

PA-2000 Series Hardware Reference Guide



Contact Information

<http://www.paloaltonetworks.com/contact/contact/>

About this Guide

This guide describes the PA-2000 Series firewall hardware, provides instructions on installing the hardware, describes how to perform maintenance procedures, and provides product specifications. This guide is intended for system administrators responsible for installing and maintaining the PA-2000 Series firewall.

All PA-2000 Series devices run PAN-OS, a purpose-built operating system with extensive functionality. For additional information, refer to the following resources:

- For information on the additional capabilities and for instructions on configuring the features on the firewall, refer to <https://www.paloaltonetworks.com/documentation>.
- For access to the knowledge base, complete documentation set, discussion forums, and videos, refer to <https://live.paloaltonetworks.com>.
- For contacting support, for information on the support programs, or to manage your account or devices, refer to <https://support.paloaltonetworks.com>.
- For the latest release notes, go to the software downloads page at <https://support.paloaltonetworks.com/Updates/SoftwareUpdates>.

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Chapter 1

Overview

This chapter describes the front and back panels of the PA-2050 and PA-2020 firewalls. For more information, refer to the following topics:

- “Front Panel” in the next section
- “Back Panel” on page 7



Note: *The PA-2050 and PA-2020 firewalls are collectively referred to as the PA-2000 Series.*

Front Panel

Figure 1 shows the front panel of the PA-2050 and PA-2020 firewalls.

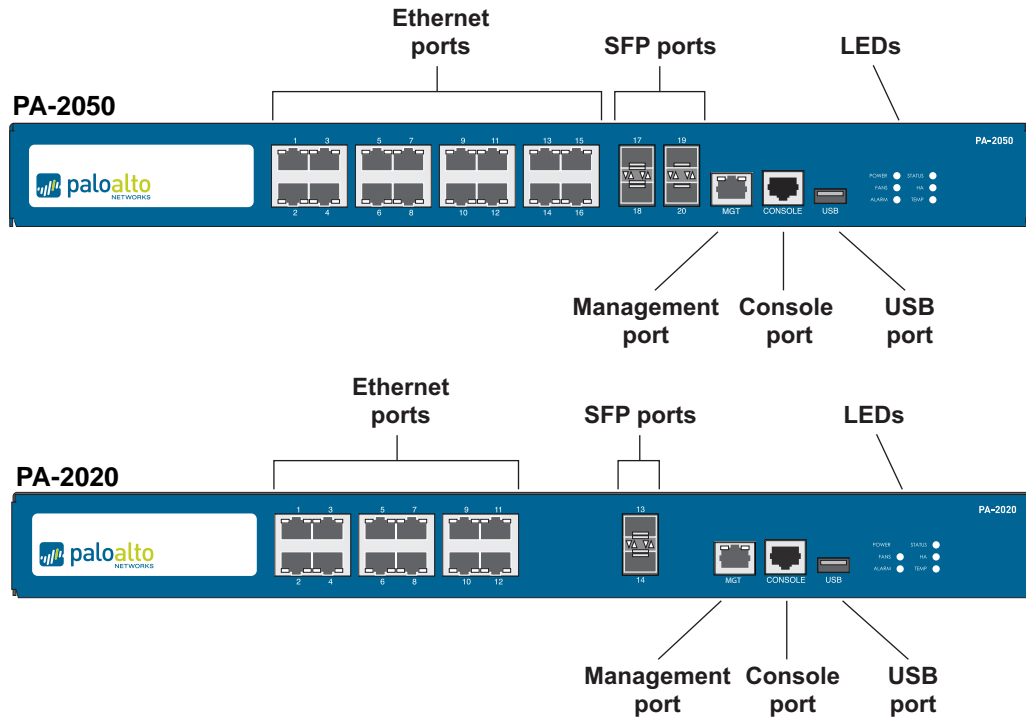


Figure 1. Front Panel

Table 1 describes the front panel features.

Table 1. Front Panel Features

Item	Description
Ethernet ports	PA-2050: 16 RJ-45 10/100/1000Mbps ports for network traffic. PA-2020: 12 RJ-45 10/100/1000Mbps ports for network traffic.
Small Form-Factor Pluggable (SFP) ports	PA-2050: 4 SFP ports for network traffic. PA-2020: 2 SFP ports for network traffic.
Management port	1 RJ-45 port to access the device management interfaces through an Ethernet interface.
Console port	1 RJ-45 port for connecting a serial console.

Table 1. Front Panel Features (Continued)

Item	Description
USB port	<p>One USB port that accepts a USB flash drive that contains a bootstrap bundle (PAN-OS configuration) that enables you to bootstrap the firewall. Bootstrapping enables you to provision the firewall with a specific configuration, license it, and make it operational on the network.</p> <p>The firewall must have PAN-OS 7.1 or later installed to use this feature. Prior to PAN-OS 7.1, this port is disabled. For information on bootstrapping, refer to Bootstrap the Firewall in the PAN-OS® Administrator's Guide Version 7.1.</p>
LED dashboard	6 LEDs indicating system status. Refer to “Interpreting the Device LEDs” on page 15 for LED definitions.

Back Panel

Figure 2 shows the back panel of the PA-2000 Series and Table 2 describes the back panel features.

**Figure 2. Back Panel****Table 2. Back Panel Features**

Item	Description
Hard disk drive tray	Removable hard disk drive tray.
Power panel	Switch for powering the device and AC power inlet.

Chapter 2

Installing the Hardware

This chapter describes how to install the PA-2000 Series. For more information, refer to the following topics:

- “Tamper Proof Statement” on page 9
- “Before You Begin” in the next section
- “Equipment Rack Installation” on page 10
- “Connecting Cables to the Device” on page 11
- “Connecting Power” on page 11



Note: The PA-2050 and PA-2020 firewalls are collectively referred to as the PA-2000 Series.

Tamper Proof Statement

To ensure that products purchased from Palo Alto Networks have not been tampered with during shipping, verify the following upon receipt of each product:

- The tracking number provided to you electronically when ordering the product matches the tracking number that is physically labeled on the box or crate.
- The integrity of the tamper-proof tape used to seal the box or crate has not been compromised.
- The warranty seals on the device itself do not show evidence of tampering.

Before You Begin

- It is recommended that two people be available to mount the PA-2000 Series in a 19-inch rack.
- Have a Phillips head screwdriver available.

- Verify that the intended location has adequate air circulation and meets the temperature requirements. Refer “Environmental Specifications” on page 18.
- Unpack the device.
- Verify that power is not connected to the firewall.
- Allow clear space on both sides of the firewall.

Equipment Rack Installation

Figure 3 shows how rack mounting brackets are attached to the PA-2000 Series. You can attach the brackets using the holes at the front of the unit.

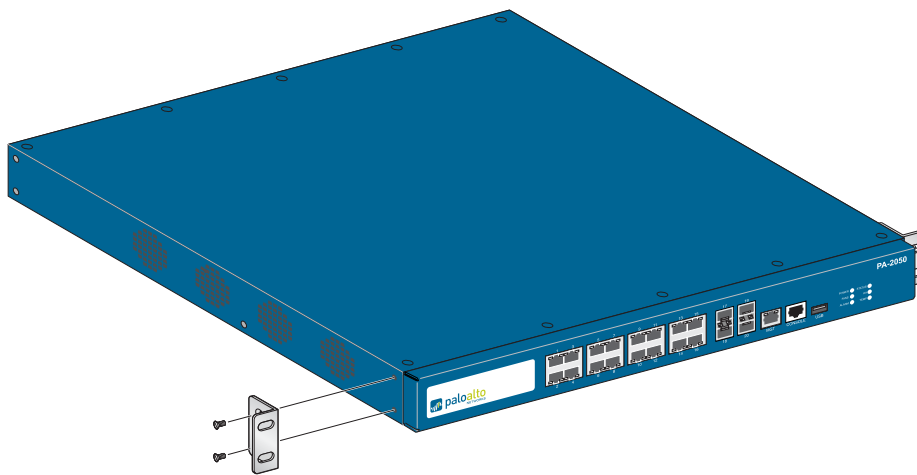


Figure 3. Attaching Rack Mounting Brackets

The following safety guidelines apply to rack installation:

- **Elevated ambient operating temperature**—If the PA-2000 Series is installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient room temperature. Verify that the ambient temperature of the rack assembly meets the maximum rated ambient temperature requirements listed in “Environmental Specifications” on page 18.
- **Reduced air flow**—Ensure that the airflow required for safe device operation is not compromised by the rack installation.
- **Mechanical loading**—Ensure that the rack-mounted device does not cause hazardous conditions due to uneven mechanical loading.
- **Circuit overloading**—Ensure that the circuit that supplies power to the device is sufficiently rated to avoid circuit overloading or excess load on supply wiring. Refer to “Electrical Specifications” on page 18.
- **Reliable earthing**—Maintain reliable earthing of rack mounted equipment. Pay special attention to supply connections other than direct connections to the branch circuit (such as use of power strips).

To install the PA-2000 Series in a grounded 19-inch rack:

1. Screw the rack mounting brackets onto the front of the unit using a Phillips head screwdriver.
2. Lift the device and position it in the rack.
3. Align the mounting holes on the attached rack mounting brackets with holes in the rack rail. Make sure that rack rail holes are selected so that the PA-2000 Series is level.
4. Insert mounting screws into the aligned holes. Tighten with a Phillips screwdriver.

Connecting Cables to the Device

Figure 4 shows the PA-2000 Series cable connections. Refer to Table 1 for descriptions of the front panel interfaces.



CAUTION: *Fiber Transceivers that are installed by the user shall be Class I and CDRH certified.*

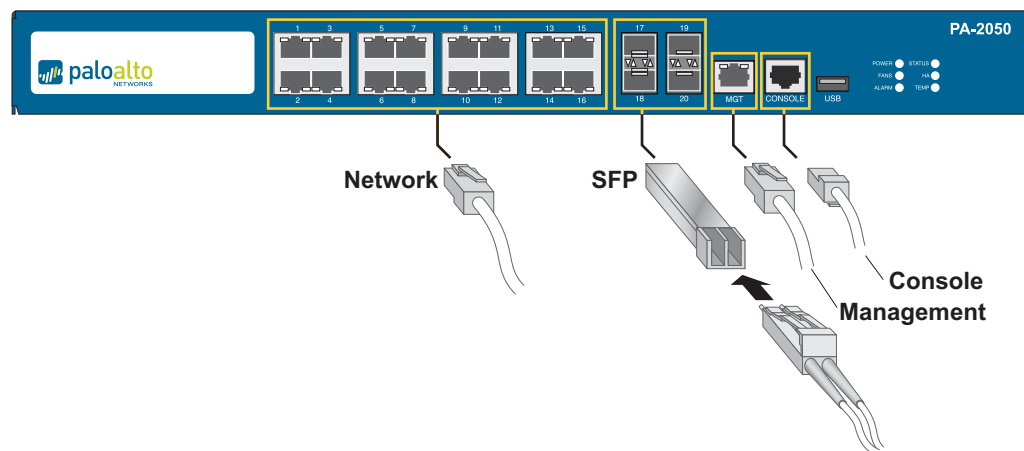


Figure 4. Cable Connections for the PA-2000 Series

Connecting Power

To power the PA-2000 Series, attach a power cable to the device (Figure 2) and plug it into a grounded wall outlet. Flip the switch to power the device.

Chapter 3

Maintaining the Hardware

This chapter describes how to replace the hard drive, interpret LEDs, and troubleshoot hardware problems. For more information, refer to the following topics:

- “Cautions and Warnings” in the next section
- “Replacing a Hard Drive” on page 14
- “Interpreting the Port LEDs” on page 15



Note: The PA-2050 and PA-2020 firewalls are collectively referred to as the PA-2000 Series.

Cautions and Warnings

CAUTION: *Disconnect all power cords before servicing the PA-2000 Series.*

WARNING: *Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the battery manufacturer’s instructions.*

WARNING: *Removal of equipment top cover and/or rear disk drive cover is to be done only by trained service person(s). Screws on the rear disk drive cover shall be securely tightened so that a tool is required for removal.*

Replacing a Hard Drive

To remove the hard drive tray:

1. Make sure the firewall has been powered down.
2. Unscrew the hard disk drive tray thumbnail screws on the back of the firewall (Figure 5).
3. Slide the tray out from the chassis.
4. Detach the power and data cables from the hard disk drive.

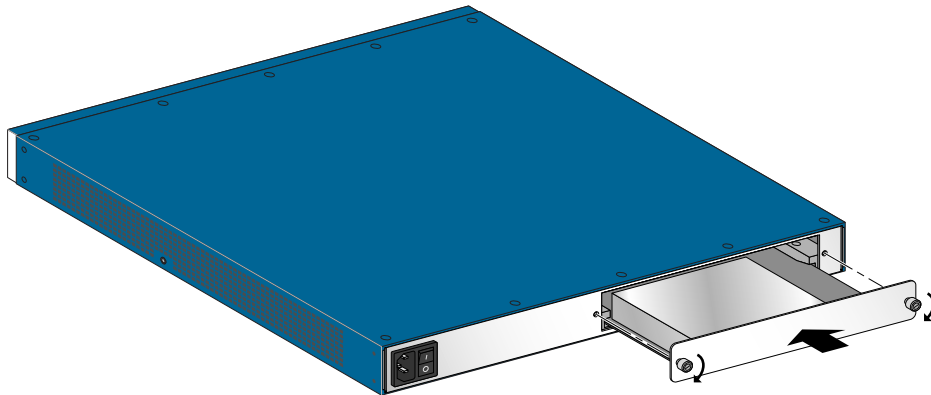


Figure 5. Hard Disk Drive Replacement

To insert a hard disk drive tray:

1. Power down the firewall.
2. Partially slide the tray into the chassis.
3. Attach the power and data cables to the hard disk drive.
4. Slide the tray fully into the chassis and tighten the thumbnail screws.



Note: Tighten the thumbnail screws more with a tool after initial and subsequent access to the hard drive tray.

Interpreting the Device LEDs

Figure 6 shows the LEDs on the front panel of the PA-2000 Series.

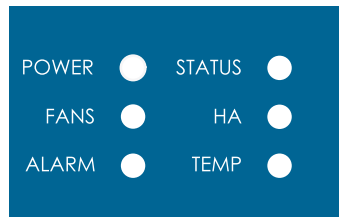


Figure 6. Front Panel LEDs

Table 3 describes the LED functions and states.

Table 3. LED Functions and States

Interface	State	Description
POWER	Green	The device is powered.
	Off	Power is off.
STATUS	Green	The device is operating normally.
	Yellow	The device is booting up.
FANS	Green	All fans are operating normally.
	Red	One or more fans have failed.
HA	Green	This device is the current active device.
	Yellow	This device is the current passive device.
	Off	High availability is not enabled on this device.
ALARM	Red	There is a hardware failure, which may include power supply detected but not working, fan failure, HA failover, or temperature above high temperature threshold.
	Off	The device is operating normally.
TEMP	Green	The temperature is normal.
	Yellow	The temperature is outside the normal tolerance.

Interpreting the Port LEDs

Each Ethernet port on the PA-2000 Series has two LEDs. Table 4 describes the LEDs.

Table 4. Port LEDs

LED	Description
Left	Shows green if there is a network link.
Right	Blinks if there is network activity.

Chapter 4

Specifications

This chapter provides specifications for the PA-2000 Series. For more information, refer to the following topics:

- “Physical Specifications” in the next section
- “Interface Specifications” on page 18
- “Electrical Specifications” on page 18
- “Environmental Specifications” on page 18



Note: The PA-2050 and PA-2020 firewalls are collectively referred to as the PA-2000 Series.

Physical Specifications

Table 5 lists the physical specifications for the PA-2000 Series.

Table 5. Physical Specifications

Specification	Description
Height	1.75 inches (1 RU).
Depth	17 inches.
Width	17 inches.
Mounting	Standard 19-inch rack.
Fans	Four fans.

Interface Specifications

Table 6 describes the interfaces for the PA-2000 Series.

Table 6. Interface Specifications

Specification	Description
Ethernet ports	PA-2050: 16 RJ-45 10/100/1000Mbps ports for network traffic. PA-2020: 12 RJ-45 10/100/1000Mbps ports for network traffic.
Small Form-Factor Pluggable (SFP) ports	PA-2050: 4 SFP ports for network traffic. PA-2020: 2 SFP ports for network traffic.
Management port	1 RJ-45 port to access the device management interfaces through an Ethernet interface.
Console port	1 RJ-45 port for connecting a serial console. Use these settings: <ul style="list-style-type: none"> • Data rate: 9600 • Data bits: 8 • Parity: none • Stop bits: 1 • Flow control: none
USB port	One USB port that you can use to bootstrap the firewall. For details, see “Front Panel” on page 6.

Electrical Specifications

Table 7 lists the electrical specifications for the PA-2000 Series.

Table 7. Electrical Specifications

Specification	Description
Maximum internal power dissipation	250W
AC voltage	100-240 VAC

Environmental Specifications

Table 8 lists the environmental specifications for the PA-2000 Series.

Table 8. Environmental Specifications

Specification	Description
Operating temperature range	0° to 50° C
Storage temperature range	-20° to 70° C
System air flow	Side to side

Chapter 5

Compliance Statements

This section lists the hardware compliance statements for the following:

- “VCCI” in the next section
- “BSMI EMC Statement” on page 19

VCCI

This section provides the compliance statement for the Voluntary Control Council for Interference by Information Technology Equipment (VCCI), which governs radio frequency emissions in Japan.

The following information is in accordance to VCCI Class A requirements

クラスA情報技術装置

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Translation: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take corrective actions.

BSMI EMC Statement

User warning: This is a Class A product, when used in a residential environment it may cause radio interference. In this case, the user will be required to take adequate measures.

Manufacturer: Flextronics International

Country of Origin: Made in the USA with parts of domestic and foreign origin.

Input Frequency: 50-60 Hertz (Hz)

Input Voltage (AC): 100 to 240 Volts

BSMI EMC 聲明

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，
在這種情況下，使用者會被要求採取某些適當的對策

製造商：偉創力國際

原產地：美國 / 部份零組件產地為美國及其它國家。

輸入頻率：50-60 赫茲 (Hz)

輸入電壓 (AC)：100 ~ 240 伏特