i Internet Router Overview on page 7

M10i Internet Router Overview on page 11

M20 Internet Router Overview on page 15

M40 Internet Router Overview on page 19

M40e Internet Router Overview on page 23

M160 Internet Router Overview on page 27

M320 Internet Router Overview on page 31

“T320 Internet Router Overview” on page 35

“T640 Internet Routing Node Overview” on page 39

Checking the Router Chassis Component Status

Steps To Take To check the status of the components installed in the router chassis, follow these steps:

1. Display the Hardware Components Installed in the Router Chassis on page 117
2. Check the Component Environmental Status on page 118
3. Check the Component Status from the Craft Interface on page 118

Step 1: Display the Hardware Components Installed in the Router Chassis

Action To display a list of the hardware components installed in the router chassis, use the following JUNOS command-line interface (CLI) operational mode command:

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

Sample Output

```
m160@host> show chassis hardware
```

Item	Version	Part number	Serial number	Description
Chassis		101	M160	
Midplane	REV 02	710-001245	S/N AB4107	
FPM CMB	REV 01	710-001642	S/N AA2911	
FPM Display	REV 01	710-001647	S/N AA2999	
CIP	REV 02	710-001593	S/N AA9563	
PEM 0	Rev 01	740-001243	S/N KJ35769	DC
PEM 1	Rev 01	740-001243	S/N KJ35765	DC
PCG 0	REV 01	710-001568	S/N AA9794	
PCG 1	REV 01	710-001568	S/N AA9804	
Host 1		da000004f8d57001	Present	
MCS 1	REV 03	710-001226	S/N AA9777	
SFM 0 SPP	REV 04	710-001228	S/N AA2975	
SFM 0 SPR	REV 02	710-001224	S/N AA9838	Internet Processor I
SFM 1 SPP	REV 04	710-001228	S/N AA2860	
SFM 1 SPR	REV 01	710-001224	S/N AB0139	Internet Processor I
FPC 0	REV 03	710-001255	S/N AA9806	FPC Type 1
CPU	REV 02	710-001217	S/N AA9590	
PIC 1	REV 05	750-000616	S/N AA1527	1x OC-12 ATM, MM
PIC 2	REV 05	750-000616	S/N AA1535	1x OC-12 ATM, MM
PIC 3	REV 01	750-000616	S/N AA1519	1x OC-12 ATM, MM
FPC 1	REV 02	710-001611	S/N AA9523	FPC Type 2
CPU	REV 02	710-001217	S/N AA9571	
PIC 0	REV 03	750-001900	S/N AA9626	1x STM-16 SDH, SMIR
PIC 1	REV 01	710-002381	S/N AD3633	2x G/E, 1000 BASE-SX
FPC 2				FPC Type OC192
CPU	REV 03	710-001217	S/N AB3329	
PIC 0	REV 01			1x OC-192 SM SR-2

What It Means The command output displays a list of the components installed in the M160 router chassis, including the name, revision level, part number, serial number, and a brief description of the component. From this output, you can determine which components to maintain and monitor to ensure optimum router operation. The command output is similar for other routers.

Step 2: Check the Component Environmental Status

Action To check the environmental status of the router component, use the following CLI command:

```
user@host> show chassis environment
```

Sample Output

```
m20@host> show chassis environment
Class Item          Status  Measurement
Power Power Supply A    OK
      Power Supply B    OK
Temp  FPC Slot 1      OK      30 degrees C / 86 degrees F
      FPC Slot 2      OK      29 degrees C / 84 degrees F
      Power Supply A    OK      23 degrees C / 73 degrees F
      Power Supply B    OK      21 degrees C / 69 degrees F
      SSB Slot 0      OK      30 degrees C / 86 degrees F
      Backplane      OK      24 degrees C / 75 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
```

What It Means The command output lists the components installed in an M20 router chassis, including the category or class, component name, operational status, and temperature or speed measurement. Use this command to get a quick status of each component installed in the router chassis. You can also use the `show chassis component-name` CLI command to get more detailed status information on certain components for isolating problems. For an example, see “Display Detailed Component Environmental Information” on page 59.

Step 3: Check the Component Status from the Craft Interface

Action To check the router operation status from the craft interface, use the following CLI command:

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

Sample Output

```
m160@host> show chassis craft-interface
FPM Display contents:
+-----+
|myrouter|
|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  *   * *
```

- What It Means**
- The command output displays the router system operation status for an M160 router, including the alarm indicators, the information displayed on the craft interface LCD display, and the component LEDs. An asterisk (*) indicates that the component is operating normally. A dot is merely a placeholder, and indicates nothing. For example, the asterisks in the Host Front Panel System LEDs section indicate that the Routing Engine in slot 1 is operating normally and that it is the master. The dots in the Front Panel Alarm Indicators section indicate that there are no system alarms.
- Alternative Actions**
- Physically look at the router craft interface. The router name in the LCD display helps verify that you have located the correct router to monitor. For more information about the craft interface, see “Monitoring the Craft Interface” on page 197 or the appropriate router hardware guide.

Checking Router Alarms

Chassis alarms indicate a problem with a chassis component, such as the Flexible PIC Concentrators (FPCs), cooling system, power supplies, and other components. For a listing of the chassis alarms for a particular router, see the appropriate router hardware guide.

For information about conditions that trigger router component alarms, see:

- “M5 or M10 Router Chassis Component Alarm Conditions” on page 61
- “M7i or M10i Router Chassis Component Alarm Conditions” on page 63
- “M20 Router Chassis Component Alarm Conditions” on page 65
- “M40 Router Chassis Component Alarm Conditions” on page 68
- “M40e or M160 Router Chassis Component Alarm Conditions” on page 71
- “M320 Router Chassis Component Alarm Conditions” on page 74
- “T320 Router Chassis Component Alarm Conditions” on page 77
- “T640 Routing Node Chassis Component Alarm Conditions” on page 80

Steps To Take To check router system alarms, follow these steps:

1. Display Current Component Alarms on page 120
2. Display Component Error Messages in the System Log File on page 121

Step 1: Display Current Component Alarms

Action To display the active chassis alarms, use the following CLI command:

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

Sample Output user@host> **show chassis alarms**
5 alarms are currently active

Alarm time	Class Description
2002-04-16 15:09:01	PDT Major PIC 2/2 failed to initialize
2002-04-16 15:08:40	PDT Major Power Supply A 2.5 volt output failed
2002-04-16 15:08:40	PDT Major Power Supply A 5 volt output failed
2002-04-16 15:08:40	PDT Major Power Supply A 3.3 volt output failed
2002-04-16 15:08:40	PDT Major Power Supply A fan failed

What It Means The command output displays the number of alarms currently active, the time at which the alarm began, the severity level, and an alarm description. Note the date and time of an alarm so that you can correlate it with error messages in the messages system log file. This sample command output is for a router from which the lower fan tray and the power supply have been removed, and the management Ethernet interface disconnected. The craft interface display, in alarm mode, displays a short description of the alarm. The show chassis alarms command output displays a longer description of the alarm.

Alternative Actions To view active router alarms, you can physically look at the craft interface or use the show chassis craft-interface command.

The show chassis craft-interface command displays the most severe alarm first, the alarm indicator status, and the number of active alarms. You cannot scroll through the alarms (if there are more than two) at the command line.

```
user@host> show chassis craft-interface
Red alarm:  LED on, relay on
Yellow alarm: LED off, relay off
Host OK LED:  On
Host fail LED: Off
```

```
FPCs  0 1 2 3
```

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

LCD screen:

```
+-----+
|myrouter      |
|5 Alarms active |
|[R: PIC 2/2 FAILED |
|[R: Supply A 2v FAIL |
+-----+
```

When a red or yellow alarm occurs, the craft interface goes into alarm mode. Alarm mode preempts idle mode, displaying a message to alert you of serious alarm conditions. In alarm mode, the screen displays the following information:

First line—Name of the router.

Second line—Number of alarms active on the router.

Third and fourth lines—Individual alarms, with the most severe condition shown first. Each line indicates whether the alarm is red (R) or yellow (Y).

For more information about the craft interface, see “Monitoring the Craft Interface” on page 197 or the appropriate router hardware guide.

Step 2: Display Component Error Messages in the System Log File

Action To display component error messages in the messages system log file, use the following JUNOS CLI operational mode command:

```
user@host> show log messages
```

Sample Output

```
user@host> show log messages
[...Output truncated...]
Apr 17 11:12:45 tylenol scb CM: ALARM SET: (Major) Power Supply B fan failed
Apr 17 11:12:46 tylenol scb CM: ALARM CLEAR: Power Supply B fan failed
Apr 17 11:12:46 tylenol alarnd[590]: Alarm cleared: Pwr supply color=RED, class=CHASSIS, reason=Power Supply B fan failed
Apr 17 11:13:09 tylenol alarnd[590]: Alarm set: Pwr supply color=RED, class=CHASSIS, reason=Power Supply B fan failed
Apr 17 11:13:09 tylenol scb CM: ALARM SET: (Major) Power Supply B fan failed
Apr 17 11:13:10 tylenol alarnd[590]: Alarm cleared: Pwr supply color=RED, class=CHASSIS, reason=Power Supply B fan failed
Apr 17 11:13:10 tylenol scb CM: ALARM CLEAR: Power Supply B fan failed
[...Output truncated...]
```

What It Means The messages system log file records the time the failure or event occurred, the severity level, a code, and a message description. You can use the date and time to browse the messages log file, or you can use the `show log messages | match component-name` command to view error messages that are specific to a particular component. For example, the command output shows the common power supply error messages logged from the router. In the filter expression, if there is a space in the component name, enclose the component name in quotation marks, for example `| match "power supply"`.

Use system log file information to isolate a component problem and to let the Juniper Networks Technical Assistance Center (JTAC) know what error messages were generated at the time of the event. For more information about system log messages, see the *JUNOS System Log Messages Reference*.

Step 3: Display Component Errors in the Chassis Daemon Log File

Action To display component error messages in the chassis daemon (chassisd) log file, use the following CLI command:

```
user@host> show log chassisd
```

Sample Output

```
user@host> show log chassisd
Jun 11 20:45:08 *** inventory change ***
Jun 11 20:45:08 CIP set alarm 0x1
Jun 11 20:45:08 alarm op fru 34 op 1 reason 1
Jun 11 20:45:08 send: red alarm set, class 100 obj 112 reason 1
Jun 11 20:45:08 CIP removed
```

What It Means The chassisd database provides the date, time, and a component status message. The chassisd database is dynamic. It is initialized at router startup and is maintained when components are added or removed. The command output displays error messages that are generated when a Connector Interface Panel (CIP) fails or is removed.

Verifying Router Component Failure



CAUTION: Before performing a swap test, always check for bent pins in the midplane and check the component for stuck pins in the connector. Pins stuck in the component connector can damage other good slots during a swap test.

Action To verify router component failure, perform a swap test on a component as follows:

1. Replace a failed component with one that you know works.
2. Verify the component status by using the appropriate `show chassis component-name` command. If the replaced component works, the original component is defective.
3. If the replaced component does not work, remove it and check the component midplane connector for bent pins. If the replaced component still does not work, contact JTAC, and see “Return the Failed Component” on page 86.

Replacing a Failed Component

Action To return the router chassis, you need to know the chassis serial number. To display the midplane serial number, use the following CLI command:

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

Sample Output

```
m160@host> show chassis hardware
Item      Version Part number Serial number Description
Chassis           101      M160
Midplane    REV 02  710-001245 S/N AB4107
FPM CMB       REV 01  710-001642 S/N AA2911
FPM Display    REV 01  710-001647 S/N AA2999
[...Output truncated...]
```


What It Means The chassis serial number is AB4107.

To return a chassis, see “Return the Failed Component” on page 86. See also the appropriate router hardware guide.

