# Cisco Firepower 2100 Series Hardware Installation Guide

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**CHAPTER 1**

# Overview

## Features

The Cisco Firepower 2100 series security appliance is a standalone modular security services platform. The series includes the Firepower 2110, 2120, 2130, and 2140. See Product ID Numbers, on page 30 for a list of the product IDs (PIDs) associated with the 2100 series.

The Firepower 2100 supports Cisco Firepower Threat Defense and Cisco ASA software. The Firepower 2100 is certified for the following security standards on ASA 9.8.*x* and FTD 6.2.*x*.

- Common Criteria (CC)
- Federal Information Processing Standards (FIPS)
- Department of Defense Information Network Approved Product List (DoDIN APL)
- US Government Compliance for IPv6 (USGv6)

**Note** The Firepower 2130 is Network Equipment Building Systems (NEBS)-certified.

*Figure 1: Firepower 2110/2120 and Firepower 2130/2140*



See the Cisco Interactive Library for a video that displays the features and components of the Firepower 2100.

The following table lists the features for the Firepower 2100 series.

*Table 1: Firepower 2100 Series Features*

| Feature | 2110 | 2120 | 2130 | 2140 |
|---|---|---|---|---|
| Form factor | 1 RU<br>Fits standard 19-in. (48.3-cm) square-hole rack. | | | |
| Rack mount | Yes<br>Two 2-post mount brackets<br>(Optional) 4-post EIA-310-D rack | | Yes<br>4-post EIA-310-D rack<br>(Optional) Two 2--post mount brackets | |
| Airflow | Front to rear<br>Cold aisle to hot aisle | | | |
| Intel x86 processor | Single 4-core at 1.8 G | Single 6-core at 1.9 G | Single 8-core at 2.0 G | Single 16-core at 1.3 G |
| Intel x86 memory | 16 GB DDR4 DRAM | | 32 GB DDR4 DRAM | 64 GB DDR4 DRAM |
| Cavium Network Processor Unit (NPU) | Single 6-core at 1.2 G | Single 8-core at 1.2 G | Single 12-core at 1.2 G | Single 16-core at 1.8 G |
| Cavium NPU RAM | 8 G | | 16G | |
| Flash | 8 G (nominal) | | | |
| Maximum number of interfaces | 16 | | 24 | |
| Management port | 1 Gigabit Ethernet (10 M/100 M/1 G Base-T) | | | |
| Console port | RJ-45 serial port | | | |
| USB port | USB 2.0 Type A (500 mA) | | | |

| Feature | 2110 | 2120 | 2130 | 2140 |
|---------|------|------|------|------|
| Network ports | 12 fixed RJ-45 1 G/100 M/10 M ports (named Ethernet 1/1 through 1/12 ) | | | |
| SFP ports | Four fixed 1-G SFP ports | | Four fixed 1-G/10-G SFP+ ports | |
| Pullout asset card | Yes<br><br>Displays serial number | | | |
| Grounding lug | Yes<br><br>On rear panel | | | |
| Locator beacon | Yes<br><br>On front panel | | | |
| Power switch | Yes<br><br>On rear panel | | | |
| Network module slots | No | | One<br><br>*Not* hot-swappable | |
| Network modules | — | | 8-port 1-Gigabit Ethernet SFP+<br><br>8-port 10-Gigabit Ethernet SFP+<br><br>6-port 1-Gigabit Ethernet SX fiber fail-to-wire<br><br>6-port 10-Gigabit Ethernet SR fiber fail-to-wire<br><br>6-port 10-Gigabit Ethernet LR fiber fail-to-wire | |
| AC power supply | One fixed AC power supply module | | Two power supply slots<br><br>Ships with one 400-W AC power supply modules<br><br>Hot-swappable | Two power supply slots<br><br>Ships with two 400-W AC power supply modules<br><br>Hot-swappable |
| DC power supply | No | | Yes (optional) | |
| Redundant power | No | | Yes | |
| Fan | Four fixed fans | | One hot-swappable fan tray with four fans | |

| Feature | 2110 | 2120 | 2130 | 2140 |
|---------|------|------|------|------|
| Storage | Two SSD slots (100 GB )<br><br>Ships with one 100-GB SSD installed in slot 1.<br><br>Slot 2 is reserved for the Malware Storage Pack (MSP). | | Two SSD slots (200 GB )<br><br>Ships with one 200-GB SSD installed in slot 1.<br><br>Slot 2 is reserved for the MSP. | |
| MSP | Yes<br><br>Installed in SSD slot 2. | | | |

# Deployment Options

Here are some examples of how you can deploy the Firepower 2100:

- As a firewall:

  - At the enterprise Internet edge deployed in a high availability configuration

  - At branch offices in either a high availability pair or standalone

- As a device that provides additional application control, URL filtering, or IPS/threat-centric capabilities:

  - Behind an enterprise internet edge firewall in an inline in a transparent bump-in-the-wire configuration or as a standalone (requires hardware fail open network module support)

  - Deployed passively off a SPAN port on a switch or a tap on a network, or standalone

- As a VPN device:

  - For remote access VPN

  - For site-to-site VPN

# Package Contents

The following figure shows the package contents for the Firepower 2110 and 2120. The contents are subject to change and your exact contents will contain additional or fewer items depending on whether you order the optional parts. See Product ID Numbers, on page 30 for a list of the PIDs associated with the 2110 and 2120 package contents.

*Figure 2: Firepower 2110 and 2120 Package Contents*
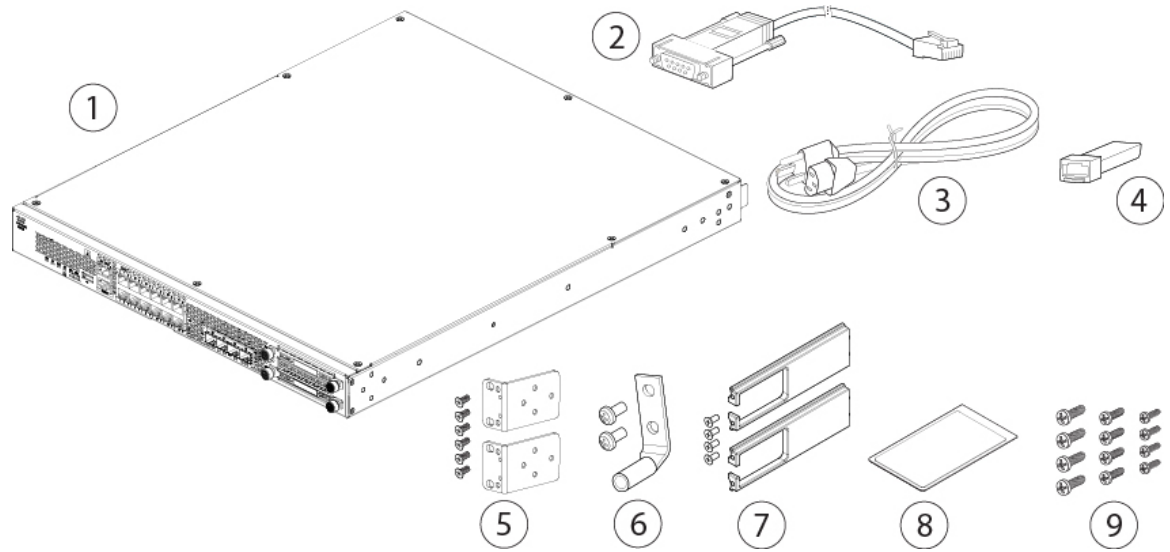


| 1 | Firepower 2110 or 2120 chassis | 2 | Blue console cable PC terminal adapter |
|---|---|---|---|
| 3 | 1 power cord (country-specific) | 4 | SFP transceiver<br>(Optional; in package if ordered) |
| 5 | 2 rack-mount brackets and six 8-32, 0.281-in. screws | 6 | 1 ground lug kit<br>#6 AWG lug, two 10-32 x .38-in. screws |
| 7 | Cable management bracket kit<br>2 cable management brackets and four 8-32 x 0.375-in. screws<br>(Optional; in package if ordered) | 8 | 2 user documents:<br>• Useful Links Cisco Firepower 2100 Series document<br>• Start Here document |
| 9 | Rack-mount screws:<br>• Four 12-24, 0.75 in.<br>• Four 10-32, 0.75 in.<br>• Four M6, 19 mm | | | |

The following figure shows the package contents for the Firepower 2130 and 2140. The contents are subject to change and your exact contents will contain additional or fewer items depending on whether you order the optional parts. See Product ID Numbers, on page 30 for a list of the product IDs (PIDs) associated with the 2130 and 2140 package contents.

**Figure 3: Firepower 2130 and 2140 Package Contents**
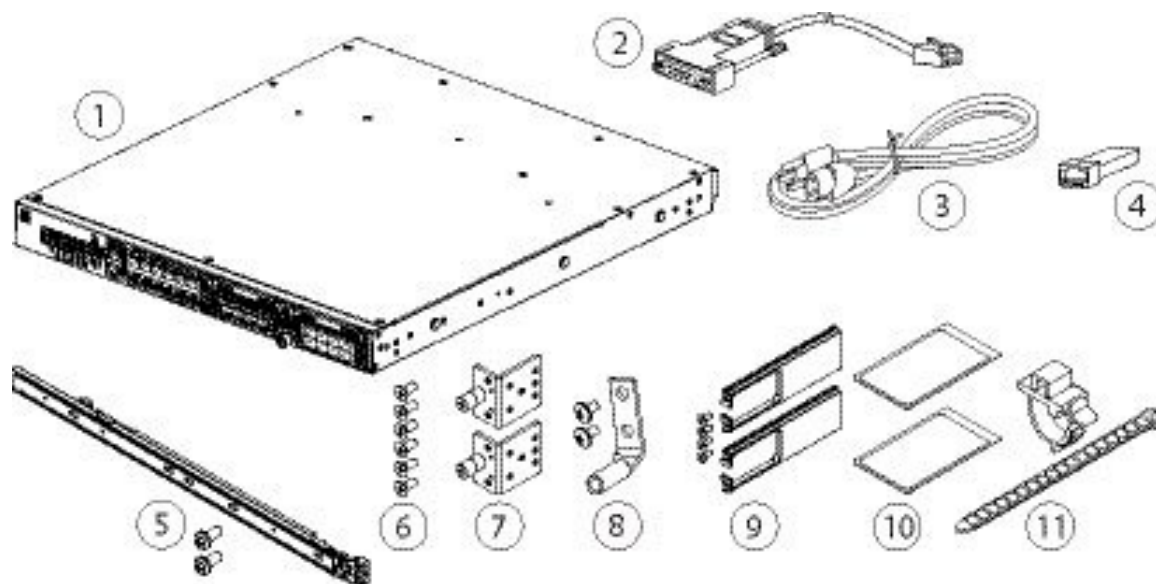


| 1 | Firepower 2130 or 2140 chassis | 2 | Blue console cable PC terminal adapter |
|---|---|---|---|
| 3 | 1 or 2 power cords (country-specific) | 4 | SFP transceiver<br>(Optional; in package if ordered) |
| 5 | Slide rail kit<br>Left and right slide rails and two M3x6 mm wafer head screws | 6 | Six 8-32 x .25-in. slide rail locking bracket screws |
| 7 | 2 slide rail locking brackets | 8 | 1 ground lug kit<br>#6 AWG lug, two 10-32 x .38-in. screws |
| 9 | Cable management bracket kit<br>2 cable management brackets and four 8-32 x 0.375-in. screws<br>(Optional; in package if ordered) | 10 | 2 user documents:<br>• Useful Links Cisco Firepower 2100 Series document<br>• Start Here document |
| 11 | 2 power supply module tie wraps and clamps | | |

# Serial Number Location

The serial number for the Firepower 2100 series chassis is located on the pullout asset card on the front panel.

Figure 4: Serial Number on the Chassis
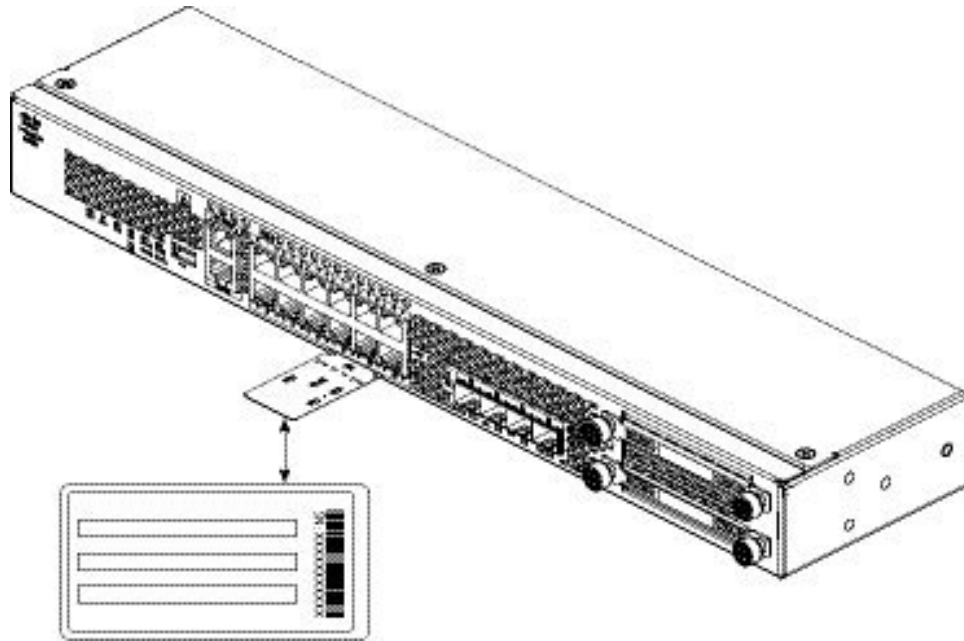


You can also view additional model information on the compliance label located on the bottom of the chassis.

Figure 5: Compliance Label on the Chassis



# Front Panel

The following figure shows the front panel of the Firepower 2110 and 2120. See for a description of the LEDs.

*Figure 6: Firepower 2110 and 2120 Front Panel*



| 1 | Power LED | 2 | Gigabit Ethernet management port: |
|---|---|---|---|
| | | | • Firepower Threat Defense—Management 0 (also referred to as Management 1/1 and Diagnostic 1/1)<br><br>• ASA—Management 1/1 |
| 3 | 12 RJ-45 1 G/100 M/10 M auto duplex/auto MDI-X Base-T ports<br><br>Ethernet 1/1 through 1/12 labeled top to bottom, left to right | 4 | SSD 1 (slot 1) |
| 5 | Locator beacon | 6 | System LEDs |
| 7 | Type A USB 2.0 port | 8 | RJ-45 console port |
| 9 | Pullout asset card with chassis serial number | 10 | 4 fixed SFP (1 G) ports<br><br>Fiber ports 1/13 through 1/16 labeled left to right |
| 11 | SSD (slot 2) | | |

The following figure shows the front panel of the Firepower 2130 and 2140. See Front Panel LEDs, on page 10 for a description of the LEDs.

*Figure 7: Firepower 2130 and 2140 Front Panel*
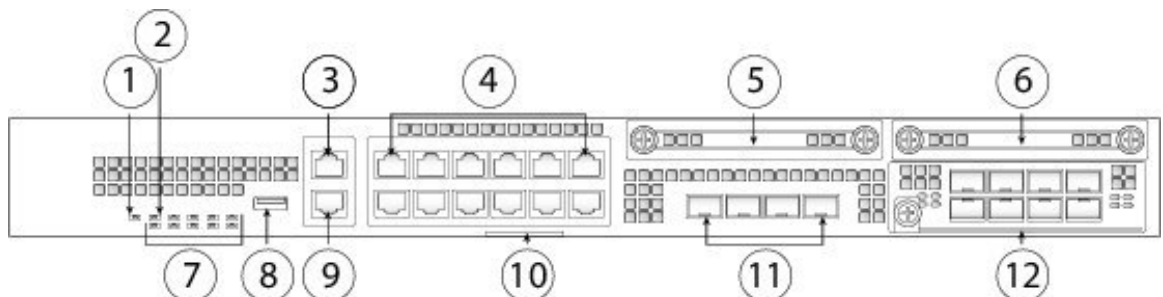


| 1 | Power LED | 2 | Locator beacon |
|---|---|---|---|

| 3 | Gigabit Ethernet management port: | 4 | 12 RJ-45 1 G/100 M/10 M auto duplex/auto MDI-X Base-T ports |
|---|---|---|---|
| | • Firepower Threat Defense—Management 0 (also referred to as Management 1/1 and Diagnostic 1/1) <br><br> • ASA—Management 1/1 | | Ethernet 1/1 through 1/12 labeled top to bottom, left to right |
| 5 | SSD 1 | 6 | SSD 2 |
| 7 | System LEDs | 8 | Type A USB 2.0 port |
| 9 | RJ-45 console port | 10 | Pullout asset card with chassis serial number |
| 11 | 4 fixed SFP+ (1 G/10 G) ports <br><br> Fiber ports 1/13 through 1/16 labeled left to right | 12 | Network module (network module slot 1) |

**Management Port**

The Firepower 2100 chassis has an RJ-45 copper management port.

**RJ-45 Console Port**

The Firepower 2100 chassis has a standard RJ-45 console port. You can use the CLI to configure your 2100 through the RJ-45 serial console port by using a terminal server or a terminal emulation program on a computer.

The RJ-45 (8P8C) port supports RS-232 signaling to an internal UART controller. The console port does not have any hardware flow control, and does not support a remote dial-in modem. The baud rate is 9600. You can use the standard cable found in your accessory kit to convert the RJ-45 to DB-9 if necessary.

**Type A USB Port**

You can use the external Type A USB port to attach a data-storage device. The external USB drive identifier is `disk1:`. The Type A USB port supports the following:

- Hot swapping

- USB drive formatted with FAT32

- Boot kickstart image from ROMMON for discovery recovery purposes

- Copy files to and from workspace:/ and volatile:/ within local-mgmt. The most relevant files are:

    - Core files

    - Ethanalyzer packet captures

    - Tech-support files

    - Security module log files

- Platform bundle image upload using **download image usbA:**

The Type A USB port does *not* support Cisco Secure Package (CSP) image upload support.

**Network Ports**

The Firepower 2100 chassis has 12 fixed RJ-45 1 G/100 M/10 M) ports. They are numbered from top to bottom, left to right starting with 1 and are named Ethernet 1/1 through Ethernet 1/12.

The 2110 and 2120 also have 4 fixed SFP (1 G) ports, and the 2130 and 2140 have 4 fixed SFP+ (1 G/10 G) ports. They are fiber ports numbered left to right (1/13 through 1/16).

Each port has LEDs that represent Link/Activity status.

# Front Panel LEDs

The following figure shows the Firepower 2110 and 2120 front panel LEDs.

*Figure 8: Firepower 2110 and 2120 Front Panel LEDs*

| 1 | **PWR**<br><br>• Off—Input power is not detected. Standby power is off.<br><br>• Green, flashing—The system has detected a power switch toggle event, and initiated the shutdown sequence. If the power switch is in the OFF position, the system powers off after shutdown is completed. Do not remove the AC or DC power source while this LED is blinking so that the system has time to perform a graceful shutdown.<br><br>• Amber—The system is powering up (before the BIOS boots). This takes one to five seconds at most.<br><br>• Green—The system is fully powered up. | 2 | **Locator Beacon**<br><br>• Off—Locate is off.<br><br>• Blue—Locate is on.<br><br>**Note**      The Locator beacon helps you locate a unit that needs physical service attention. This feature is activated in the software. |
|---|---|---|---|
| 3 | **SYS** (Health)<br><br>• Off—The system has not booted up yet.<br><br>• Green, flashing—The system is booting up or in bootloader stage.<br><br>• Green—The system has fully booted.<br><br>• Amber—The system boot up has failed.<br><br>• Amber, flashing—Alarm condition, system needs service or attention and may not boot properly. | 4 | **ACT**   (Role of a high-availability pair)<br><br>• Off—The unit is not configured or enabled in a high-availability pair.<br><br>• Green—The unit is in active mode.<br><br>• Amber—The unit is in standby mode. |
| 5 | **SSD1 ACT**<br><br>• Off—SSD is not present.<br><br>• Green—SSD is present; no activity.<br><br>• Green, flashing—SSD is active. | 6 | **SSD2 ACT**<br><br>• Off—SSD is not present.<br><br>• Green—SSD is present; no activity.<br><br>• Green, flashing—SSD is active. |

| 7 | **FAN** | 8 | **SSD1 Alert Status** |
|---|---|---|---|
| | • Off—The environmental subsystem is not active yet.<br><br>• Green—The fans are running normally. It may take up to one minute for the LED status to turn green after power is on.<br><br>• Amber—One fan has failed. The system can continue to operate normally, but fan service is required.<br><br>• Amber, flashing—Two or more fans have failed, or the fan tray has been removed from the system. Immediate attention is required. | | • Off—SSD has normal activity.<br><br>• Amber—SSD failure. |
| 9 | **SSD2 Alert Status** | 10 | **Ethernet Link** |
| | • Off—SSD has normal activity.<br><br>• Amber—SSD failure. | | • Green—The link partner is detected; no activity.<br><br>• Green, flashing—Network activity is detected. |
| 11 | **Ethernet Speed** | 12 | **Fiber Port** |
| | • Green, flashing—The number of flashes determines link speed; 1 flash=10 Mbit, 2=100 Mbit, 3=1 Gbit. | | • Green—Port is enabled, the link partner is detected.<br><br>• Amber—Port is enabled, but the link partner is not detected.<br><br>• Green, flashing—Port is enabled; network activity is detected. |

The following figure shows the Firepower 2130 and 2140 front panel LEDs.

**Figure 9: Firepower 2130 and 2140 Front Panel LEDs**



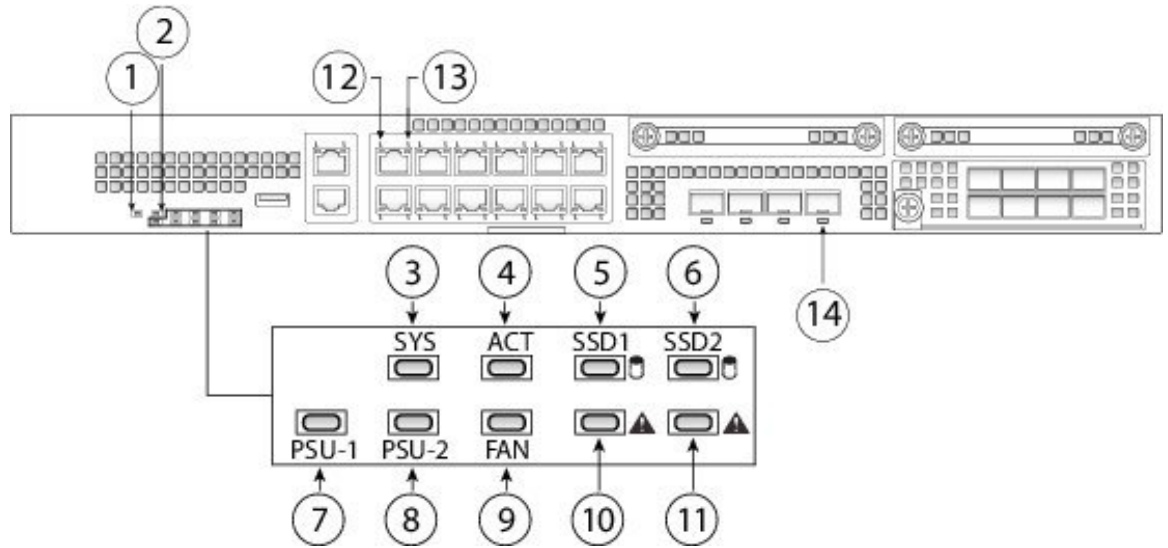| 1 | **Power** | 2 | **Locator LED** |
|---|---|---|---|
| | • Off—Input power is not detected. Standby power is off. | | • Off—Locate is off. |
| | • Green, flashing—The system has detected a power switch toggle event, and initiated the shutdown sequence. If the power switch is in the OFF position, the system powers off after shutdown is completed. Do not remove the AC or DC power source while this LED is blinking so that the system has time to perform a graceful shutdown. | | • Blue—Locate is on.<br><br>**Note**    The Locator beacon helps you locate a unit that needs physical service attention. This feature is activated in the software. |
| | • Amber—The system is powering up (before the BIOS boots). This takes one to five seconds at most. | | |
| | • Green—The system is fully powered up. | | |

| 3 | SYS (Health) | 4 | ACT (Role of a high-availability pair) |
|---|---|---|---|
| | • Off—The system has not booted up yet. | | • Off—The unit is not configured or enabled in a high-availability pair. |
| | • Green, flashing—The system is booting up or in bootloader stage. | | • Green—The unit is in active mode. |
| | • Green—The system has fully booted. | | • Amber—The unit is in standby mode. |
| | • Amber—The system boot up has failed. | | |
| | • Amber, flashing—Alarm condition, system needs service or attention and may not boot properly. | | |
| 5 | SSD1 ACT | 6 | SSD2 ACT |
| | • Off—The SSD is not present. | | • Off—The SSD is not present. |
| | • Green—The SSD is present; no activity. | | • Green—The SSD is present; no activity. |
| | • Green, flashing—The SSD is active. | | • Green, flashing—The SSD is active. |
| 7 | PSU-1 | 8 | PSU-2 |
| | • Off—The power supply module is not present or not detected. | | • Off—The power supply module is not present or not detected. |
| | • Green—The power supply module is present and working properly. | | • Green—The power supply module is present and working properly. |
| | • Amber—The power supply module is present but a fault or problem has been detected. | | • Amber—The power supply module is present but a fault or problem has been detected. |
| 9 | FAN | 10 | SSD1 Alert Status |
| | • Off—The environmental subsystem is not active yet. | | • Off—SSD has normal activity. |
| | • Green—The fans are running normally. It may take up to one minute for the LED status to turn green after power is on. | | • Amber—SSD failure. |
| | • Amber—One fan has failed. The system can continue to operate normally, but fan service is required. | | |
| | • Amber, flashing—Two or more fans have failed, or the fan tray has been removed from the system. Immediate attention is required. | | |

| 11 | **SSD2 Alert Status**<br><br>• Off—SSD has normal activity.<br><br>• Amber—SSD failure. | 12 | **Ethernet Link**<br><br>• Green—The link partner is detected; no activity.<br><br>• Green, flashing—Network activity is detected. |
|---|---|---|---|
| 13 | **Ethernet Speed**<br><br>• Green, flashing—The number of flashes determines link speed; 1 flash=10 Mbit, 2=100 Mbit, 3=1 Gbit. | 14 | **Fiber Port**<br><br>• Green—Port is enabled, the link partner is detected.<br><br>• Amber—Port is enabled, but the link partner is not detected.<br><br>• Green, flashing—Port is enabled; network activity is detected. |

# Rear Panel

The following figure shows the rear panel of the Firepower 2110 and 2120.

*Figure 10: Firepower 2110 and 2120 Rear Panel*



| 1 | Power on/off switch | 2 | Fixed power supply module |
|---|---|---|---|
| 3 | Fixed fans | 4 | 2-post grounding lug<br><br>**Note**    The 2-post grounding lug is included in the accessory kit. |
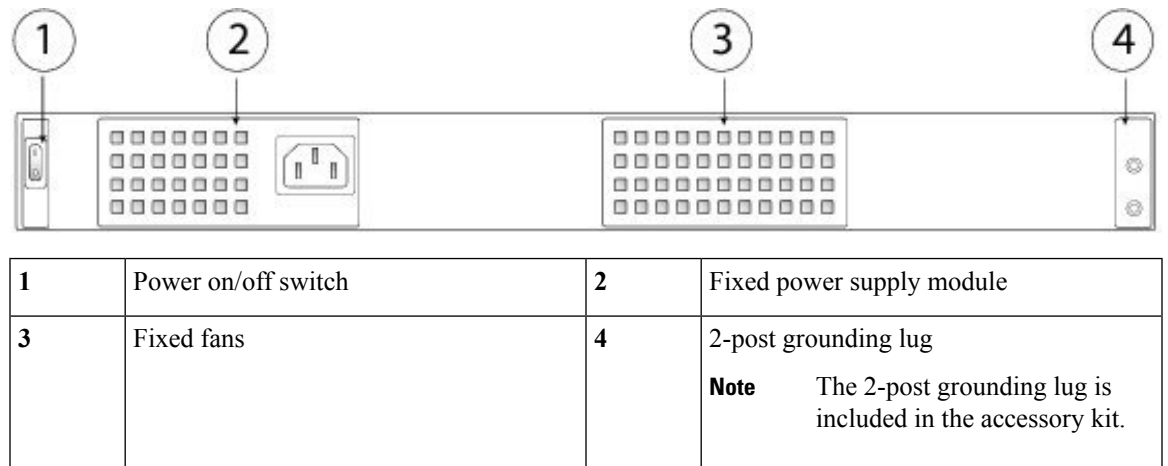
The following figure shows the rear panel of the Firepower 2130 and 2140.

*Figure 11: Firepower 2130 and 2140 Rear Panel*
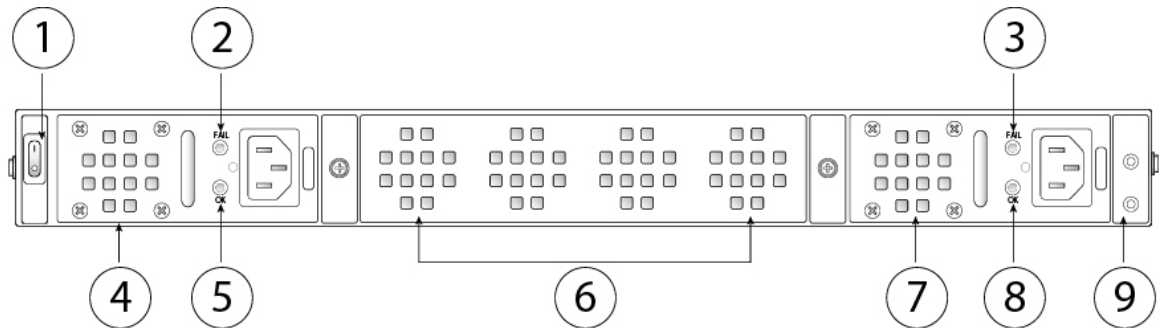


| 1 | Power on/off switch | 2 | Power supply module 1 FAIL LED |
|---|---|---|---|
| 3 | Power supply module 2 FAIL LED | 4 | Power supply module 1 |
| 5 | Power supply module 1 OK LED | 6 | Fan tray |
| 7 | Power supply module 2 | 8 | Power supply module 2 OK LED |
| 9 | 2-post grounding lug<br><br>**Note** The 2-post grounding lug is included in the accessory kit. | | |

**Power Switch**

The power switch is located to the left of power supply module 1 on the rear of the chassis. It is a toggle switch that controls power to the system. If the power switch is in standby position, only the 3.3-V standby power is enabled from the power supply module and the 12-V main power is OFF. When the switch is in the ON position, the 12-V main power is turned on and the system boots.

Before you move the power switch to the OFF position, use the shutdown commands so that the system can perform a graceful shutdown. This may take several minutes to complete. After the graceful shutdown is completed, the front panel power LED is unlit and the console displays `Power Down`. See the FXOS Configuration Guide for more information on using these commands.

⚠️ **Caution** If you move the power switch to the OFF position before the shutdown command sequence has completed or if you remove the system power cords before the graceful shutdown is complete, disk corruption can occur.

✎ **Note** After removing power from the chassis by unplugging the power cord, wait at least 10 seconds before turning power back ON.

**For More Information**

- See Remove and Replace the Power Supply Module, on page 70 for the procedure for removing and replacing the power supply module in the Firepower 2130 and 2140.

- See Remove and Replace the Fan Tray, on page 78 for the procedure for removing and replacing the fan tray in the Firepower 2130 and 2140.

- See Ground the Chassis, on page 54 for the procedure for using the grounding lug to ground the chassis.

- See Power Supply Modules, on page 23 for a description of the power supply module LEDs.

- See Front Panel LEDs, on page 10 for a description of the fan LEDs.

# Network Modules

The Firepower 2130 and 2140 contain one network module slot that provides optical or electrical network interfaces. Network modules are optional, removable I/O modules that provide either additional ports or different interface types. The Firepower network module plugs into the chassis on the front panel.

**For More Information**

- See 10-G Network Module , on page 17 for a description of the 10-G network module.

- See Supported SFP/SFP+ Transceivers, on page 26 for a list of supported SFPS.

- See Remove and Replace the Network Module, on page 67 for the procedure for removing and replacing network modules.

# 10-G Network Module

The following figure shows the front panel of the 10-G network module (FPR2K-NM-8X10G). The FPR2K-NM-8X10G is a single-wide module that supports hot swapping. The eight ports are numbered from top to bottom, left to right.

**Note**   The FPR2K-NM-8X10G is NEBS-compliant.

**Note**   You can fit four copper SFPs in either the top row of ports or the bottom row of ports. Both rows cannot be populated at the same time, because of the port row spacing.

Figure 12: FPR2K-NM-8X10G



| 1 | Captive screw/handle | 2 | Ethernet *X*/1 |
|---|---|---|---|
| 3 | Ethernet *X*/3 | 4 | Ethernet *X*/5 |
| 5 | Ethernet *X*/7 | 6 | Ethernet *X*/2 |
| 7 | Ethernet *X*/4 | 8 | Ethernet *X*/6 |
| 9 | Ethernet *X*/8 | 10 | Network activity LEDs<br><br>• Off—No connection or port is not in use.<br><br>• Amber—No link or network failure.<br><br>• Green—Link up.<br><br>• Green, flashing—Network activity. |

# 1-G Network Module

The following figure shows the front panel of the 1-G network module (FPR2K-NM-8X1G). The FPR2K-NM-8X1G is a single-wide module that supports hot swapping. The eight ports are numbered from top to bottom, left to right.

**Note** You can fit four copper SFPs in either the top row of ports or the bottom row of ports. Both rows cannot be populated at the same time, because of the port row spacing. For a list of copper SFPS, see Supported SFP/SFP+ and QSFP Transceivers.

*Figure 13: FPR2K-NM-8X1G*



| 1 | Captive screw/handle | 2 | Ethernet *X*/1 |
|---|---|---|---|
| 3 | Ethernet *X*/3 | 4 | Ethernet *X*/5 |
| 5 | Ethernet *X*/7 | 6 | Ethernet *X*/2 |
| 7 | Ethernet *X*/4 | 8 | Ethernet *X*/6 |
| 9 | Ethernet *X*/8 | 10 | Network activity LEDs<br>• Unlit—No connection or port is not in use.<br>• Amber—No link or network failure.<br>• Green—Link up.<br>• Green, flashing—Network activity. |

# Hardware Bypass Network Modules

Fail-to-wire (also known as hardware bypass) is a physical layer (Layer 1) bypass that allows paired interfaces to go into bypass mode so that the hardware forwards packets between these port pairs without software intervention. Fail-to-wire provides network connectivity when there are software or hardware failures. Hardware bypass is useful on ports where the Firepower security appliance is only monitoring or logging traffic. The hardware bypass network modules have an optical switch that is capable of connecting the two ports when needed.

The fail-to-wire network modules have built-in SFPs.

Hardware bypass is supported only on a fixed set of ports. You can pair Port 1 with Port 2, Port 3 with Port 4, but you cannot pair Port 1 with Port 4 for example.

**Note** Hardware bypass is only supported in inline mode. Also, hardware bypass support depends on your software application.

**Note** When the appliance switches from normal operation to hardware bypass or from hardware bypass back to normal operation, traffic may be interrupted for several seconds. A number of factors can affect the length of the interruption; for example, behavior of the optical link partner such as how it handles link faults and debounce timing; spanning tree protocol convergence; dynamic routing protocol convergence; and so on. During this time, you may experience dropped connections.

There are three configuration options for hardware bypass network modules:

- Passive interfaces—Connection to a single port.

  For each network segment you want to monitor passively, connect the cables to one interface. This is how the non-fail-to-wire network modules operate.

- Inline interfaces—Connection to any two like ports (10 G to 10 G for example) on one network module, across network modules, or fixed ports.

  For each network segment you want to monitor inline, connect the cables to pairs of interfaces.

- Inline with fail-to-wire interfaces—Connection of a fail-to-wire paired set.

  For each network segment that you want to configure inline with fail-open, connect the cables to the paired interface set.

  For the 40-G network module, you connect the two ports to form a paired set. For the 1/10-G network modules, you connect the top port to the bottom port to form a fail-to-wire paired set. This allows traffic to flow even if the security appliance fails or loses power.

**Note** If you have a inline interface set with a mix of fail-to-wire and non-fail-to-wire interfaces, you cannot enable hardware bypass on this inline interface set. You can only enable hardware bypass on an inline interface set if all the pairs in the inline set are valid fail-to-wire pairs.

**For More Information**

# 1-G SX/10-G SR/10-G LR Network Module with Hardware Bypass

The following figure shows the front panel of the 1-G SX, 10-G SR and 10-G LR fail-to-wire network modules FPRK2-NM-6X1SX-F, FPRK2-NM-6X10SR-F, FPR2K-NM-6X10LR-F). This is a single-wide module that

does *not* support hot swapping. The six ports are numbered from top to bottom, left to right. Pair ports 1 and 2, 3 and 4, and 5 and 6 to form hardware bypass paired sets.
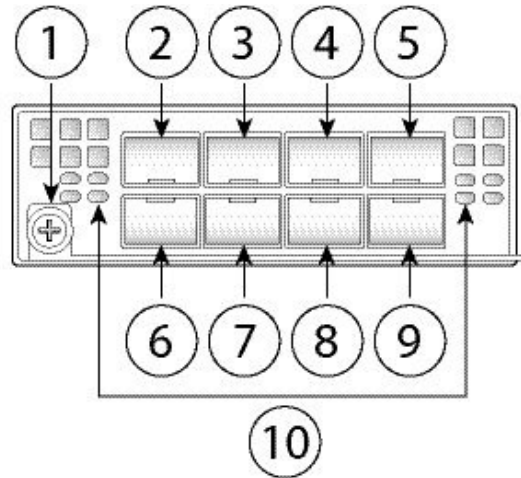
*Figure 14: FPR2K-NM-6X1SX-F, FPR2K-NM-6X10SR-F, FPR2K-NM-6X10LR-F*

| 1 | Captive screw/handle | 2 | 6 network activity LEDs |
| --- | --- | --- | --- |
| | | | • Amber—No connection, or port is not in use, or no link or network failure. |
| | | | • Green—Link up, no network activity. |
| | | | • Green, flashing—Network activity. |
| 3 | Bypass LEDs B1 through B3: <br><br>• Green—In standby mode. <br><br>• Amber, flashing—Port is in hardware bypass mode, failure event. <br><br>• Amber—Port is in hardware bypass mode, forced. | 4 | Ethernet *X*/1 (top port) <br><br>Ethernet *X*/2 (bottom port) <br><br>Ports 1 and 2 are paired together to form a hardware bypass pair. |
| 5 | Ethernet *X*/3 (top port) <br><br>Ethernet *X*/4 (bottom port) <br><br>Ports 3 and 4 are paired together to form a hardware bypass pair. | 6 | Ethernet *X*/5 (top port) <br><br>Ethernet *X*/6 (bottom port) <br><br>Ports 5 and 6 are paired together to form a hardware bypass pair. |

The 1-G SX /10-G SR/10-G LR network modules have the following insertion loss measurements. Insertion loss measurements help you to troubleshoot the network by verifying cable installation and performance.

*Table 2: 1-G SX Network Module (FPR2K-NM-6X1SX-F)*

| | **Operating Mode** | **Typical** | **Maximum** |
| --- | --- | --- | --- |
| Insertion loss | Normal | 0.9 dB | 1.4 dB |
| | Hardware bypass | 1.2 dB | 1.7 dB |

| | Core diameter (microns) | Modal bandwidth (MHz/km) | Cable distance Note Half the distance specified by the IEEE standard. |
|---|---|---|---|
| Cable and operating distance | 62.5 | 160 (FDDI) | 110 m |
| | 62.5 | 200 (OM1) | 137 m |
| | 50 | 400 | 250 m |
| | 50 | 500 (OM2) | 275 m |
| | 50 | 2000 (OM3) | 500 m |

*Table 3: 10-G SR Network Module (FPR2K-NM-6X10SR-F)*

| | **Operating Mode** | **Typical** | **Maximum** |
|---|---|---|---|
| Insertion loss | Normal | 0.9 dB | 1.4 dB |
| | Hardware bypass | 1.2 dB | 1.7 dB |
| | Core diameter (microns) | Modal bandwidth (MHz/km | Cable distance Note Half the distance specified by the IEEE standard. |
| Cable and operating distance | 62.5 | 160 (FDDI) | 13 m |
| | 62.5 | 200 (OM1) | 16.5 m |
| | 50 | 400 | 33 m |
| | 50 | 500 (OM2) | 41 m |
| | 50 | 2000 (OM3) | 150 m |
| | 50 | 4700 (OM4) | 200 m |

*Table 4: 10-G LR Network Module (FPR2K-NM-6X10LR-F)*

| | **Operating Mode** | **Typical** | **Maximum** |
|---|---|---|---|
| Insertion loss | Normal | 1.2 dB | 1.6 dB |
| | Hardware bypass | 1.5 dB | 1.9 dB |

| | Core diameter (microns) | Modal bandwidth (MHz/km | Cable distance |
|---|---|---|---|
| | | | **Note** Half the distance specified by the IEEE standard. |
| Cable and operating distance | G.652 | Single mode | 5 km |

# Power Supply Modules

The Firepower 2110 and 2120 have one fixed AC power supply that is not field-replaceable. If the power supply fails, you must send your Firepower 2110 or 2120 for RMA.

The Firepower 2130 and 2140 support two AC power supply modules so that dual power supply redundancy protection is available. The Firepower 2130 ships with one AC power supply and the Firepower 2140 ships with two AC power supplies. You can also install DC power supply modules instead of AC power on the 2130 and 2140. Facing the back of the chassis, the power supply modules are numbered left to right, for example, PSU1 and PSU2.

The power supply module is hot-swappable.

See for a list of the PIDs associated with the 2100 series power supply modules.

**Note** You *cannot* mix AC and DC power supply modules in the chassis.

**Note** After removing power from the chassis by unplugging the power cord, wait at least 10 seconds before turning power back ON.

**Attention** Make sure that one power supply module is always active.

**Note** The system power requirements are lower than the power supply module capabilities. See the following table.

### AC Power Supply

The dual power supplies can supply up to 800-W power across the input voltage range. The load is shared when both power supply modules are plugged in and running at the same time.

> **Note**   The system does not consume more than the capacity of one power supply module, so it will always operate in full redundancy mode (2130 and 2140 only) when two power supply modules are installed.

*Table 5: AC Power Supply Module Hardware Specifications*

|  | **2110** | **2120** | **2130** | **2140** |
|---|---|---|---|---|
| Input voltage | 100 to 240 V AC | | | |
| Maximum input current | < 4 A | | < 6 A | |
| Maximum output power | 250 W | | 400 W | |
| Frequency | 50 to 60 Hz | | | |
| Efficiency | 85% at 50% load | | 89% at 50% load | |
| Maximum redundancy output power | — | | 800W | |
| Redundancy | — | | 1+1 redundancy with dual power supply modules | |

### DC Power Supply

The power supplies can supply up to 350 W power across the input voltage range. The load is shared when both power supply modules are plugged in and running at the same time.

*Table 6: DC Power Supply Module Hardware Specifications*

|  | **2130** | **2140** |
|---|---|---|
| Input voltage | -48 to -60 V DC | |
| Maximum input current | < 15 A at -48 V<br><br>**Note**   The power supply module is rated at 15 A but the system power is limited to 6.1 A. See Hardware Specifications, on page 29 for more system specifications. | |
| Maximum output power | 350 W | |
| Redundancy | 1+1 redundancy with dual power supply modules | |
| Efficiency | > 88% at 50% load | |

### Power Supply Module LEDs

The following figure shows the bicolor power supply LEDs on the power supply module. The figure shows the AC power supply module. The DC power supply module has the same LEDs.

**Figure 15: Power Supply Module LEDs**
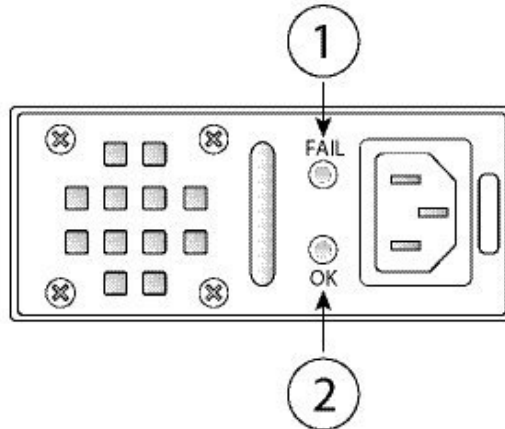


| 1 | Amber FAIL LED | 2 | Green OK LED |
|---|----------------|---|--------------|

The following describes the power module supply LEDs.

**Green LED (OK Status)**

- Off—Input power not present.

- Green, flashing—Input power present, but system is not powered up (power switch is off).

- Green—The power supply module is enabled and running.

**Amber LED (Fail Status)**

- Off—No fault detected.

- Amber, flashing—Fault warning, power supply may still work but could fail due to high temperature, failing fan, or over current.

- Amber—Fault detected; power supply not working properly. Includes over voltage, over current, over temperature, and fan failure.

**For More Information**

- See Remove and Replace the Power Supply Module, on page 70 for the procedure for removing and replacing the power supply module in the Firepower 2130 and 2140.

# Fan Modules

The Firepower 2110 and 2120 have four fixed fans. If the fans fail, you must send your 2110 or 2120 for RMA.

The Firepower 2130 and 2140 have a removable fan tray with 3 + 1 redundant fans that are hot-swappable. The fan tray is installed in the rear of the chassis. Any one fan can fail indefinitely and the system continues to function. When a fan fails, the remaining fans automatically spin up to full speed.

The fan LED is located on the front of the chassis. See Product ID Numbers, on page 30 for a list of the PIDs associated with the 2100 series fans.

**For More Information**

- See Front Panel LEDs, on page 10 for the location and description of the fan LED.

- See Remove and Replace the Fan Tray, on page 78 for the procedure for removing and replacing the fan tray.

# SSDs

The Firepower 2110 and 2120 have two SSD slots. These models ship with one 100-GB SSD installed in slot 1. The Firepower 2130 and 2140 have two SSD slots. These models ship with one 200-GB SSD installed in slot 1. See Product ID Numbers, on page 30 for a list of the PIDs associated with the 2100 series SSDs.

You can use the second SSD slot to upgrade to the MSP. The MSP *must* be installed in the second slot. The second SSD slot remains empty unless you install the MSP in the second slot. The MSP stores threat detection results for use in future analysis. It supports the Advanced Malware Protection (AMP) software feature. It is used as both storage and as the Malware application repository. RAID is not supported.

⚠

**Caution**  You cannot swap SSDs between different Firepower platforms. For example, you cannot use a 4100 series SSD in a 2100 series security appliance.

✎

**Note**  The 100-GB SSD is restricted to the 2110 and 2120 models. The 200-GB SSD is restricted to the 2130 and 2140 models. Do not mix them.

Although the hardware supports hot swapping for the SSDs, the software does not, so you must power down the chassis before removing and replacing them.

**For More Information**

- See Front Panel LEDs, on page 10 for the location and description of the SSD LEDs on the front panel.

- See Remove and Replace the SSD, on page 68 for the procedure for removing and replacing the SSD.

# Supported SFP/SFP+ Transceivers

Take note of the following warnings:

⚠

**Warning**    **Statement 1053**—Class 1M Laser Radiation

Class 1M laser radiation when open. Do not view directly with optical instruments.

⚠

**Warning**    **Statement 1055**—Class I and Class 1M Laser

Class I (CDRH) and Class 1M (IEC) laser products.

⚠

**Warning**    **Statement 1056**—Unterminated Fiber Cable

Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard.

⚠

**Warning**    **Statement 1057**—Hazardous Radiation Exposure

Use of controls or adjustments or performance of procedures other than those specified may result in hazardous radiation exposure.

The SFP/SFP+ transceiver is a bidirectional device with a transmitter and receiver in the same physical package. It is a hot-swappable optical or electrical (copper) interface that plugs into the SFP/SFP+ ports on the fixed ports and the network module ports, and provides Ethernet connectivity.

**Figure 16: SFP**
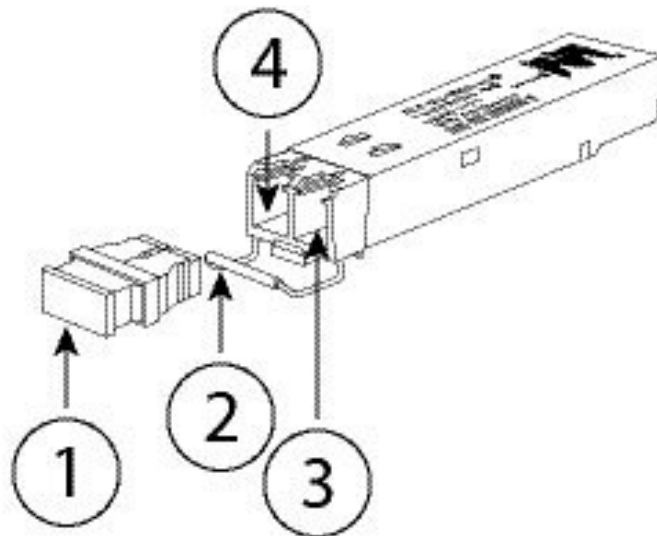


| **1** | Dust plug | **2** | Bail clasp |
|---|---|---|---|
| **3** | Receive optical bore | **4** | Transmit optical bore |

**Warning**   Use appropriate ESD procedures when inserting the transceiver. Avoid touching the contacts at the rear, and keep the contacts and ports free of dust and dirt. Keep unused transceivers in the ESD packing that they were shipped in.

**Note**   The 1-G transceivers are limited to 1-GB operation only (no auto-negotiation support). 100-M/10-M modes are not supported.

**Caution**   Although non-Cisco SFPs are allowed, we do not recommend using them because they have not been tested and validated by Cisco. Cisco TAC may refuse support for any interoperability problems that result from using an untested third-party SFP transceiver.

The following table lists the supported transceivers.

*Table 7: Supported SFPs*

| Optics Type | PID | Ports Supported |
|---|---|---|
| **SFP 1G** | | |
| 1G-SX | GLC-SX-MMD | Ports 13 through 16 |
| 1G-LH | GLC-LH-SMD | Ports 1 though 8 of the 8X10G network module (available only on the 2130 and 2140) |
| 1G-EX | GLC-EX-SMD | |
| 1G-ZX | GLC-ZX-SMD | |
| 1G 1000Base-T | GLC-T | Supported on the Firepower 2130 and 2140. |
| 1G 1000Base-T | GLC-TE | Supported on the Firepower 2130 and 2140. |
| **SFP+ 10G** | | |

| | | |
|---|---|---|
| 10G-SR | SFP-10G-SR | Ports 13 through 16 |
| 10G-LR | SFP-10G-LR | Ports 1 though 8 of the 8X10G network module (available only on the 2130 and 2140) |
| 10G-LRM | SFP-10G-LRM | |
| 10G-ER | SFP-10G-ER | |
| 10G-SR-S | SFP-10G-SR-S | |
| 10G-LR-S | SFP-10G-LR-S | |
| 10G-ZR-S | SFP-10G-ZR-S | |
| 10G-ER-S | SFP-10G-ER-S | |
| H10GB-CU 1M, 1.5M, 2M, 2.5M, 3M, 5M | SFP-H10GB-CU1M SFP-H10GB-CU1-5M SFP-H10GB-CU2M SFP-H10GB-CU2-5 SFP-H10GB-CU3M SFP-H10GB-CU5M | |
| H10GB-ACU 7M, 10M | SFP-H10GB-ACU7M SFP-H10GB-ACU10M | |
| 10G-AOC 1M, 2M, 3M, 5M, 7M, 10M | SFP-10G-AOC1M SFP-10G-AOC2M SFP-10G-AOC3M SFP-10G-AOC5M SFP-10G-AOC7M SFP-10G-AOC10M | |

# Hardware Specifications

The following table contains hardware specifications for the Firepower 2100 series security appliance.

| Specification | 2110 | 2120 | 2130 | 2140 |
|---|---|---|---|---|
| Chassis dimensions (H x W x D) | 1.73 x 16.90 x 19.76 in. (4.4 x 42.9 x 50.2 cm) | | | |
| Network module dimensions | 1.2 x 3.7 x 9.6 in. (4.39 x 9.4 x 24.38) | | | |
| Weight | 16.1 lb (7.3 kg) | | 19.4 lb (8.79 kg) | 21 lb (9.52 kg) |

| Specification | 2110 | 2120 | 2130 | 2140 |
|---|---|---|---|---|
| System power | 100/240V AC 1.9 A (at 100 VAC), 50 to 60 Hz<br><br>**Note** The power supply module is rated at 4 A, but the system power is limited to 1.9 A. | | 100/240 V AC 2.9 A (at 100 VAC), 50 to 60 Hz<br><br>**Note** The power supply module is rated at 6.3 A, but the system power is limited to 2.9 A. | |
| Temperature | Operating: 32 to 104°F (0 to 40°C)<br><br>Nonoperating: -40 to 149°F (-40 to 65°C) maximum altitude is 40,000 ft | | | |
| NEBS | Operating altitude: 0 to 13,000 ft (3962 m)<br><br>Operating temperature:<br><br>• Long Term: 0 to 45°C up to 6000 ft (1829 m)<br><br>• Long Term: 0 to 35°C 6000-13000 ft (1829-3964 m)<br><br>• Short Term: -5 to 55°C up to 6000 ft (1829 m)<br><br>**Note** Firepower 2100 series NEBS compliance applies only to the 2130. | | | |
| Humidity | Operating: 10 to 85 % noncondensing<br><br>Nonoperating: 5 to 95 % noncondensing | | | |
| Altitude | Operating: 10,000 ft maximum<br><br>Nonoperating: 40,000 ft maximum | | | |
| Sound pressure | 47.3 dBA (typical)<br><br>73.4 dBA (maximum) | | 55.7 dBA (typical)<br><br>76.7 dBA (maximum) | |
| Sound power | 60.2 (typical)<br><br>85.1 (maximum) | | 66 (typical)<br><br>84.5 (maximum) | |

# Product ID Numbers

The following table lists all of the PIDs associated with the Firepower 2100 series. See the **show inventory** and **show inventory expand** commands in the Cisco FXOS Troubleshooting Guide for the Firepower 2100 Series to display a list of the PIDs for your Firepower 2100.

*Table 8: Firepower 2100 Series PIDs*

| PID | Description |
|---|---|
| FPR2110-NGFW-K9 | Cisco Firepower 2110 NGFW appliance 1 RU |
| FPR2120-NGFW-K9 | Cisco Firepower 2120 NGFW appliance 1 RU |

| PID | Description |
| --- | --- |
| FPR2130-NGFW-K9 | Cisco Firepower 2130 NGFW appliance 1 RU with one network module bay |
| FPR2140-NGFW-K9 | Cisco Firepower 2140 NGFW appliance 1 RU with one network module bay |
| FPR2110-ASA-K9 | Cisco Firepower 2110 ASA appliance 1 RU |
| FPR2120-ASA-K9 | Cisco Firepower 2120 ASA appliance 1 RU |
| FPR2130-ASA-K9 | Cisco Firepower 2130 ASA appliance 1 RU with one network module bay |
| FPR2140-ASA-K9 | Cisco Firepower 2140 ASA appliance 1 RU with one network module bay |
| FPR2110-K9= | Firepower 2110 appliance 1 RU with no power supply or fan (spare) |
| FPR2120-K9= | Firepower 2120 appliance 1 RU with no power supply or fan (spare) |
| FPR2130-K9= | Firepower 2130 appliance with one network module bay and no power supply or fan (spare) |
| FPR2140-K9= | Firepower 2140 appliance with one network module bay and no power supply or fan (spare) |
| FPR2K-PWR-DC-350 | 350 W DC power supply |
| FPR2K-PWR-DC-350= | 350 W DC power supply (spare) |
| FPR2K-PWR-AC-400 | 400 W AC power supply |
| FPR2K-PWR-AC-400= | 400 W AC power supply (spare) |
| FPR2K-PSU-BLANK | Power supply blank slot cover |
| FPR2K-PSU-BLANK= | Power supply blank slot cover (spare) |
| FPR2K-SSD100 | SSD for Firepower 2110 and 2120 |
| FPR2K-SSD100= | SSD for Firepower 2110 and 2120 (spare) |
| FPR2K-SSD200 | SSD for Firepower 2130 and 2140 |
| FPR2K-SSD200= | SSD for Firepower 2130 and 2140 (spare) |
| FPR2K-SSD-BBLKD | SSD slot carrier |
| FPR2K-SSD-BBLKD= | SSD slot carrier (spare) |
| FPR-MSP-SSD | MSP SSD |

| PID | Description |
| --- | --- |
| FPR-MSP-SSD= | MSP SSD (spare) |
| FPR2K-FAN | Fan tray for the Firepower 2130 and 2140 |
| FPR2K-FAN= | Fan tray for the Firepower 2130 and 2140 (spare) |
| FPR2K-NM-8X10G | 8-port 10-G SFP+ network module |
| FPR2K-NM-8X10G= | 8- port 10-G SFP+ network module (spare) |
| FPR2K-NM-BLANK | Network module blank slot cover |
| FPR2K-NM-BLANK= | Network module blank slot cover (spare) |
| FPR2K-CBL-MGMT | Cable management brackets |
| FPR2K-CBL-MGMT= | Cable management brackets (spare) |
| FPR2K-RM-BRKT= | Rack-mount brackets (spare) |
| FPR2K-SLIDE-RAILS | Slide rail kit |
| FPR2K-SLIDE-RAILS= | Slide rail kit (spare) |
| FPR2K-RAIL-BRKT= | Slide rail brackets (spare) |

# Power Cord Specifications

Each power supply has a separate power cord. Standard power cords or jumper power cords are available for connection to the security appliance. The jumper power cords for use in racks are available as an optional alternative to the standard power cords.

If you do not order the optional power cord with the system, you are responsible for selecting the appropriate power cord for the product. Using a incompatible power cord with this product may result in electrical safety hazard. Orders delivered to Argentina, Brazil, and Japan must have the appropriate power cord ordered with the system.

**Note**　Only the approved power cords or jumper power cords provided with the security appliance are supported.
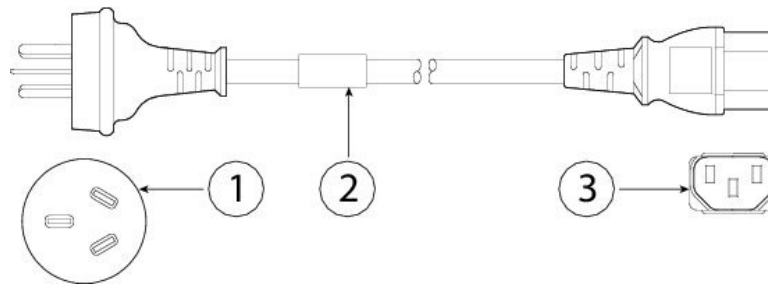
The following power cords are supported.

*Figure 17: Argentina CAB-ACR*
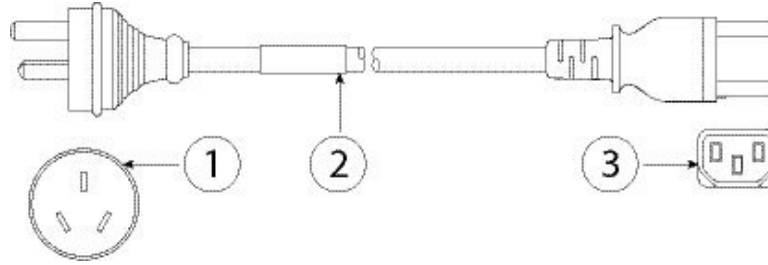


| 1 | Plug: IRAM 2073 | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 18: Australia CAB-ACA*



| 1 | Plug: A.S. 3112 | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 19: Brazil CAB-C13-ACB*
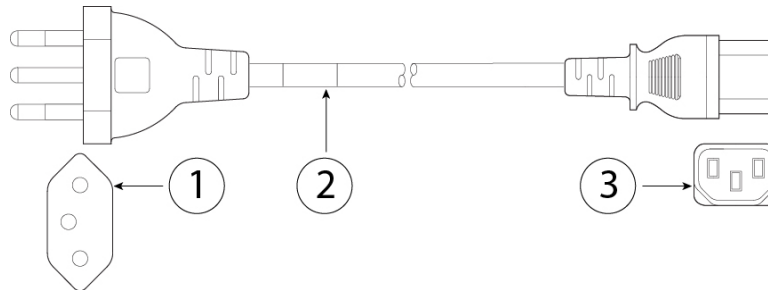


| 1 | Plug: NBR 14136 | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 20: China CAB-ACC*
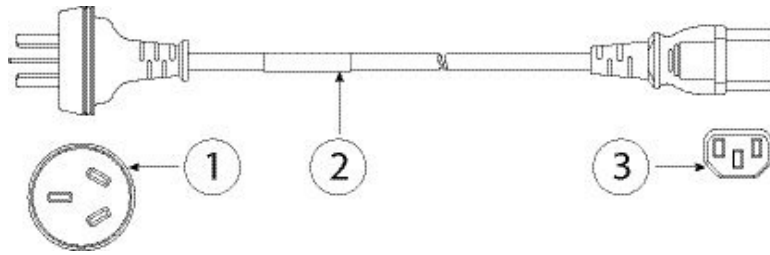


| 1 | Plug: GB2099.1-2008/GB1002 | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 21: Europe CAB-ACE*
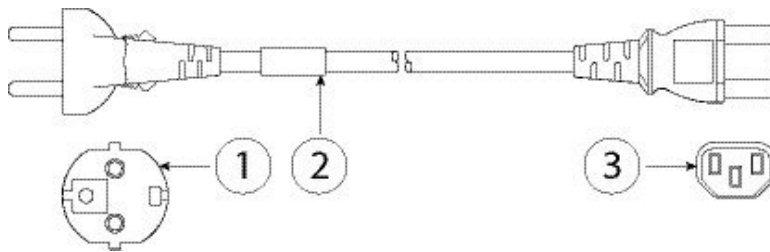


| 1 | Plug: CEE 7 VII | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 22: India PWR-CORD-IND-D*
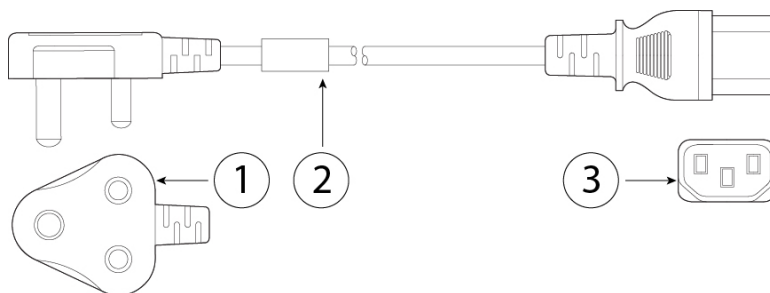


| 1 | Plug: IS 6538-1971 | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 23: Italy CAB-ACI*
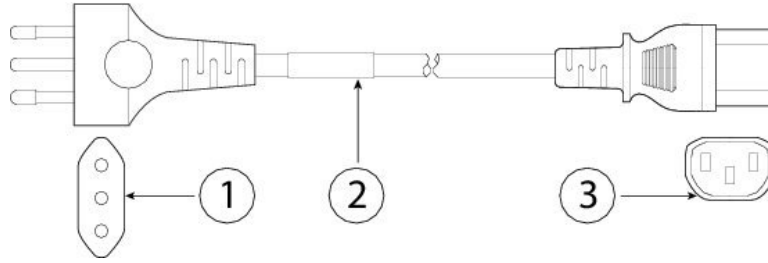


| 1 | Plug: CEI 23-16 | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 24: Japan CAB-JPN*
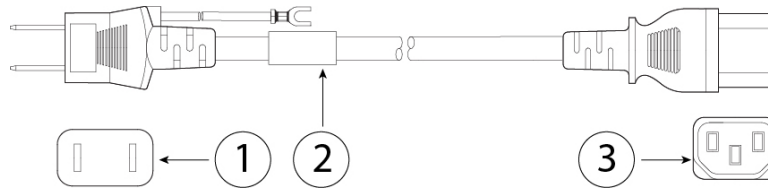


| 1 | Plug: JIS C8303 | 2 | Cord set rating: 12 A, 125 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 25: Japan CAB-JPN-3PIN*
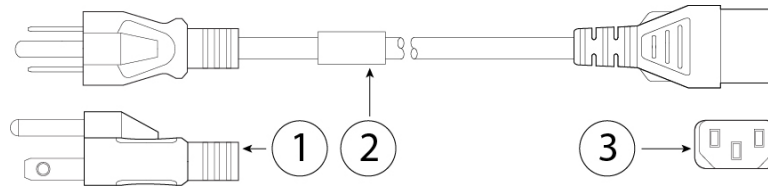


| 1 | Plug: JIS C8303/JIS C8306 | 2 | Cord set rating: 12 A, 125 V |
|---|---|---|---|
| 3 | Connector: IEC 60320/C13 | | |

*Figure 26: Jumper CAB-C13-C14-2M*
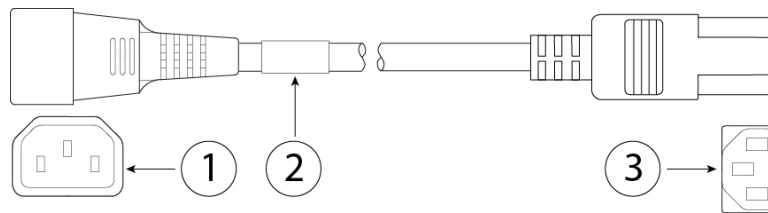


| 1 | IEC 60320/C14G | 2 | Cord set rating: 10 A, 250 V |
|---|---|---|---|

| 3 | Connector: IEC 60320/C13 | | |

*Figure 27: Korea CAB-AC-C13-KOR*
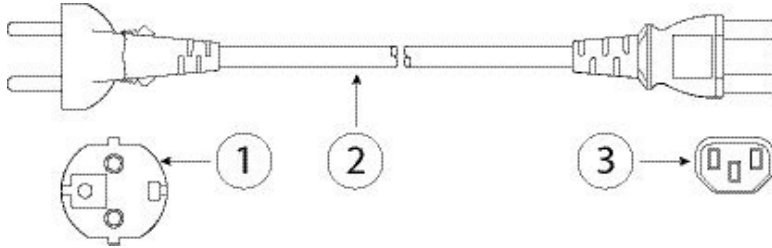


| 1 | Plug: KSC 8305 | 2 | Cord set rating: 10 A, 250 V |
| 3 | Connector: IEC 60320/C13 | | |

*Figure 28: North America CAB-AC*
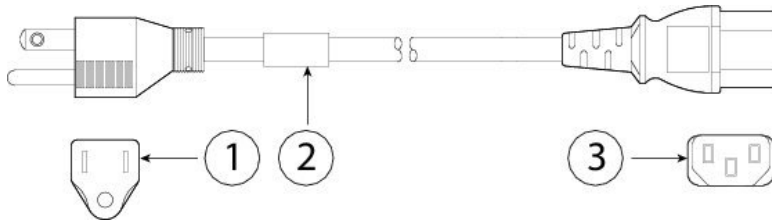


| 1 | Plug: NEMA5-15P | 2 | Cord set rating: 10 A, 125 V |
| 3 | Connector: IEC 60320/C13 | | |

*Figure 29: South Africa CAB-ACSA*
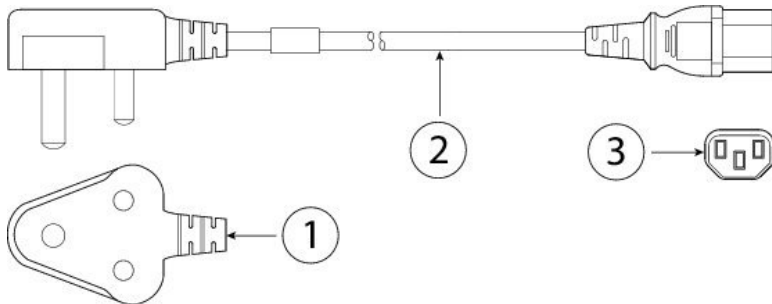


| 1 | Plug: SABS 164 | 2 | Cord set rating: 16 A, 250 V |
| 3 | Connector: IEC 60320/C13 | | |

*Figure 30: Switzerland CAB-ACS*
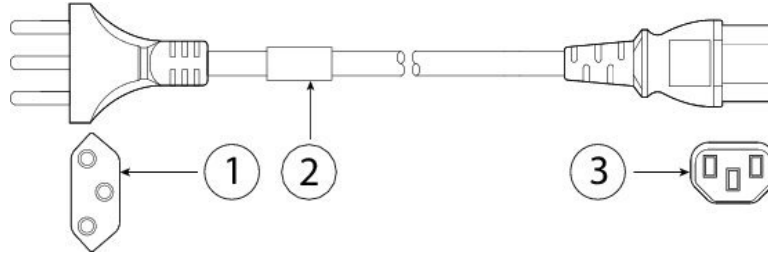
| **1** | Plug: SEV 1011 | **2** | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| **3** | Connector: IEC 60320/C13 | | |

*Figure 31: Taiwan CAB-ACTW*
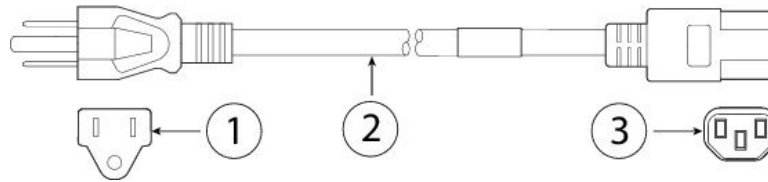
| **1** | Plug: CNS10917 | **2** | Cord set rating: 10 A, 125 V |
|---|---|---|---|
| **3** | Connector: IEC 60320/C13 | | |

*Figure 32: United Kingdom CAB-ACU*
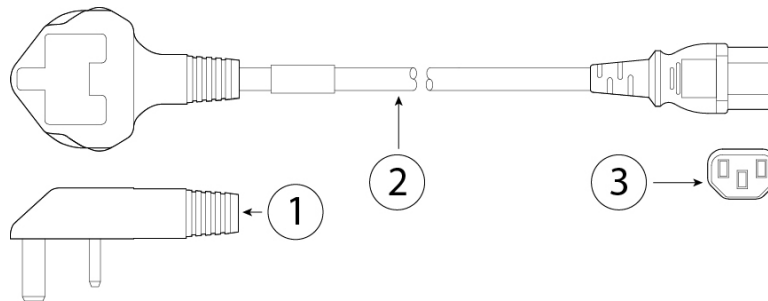
| **1** | Plug: BS1363A/SS145 | **2** | Cord set rating: 10 A, 250 V |
|---|---|---|---|
| **3** | Connector: IEC 60320/C13 | | |

# Installation Preparation

## Installation Warnings

Read the Regulatory Compliance and Safety Information document before installing the security appliance.

Take note of the following warnings:

**Warning** **Statement 1071**—Warning Definition

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

**Warning** **Statement 1015**—Battery Handling

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

**Warning**    **Statement 12**—Power Supply Disconnection Warning

Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units.

**Warning**    **Statement 43**—Jewelry Removal Warning

Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.

**Warning**    **Statement 94**—Wrist Strap Warning

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

**Warning**    **Statement 1004**—Installation Instructions

Read the installation instructions before using, installing or connecting the system to the power source.

**Warning**    **Statement 1007**—TN and IT Power Systems

This equipment has been designed for connection to TN and IT power systems.

**Warning**    **Statement 1017**—Restricted Area

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.

**Warning**    **Statement 1021**—SELV Circuit

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

**Warning** **Statement 1024**—Ground Conductor

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

**Warning** **Statement 1028**—More Than One Power Supply

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

**Warning** **Statement 1029**—Blank Faceplates and Cover Panels

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

**Warning** **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**Warning** **Statement 1040**—Product Disposal

Ultimate disposal of this product should be handled according to all national laws and regulations.

**Warning** **Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

**Warning** **Statement 1045**—Short-Circuit Protection

This product requires short-circuit (overcurrent) protection to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.

**Warning** **Statement 1074**—Comply with Local and National Electrical Codes

Installation of the equipment must comply with local and national electrical codes.

# Safety Recommendations

Observe these safety guidelines:

- Keep the area clear and dust-free before, during, and after installation.

- Keep tools away from walkways, where you and others might trip over them.

- Do not wear loose clothing or jewelry, such as earrings, bracelets, or chains that could get caught in the chassis.

- Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.

- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.

- Never attempt to lift an object that is too heavy for one person.

# Maintain Safety with Electricity

⚠

**Warning**     Before working on a chassis, be sure the power cord is unplugged.

Be sure to read the document before installing the security appliance.

Follow these guidelines when working on equipment powered by electricity:

- Before beginning procedures that require access to the interior of the chassis, locate the emergency power-off switch for the room in which you are working. Then, if an electrical accident occurs, you can act quickly to turn off the power.

- Do not work alone if potentially hazardous conditions exist anywhere in your work space.

- Never assume that power is disconnected; always check.

- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, frayed power cords, and missing safety grounds.

- If an electrical accident occurs:
  - Use caution; do not become a victim yourself.

  - Disconnect power from the system.

  - If possible, send another person to get medical aid. Otherwise, assess the condition of the victim, and then call for help.

  - Determine whether the person needs rescue breathing or external cardiac compressions; then take appropriate action.

- Use the chassis within its marked electrical ratings and product usage instructions.

# Prevent ESD Damage

ESD occurs when electronic components are improperly handled, and it can damage equipment and impair electrical circuitry, resulting in intermittent or complete failure.

Always follow ESD-prevention procedures when removing and replacing components. Ensure that the chassis is electrically connected to an earth ground. Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the grounding clip to an unpainted surface of the chassis frame to safely ground ESD voltages. To properly guard against ESD damage and shocks, the wrist strap and cord must operate effectively. If no wrist strap is available, ground yourself by touching the metal part of the chassis.

For safety, periodically check the resistance value of the antistatic strap, which should be between one and 10 megohms.

# Site Environment

See Hardware Specifications, on page 29 for information about physical specifications.

When planning the site layout and equipment locations, consider the information in the next sections to help avoid equipment failures and reduce the possibility of environmentally caused shutdowns. If you are currently experiencing shutdowns or unusually high error rates with your existing equipment, these considerations may help you isolate the cause of failures and prevent future problems.

# Site Considerations

Considering the following helps you plan an acceptable operating environment for the chassis, and avoid environmentally caused equipment failures.

- Electrical equipment generates heat. Ambient air temperature might not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Ensure that the room in which you operate your system has adequate air circulation.

- Ensure that the chassis cover is secure. The chassis is designed to allow cooling air to flow effectively within it. An open chassis allows air leaks, which may interrupt and redirect the flow of cooling air from the internal components.

- Always follow the ESD-prevention procedures described previously to avoid damage to equipment. Damage from static discharge can cause immediate or intermittent equipment failure.

# Power Supply Considerations

See Power Supply Modules, on page 23 for more detailed information about the power supply modules for your model.

When installing the chassis, consider the following:

- Check the power at the site before installing the chassis to ensure that it is "clean" (free of spikes and noise). Install a power conditioner, if necessary, to ensure proper voltages and power levels in the appliance input voltage.

- Install proper grounding for the site to avoid damage from lightning and power surges.

- The chassis does not have a user-selectable operating range. Refer to the label on the chassis for the correct appliance input-power requirement.

- Several styles of AC-input power supply cords are available; make sure that you have the correct style for your site.

- Install an uninterruptible power source for your site, if possible.

- If you are using dual redundant (1+1) power supplies, we recommend that you use independent electrical circuits for each power supply.

# Rack Configuration Considerations

Consider the following when planning an equipment-rack configuration:

- If you are mounting a chassis in an open rack, make sure that the rack frame does not block the intake or exhaust ports.

- Be sure enclosed racks have adequate ventilation. Make sure that the rack is not overly congested as each chassis generates heat. An enclosed rack should have louvered sides and a fan to provide cooling air.

- In an enclosed rack with a ventilation fan in the top, heat generated by equipment near the bottom of the rack can be drawn upward and into the intake ports of the equipment above it in the rack. Ensure that you provide adequate ventilation for equipment at the bottom of the rack.

- Baffles can help to isolate exhaust air from intake air, which also helps to draw cooling air through the chassis. The best placement of the baffles depends on the airflow patterns in the rack. Experiment with different arrangements to position the baffles effectively.

# Mount and Connect

# Unpack and Inspect the Chassis

**Tip** Keep the shipping container in case the chassis requires shipping in the future.

**Note** The chassis is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, contact your customer service representative immediately.

See Package Contents, on page 4 for a list of what shipped with the chassis.

**Step 1** Remove the chassis from its cardboard container and save all packaging material.

**Step 2** Compare the shipment to the equipment list provided by your customer service representative. Verify that you have all items.

**Step 3** Check for damage and report any discrepancies or damage to your customer service representative. Have the following information ready:

- Invoice number of shipper (see the packing slip)

- Model and serial number of the damaged unit

- Description of damage

• Effect of damage on the installation

# Rack-Mount the Chassis

This procedure describes how to install the Firepower 2100 in a rack using the rack-mount brackets. It also describes how to install the optional cable management brackets. See for a list of the PIDs associated with rack-mounting the chassis.

**Before you begin**

You need the following to install the Firepower 2100 in a rack (4-post EIA-310-D rack):

- Phillips head screwdriver

- Two rack-mount brackets with six 8-32, 0.81-in. screws (ships with the Firepower 2110/2120, orderable for the Firepower 2130/2140)

- Rack-mount screws (ships with the Firepower 2110/2120, orderable for the Firepower 2130/2140)

    - Four 12-24, 0.75 in.

    - Four 10-32, 0.75 in.

    - Four M6, 19 mm

- Two cable management brackets with four 8-32 x 0.375-in. screws (optional)

**Step 1** Attach a rack-mount bracket to each side of the chassis using the six 8-32 x .375-in. countersink Phillips head screws (three per side).

*Figure 33: Attach the Rack-Mount Bracket to the Side of the Chassis*
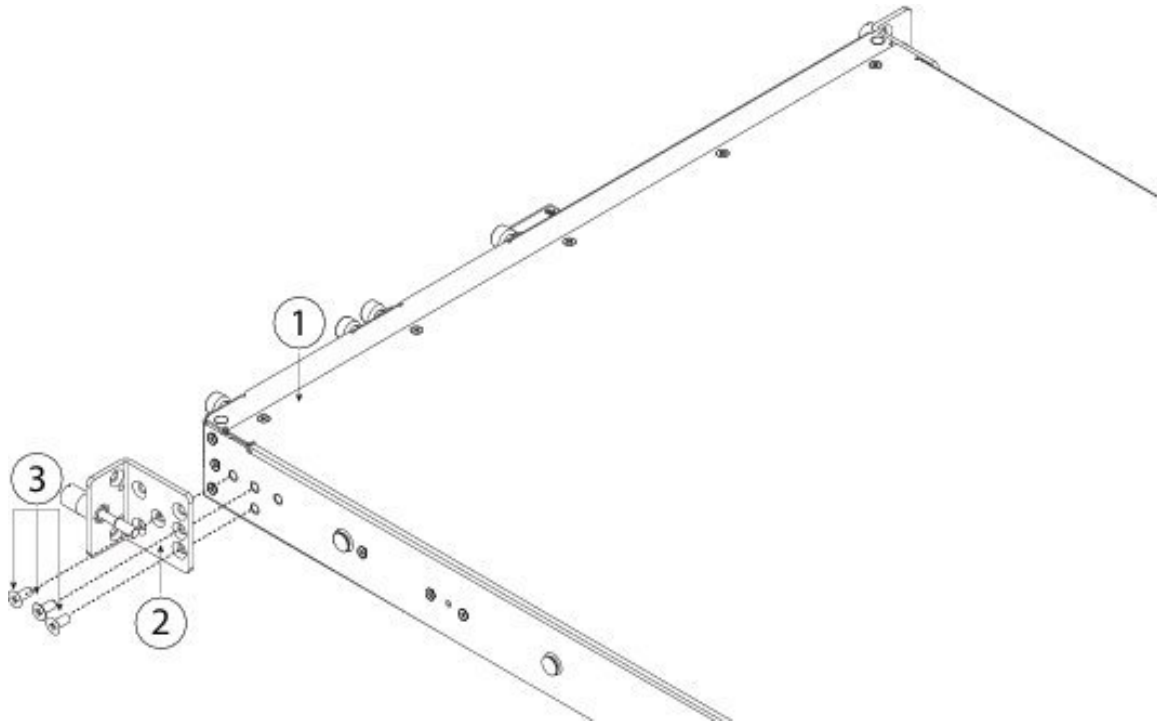


| **1** | Chassis | **2** | Rack-mount bracket |
|---|---|---|---|
| **3** | 8-32 x 0.25-in. countersink Phillip head screws (3 per side) | | |

**Step 2** (Optional) Attach the cable management bracket to the rack-mount bracket:

a) Install the cable management studs into the rack-mount bracket.

*Figure 34: Install the Cable Management Studs into the Rack-Mount Bracket*
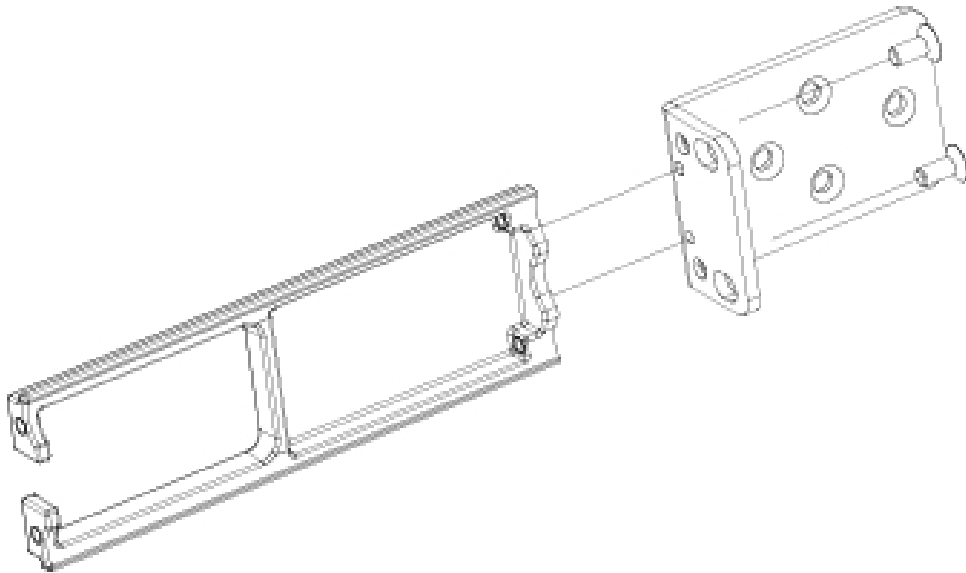


b) Install two 8-32-in. screws through the inside of the rack-mount bracket to secure the cable management bracket to the rack-mount bracket.

**Step 3** Attach the chassis with the installed rack-mount bracket to the rack using the screws that work for your rack.

**What to do next**

- Ground the Chassis, on page 54

- Connect Cables, Turn on Power, and Verify Connectivity for Cisco Firepower Threat Defense, on page 57

- Connect Cables, Turn on Power, and Verify Connectivity Using Cisco Firepower Management Center, on page 60

- Connect Cables, Turn on Power, and Verify Connectivity for Cisco ASA, on page 62

# Rack-Mount the Chassis Using Slide Rails

Take note of the following warnings:

**Warning**

**Statement 1006**—Chassis Warning for Rack-Mounting and Servicing

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

**Warning**

**Statement 1024**—Ground Conductor

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

**Warning**

**Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**Warning**

**Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

**Warning**

**Statement 1047**—Overheating Prevention

To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 40°C.

This procedure describes how to install the Firepower 2100 series in a rack using slide rails. It applies to all models of the 2100 series. It ships with the Firepower 2130 and 2140 chassis; it is optional for the 2110 and 2120. For the 2110 and 2120, you install three screws on the chassis to secure the slide rail. For the 2130 and 2140, you use the pegs on the chassis to secure the slide rail. See Product ID Numbers, on page 30 for a list of the PIDs associated with racking the chassis.

You can install the optional cable management bracket on all models of the 2100 series. The optional cable management bracket kit comes with two cable management brackets and four 8-32 x 0.375-in. screws.

**Before you begin**

You need the following to install the Firepower 2100 in a rack (4-post EIA-310-D rack) using slide rails:

- Phillips head screwdriver

- One slide rail kit that contains the following:

> ✎
>
> **Note** The slide rail kit ships with the Firepower 2130/2140. You can order it for the Firepower 2110/2120.

- Left and right slides rails with two M3x6 mm wafer-head screws

- Two slide rail locking brackets with six 8-32 x .25-in. screws

- (Optional) Two cable management brackets with four 8-32 x 0.375-in. screws

Slide rail assemblies work with four-post racks and cabinets with square slots, round 7.1mm holes, #10-32 threaded holes, and #12-24 threaded holes on the rack post front. The slide rail works with front to back spacing of rack posts from 24 to 36 inches.

**Step 1** Attach the slide-rail locking brackets to each side of the chassis using the six 8-32 x .375-in. countersink Phillips head screws (three per side).

*Figure 35: Attach the Slide-Rail Locking Bracket to the Side of the Chassis*
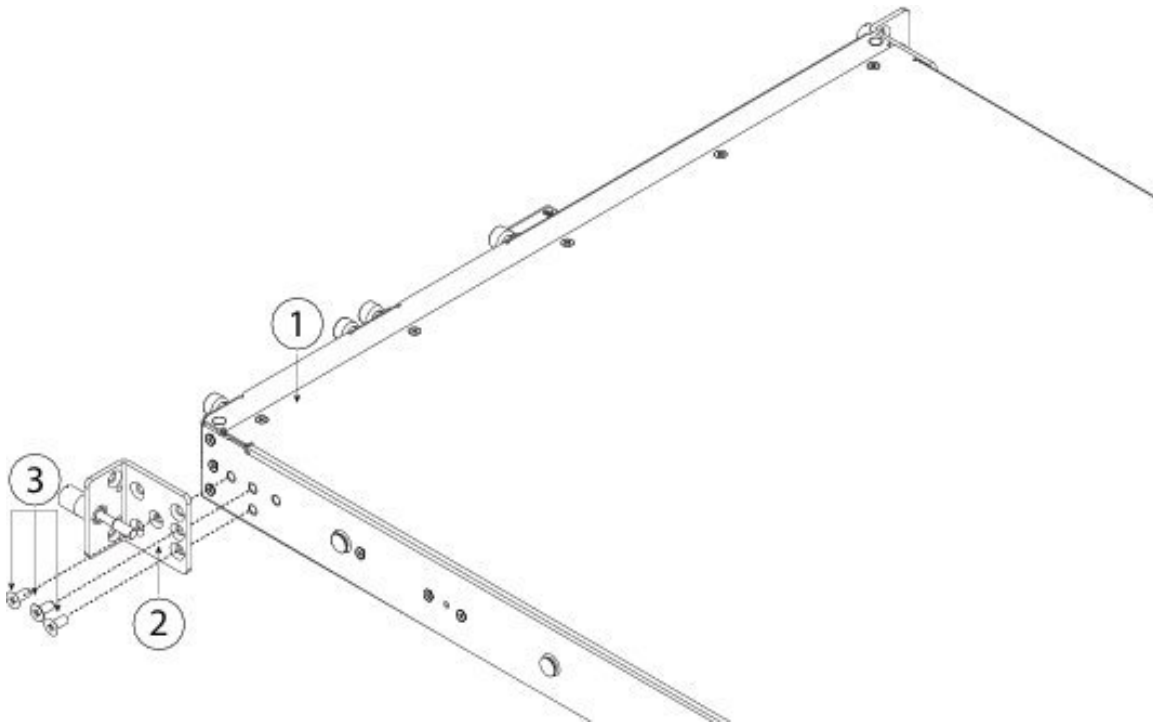


| 1 | Chassis | 2 | Slide-rail locking bracket |
|---|---|---|---|
| 3 | 8-32 x 0.25-in. countersink Phillips head screws (3 per side) | | |

**Step 2** (Optional) Attach the cable management bracket to the slide-rail locking bracket:

a) Install the cable management studs into the slide-rail locking bracket.

*Figure 36: Install the Cable Management Studs into the Slide-Rail Locking Bracket*
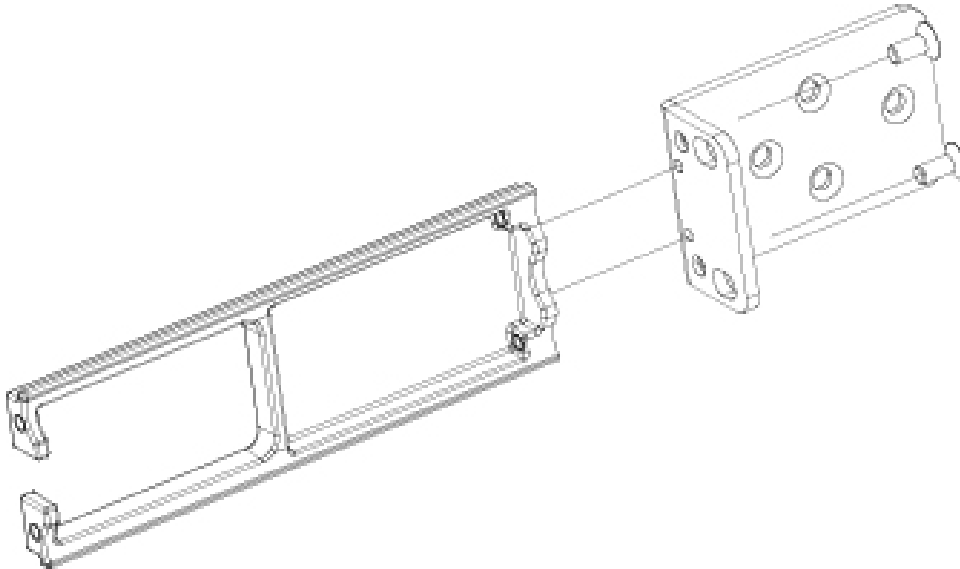


b) Install two 8-32-in. screws through the inside of the slide-rail locking bracket to secure the cable management bracket to slide-rail locking bracket.

**Step 3** Attach the inner rails to the sides of the chassis:

a) Remove the inner rails from the slide rail assemblies.

b) Align an inner rail with each side of the chassis:

  • (2110/2120) Install the three 8-32-in. screws into each side of the chassis, and align the inner rail so that the three slots on the rail line up with the screws on the chassis.

*Figure 37: Install the Screws on the 2110/2120 Chassis and Line up the Inner Rail*
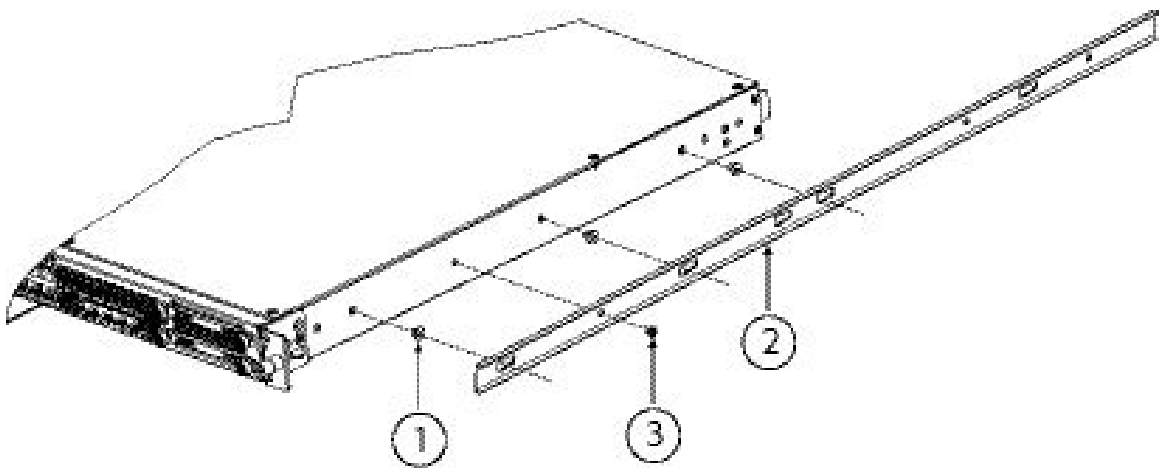


| 1 | 8-32-in. screw | 2 | Inner rail |
|---|---|---|---|

| 3 | M3x6 mm screw (1 per side) | | |
|---|---|---|---|

- (2130/2140) Align the inner rail so that the three slots on the rail line up with the three pegs on the side of the chassis.

*Figure 38: Line up the Inner Rail with the Pegs on the 2130/2140 Chassis*



| 1 | Mounting peg on the chassis for the keyed slot | 2 | Inner rail |
|---|---|---|---|
| 3 | M3x6mm screw (1 per side) | | |

   c) Set the keyed slots over the screws/pegs, and then slide the rail toward the front to lock it in place on the screw/pegs. The rear key slot has a metal clip that locks over the screw/peg.
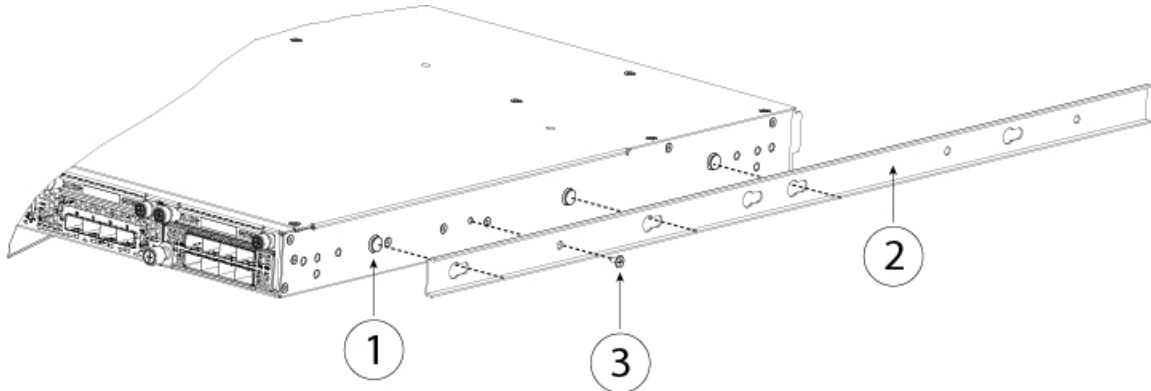
   d) Using one M3x6mm screw, secure the inner rail to the side of the chassis to prevent sliding.

   e) Install the second inner rail to the opposite side of the chassis and secure with the other M3x6mm screw.

**Step 4** Open the front securing plate on both slide-rail assemblies. The front end of the slide-rail assembly has a spring-loaded securing plate that must be open before you can insert the mounting pegs into the rack-post holes.

On the outside of the assembly, push the green arrow button toward the rear to open the securing plate.

*Figure 39: Front Securing Mechanism Inside the Front End*
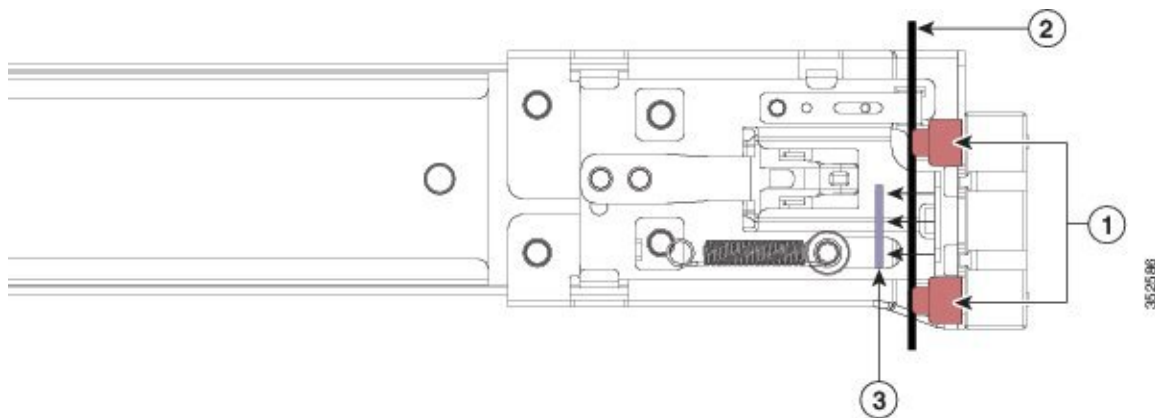
| 1 | Front mounting pegs<br><br>**Note**       Works with square slots, 7.1mm holes, and 10-32 threaded holes. | 2 | Securing plate shown pulled back to open position |
| --- | --- | --- | --- |
| 3 | Rack post | | |

**Step 5**    Install the slide rails into the rack:

    a)   Align one slide-rail assembly front end with the front rack-post holes that you want to use.

      The slide rail front-end wraps around the outside of the rack post and the mounting pegs enter the rack-post holes from the outside-front.

      **Note**       The rack post must be between the mounting pegs and the open securing plate.

    b)   Push the mounting pegs into the rack-post holes from the outside-front.

    c)   Press the securing plate release button marked 'PUSH.' The spring-loaded securing plate closes to lock the pegs in place.

    d)   Adjust the slide-rail length, and then push the rear mounting pegs into the corresponding rear rack-post holes. The slide rail must be level front-to-rear.

      The rear mounting pegs enter the rear rack-post holes from the inside of the rack post.

    e)   Attach the second slide-rail assembly to the opposite side of the rack. Make sure that the two slide-rail assemblies are at the same height with each other and are level front-to-back.

    f)   Pull the inner slide rails on each assembly out toward the rack front until they hit the internal stops and lock in place.

**Step 6**    Insert the chassis into the slide rails.

    a)   Align the rear of the inner rails that are attached to the chassis sides with the front ends of the empty slide rails on the rack.

    b)   Push the inner rails into the slide rails on the rack until they stop at the internal stops.

    c)   Slide the release clip toward the rear on both inner rails, and then continue pushing the chassis into the rack until the mounting brackets meet the front of the slide rail.

Figure 40: Inner Rail Release Clip
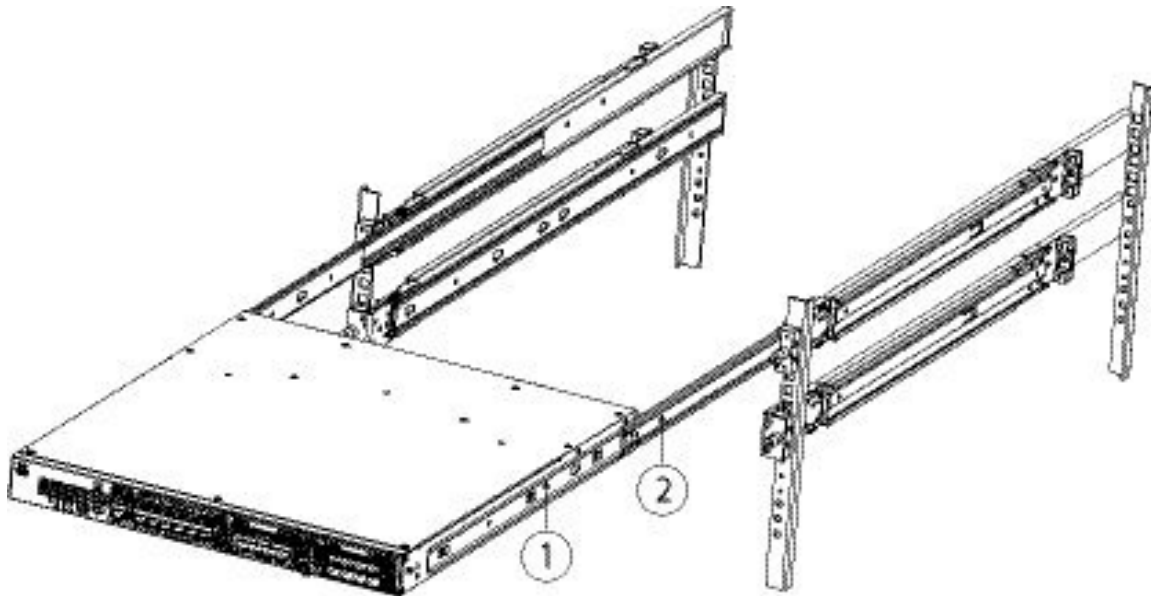


| 1 | Inner rail release clip | 2 | Inner rail attached to chassis |
|---|---|---|---|

**Step 7** Use the captive screws on the front of the mounting brackets to fully secure the chassis to the rack.

**What to do next**

Continue with the following procedures:

# Ground the Chassis

Take note of the following warnings:

**Warning**    **Statement 1024**—Ground Conductor

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

⚠

**Warning**    **Statement 1046**—Installing or Replacing the Unit

When installing or replacing the unit, the ground connection must always be made first and disconnected last.

⚠

**Warning**    **Statement 1025**—Use Copper Conductors Only

Use copper conductors only.

⚠

**Caution**    Grounding the chassis is required, even if the rack is already grounded. A grounding pad with 2 threaded M4 holes is provided on the chassis for attaching a grounding lug. The ground lug must be NRTL-listed. In addition, a copper conductor (wires) must be used and the copper conductor must comply with NEC code for ampacity.

**Before you begin**

- You need the following items that you provide:

    - Wire-striping tool

    - Crimping tool

    - Grounding cable

    - Two star lock washers for the 10-32 x .375-in. screws used to secure the ground lug

- You need the following items from the accessory kit:

    - Ground lug #6 AWG, 90 degree, #10 post

    - Two 10-32 x .375-in. screws used to secure the ground lug

**Step 1**    Use a wire-stripping tool to remove approximately 0.75 in. (19 mm) of the covering from the end of the grounding cable.

**Step 2**    Insert the stripped end of the grounding cable into the open end of the grounding lug.

*Figure 41: Insert the Cable into the Grounding Lug*
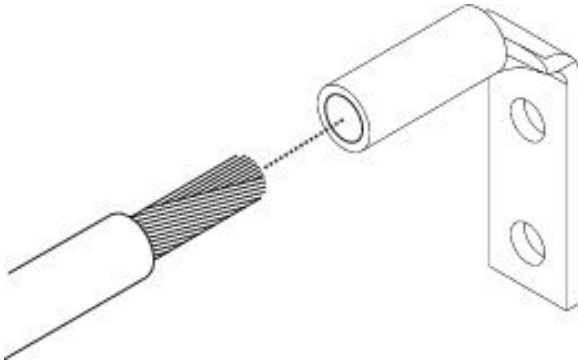


**Step 3**  Use the crimping tool to secure the grounding cable in the grounding lug.

**Step 4**  Remove the adhesive label from the grounding pad on the chassis.

**Step 5**  Place the grounding lug against the grounding pad so that there is solid metal-to-metal contact, and insert the 2 screws with washers through the holes in the grounding lug and into the grounding pad.

*Figure 42: Attach the Grounding Lug*
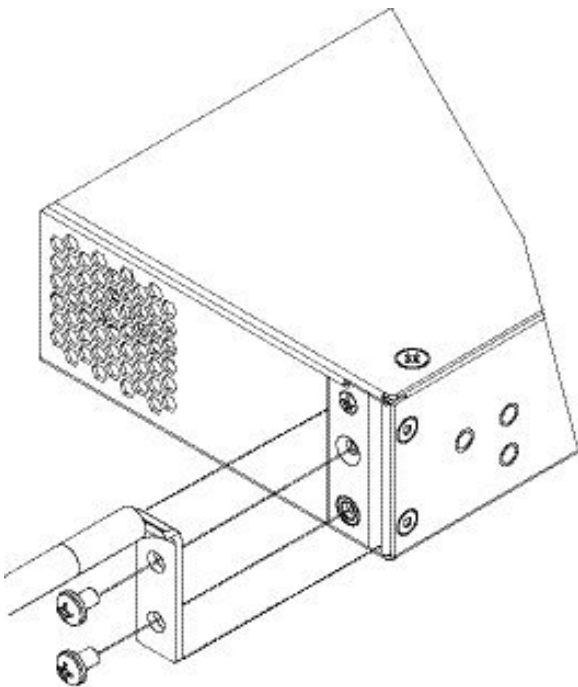


**Step 6**  Make sure that the lug and cable do not interfere with other equipment.

**Step 7**  Prepare the other end of the grounding cable and connect it to an appropriate grounding point in your site to ensure adequate earth ground.

**What to do next**

Continue with one of the following:

# Connect Cables, Turn on Power, and Verify Connectivity for Cisco Firepower Threat Defense

Take note of the following warnings:

**Warning**

**Statement 1005**—Circuit Breaker

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than:

Rated 120 V, 15 A (US), 250 V, 16A (EU)

**Warning**

**Statement 1007**—TN and IT Power Systems

This equipment has been designed for connection to TN and IT power systems.

**Warning**

**Statement 1002**—DC Power Supply

When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

**Warning**

**Statement 1003**—DC Power Disconnection

Before performing any of the following procedures, ensure that power is removed from the DC circuit.

**Warning**

**Statement 1046**—Installing or Replacing the Unit

When installing or replacing the unit, the ground connection must always be made first and disconnected last.

**Warning**

**Statement 1022**—Disconnect Device

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.

⚠️

**Warning**    **Statement 1025**—Use Copper Conductors Only

Use copper conductors only.

After rack-mounting and grounding the Firepower 2100, follow these steps to connect cables, turn on power, and verify connectivity.

✎

**Note**    The following figure shows the default configuration using a management computer connected to the inside network. Your deployment may vary depending on your basic logical network connectivity, ports, addressing, and configuration requirements.

*Figure 43: Connect Cables to Firepower 2100 Interfaces*
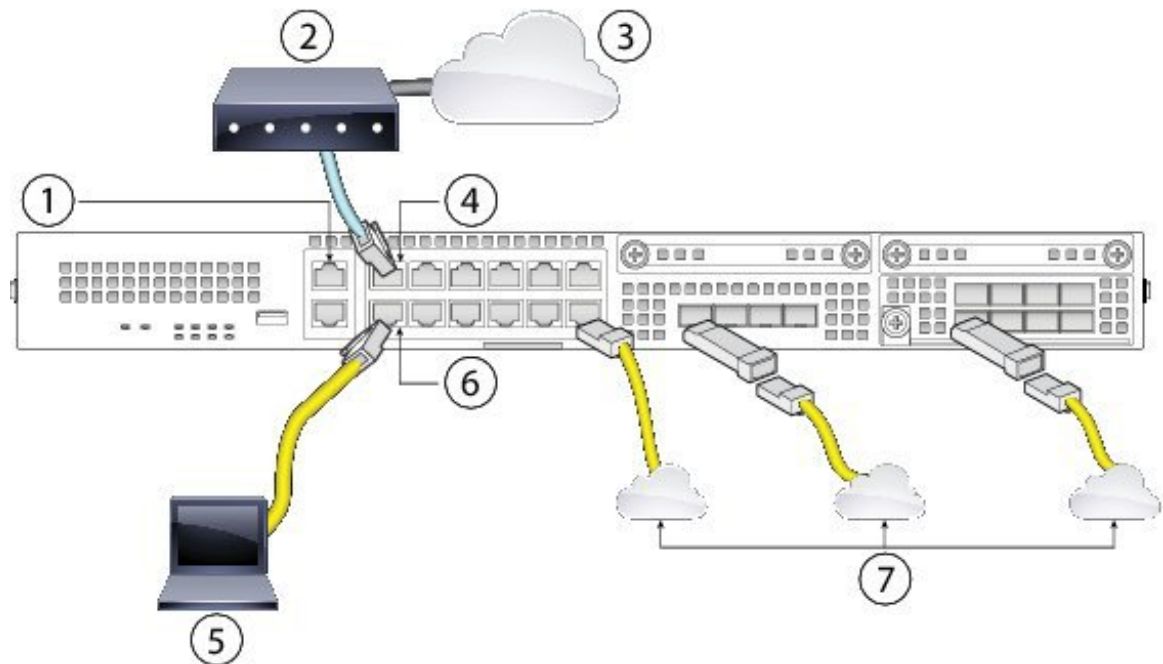


| 1 | (Alternative) Management 1/1 192.168.45.45 | 2 | WAN modem |
|---|---|---|---|
| 3 | Internet | 4 | Ethernet 1/1 (outside, DHCP from modem) |
| 5 | Management computer (DHCP from inside 192.168.1.x) | 6 | Ethernet 1/2 (inside 192.168.1.1) |
| 7 | Other data networks (SFP/SFP+ transceivers) | | |

**Step 1**    Connect the Ethernet 1/1 (outside) interface to your ISP/WAN modem or other outside device. By default, the IP address is obtained using DHCP, but you can set a static address during initial configuration. For Smart Software Licensing, the Firepower 2100 needs internet access so that it can access the License Authority.

**Step 2**    Connect a local management computer, the one you are using to configure the Firepower 2100, to the inside interface Ethernet 1/2.

**Step 3**    Configure the management computer to obtain an IP address using DHCP. The management computer gets an address on the 192.168.1.0/24 network.

    **Note**    You have other options for connecting the management computer. You can directly connect it to the management port. The management computer gets an address through DHCP on the 192.168.45.0/24 network. Or you can leave your management computer attached to a switch, and attach that switch to GigabitEthernet 1/2. However, you must make sure that no other device on the switch's network is running a DHCP server, because it will conflict with the one running on the inside interface, 192.168.1.1.

**Step 4**    Connect other data interfaces as needed using SFP/SFP+ transceivers. Install SFP/SFP+/ transceivers in the Ethernet network interfaces in the 4 fixed ports or in the network module (Firepower 2130/2140 only) taking care not to touch the contacts in the rear.

    **Warning**    Do not force an SFP transceiver into a socket. This can jam the transceiver and can cause permanent damage to the transceiver, the chassis, or both.

    **Caution**    Although non-Cisco SFPs are allowed, we do not recommend using them because they have not been tested and validated by Cisco. Cisco TAC may refuse support for any interoperability problems that result from using an untested third-party SFP transceiver. See Supported SFP/SFP+ Transceivers, on page 26 for a list of supported Cisco transceivers.

    **Note**    Use appropriate ESD procedures when inserting the transceiver. Avoid touching the contacts at the rear, and keep the contacts and ports free of dust and dirt. Store unused SPFs in their ESD packaging.

**Step 5**    Attach the power cable to the chassis and connect it to an electrical outlet.

**Step 6**    Press the power switch on the rear panel.

**Step 7**    Check the PWR LED on the front panel. Solid green indicates that the chassis is powered on.

**Step 8**    Check the SYS LED on the front panel. Solid green indicates that the system has passed power-on diagnostics.

    **Note**    When you toggle the power switch from ON to OFF, it takes several seconds for the system to power off. Do not remove the power cable until the PWR LED is completely off. After removing power from the chassis by unplugging the power cord, wait at least 10 seconds before turning power back ON. See Rear Panel, on page 14 for more information on the power switch.

**Step 9**    See the Cisco Firepower Threat Defense for the Firepower 2100 Series Using Firepower Device Manager Quick Start Guide for more information about configuring the Firepower 2100.

# Connect Cables, Turn on Power, and Verify Connectivity Using Cisco Firepower Management Center

Take note of the following warnings:

**Warning**   **Statement 1005**—Circuit Breaker

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than:

Rated 120 V, 15 A (US), 250 V, 16A (EU)

**Warning**   **Statement 1007**—TN and IT Power Systems

This equipment has been designed for connection to TN and IT power systems.

**Warning**   **Statement 1002**—DC Power Supply

When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

**Warning**   **Statement 1003**—DC Power Disconnection

Before performing any of the following procedures, ensure that power is removed from the DC circuit.

**Warning**   **Statement 1046**—Installing or Replacing the Unit

When installing or replacing the unit, the ground connection must always be made first and disconnected last.

**Warning**   **Statement 1022**—Disconnect Device

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.

**Warning**   **Statement 1025**—Use Copper Conductors Only

Use copper conductors only.

After rack-mounting and grounding the Firepower 2100, follow these steps to connect cables, turn on power, and verify connectivity using the Firepower Management Center (FMC).

The following figure shows a simple topology using a Layer 2 switch. Your deployment will vary depending on your basic logical network connectivity, ports, addressing, and configuration requirements.

**Figure 44: Connect Cables to Firepower 2100 Interfaces**
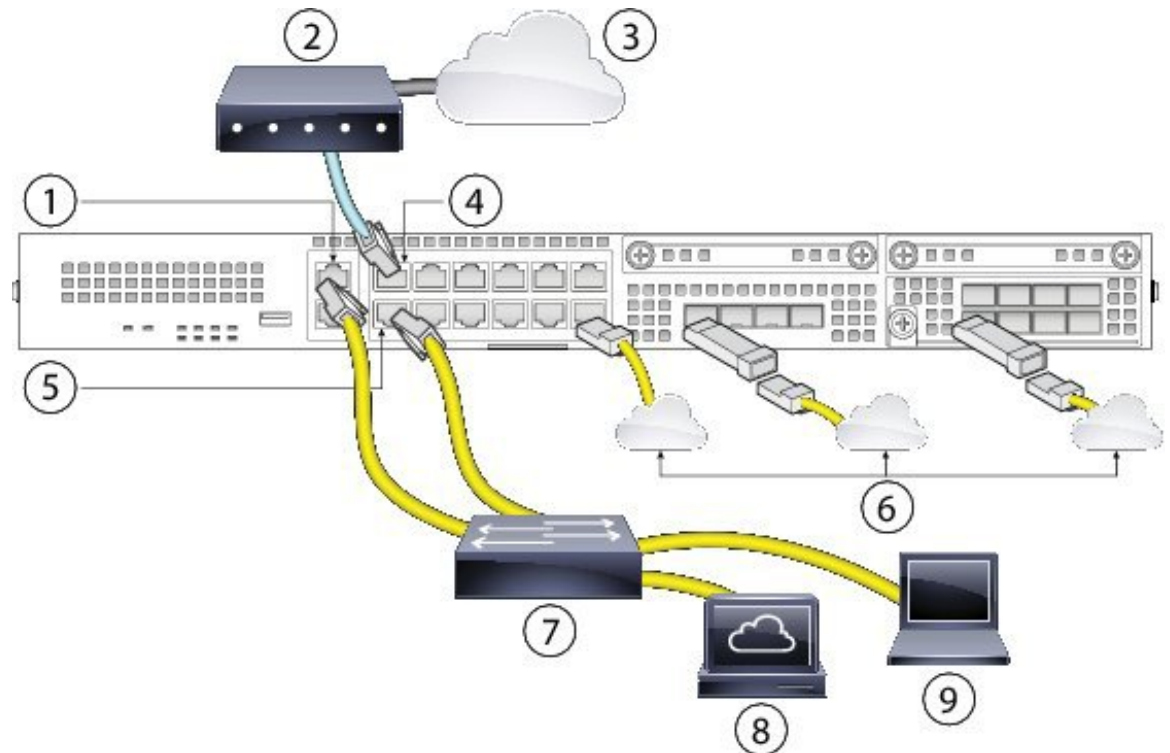


| 1 | Management 1/1 (default 192.168.45.45) | 2 | WAN modem |
|---|---|---|---|
| 3 | Internet | 4 | Ethernet 1/1 (outside DHCP from modem) |
| 5 | Ethernet 1/2 (inside 192.168.45.1 management gateway) | 6 | Other data networks (SFP/SFP+ transceivers) |
| 7 | Layer 2 switch | 8 | Firepower Management Center (192.168.45.44) |
| 9 | Management computer (192.168.45.2) | | |

**Step 1**    Cable the following to a Layer 2 Ethernet switch:

- Ethernet 1/2 interface (outside)

- Management 1/1 interface (for the FMC)

- Local management computer

- FMC

| **Note** | You can connect inside and management on the same network because the management interface acts like a separate device that belongs only to Firepower management. |
|---|---|

**Step 2** Connect the Ethernet 1/1 (outside) interface to a WAN device, for example, a cable modem. For Smart Software Licensing, the Firepower 2100 needs internet access so that it can access the License Authority.

**Step 3** Connect other data interfaces as needed using SFP/SFP+ transceivers. Install SFP/SFP+/ transceivers in the Ethernet network interfaces in the four fixed ports or in the network module (Firepower 2130/2140 only) taking care not to touch the contacts in the rear.

| **Warning** | Do not force an SFP transceiver into a socket. This can jam the transceiver and can cause permanent damage to the transceiver, the chassis, or both. |
|---|---|

| **Caution** | Although non-Cisco SFPs are allowed, we do not recommend using them because they have not been tested and validated by Cisco. Cisco TAC may refuse support for any interoperability problems that result from using an untested third-party SFP transceiver. See Supported SFP/SFP+ Transceivers, on page 26 for a list of supported Cisco transceivers. |
|---|---|

| **Note** | Use appropriate ESD procedures when inserting the transceiver. Avoid touching the contacts at the rear, and keep the contacts and ports free of dust and dirt. Store unused SPFs in their ESD packaging. |
|---|---|

**Step 4** Attach the power cable to the chassis and connect it to an electrical outlet.

**Step 5** Press the power switch on the rear panel.

**Step 6** Check the PWR LED on the front panel. Solid green indicates that the chassis is powered on.

**Step 7** Check the SYS LED on the front panel. Solid green indicates that the system has passed power-on diagnostics.

| **Note** | When you toggle the power switch from ON to OFF, it takes several seconds for the system to power off. Do not remove the power cable until the PWR LED is completely off. After removing power from the chassis by unplugging the power cord, wait at least 10 seconds before turning power back ON. See Rear Panel, on page 14 for more information on the power switch. |
|---|---|

**Step 8** See the Cisco Firepower Threat Defense for the Firepower 2100 Series Using Firepower Management Center Quick Start Guide for more information about configuring the Firepower 2100.

# Connect Cables, Turn on Power, and Verify Connectivity for Cisco ASA

Take note of the following warnings:

⚠

| **Warning** | **Statement 1005**—Circuit Breaker |
|---|---|
| | This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: |
| | Rated 120 V, 15 A (US), 250 V, 16A (EU) |

**Warning**   **Statement 1007**—TN and IT Power Systems

This equipment has been designed for connection to TN and IT power systems.

**Warning**   **Statement 1002**—DC Power Supply

When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

**Warning**   **Statement 1003**—DC Power Disconnection

Before performing any of the following procedures, ensure that power is removed from the DC circuit.

**Warning**   **Statement 1046**—Installing or Replacing the Unit

When installing or replacing the unit, the ground connection must always be made first and disconnected last.

**Warning**   **Statement 1022**—Disconnect Device

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.

**Warning**   **Statement 1025**—Use Copper Conductors Only

Use copper conductors only.

After rack-mounting and grounding the Firepower 2100, follow these steps to connect cables, turn on power, and verify connectivity.

Manage the Firepower 2100 on the Management 1/1 interface. Connect to the Firepower Chassis Manager on the Management 1/1 interface to perform initial configuration. You must also SSH to this interface to connect to the ASA CLI for initial ASA setup. After initial ASA setup, you can use ASDM on Management 1/1 so you can use the same management computer for FXOS and ASA.

The default configuration also configures Ethernet 1/1 as outside and Ethernet 1/2 as inside. You can connect more data ports on the 12 fixed interfaces. You can connect SFP/SFP+ transceivers on the four fixed ports and on the network module (Firepower 2130/2140 only).

*Figure 45: Connect Cables to Firepower 2100 Interfaces*
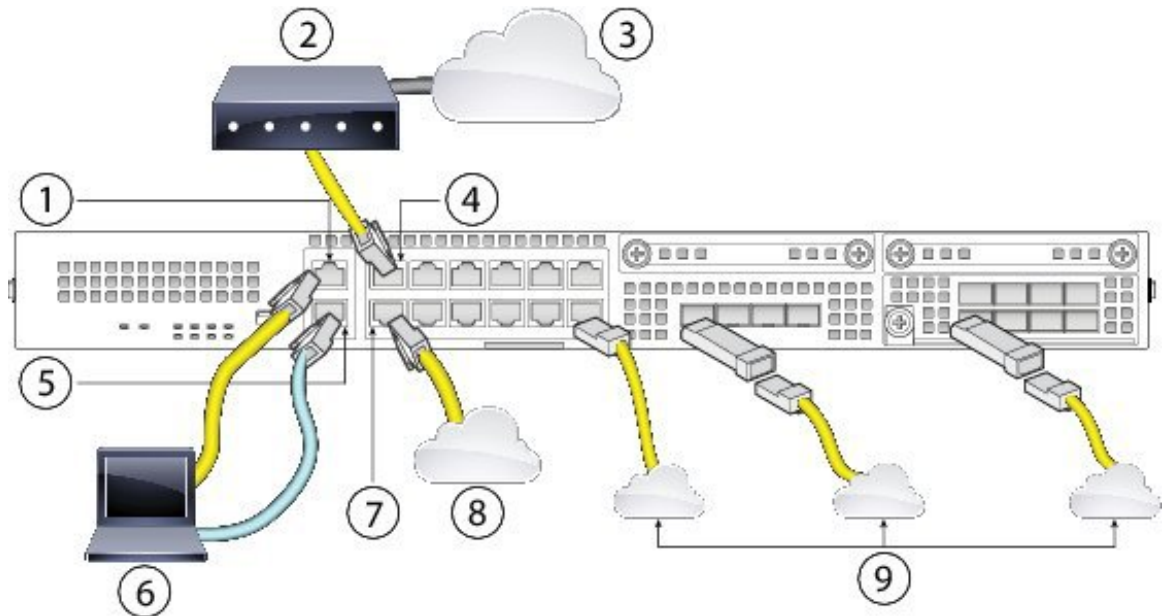


| 1 | Management 1/1 (management port) FXOS: 192.168.45.45 ASA: 192.168.45.1 | 2 | WAN modem |
|---|---|---|---|
| 3 | Internet | 4 | Ethernet 1/1 (outside, DHCP from modem) |
| 5 | Console port (for optional CLI access) | 6 | Management computer (DHCP) |
| 7 | Ethernet 1/2 (inside 192.168.1.1) | 8 | Inside |
| 9 | Other data networks (SFP/SFP+ transceivers) | | |

**Step 1**    Connect your management computer using Ethernet to Management 1/1.

**Step 2**    (Optional) Connect your management computer to the console port. The Firepower 2100 ships with a DB-9 to RJ-45 serial cable, so you will need a third-party serial-to-USB cable to make the connection. Be sure to install any necessary USB serial drivers for your operating system.

**Step 3**    Connect the outside network to the Ethernet 1/1 port (labeled WAN). For Smart Software Licensing, the ASA needs internet access so that it can access the License Authority.

**Step 4**    Connect the inside network to Ethernet 1/2.

**Step 5**    Connect other data interfaces as needed using SFP/SFP+ transceivers. Install SFP/SFP+/ transceivers in the Ethernet network interfaces in the 4 fixed ports or in the network module (Firepower 2130/2140 only) taking care not to touch the contacts in the rear.

   **Warning**    Do not force an SFP transceiver into a socket. This can jam the transceiver and can cause permanent damage to the transceiver, the chassis, or both.

**Caution**    Although non-Cisco SFPs are allowed, we do not recommend using them because they have not been tested and validated by Cisco. Cisco TAC may refuse support for any interoperability problems that result from using an untested third-party SFP transceiver. See Supported SFP/SFP+ Transceivers, on page 26 for a list of supported Cisco transceivers.

**Note**    Use appropriate ESD procedures when inserting the transceiver. Avoid touching the contacts at the rear, and keep the contacts and ports free of dust and dirt. Store unused SPFs in their ESD packaging.

**Step 6**    Attach the power cable to the Firepower 2100 and connect it to an electrical outlet.

**Step 7**    Press the power switch on the rear panel.

**Step 8**    Check the PWR LED on the front panel. Solid green indicates that the Firepower 2100 is powered on.

**Step 9**    Check the SYS LED on the front panel. Solid green indicates that the system has passed power-on diagnostics.

**Note**    When you toggle the power switch from ON to OFF, it takes several seconds for the system to power off. Do not remove the power cable until the PWR LED is completely off. After removing power from the chassis by unplugging the power cord, wait at least 10 seconds before turning power back ON. See Rear Panel, on page 14 for more information on the power switch.

**Step 10**    See the Cisco ASA for Firepower 2100 Series Getting Started Guide for more information about configuring the Firepower 2100.

**CHAPTER 4**

# Maintenance and Upgrade

# Remove and Replace the Network Module

Take note of the following warnings:

**Warning**

**Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**Warning**

**Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

You can remove and replace the network module in the Firepower 2130 and 2140. Although the hardware supports removing and replacing the network module while the system is running, the software does not currently support hot swapping. You must power down the chassis to remove and replace network modules. See Network Modules, on page 17 for more information about Firepower network modules.

**Step 1** Save your configuration.

**Step 2** Power down the appliance by moving the power switch to the OFF position. See Rear Panel, on page 15 for more information about the power switch.

**Step 3** To remove a network module, loosen the captive screw on the lower left side of the network module and pull out the handle that is connected to the screw. This mechanically ejects the network module from the slot.

*Figure 46: Remove the Network Module*
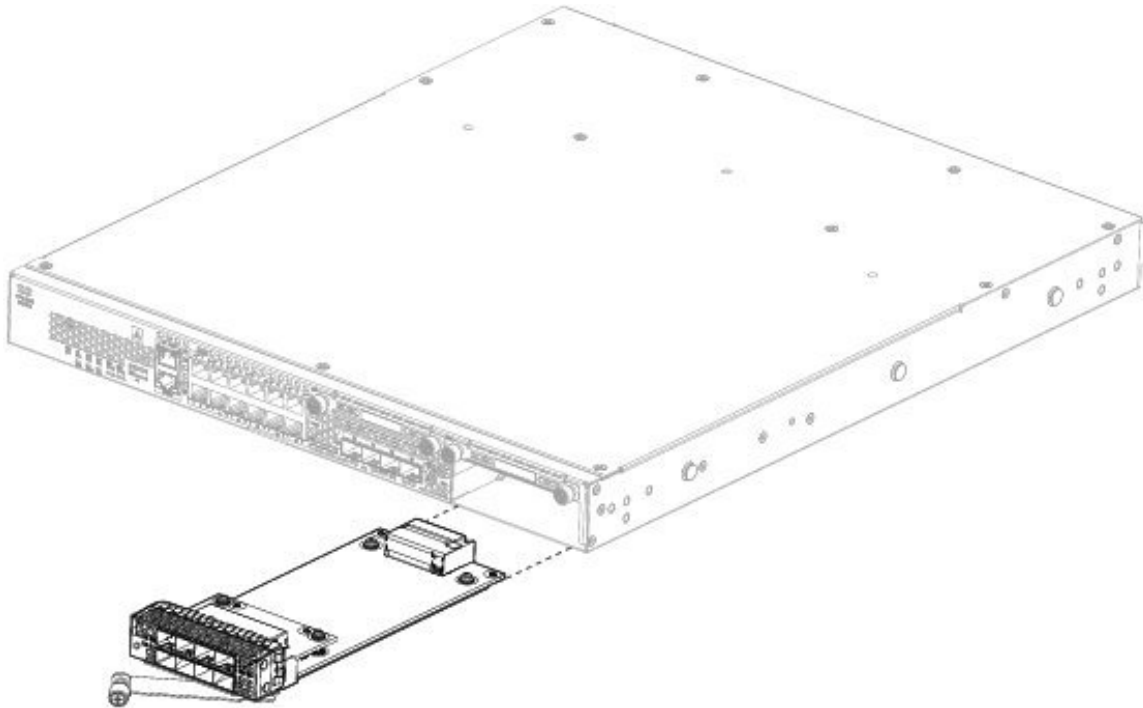
If the slot is to remain empty, install a blank faceplate to ensure proper airflow and to keep dust out of the chassis; otherwise, install another network module.

**Step 4** To replace a network module, hold the network module in front of the network module slot on the right of the chassis and pull the network module handle out.

**Step 5** Slide the network module into the slot and push it firmly into place until the handle is flush with the front of the network module.

**Step 6** Tighten the captive screw on the lower left side of the network module.

**Step 7** Power on the chassis so that the new network module is recognized.

**What to do next**

Follow the procedures in the FXOS Configuration Guide to connect to the network module and make sure that it has been discovered correctly by the security appliance.

# Remove and Replace the SSD

Take note of the following warnings:

**Warning** **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**Warning**

**Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

Although the hardware supports removing and replacing SSDs while the system is running, the software does not currently support hot swapping. You must power down the chassis to remove and replace SSDs.

**Note**

The 100-GB SSD is restricted to the 2110 and 2120 models. The 200-GB SSD is restricted to the 2130 and 2140 models. Do not mix them.

You can install a Malware Storage Pack (MSP) in slot 2. The MSP stores threat detection data for use in future analysis. It supports the Advanced Malware Protection (AMP) software feature. It is used as both storage and as the Malware application repository. RAID is not supported.

**Caution**

Do not switch the two SSDs. You MUST install the MSP in slot 2. If you remove it and install it in slot 1, all stored capture data are lost.

**Step 1** Save your configuration.

**Step 2** Power down the chassis by moving the power switch to the OFF position. See Rear Panel, on page 15 for more information on the power switch.

**Step 3** To remove the SSD in slot 1, face the front of the chassis, loosen the two captive screws on the SSD, and gently pull it out of the chassis.

*Figure 47: Remove the SSD*
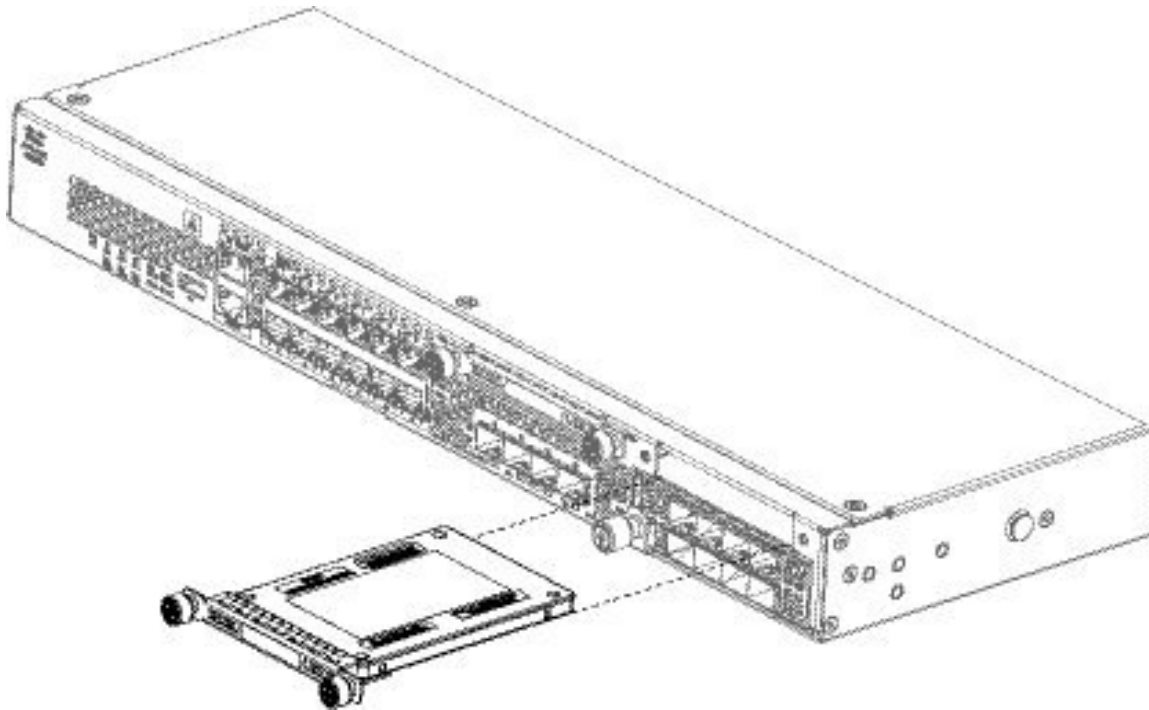


**Step 4**   To replace the SSD in slot 1, make sure the power switch is still in the OFF position, and then hold the SSD in front of slot 1 and push it in gently until it is seated.

**Step 5**   To install the MSP SSD, make sure the power switch is still in the OFF position, and then remove the blank faceplate in Slot 2 by loosening the captive screws on either side of the faceplate.

**Step 6**   Hold the MSP SSD in front of slot 2 and push it in gently until it is seated.

> **Caution**   Do not switch the two SSDs. The MSP MUST be installed in slot 2. If you remove it and install it in slot 1, all stored file capture data are lost.

**Step 7**   Tighten the captive screws on either side of the SSD.

**Step 8**   Check the SSD LED to make sure the SSD is operative. See Front Panel LEDs, on page 10 for a description of the SSD LEDs.

# Remove and Replace the Power Supply Module

Take note of the following warnings:

> **Warning**   **Statement 1002**—DC Power Supply
>
> When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

**Warning**

**Statement 1003**—DC Power Disconnection

Before performing any of the following procedures, ensure that power is removed from the DC circuit.

**Warning**

**Statement 1015**—Battery Handling

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

**Warning**

**Statement 1022**—Disconnect Device

A readily accessible two-poled disconnect device must be incorporated in the fixed wiring.

**Warning**

**Statement 1025**—Use Copper Conductors Only

Use copper conductors only.

**Warning**

**Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**Warning**

**Statement 1046**—Installing or Replacing the Unit

When installing or replacing the unit, the ground connection must always be made first and disconnected last.

**Warning**

**Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

Power supply modules are hot swappable. You can remove and replace power supply modules while the system is running.

**Step 1**    Unplug the power supply cable before removing the power supply module. You cannot disengage the power supply module latch without first removing the cable.

**Step 2**    To remove a power supply module, face the back of the chassis and grasp the handle.

**Step 3**    Press the latch found on the middle of the power supply to disengage the power supply.

**Step 4**    Place your other hand under the power supply module to support it while you slide it out of the chassis.

**Figure 48: Remove the Power Supply Module**
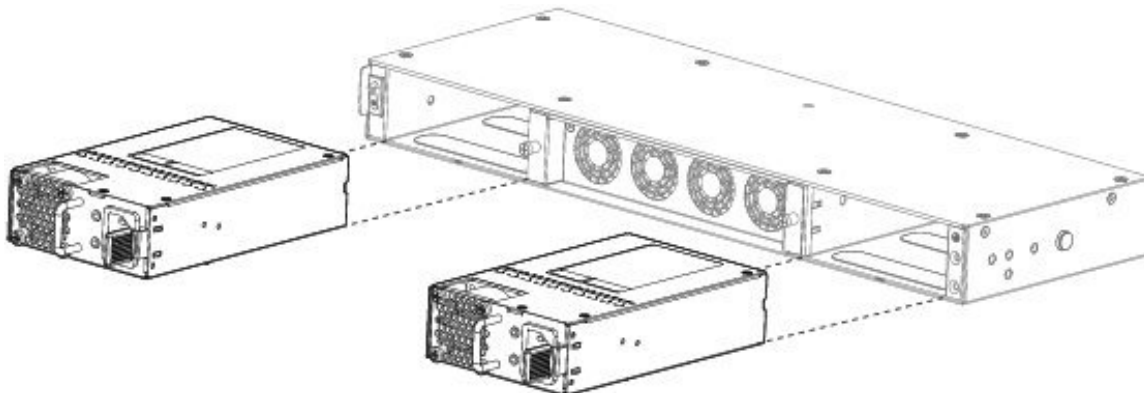


If the slot is to remain empty, install a blank faceplate to ensure proper airflow and to keep dust out of the chassis; otherwise, install another power supply module.

**Step 5** To replace a power supply module, hold the power supply module with both hands and slide it into the power supply module bay.

**Step 6** Push in the power supply module gently until you hear the latch engage and it is seated.

**Step 7** Plug in the power supply cable.

**Step 8** Check the LED on the power supply to make sure the power supply is operative. See

# Connect the DC Power Supply Module

Take note of the following warnings:

⚠️

**Warning** **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

⚠️

**Warning** **Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

For the Cisco 2130 and 2140, the input connector and plug must be UL recognized under UL 486 for field wiring. The connection polarity is from left to right: negative (–), positive (+), and ground.

Use the handle on the power supply installation and removal. You must support the module with one hand because of its length.

**Figure 49: Firepower 2100 DC Power Supply Module**
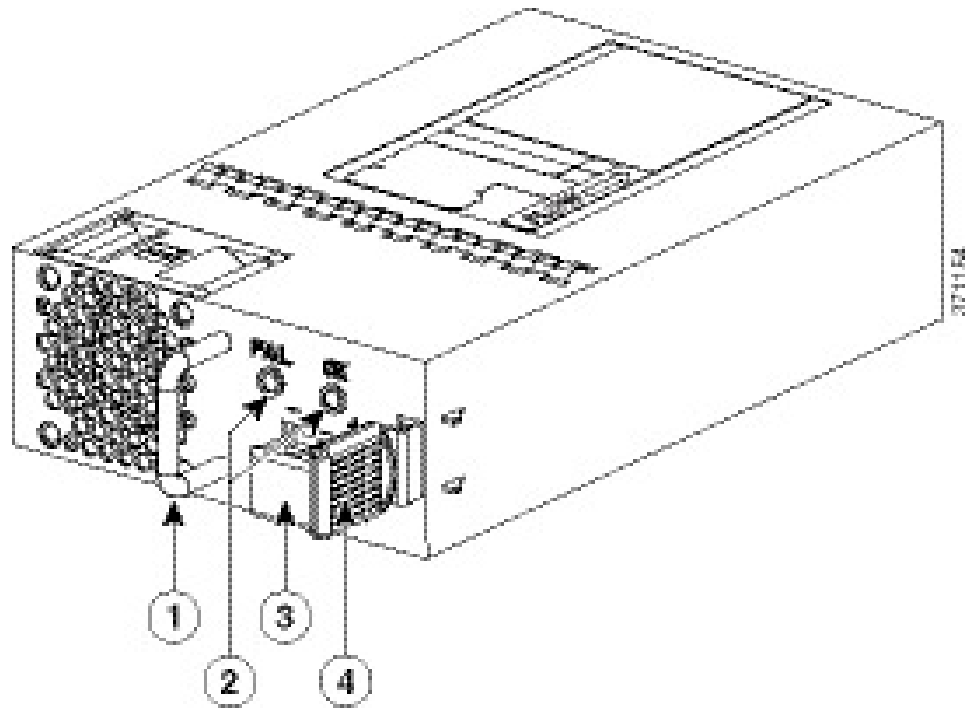


| 1 | Handle | 2 | FAIL and OK LEDs |
|---|--------|---|------------------|
| 3 | DC power connector | 4 | Ejector latch |

**Before you begin**

- The color coding of the DC input power supply leads depends on the color coding of the DC power source at your site. Make sure that the lead color coding you choose for the DC input power supply matches the lead color coding used at the DC power source and verify that the power source is connected to the negative (–) terminal and to the positive (+) terminal on the power supply.

- Make sure that the chassis ground is connected on the chassis before you begin installing the DC power supply. See Ground the Chassis, on page 54 for the procedure.

**Step 1** Verify that the power is off to the DC circuit on the power supply module that you are installing.

**Step 2** While supporting the power supply module with one hand, insert the power supply module into the power supply bay and gently push it in. See the illustration above for the location of the handle.

**Step 3** Use a wire-stripping tool to strip each of the 2 wires coming from the DC input power source. Strip the wires to approximately 0.39 inch (10 mm) + 0.02 inch (0.5 mm). We recommend you use 14 AWG insulated wire.

**Note** Do not strip more than the recommended length of wire because doing so could leave the wire exposed from the terminal block.

*Figure 50: Stripped DC Input Source Wire*
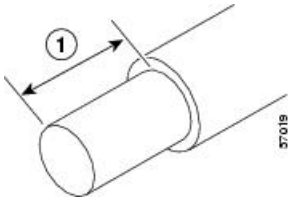


**Step 4**     Insert the exposed wire into the terminal block. Ensure that you cannot see any wire lead outside the plastic cover. Only wires with insulation should extend from the terminal block.

**Step 5**     Use a screwdriver to tighten the terminal block captive screws.

**Caution**     Do not overtorque the terminal block captive screws. Make sure that the connection is snug, but the wire is not crushed. Verify by tugging lightly on each wire to make sure that they do not move.

*Figure 51: Tighten the Terminal Block Captive Screws*
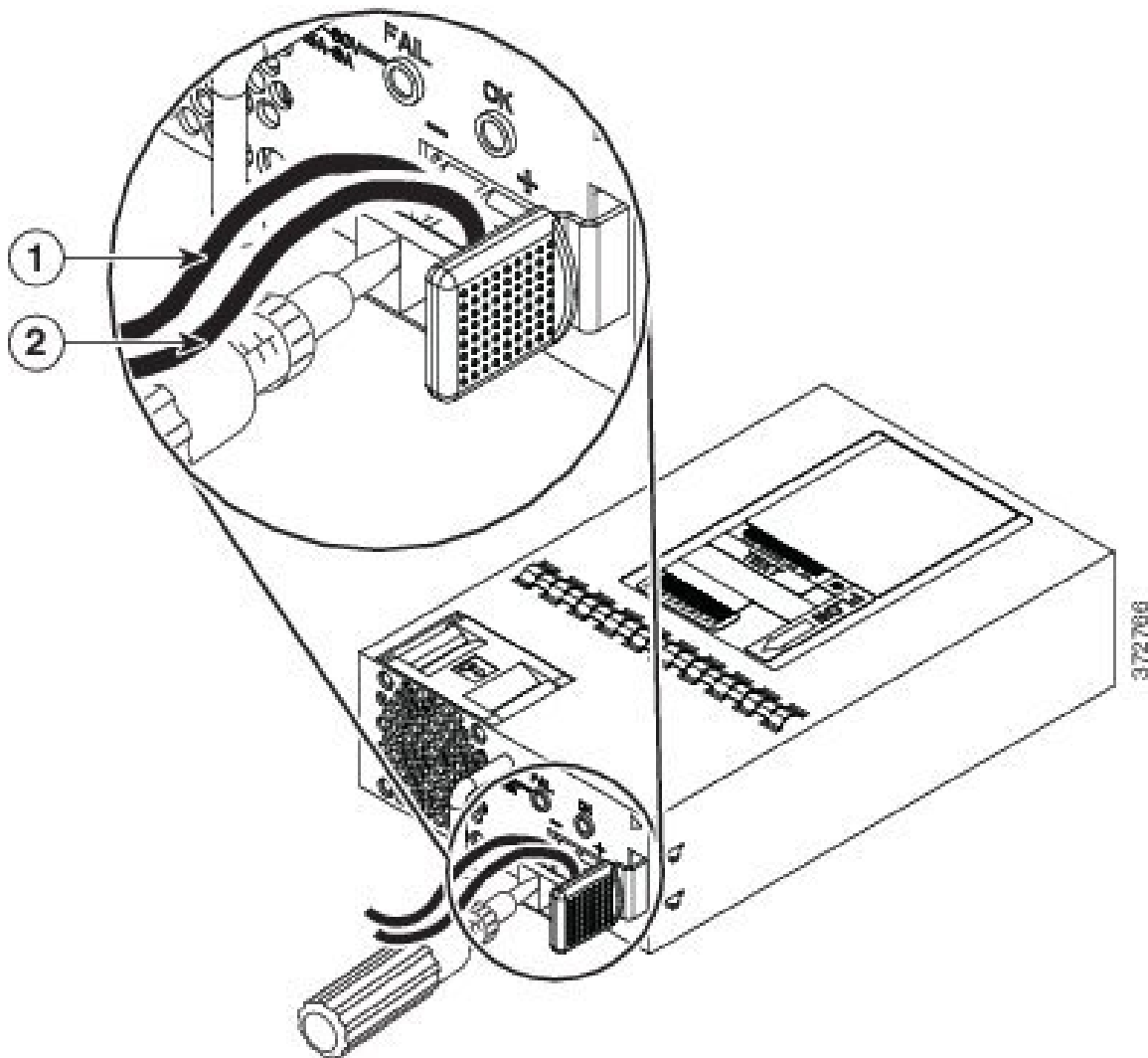
| 1 | Negative (-) lead wire | 2 | Positive (+) lead wire |
|---|------------------------|---|------------------------|

**Step 6**  Repeat these steps for the remaining DC input power source wire as applicable.

**Step 7**  Use a tie wrap so secure the wires to the rack, so that the wires are not pulled from the terminal block.

**Step 8**  Set the DC disconnect switch in the circuit to ON. In a system with multiple power supplies, connect each power supply to a separate DC power source. In the event of a power source failure, if the second source is still available, it can maintain system operation.

**Step 9**  Verify power supply operation by checking the power supply LED on the front of the chassis. See Front Panel LEDs, on page 10 for the LED values.

# Secure the Power Cord on the Power Supply Module

To secure the power supply module against accidental removal and thus prevent disrupting system performance, use the tie wrap and clamp provided in the accessories kit that ships with your Firepower 2100 security appliance.

Take note of the following warnings:

**Warning**  **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

**Warning**  **Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

**Step 1**  Attach the clamp to the tie wrap by holding the clamp with the loop side on the bottom and sliding the tie wrap through the box-shaped channel above the clamp (see the following figure).

One side of the tie wrap has evenly spaced ridges and the other is smooth. Be sure the ridged side is face up and that you slide it through the open side of the channel. You will hear a click as the tie slides through—it moves in one direction only. To remove the tie wrap from the clamp, push the lever on the closed side of the box-shaped channel and slide out the tie wrap.

*Figure 52: Tie Wrap Through the Box Channel of the Clamp*
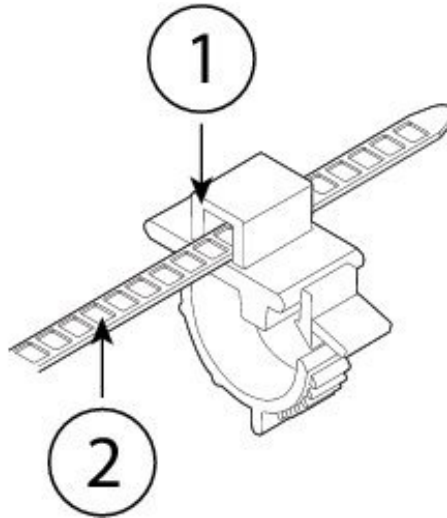


| 1 | Box channel | 2 | Tie wrap |
|---|---|---|---|

**Step 2** Attach the clamp to the power supply module:

a) Locate the hexagonal ventilation hole on the power supply module at the center of the plug just below the power connector body (see the following figures).

b) Plug the snapping portion of the tie wrap into the hexagonal hole.

c) With the clamp side facing up, push the tie wrap in until it is fully engaged.

> **Caution** Make sure you have the correct location because you cannot remove the tie wrap from the power supply module once you have installed it without damaging the tie wrap.

*Figure 53: Connect the Tie Wrap*
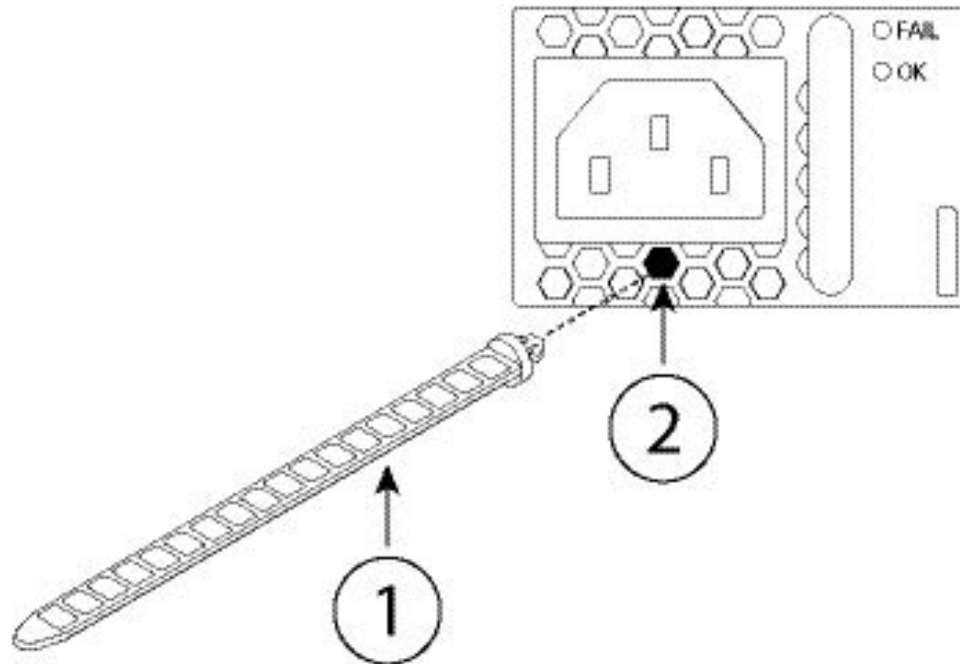


| 1 | Tie wrap | 2 | Hexagonal hole |

**Step 3** Secure the clamp:

a) Plug in the power supply power cord and wrap the clamp around the over mold portion of the power cord.

b) Squeeze the clamp ends together to the power supply so that the annular teeth engage with the mate on the clamp.

c) Make sure the clamp fits snugly into the over mold.

d) Adjust the clamp position on the tie wrap so that the clamp is tight against the front of the over mold and the power cord cannot be removed by lightly pulling on it.

*Figure 54: Clamp on Over Mold of Power Cord*
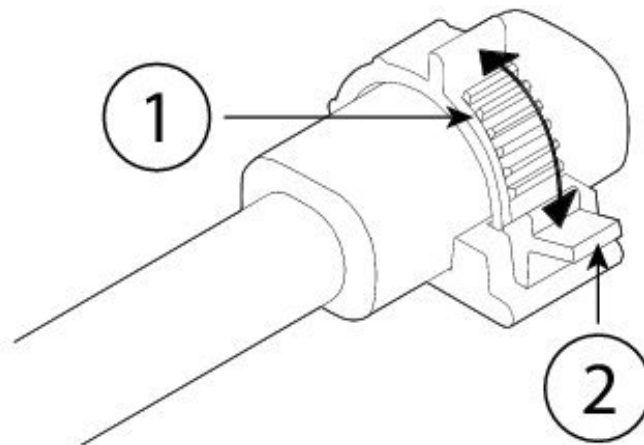
**Step 4**    If you need to remove the power cord, push the release tab on the clamp to force the annular clamp teeth to disengage and the clamp opens up. You can then remove the clamp from the power cord.

# Remove and Replace the Fan Tray

You can remove and replace the fan tray while the 2130 and 2140 are running. The air flow moves from front to back. All fan modules are integrated in a single fan tray.

⚠

**Caution**    Removing the fan tray exposes the appliance to no airflow. Replace the fan tray within 30 seconds after removal to avoid overheating the appliance. If you wait longer than 30 seconds, the appliance may power off automatically to prevent damage to components. The appliance does not power up and boot properly if the fan tray is missing.

Take note of the following warnings:

⚠

**Warning**    **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

⚠

**Warning**    **Statement 1073**—No User-Serviceable Parts

No user-serviceable parts inside. Do not open.

**Step 1**    Have the fan tray ready for immediate insertion and near the appliance so that you can reinstall the fan tray within 30 seconds.

**Step 2**    To remove a fan tray, face the rear of the chassis, and loosen the two captive screws on the fan tray.

**Step 3**    Pull the fan tray out of the chassis.

**Figure 55: Remove the Fan Tray**
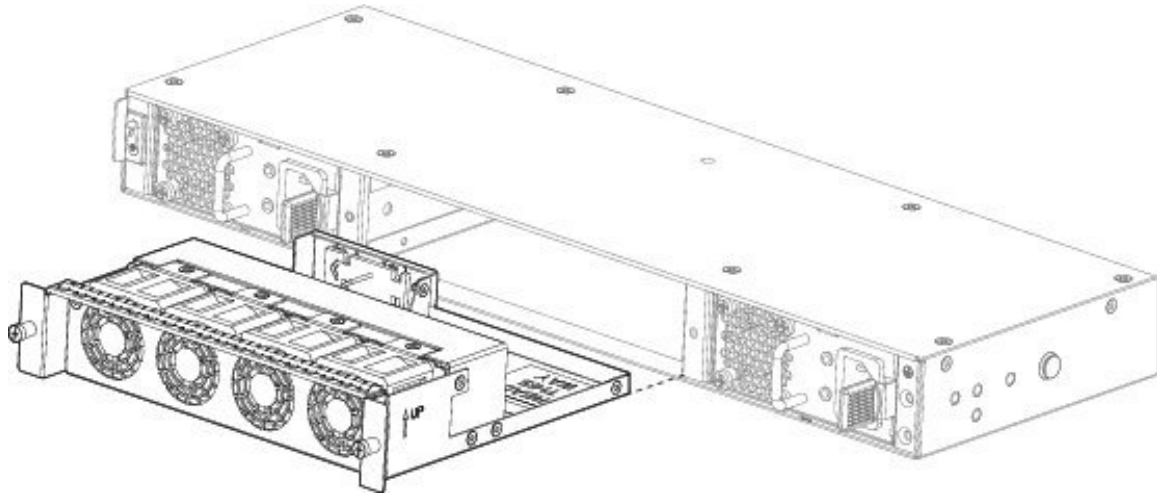


**Step 4**    To replace a fan tray, hold the fan tray in front of the fan slot.

**Step 5**    Push the fan tray into the chassis until it is properly seated.
If the system is powered on, listen for the fans. You should immediately hear the fans operating. If you do not hear the fans, make sure the fan tray is inserted completely into the chassis and the faceplate is flush with the outside surface of the chassis.

**Step 6**    Verify that the fan is operational by checking the fan tray LED. See Front Panel LEDs, on page 10 for a description of the fan LEDs.