PA-500
Hardware Reference Guide

Contact Information

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

About this Guide

This guide describes the PA-500 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-500 firewall.

All PA-500 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.

To provide feedback on the documentation, please write to us at: documentation@paloaltonetworks.com.

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Revision Date: April 1, 2016

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Chapter 1
Overview

This chapter describes the front and back panels of the PA-500 firewall. For more information, refer to the following topics:

- "Front Panel" in the next section
- "Back Panel" on page 7

Front Panel

Figure 1 shows the front panel of the PA-500 firewall.

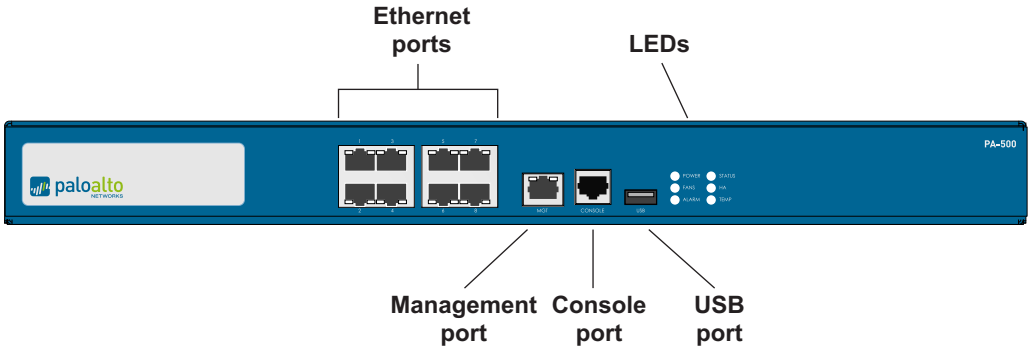

Figure 1. Front Panel

Table 1 describes the front panel features.

Table 1. Front Panel Features

Item	Description
Ethernet ports	8 RJ-45 10/100/1000Mbps 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.
USB port	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. 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.
LED dashboard	6 LEDs indicating system status. Refer to “Interpreting the Device LEDs” on page 14 for LED definitions.

Back Panel

Figure 2 shows the back panel of the PA-500 and Table 2 describes the back panel features.

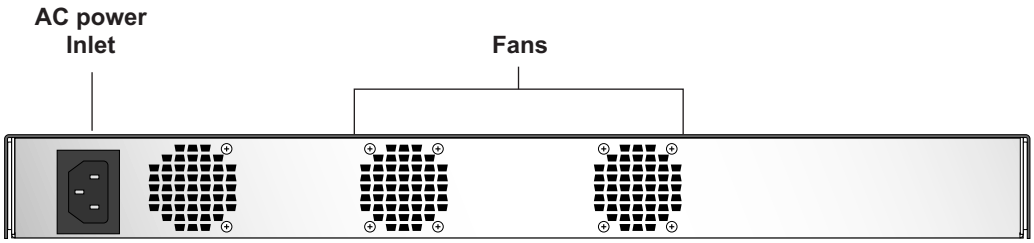

Figure 2. Back Panel

Table 2. Back Panel Features

Item	Description
Fans	Two fans for cooling the device.
Power inlet	AC power inlet for powering the device.

Chapter 2

Installing the Hardware

This chapter describes how to install the PA-500. For more information, refer to the following topics:

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

- 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 the sides and back of the firewall.

Equipment Rack Installation

Figure 3 shows how rack mounting brackets are attached to the PA-500. 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-500 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-500 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-500 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-500 cable connections. Refer to Table 1 for descriptions of the front panel interfaces.

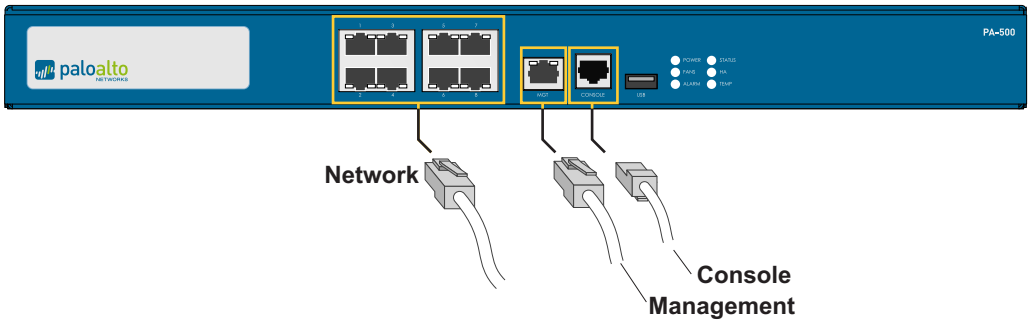

Figure 4. Cable Connections for the PA-500

Connecting Power

To power the PA-500:

1. Attach a power cable to the device (Figure 2) .
2. Plug the cable into a grounded wall outlet.

Chapter 3

Maintaining the Hardware

This chapter provides maintenance information for the PA-500 hardware. For more information, refer to the following topics:

- "Cautions and Warnings" in the next section
- "Interpreting the Device LEDs" on page 14
- "Interpreting the Port LEDs" on page 15

Cautions and Warnings

This section describes the cautions and warnings that you must be familiar with before working with the hardware:

- "Hardware Cautions" on page 13
- "Hardware Warnings" on page 13

Hardware Cautions

- Disconnect the power cord before servicing the PA-500.
- Shielded Ethernet interface cables should be used to ensure agency compliance with electromagnetic emissions (EMC). Connecting a PoE enabled port to the firewall is not recommended because the system does not support the PoE operating mode.
- To prevent damage from electrical surges, use a Uninterruptible Power Supply (UPS) and implement the facilities lightning protection requirements outlined in the National Fire Protection Association (NFPA) 780: Standard for the Installation of Lightning Protection Systems (or similar effective measures per local regulations).

Hardware Warnings

- Risk of explosion if the battery is replaced with an incorrect type. Dispose of used batteries in accordance with government regulations.

- Removal of equipment top cover is to be performed only by trained service person(s). The only exception is to perform a memory upgrade as described in the PA-500 memory upgrade procedures located on the platforms page.

Interpreting the Device LEDs

Figure 5 shows the LEDs on the front panel of the PA-500.

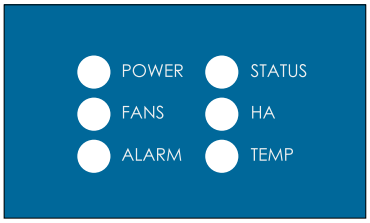

Figure 5. Front Panel LEDs

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-500 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-500. 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

Physical Specifications

Table 5 lists the physical specifications for the PA-500.

Table 5. Physical Specifications

Specification	Description
Height	1.75 inches (1 RU)
Depth	10 inches
Width	17 inches
Mounting	Standard 19-inch rack
Fans	Two fans

Interface Specifications

Table 6 describes the interfaces for the PA-500.

Table 6. Interface Specifications

Specification	Description
Ethernet ports	8 RJ-45 10/100/1000Mbps 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: • 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-500.

Table 7. Electrical Specifications

Specification	Description
Input frequency	50-60 Hz
Average/maximum power consumption	40W/75W
AC voltage	100-240 VAC

Environmental Specifications

Table 8 lists the environmental specifications for the PA-500.

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 back

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:

この装置は、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。 VCCI-A

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**