

M40e and M160 CIP Installation Instructions

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This document describes how to remove and replace the Connector Interface Panel (CIP) on a Juniper Networks M40e Internet router or M160 Internet router.

For additional installation and configuration information, see the following documentation:

- *M40e Internet Router Hardware Guide*
- *M160 Internet Router Hardware Installation Guide*
- *JUNOS Internet Software Operational Mode Command Reference*
- JUNOS Internet software configuration guides

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CIP Description

The Connector Interface Panel (CIP) is located at the left side of the FPC card cage. Figure 1 shows an M40e router, and the location of the CIP and other components is the same on the M160 router. The CIP houses interface connectors and alarm relay contacts, shown in Figure 2 and described in the following sections:

- Routing Engine Interface Ports on page 3
- BITS Input Ports on page 4
- Alarm Relay Contacts on page 5

Figure 1: Front of Chassis

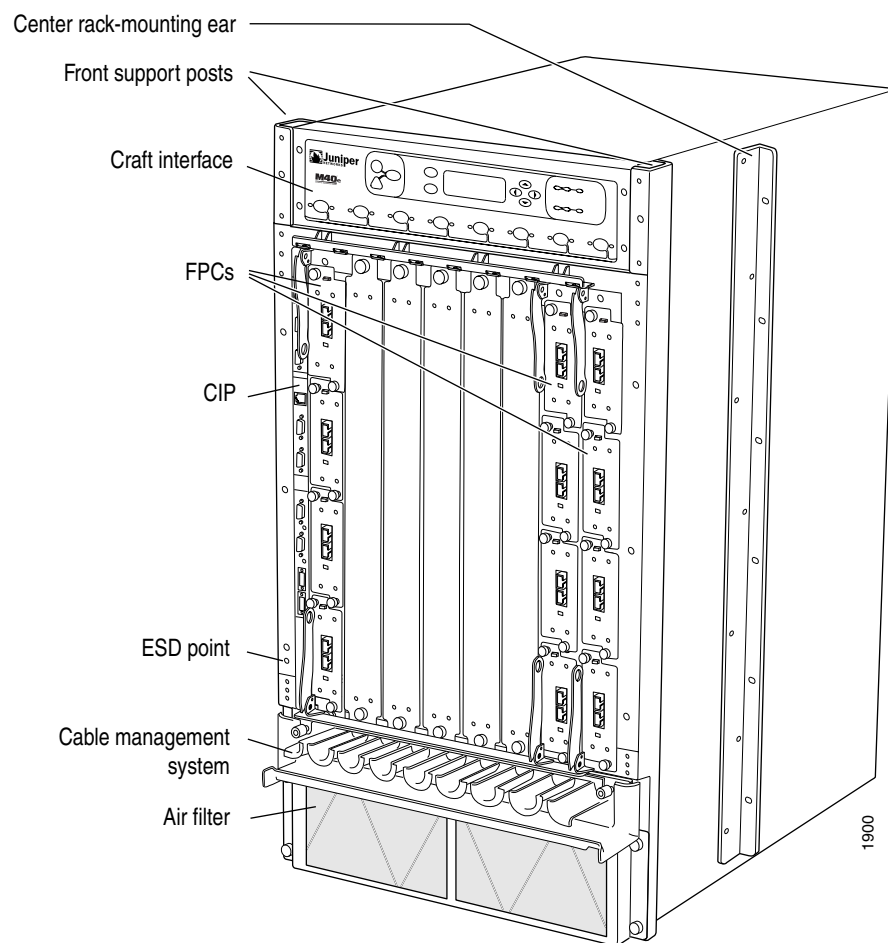
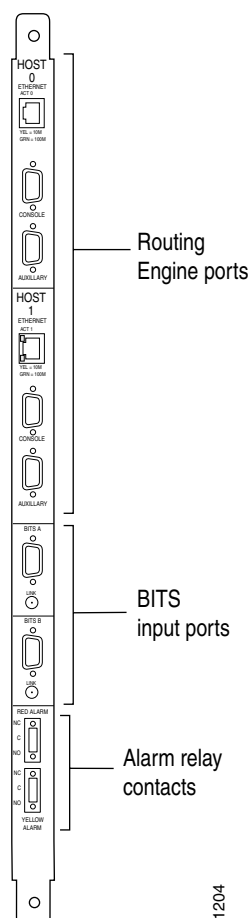


Figure 2: Connector Interface Panel

Routing Engine Interface Ports

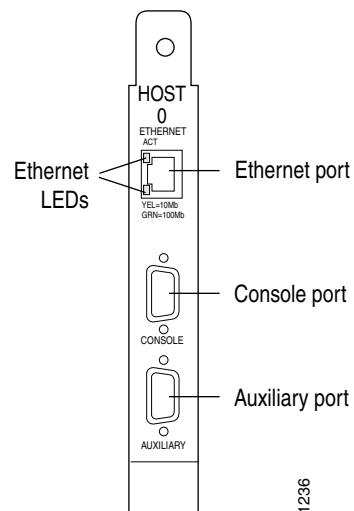
On the upper half of the CIP are two sets of ports for connecting the Routing Engines to one or more external devices on which system operators can issue JUNOS command-line interface (CLI) commands to manage the router. The set of ports labeled **HOST0** connects to the Routing Engine in the slot labeled **RE0**, and the set labeled **HOST1** connects to the Routing Engine in the slot labeled **RE1**.

The ports in each set are labeled as follows:

- **ETHERNET**—Connects the Routing Engine through an Ethernet connection to a management LAN (or any other device that plugs into an Ethernet connection) for out-of-band management. The port uses an autosensing RJ-45 connector to support both 10- and 100-Mbps connections. Two small LEDs on the left edge of the port indicate the connection in use: the amber LED lights for a 10-Mbps connection and the green LED lights for a 100-Mbps connection.
- **CONSOLE**—Connects the Routing Engine to a system console through an RS-232 (EIA-232) serial cable.
- **AUXILIARY**—Connects the Routing Engine to a laptop, modem, or other auxiliary device through an RS-232 (EIA-232) serial cable.

Figure 3 shows the ports that connect to the Routing Engine installed in slot RE0. The arrangement of ports for the Routing Engine installed in slot RE1 is the same.

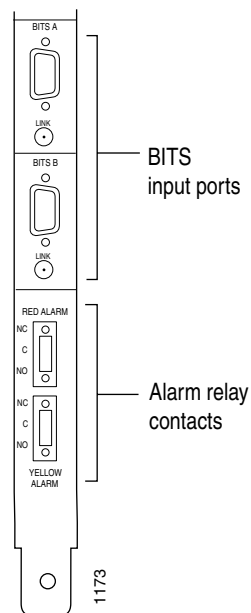
Figure 3: Interface Ports for Routing Engine 0



BITS Input Ports

In the center of the CIP are two ports labeled **BITS A** and **BITS B** (see Figure 4). The router does not support BITS input, so these ports do not function.

Figure 4: Alarm Relay Contacts and BITS Input Ports



Alarm Relay Contacts

At the bottom of the CIP are two relay contacts for connecting the router to external alarm-reporting devices, the upper labeled **RED ALARM** and the lower **YELLOW ALARM** (see Figure 4). A system condition that causes either the red or yellow alarm LED to light on the craft interface also activates the corresponding alarm relay contact. For instructions for attaching a device to the alarm relay contacts, see “Replace Alarm Relay Wire” on page 11.

Tools and Parts Required

To replace the CIP, you need the following tools and parts:

- Phillips (+) screwdriver, numbers 1 and 2
- ESD grounding wrist strap
- Electrostatic bag or antistatic mat
- 2.5 mm flat-blade (–) screwdriver, for alarm relay terminal block
- Wire cutters, if attaching to an external alarm-reporting device

Replace the CIP

The CIP is located to the left side of the FPC card cage, as shown in Figure 1. It weighs about 6.5 lb (3 kg). The CIP is field-replaceable, but you must power down the router before removing or installing it.

To replace the CIP, perform the following procedures:

- Remove the CIP on page 5
- Install the CIP on page 7

Remove the CIP

To remove the CIP, follow this procedure:

1. Place an electrostatic bag or antistatic mat on a flat, stable surface to receive the CIP.
2. Attach an ESD strap to your bare wrist and connect the strap to one of the ESD points on the chassis.
3. On the console or other management device connected to each Routing Engine, enter CLI operational mode and issue the following command to shut down the router software. For more information, see the *JUNOS Internet Software Operational Mode Command Reference*.

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

Wait to continue until a message appears on the console confirming that the operating system has halted.

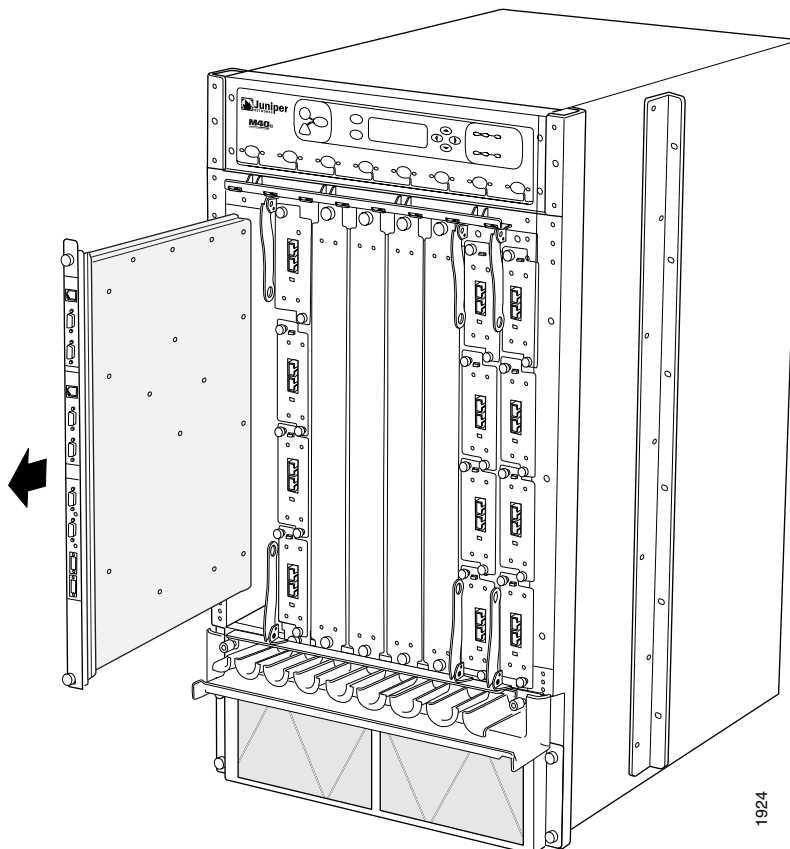
4. Power down the router:
 - On an M160 router or a DC-powered M40e router, flip both circuit breaker switches on the circuit breaker box to the **OFF (O)** position.
 - On an AC-powered M40e router, flip the circuit breaker switch on both power supply faceplates to the **OFF (O)** position.
5. Disconnect any external devices connected to the CIP. For more information, see “Replace Cables and Wire Connecting to the CIP” on page 8.
6. Using a Phillips screwdriver, loosen and remove the screws at the top and bottom of the CIP faceplate.
7. Grasp the CIP and slide it out of the chassis (see Figure 5, which shows an M40e router). Place it in the electrostatic bag or on the antistatic mat prepared in Step 1.



Caution

Be sure to slide the CIP straight out of the slot to avoid damaging the connecting pins on the front of the midplane.

Figure 5: Remove the CIP



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Install the CIP

To install the CIP, follow this procedure:

1. Verify that the router is powered down.
2. Carefully insert the rear of the CIP into the guides at the top and bottom of the CIP slot located to the left of the FPC card cage (see Figure 6, which shows an M40e router).



Note

The components on the CIP are on the left side of the board, unlike the components of an FPC, which are on the right side. Verify that the components are on the left before inserting the CIP.

3. Slide the CIP into the chassis until it contacts the midplane.

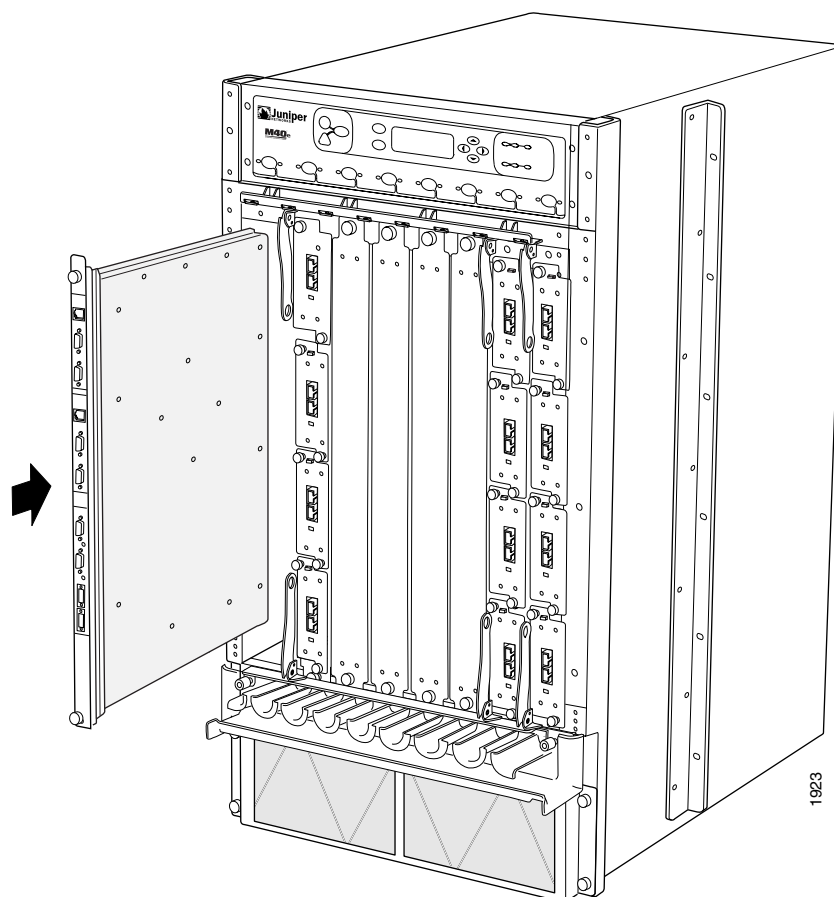


Caution

Be sure to slide the CIP straight into the slot to avoid damaging the connecting pins on the front of the midplane.

4. Using a Phillips screwdriver, tighten the screws on the top and bottom of the CIP faceplate.
5. Reattach any external devices connected to the CIP. For instructions, see “Replace Cables and Wire Connecting to the CIP” on page 8.
6. Turn on the power to the management device that is connected to the Routing Engine through the CIP port labeled **CONSOLE**, **AUXILIARY**, or **ETHERNET**.
7. Flip one circuit breaker switch to the **ON** (|) position (on the faceplate of one power supply on an AC-powered M40e router or on the circuit breaker box of an M160 router or DC-powered M40e router). Observe the LEDs on the power supply faceplate:
 - On a properly functioning AC power supply, the green **OUTPUT OK** LED blinks rapidly for a short time, then lights steadily.
 - On a properly functioning DC power supply, the green **CB ON** LED lights steadily, the blue **OUTPUT OK** LED blinks for a short time, then lights steadily, and the amber **CB OFF** LED does not light.
8. Flip the second circuit breaker switch and observe the LEDs on the second power supply faceplate. They should light as described in Step 7.
9. On the management device that was attached in Step 5, observe the trace of the startup sequence to confirm correct startup. If you can issue CLI commands over the connection when the startup is complete, the CIP is installed correctly.

If you have connected to a Routing Engine through the port labeled **ETHERNET**, the flashing of the activity indicator LEDs (either the amber 10 Mbps or the green 100 Mbps LED) indicates that the CIP is connected properly and the Routing Engine is active.

Figure 6: Install the CIP

Replace Cables and Wire Connecting to the CIP

Table 1 lists the specifications for the cables that connect to management ports and the wires that connect to the alarm relay contacts.

Table 1: Routing Engine Interface Cable and Wire Specifications

Cable Type	Cable Specification	Cable Supplied	Maximum Length	Router Receptacle
Routing Engine console or auxiliary interface	RS-232 (EIA-232) serial	One 6-ft (1.83-m) length with DB-9/DB-9 connectors	6 ft (1.83 m)	DB-9 male
Routing Engine Ethernet interface	Category 5 cable or equivalent suitable for 100BaseT operation	One 15-ft (4.92-m) length with RJ-45/RJ-45 connectors	328 ft (100 m)	RJ-45 autosensing
Alarm relay contacts	24-AWG to 12-AWG (0.20 to 3.33 mm ²) wire	No	None	—

To replace the cables that connect external management devices to the CIP, perform the procedures described in the following sections:

- Replace the Management Ethernet Cable on page 9
- Replace the Console or Auxiliary Cable on page 10
- Replace Alarm Relay Wire on page 11

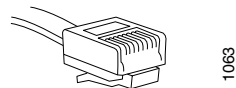
Replace the Management Ethernet Cable

The cable that plugs into the port labeled **ETHERNET** on the CIP connects the Routing Engine to a network for out-of-band management. The port accepts a cable with RJ-45/RJ-45 connectors, which is provided with the router as described in Table 1.

To replace the cable connecting to a management network, follow this procedure:

1. If a cable is already installed in the **ETHERNET** port, perform the following steps:
 - a. Depress the tab on the connector (which is shown in Figure 7) and pull the connector straight out of the port. Figure 3 shows the ports that connect to the Routing Engine installed in slot **RE0**. The arrangement of ports for the Routing Engine in slot **RE1** is the same.
 - b. Repeat to disconnect the cable from the network device.
2. Plug one end of the replacement Ethernet cable into the **ETHERNET** port for the appropriate host module. See Figure 3.
3. Plug the other end of the cable into the network device.

Figure 7: Routing Engine Ethernet Cable Connector



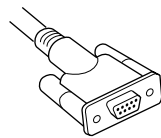
Replace the Console or Auxiliary Cable

The cable that plugs into the port labeled **CONSOLE** on the CIP connects the Routing Engine to a system console, whereas the cable that plugs into the port labeled **AUXILIARY** connects the Routing Engine to a laptop, modem, or other auxiliary device. Both ports accept an RS-232 (EIA-232) serial cable with DB-9/DB-9 connectors. One such cable is provided with the router, as detailed in Table 1. If you want to connect a device to both ports, you must supply another cable.

To replace the cable connecting to a management console or auxiliary device, follow this procedure:

1. If a cable is already installed in the **CONSOLE** or **AUXILIARY** port, perform the following steps:
 - a. Turn off the power to the console or auxiliary device.
 - b. Unscrew the screws securing the cable connector to the port, using a 2.5-mm flat-blade screwdriver if necessary. Figure 8 shows the cable connector.
 - c. Pull the cable connector straight out of the port.
 - d. Disconnect the cable from the console or auxiliary device.
2. Plug the female end of the replacement serial cable into the appropriate **CONSOLE** or **AUXILIARY** port. Figure 3 shows the ports that connect to the Routing Engine installed in slot **RE0**. The arrangement of ports for the Routing Engine in slot **RE1** is the same.
3. Tighten the screws on the connector.
4. Power on the auxiliary or console device.

Figure 8: Console and Auxiliary Serial Port Connector



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Replace Alarm Relay Wire

The relay contacts on the CIP labeled **RED ALARM** and **YELLOW ALARM** connect to external alarm devices that report conditions that trigger a red or yellow alarm (see Figure 4). The terminal blocks that plug into the alarm relay contacts are supplied with the router. They accept wire of any gauge between 24-AWG and 12-AWG (0.20 and 3.33 mm²), which is not provided. Use the gauge of wire appropriate for the external device that you are connecting to the terminal block.

To replace the wires connecting to an alarm-reporting device, follow this procedure:

1. Prepare the required length of replacement wire with gauge between 24-AWG and 12-AWG (0.20 and 3.33 mm²).
2. Select the appropriate relay contact—the upper contact for a device that reports high priority (red) alarms, or the lower contact for the device that reports lower priority (yellow) alarms.
3. Disconnect the existing wire at the external device.
4. Using a 2.5 mm flat-blade screwdriver, loosen the small screws on the face of the terminal block and remove the block from the relay contact.
5. Using a 2.5 mm flat-blade screwdriver, loosen the small screws on the side of the terminal block. Remove existing wires from the slots in the front of the block and insert replacement wires. Tighten the screws to secure the wire.
6. Orient the terminal block according to the labels to the left of the chosen relay contact (NC means “normally closed,” C means “common,” and NO means “normally open”). See Figure 4.
7. Plug the terminal block into the relay contact and use a 2.5 mm flat-blade screwdriver to tighten the screws on the face of the block.
8. Attach the other end of the replacement wire to the external device.

Contact Juniper Networks

For technical support, contact Juniper Networks at support@juniper.net. If you are reporting a software problem, please issue the following command from the CLI before contacting support:

```
user@host> request support information | save filename
```

For documentation issues, contact Juniper Networks at tech-doc@juniper.net.

To provide a core file to Juniper Networks for analysis, **gzip** the file, rename the file to include your company name, copy it to [ftp.juniper.net:pub/incoming](ftp://ftp.juniper.net/pub/incoming), and then send the filename, along with software version information (the output of the **show version** command) and the configuration, to support@juniper.net.

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