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PA-5200 Series Next-Gen Firewall Hardware Reference

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About the Documentation

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Before You Begin

Read the following topics before you install or service a Palo Alto Networks® next-generation firewall or appliance.**The following topics apply to all Palo Alto Networks firewalls and appliances except where noted.**

Upgrade/Downgrade Considerations for Firewalls and Appliances

The following table lists all hardware features that have upgrade or downgrade impact. Make sure you understand all upgrade/downgrade considerations before you upgrade or downgrade from the specified version of PAN-OS.

Feature	Release	Upgrade Considerations	Downgrade Considerations
PA-7000 Log Forwarding Card (LFC)	10.0	If you are using an LFC with a PA-7000 Series Firewall, when you upgrade to PAN-OS 10.0, you must configure the management plane or dataplane interface for the service route because the LFC ports do not support the requirements for the service route. We recommend using the dataplane interface for the Data Services service route.	n/a
Upgrading a PA-7000 Series Firewall with a first generation switch management card (PA-7050-SMC or PA-7080-SMC)	PAN-OS 8.0 and later	Before upgrading the firewall, run the following CLI command to check the flash drive's status: **`debug system disk-smart-info disk-1`**. If the value for attribute ID #232, **Available_Reservd_Space 0x0000**, is greater than 20, then proceed with the upgrade. If the value is less than 20, then contact support for assistance.	Before downgrading the firewall, run the following CLI command to check the flash drive's status: **`debug system disk-smart-info disk-1`**. If the value for attribute ID #232, **Available_Reservd_Space 0x0000**, is greater than 20, then proceed with the downgrade. If the value is less than 20, then contact support for assistance.

Tamper Proof Statement

To ensure that products purchased from Palo Alto Networks were not 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 is not compromised.
- The integrity of the warranty label on the firewall or appliance is not compromised.

(PA-7000 Series firewalls only) PA-7000 Series firewalls are modular systems and therefore do not include a warranty label on the firewall.

Third-Party Component Support

Before you consider installing third-party hardware, read the Palo Alto Networks Third-Party Component Support statement.

Product Safety Warnings

To avoid personal injury or death for yourself and others and to avoid damage to your Palo Alto Networks hardware, be sure you understand and prepare for the following warnings before you install or service the hardware. You will also see warning messages throughout the hardware reference where potential hazards exist.

All Palo Alto Networks products with laser-based optical interfaces comply with 21 CFR 1040.10 and 1040.11.

The following safety warnings apply to all Palo Alto Networks firewalls and appliances, unless a specific hardware model is specified.

- When installing or servicing a Palo Alto Networks firewall or appliance hardware component that has exposed circuits, ensure that you wear an electrostatic discharge (ESD) strap. Before handling the component, make sure the metal contact on the wrist strap is touching your skin and that the other end of the strap is connected to earth ground.

  French Translation: Lorsque vous installez ou que vous intervenez sur un composant matériel de pare-feu ou de dispositif Palo Alto Networks qui présente des circuits exposés, veillez à porter un bracelet antistatique. Avant de manipuler le composant, vérifiez que le contact métallique du bracelet antistatique est en contact avec votre peau et que l'autre extrémité du bracelet est raccordée à la terre.
- Use grounded and shielded Ethernet cables (when applicable) to ensure agency compliance with electromagnetic compliance (EMC) regulations.

  French Translation: Des câbles Ethernet blindés reliés à la terre doivent être utilisés pour garantir la conformité de l'organisme aux émissions électromagnétiques (CEM).
- (PA-3200, PA-5200, PA-5400, PA-7000, and PA-7500 firewalls only) At least two people are recommended for unpacking, handling, and relocating the heavier firewalls.
- Do not connect a supply voltage that exceeds the input range of the firewall or appliance. For details on the electrical range, refer to electrical specifications in the hardware reference for your firewall or appliance.

  French Translation: Veillez à ce que la tension d'alimentation ne dépasse pas la plage d'entrée du pare-feu ou du dispositif. Pour plus d'informations sur la mesure électrique, consulter la rubrique des caractéristiques électriques dans la documentation de votre matériel de pare-feu ou votre dispositif.
- (Devices with serviceable batteries only) Do not replace a battery with an incorrect battery type; doing so can cause the replacement battery to explode. Dispose of used batteries according to local regulations.

  French Translation: Ne remplacez pas la batterie par une batterie de type non adapté, cette dernière risquerait d'exploser. Mettez au rebut les batteries usagées conformément aux instructions.
- I/O ports are intended for intra-building connections only and not intended for OSP (Outside Plant) connections or any network connections subject to external voltage surge events.

• 	(All Palo Alto Networks appliances with two or more power supplies) Caution: Shock hazard Disconnect all power cords (AC or DC) from the power inputs to fully de-energize the hardware. **French Translation:** (Tous les appareils Palo Alto Networks avec au moins deux sources d'alimentation) Débranchez tous les cordons d'alimentation (c.a. ou c.c.) des entrées d'alimentation et mettez le matériel hors tension.
• 	(PA-7000 Series firewalls only) Caution: High touch current Connect to earth before connecting to the power supply. Ensure that the protective earthing conductor is connected to the provided ground lug on the rear side of the firewall.
• 	(PA-7000 Series firewalls only) When removing a fan tray from a PA-7000 Series firewall, first pull the fan tray out about 1 inch (2.5cm) and then wait a minimum of 10 seconds before extracting the entire fan tray. This allows the fans to stop spinning and helps you avoid serious injury when removing the fan tray. You can replace a fan tray while the firewall is powered on but you must replace it within 45 seconds and you can only replace one fan tray at a time to prevent the thermal protection circuit from shutting down the firewall. **French Translation:** (Pare-feu PA-7000 uniquement) Lors du retrait d'un tiroir de ventilation d'un pare-feu PA-7000, retirez tout d'abord le tiroir sur 2,5 cm, puis patientez au moins 10 secondes avant de retirer complètement le tiroir de ventilation. Cela permet aux ventilateurs d'arrêter de tourner et permet d'éviter des blessures graves lors du retrait du tiroir. Vous pouvez remplacer un tiroir de ventilation lors de la mise sous tension du pare-feu. Toutefois, vous devez le faire dans les 45 secondes et vous ne pouvez remplacer qu'un tiroir à la fois, sinon le circuit de protection thermique arrêtera le pare-feu.

The following applies only to Palo Alto Networks firewalls that support a direct current (DC) power source:

French Translation: Les instructions suivantes s'appliquent uniquement aux pare-feux de Palo Alto Networks prenant en charge une source d'alimentation en courant continu (c.c.):

- Do not connect or disconnect energized DC wires to the power supply.

  French Translation: Ne raccordez ni débranchez de câbles c.c. sous tension à la source d'alimentation.
- The DC system must be earthed at a single (central) location.

  French Translation: Le système c.c. doit être mis à la terre à un seul emplacement (central).
- The DC supply source must be located within the same premises as the firewall.

  French Translation: La source d'alimentation c.c. doit se trouver dans les mêmes locaux que ce pare-feu.
- The DC battery return wiring on the firewall must be connected as an isolated DC (DC-I) return.

  French Translation: Le câblage de retour de batterie c.c. sur le pare-feu doit être raccordé en tant que retour c.c. isolé (CC-I).
- The firewall must be connected either directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.

  French Translation: Ce pare-feu doit être branché directement sur le conducteur à électrode de mise à la terre du système d'alimentation c.c. ou sur le connecteur d'une barrette/d'un bus à bornes de mise à la terre auquel le conducteur à électrode de mise à la terre du système d'alimentation c.c. est raccordé.
- The firewall must be in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthing conductor of the DC supply circuit and the earthing of the DC system.

  French Translation: Le pare-feu doit se trouver dans la même zone immédiate (des armoires adjacentes par exemple) que tout autre équipement doté d'un raccordement entre le conducteur de mise à la terre du même circuit d'alimentation c.c. et la mise à la terre du système c.c.
- Do not disconnect the firewall in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

  French Translation: Ne débranchez pas le pare-feu du conducteur du circuit de mise à la terre entre la source d'alimentation c.c. et le point de raccordement du conducteur à électrode de mise à la terre.
- Install all firewalls that use DC power in restricted access areas only. A restricted access area is where access is granted only to craft (service) personnel using a special tool, lock and key, or other means of security, and that is controlled by the authority responsible for the location.

  French Translation: Tous les pare-feux utilisant une alimentation c.c. sont conçus pour être installés dans des zones à accès limité uniquement. Une zone à accès limité correspond à une zone dans laquelle l'accès n'est autorisé au personnel (de service) qu'à l'aide d'un outil spécial,

cadenas ou clé, ou autre dispositif de sécurité, et qui est contrôlée par l'autorité responsable du site.

- Install the firewall DC ground cable only as described in the power connection procedure for the firewall that you are installing. You must use the American wire gauge (AWG) cable specified and torque all nuts to the torque value specified in the installation procedure for your firewall.

  French Translation: Installez le câble de mise à la terre c.c. du pare-feu comme indiqué dans la procédure de raccordement à l'alimentation pour le pare-feu que vous installez. Utilisez le câble American wire gauge (AWG) indiqué et serrez les écrous au couple indiqué dans la procédure d'installation de votre pare-feu pare-feu.

- The firewall permits the connection of the earthed conductor of the DC supply circuit to the earthing conductor at the equipment as described in the installation procedure for your firewall.

  French Translation: Ce pare-feu permet de raccorder le conducteur de mise à la terre du circuit d'alimentation c.c. au conducteur de mise à la terre de l'équipement comme indiqué dans la procédure d'installation du pare-feu.

- A suitably-rated DC mains disconnect device must be provided as part of the building installation.

  French Translation: Un interrupteur d'isolement suffisant doit être fourni pendant l'installation du bâtiment.

PA-5200 Series Firewall Overview

The Palo Alto Networks® PA-5200 Series next-generation firewalls are designed for data center and internet gateway deployments. This series is comprised of the PA-5220, PA-5250, PA-5260, and PA-5280 firewalls. These models provide flexibility in performance and throughput levels to help you meet your deployment requirements. All models in this series provide next-generation security features to help you secure your organization through advanced visibility and control of applications, users, and content.

First Supported PAN-OS® Software Release:

- PAN-OS 8.0—PA-5220, PA-5250, and PA-5260 firewalls
- PAN-OS 8.1—PA-5280 firewall

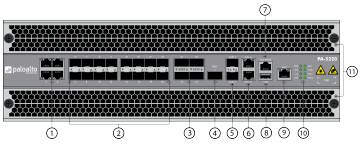
The PA-5280 firewall is identical to the PA-5260 firewall except that the PA-5280 firewall has double the dataplane memory, which doubles the session capacity.

The following topics describe the hardware features of the PA-5200 Series firewalls. To view or compare performance and capacity information, refer to the Product Selection tool.

- PA-5200 Front Panel
- PA-5200 Back Panel

PA-5200 Front Panel

The following image shows the front panel of the PA-5200 Series firewall and the table describes each front panel component. The only differences between the PA-5220 (shown), PA-5250, PA-5260, and PA-5280 panels is the model name and the Ethernet port speeds as described in the table.



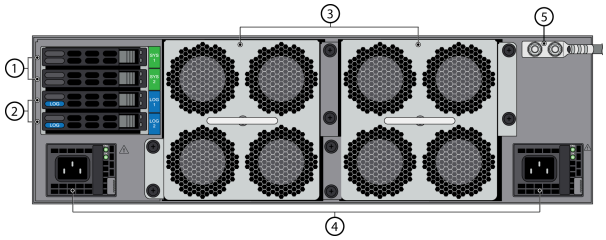
Item	Component	Description
1	Ethernet ports 1 through 4	Four RJ-45 100Mbps/1Gbps/10Gbps ports for network traffic. The link speed and link duplex are auto-negotiate only.
2	SFP ports 5 through 20	Sixteen SFP/SFP+ ports for network traffic. Each port can operate as either SFP (1Gbps) or SFP+ (10Gbps) based on the installed transceiver.
3	QSFP+ ports 21 through 24	These ports vary depending on your firewall model: • **PA-5220 firewall**—Four 40Gbps QSFP + ports as defined by the IEEE 802.3ba standard. • **PA-5250, PA-5260, and PA-5280 firewalls**—Four 40Gbps QSFP+/100Gbps QSFP28 ports as defined by the IEEE 802.3ba standard. The link speed is based on the installed transceiver.
4	HSCI port	These ports vary depending on your firewall model: • PA-5220 firewall—One QSFP+ 40Gbps port (supports only a 40Gbps (QSFP+) transceiver or QSFP+ active optical cable). • PA-5250, PA-5260, and PA-5280 firewalls—One QSFP28 40/100Gbps port (supports QSFP28 transceiver or equivalent active optical cables). The link speed is based on the installed transceiver. Use this port to connect two PA-5200 Series firewalls in

Item	Component	Description
		a high availability (HA) configuration as follows: • In an active/passive configuration, this port is for HA2 (data link). • In an active/active configuration, you can configure this port for HA2 and/or HA3. HA3 is used for packet forwarding for asymmetrically routed sessions that require Layer 7 inspection for App-ID™ and Content-ID™.  *The HSCI ports must be connected directly between the two firewalls in the HA configuration (not between a network switch or router). When directly connecting the HSCI ports between two PA-5220 firewalls that are physically located near each other, Palo Alto Networks recommends that you use a 40Gbps QSFP+ Active Optical Cable (AOC). When directly connecting two PA-5250, PA-5260, or PA-5280 firewalls, use a QSFP28 Active Optical Cable (AOC).* *For installations where the two firewalls are not near each other and you cannot use an AOC cable, use a standard 40Gbps or 100Gbps transceivers and the appropriate cable length.*
5	AUX 1 and AUX 2 ports	Use these SFP+ ports for HA1, management functions, or log forwarding to Panorama. For information on configuring the port, refer to the on-device Help content in **Device** > **Setup** > **Interfaces** or refer to the PAN-OS 9.0 Web Interface Reference.
6	HA1-A and HA1-B	Two RJ-45 10/100/1000Mbps ports for high-availability control (HA1).

Item	Component	Description
7	CONSOLE port (RJ-45)	Use this port to connect a management computer to the firewall using a 9-pin serial to RJ-45 cable and terminal emulation software. The console connection provides access to firewall boot messages, the Maintenance Recovery Tool (MRT), and the command line interface (CLI). *If your management computer does not have a serial port, use a USB-to-serial converter.* **Serial Settings** Data rate: 9600 Data bits: 8 Parity: none Stop bits: 1 Flow control: None
8	USB port	Use this port to bootstrap the firewall. Bootstrapping enables you to provision the firewall with a specific PAN-OS configuration and then license it and make it operational on your network.
9	MGT port	Use this Ethernet 10/100/1000Mbps port to access the management web interface and perform administrative tasks. The firewall also uses this port for management services, such as retrieving licenses and updating the threat and application signatures.
10	LED status indicators	Five LEDs that indicate the status of the firewall hardware components (see Interpret the LEDs on a PA-5200 Series Firewall).
11	Intake air filters	Two filters for air entering the firewall. Replace the Air Intake Filters on a PA-5200 Series Firewall every six months.

PA-5200 Back Panel

The following image shows the back panel of PA-5200 Series firewalls and the table describes each back-panel component. The only difference between PA-5200 Series firewall back panels is the power supply type installed—they each can have two AC or two DC power supplies. The image shows a PA-5220 firewall with AC power supplies. To view an image of the DC power supplies, see Connect DC Power to a PA-5200 Series Firewall.



Item	Component	Description
1	SYS 1 and SYS 2 drives	Two hot-swappable 240GB solid-state drives (SSDs) in a RAID-1 pair (240GBs total). The drives are used to store the PAN-OS system files and system logs.
2	LOG 1 and LOG 2 drives	Drives used for storing network traffic logs. Depending on the drives installed, they are one of the following: • Two hot-swappable 2TB hard disk drives (HDDs) in a RAID-1 pair (2TBs total). • Two hot-swappable 1.92TB solid state drives (SSDs) in a RAID-1 pair (1.92TBs total).
3	Exhaust fans trays	Two fan trays that provide ventilation and cooling for the firewall. Each fan tray contains four fans and a status LED. While facing the back of the firewall, fan tray 1 is on the left and fan tray 2 is on the right. *Do not use the fan tray handles to lift or move the firewall.*
4	PWR 1 and PWR2	Use the power supply inputs (either AC or DC) to connect power to the firewall. While facing the back of the firewall, PWR 1 is on the left and PWR 2 is on the right.
5	Ground stud	Use the two-post ground stud to connect the firewall to earth ground. The firewall ships with a 6AWG two-hole ground lug attached to the ground studs, but does not include a ground cable.

Install the PA-5200 Series Firewall in an Equipment Rack

The PA-5200 Series next-generation firewall ships with two rack-mount brackets for installation in a two-post or four-post 19” equipment rack. If you install the firewall in a four-post rack, you can purchase and install the optional four-post rack kit to secure the firewall to the back rack posts for additional support.

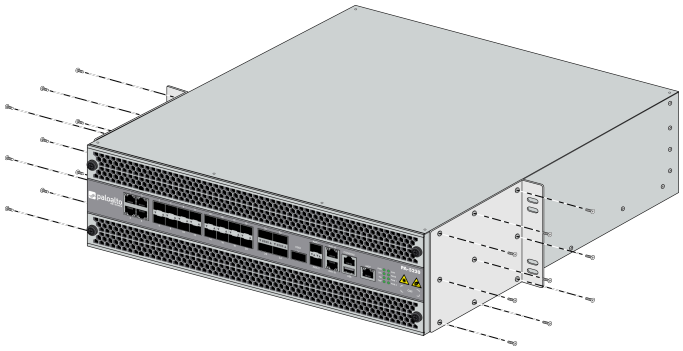
- Install the PA-5200 Series Firewall in a 19-inch Equipment Rack
- Install the Four-Post Rack Kit on a PA-5200 Series Firewall

Install the PA-5200 Series Firewall in a 19-inch Equipment Rack

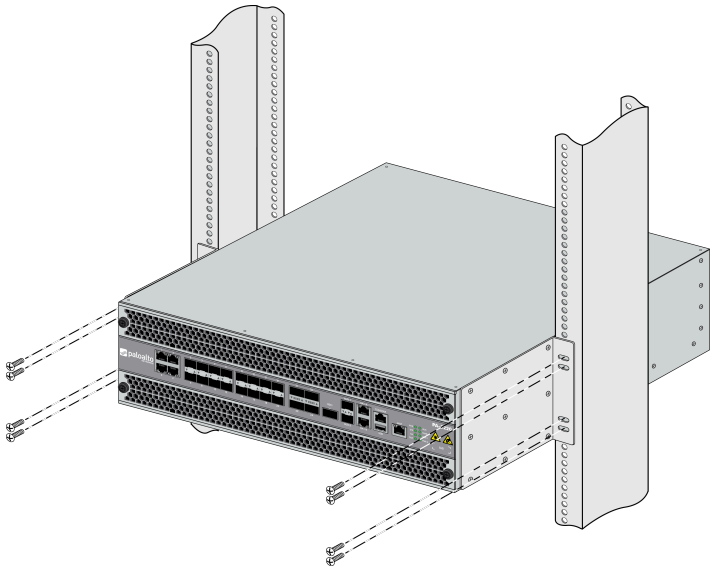
The following procedure describes how to install the PA-5200 Series firewall in a two-post or four-post equipment rack.

When installing the firewall in a two-post equipment rack, ensure that the rack is properly anchored and can support the weight of the installed equipment.

STEP 1 | Attach one rack-mount bracket to each side of the firewall using nine #8-32 x 5/16” screws for each bracket and torque to 15 in-lbs. For a two-post rack, we recommend you install the front brackets in the mid-mount position as shown. You can also install the brackets in the front-mount position if you Install the Four-Post Rack Kit on a PA-5200 Series Firewall.



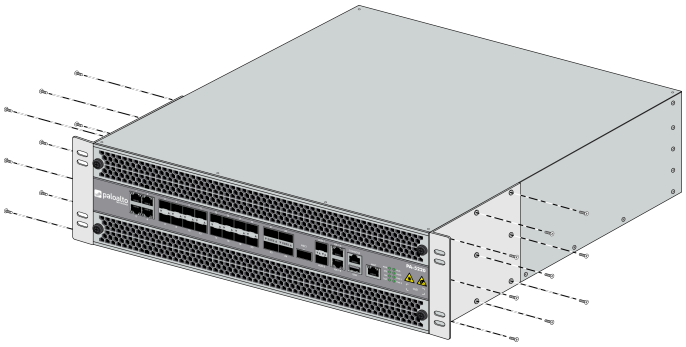
STEP 2 | With help from two other people, hold the firewall in place in the rack and secure the rack-mount brackets to the rack using four screws for each bracket. Use the appropriate screws (#10-32 x 3/4” or #12-24 x 1/2”) for your rack and torque to 25 in-lbs. Use cage nuts (not provided) to secure the screws if the rack has square holes.



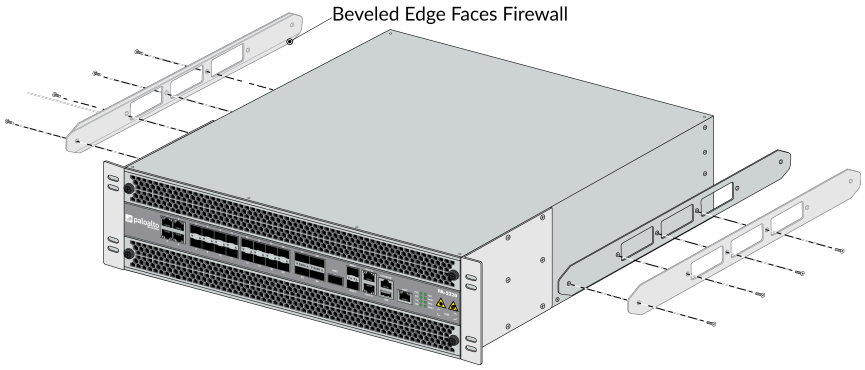
Install the Four-Post Rack Kit on a PA-5200 Series Firewall

The following procedure describes how to install the optional four-post rack kit (PAN-PA-5200-RACK4) to provide additional support to the back of the firewall. This kit supports rack depths from 23 to 32 inches (measured between the inner-parts of the vertical rails).

STEP 1 | Attach one rack-mount bracket to each side of the firewall in the front-mount position using nine #8-32 x 5/16” screws for each bracket and torque to 15 in-lbs.

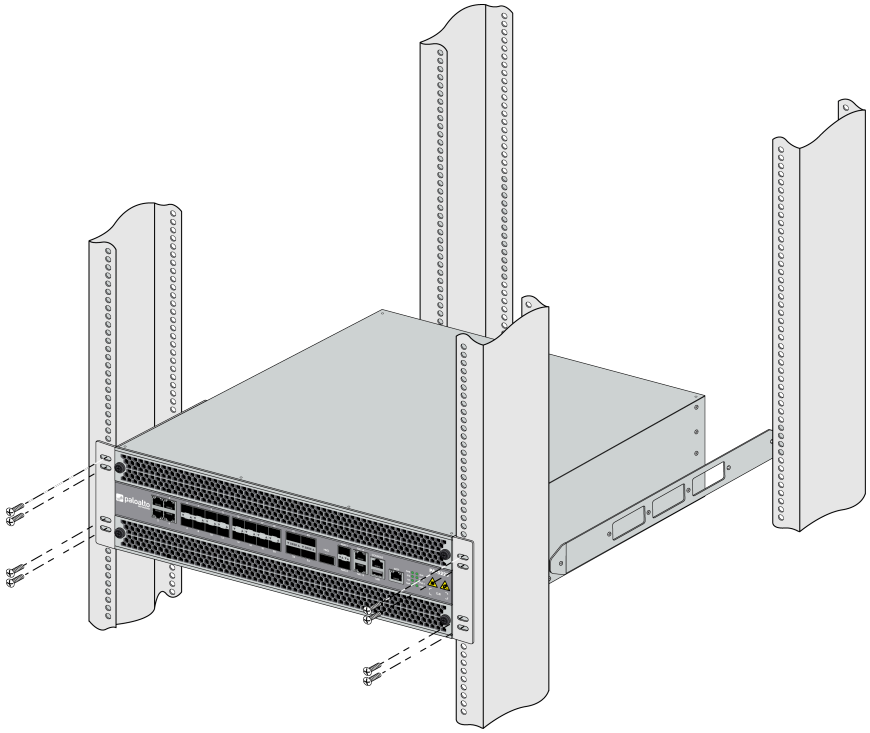


STEP 2 | Attach one rack-mount rail to each side of the firewall using four #8-32 x 5/16” screws for each bracket and torque to 15 in-lbs. The side brackets are universal but you must install them with the beveled edge facing the firewall.

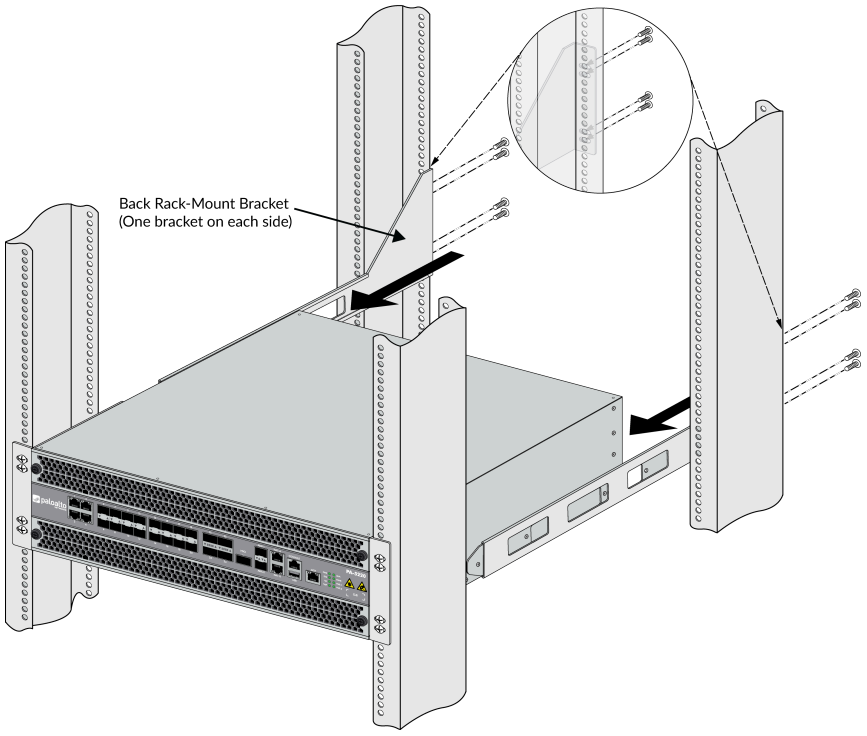


STEP 3 | With help from two other people, hold the firewall in the rack and secure the rack-mount brackets to the front rack posts using four screws for each bracket. Use the appropriate

screws (#10-32 x 3/4” or #12-24 x 1/2”) for your rack and torque to 25 in-lbs. Use cage nuts (not provided) to secure the screws if the rack has square holes.



STEP 4 | Slide one back rack-mount bracket onto each of the two previously installed side rack-mount rails and secure the brackets to the back rack posts using four screws for each bracket (#10-32 x 3/4” or #12-24 x 1/2”) and torque to 25 in-lbs. Use cage nuts (not provided) to secure the screws if the rack has square holes.



Connect Power to a PA-5200 Series Firewall

PA-5200 Series firewalls have either two AC or two DC power supplies (the second power supply is for redundancy). The firewall requires a 100-240VAC (50-60 Hz) or -40 to -60VDC power source, depending on the type of power supplies installed in the firewall (AC or DC).For more details on power requirements and power consumption, see PA-5200 Series Electrical Specifications.

The power configuration (AC or DC) can be changed in the field. However, the firewall cannot have both an AC and DC power supply installed at the same time.

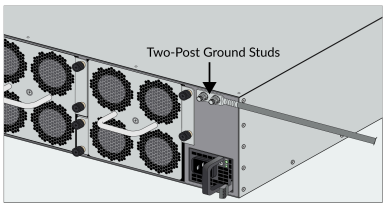
- Connect AC Power to a PA-5200 Series Firewall
- Connect DC Power to a PA-5200 Series Firewall

Connect AC Power to a PA-5200 Series Firewall

The following procedure describes how to connect AC power to a PA-5200 Series firewall with AC power supplies.

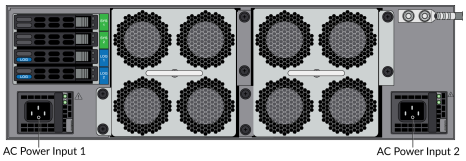
To avoid injury to yourself or damage to your Palo Alto Networks® hardware or the data that resides on the hardware, read the Product Safety Warnings.

STEP 1 | Remove the two nuts and star washers from the ground studs on the back of the firewall and then remove the two-hole ground lug.

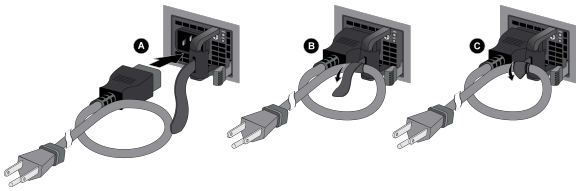


STEP 2 | Crimp a 6AWG ground cable (not included) to the two-hole 6AWG ground lug and then attach the ground lug to the ground studs on the firewall. Replace the star washers and nuts and torque to 25 in-lbs. Connect the other end of the cable to earth ground.

STEP 3 | Connect the AC power cord to power input 1 (PWR 1) and connect a second power cord to power input 2 (PWR 2).



STEP 4 | Secure the power cords to the power supplies using the Velcro straps.



STEP 5 | Connect the other end of the power cords to an AC power source. After the first power supply is connected, the firewall powers on and the power LED on the power supply and the PWR LED on the front of the firewall turns green.

Connect the second power cord through a different circuit breaker to provide power redundancy and to allow for electrical circuit maintenance.

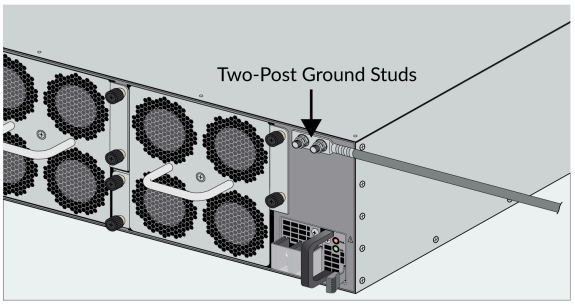
Connect DC Power to a PA-5200 Series Firewall

The following procedure describes how to connect DC power to a PA-5200 Series firewall with DC power supplies.

To avoid injury to yourself or damage to your Palo Alto Networks® hardware or the data that resides on the hardware, read the Product Safety Warnings.

STEP 1 | Remove the two nuts and star washers from the ground studs on the back of the firewall and then remove the two-hole ground lug.

STEP 2 | Crimp a 6AWG ground cable (not included) to the two-hole 6AWG ground lug and then attach the ground lug to the ground studs on the firewall. Replace the star washers and nuts and torque to 25 in-lbs. Connect the other end of the cable to earth ground.



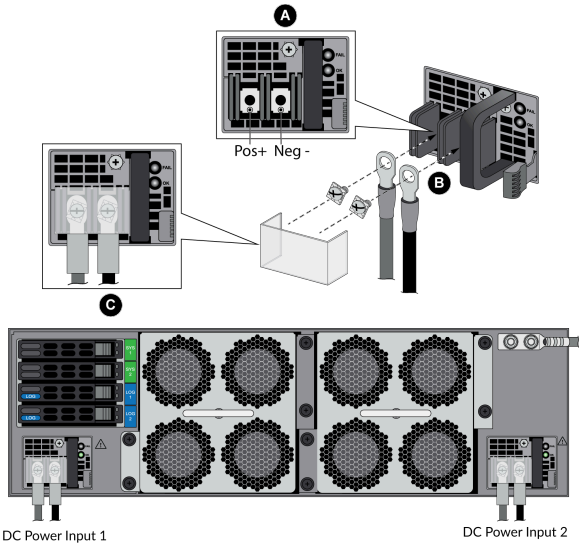
STEP 3 | Power off the DC power source that you will connect to the firewall.

STEP 4 | Attach the DC power cables (not included) from the DC power source to the DC power supplies on the back of the firewall.

1. Remove the plastic DC power input cover from each of the two DC power supplies and then remove the positive and negative terminal screws.
2. Crimp ring lugs to the ends of the DC cables. These lugs are used to connect the DC cables to the DC inputs on the firewall.
3. Use the DC terminal screws to connect a positive (red) DC power cable to the positive terminal on the first DC power supply and then connect a negative (black) DC power

cable to the negative terminal. Repeat this step for the second DC power supply using separate positive and negative cables.

4. Replace the plastic covers over each DC power input.
5. Connect the two positive and two negative DC power cables to your power source, ensuring that you observe the correct polarity (positive to positive and negative to negative).



STEP 5 | After all DC power cables are securely connected, power on the DC power source.

Service the PA-5200 Series Firewall

The following topics describe how to interpret the PA-5200 Series firewall status LEDs and describes how to replace the serviceable components.

- Interpret the LEDs on a PA-5200 Series Firewall
- Replace the Air Intake Filters on a PA-5200 Series Firewall
- Replace a Fan Tray on a PA-5200 Series Firewall
- Replace a Power Supply on a PA-5200 Series Firewall
- Replace a Drive on a PA-5200 Series Firewall

Interpret the LEDs on a PA-5200 Series Firewall

The following table describes how to interpret the status LEDs on a PA-5200 Series firewall.

LED	Description
Front Panel LEDs	
PWR (Power)	**Power Supply (with black handle)** Green—The firewall is powered on. Off—The firewall is not powered on or an error occurred with the internal power system (for example, power is not within tolerance levels). **Power Supply (with red handle)** Green—The firewall is powered on. Off—The firewall is not powered on or an error occurred with the internal power system (for example, power is not within tolerance levels).
STS (Status)	Green—The firewall is operating normally. Yellow—The firewall is booting.
HA (High Availability)	Green—The firewall is the active peer in an active/passive configuration. Yellow—The firewall is the passive peer in an active/passive configuration. Off—High availability (HA) is not operational on this firewall. *In an active/active configuration, the HA LED only indicates HA status for the local firewall and has two possible states (green or off); it does not indicate HA connectivity of the peer. Green indicates that the firewall is either active-primary or active-secondary and off indicates that the firewall is in any other state (For example, non-functional or suspended).*
TMP (Temperature)	Green—The firewall temperature is normal. Yellow—The firewall temperature is outside tolerance levels. See PA-5200 Series Environmental Specifications for the temperature range.
FANS	Green—The fan trays and all fans are operating normally.

LED	Description
	Red—One or more fans failed on one or both of the fan trays. To determine which fan tray has a failure, check the system log or check the LED on the fan trays.
ALM (Alarm)	Red—A hardware component failed, such as a power supply failure, a firewall failure that caused an HA failover, a drive failure, or hardware is overheating and the temperature is above the high temperature threshold. Off—The firewall is operating normally.
Ethernet Port LEDs	
RJ-45 and AUX LEDs	These ports have two LEDs. • Left LED—Solid green indicates a network link. • Right LED—Blinking green indicates network activity.
SFP, SFP+, and QSFP LEDs	These ports have one green LED. • Solid green indicates a network link. • Blinking green indicates network activity.
Back Panel LEDs	
PWR 1 and PWR 2 (Power)	While facing the back of the firewall, power supply 1 (PWR 1) is on the left and power supply 2 (PWR 2) is on the right. Green—The power supply is functioning normally. Red—Power supply is present but is not working.

Power supply	The AC and DC power supplies have a FAIL and an OK LED.
	Power Supply (with black handle)
	• FAIL
	  • Off—The power supply is operating normally.
	  • Solid yellow—The power supply failed. This can also indicate a fan failure or overheating condition.
	  • Blinking yellow—The power supply is outside of tolerance levels.
	• OK
	  • Solid green—The power supply is operating normally.
	  • Blinking green—The power input is present but the power supply is disabled by the system.
	  • Off—No power input or the power supply failed.

LED	Description

	Power Supply (with red handle)
	• FAIL (Bottom/DC LED)
	  • Solid green—The power supply is operating normally.
	  • Solid yellow—The power supply failed. This can also indicate a fan failure or overheating condition.
	  • Blinking yellow and green (Alternating at 2:1 ratio)—The power supply is at high temperature.
	• OK (Top/AC LED)
	  • Solid green—The power supply is operating normally.
	  • Blinking yellow—The power input is present but the power supply is disabled by the system.
	  • Off—No power input or the power supply failed.

Fan tray	Green—The fan trays and all fans are operating normally. Red—One or more fans in the fan tray failed (see Replace a Fan Tray on a PA-5200 Series Firewall).

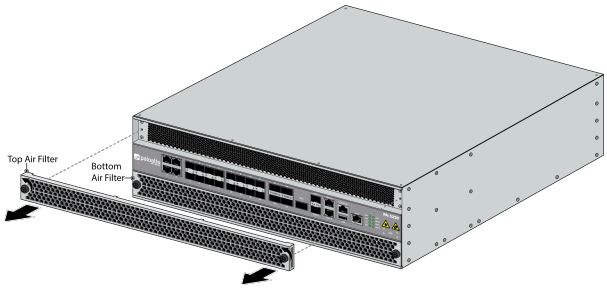
Replace the Air Intake Filters on a PA-5200 Series Firewall

The air intake filters are a critical part of the firewall cooling system. These filters ensures that air entering the firewall does not contain debris. We recommend that you replace both filters (top and bottom) every six months or less, depending on the environment where the firewall is located, to prevent a scenario where there is not enough air passing through the filters to keep the firewall from overheating.

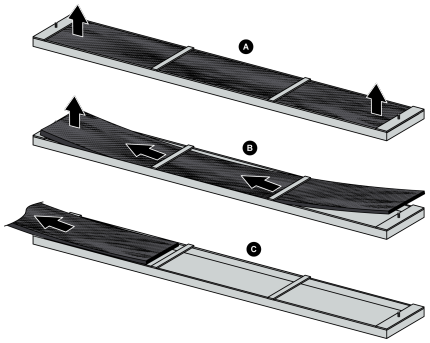
The firewall does not generate a system log indicating that an air filter has been removed or that it needs to be replaced. Therefore, in addition to replacing them every six months (or as needed), you need to schedule regular inspections and ensure that the filters do not clog sooner than when they are due to be replaced. Do not attempt to clean and reuse a filter.

You can purchase replacement air filters and air filter covers from Palo Alto Networks or an authorized reseller. The following procedure can be performed with the firewall powered on but do not leave the firewall without the filters installed for longer than it takes to replace the filters.

STEP 1 | Turn the two air filter cover thumb screws counter-clockwise and remove the filter cover and filter (top filter shown).

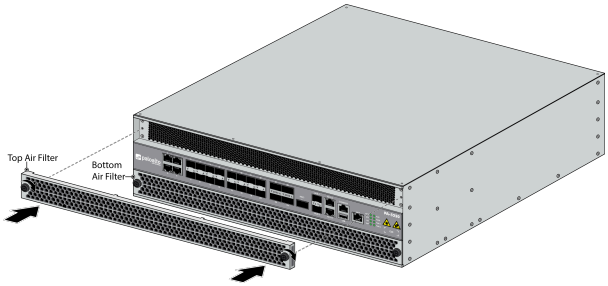


STEP 2 | Lift each side of the filter upward to loosen it from the filter cover and then slide the filter out of the filter cover.



STEP 3 | Install a new filter into the filter cover ensuring that you slide it under the filter cover cross bars. You can install the filter with either side facing up.

STEP 4 | Replace the top filter cover and filter and turn the two thumb screws clockwise to secure the cover to the firewall.



STEP 5 | Repeat this procedure to replace the bottom air filter.

Replace a Fan Tray on a PA-5200 Series Firewall

PA-5200 Series firewalls have two fan trays and each fan tray contains four fans. If one fan on a fan tray fails, the LED on the fan tray turns red. When this occurs, immediately replace the fan tray to avoid service interruption. If two or more fans fail on one or both fan trays, the firewall will shut down and you must replace the failed fan tray(s) to restore functionality.You can replace a fan tray while the firewall is powered on but you must replace it within 45 seconds or the thermal protection circuit automatically shuts down the firewall.

STEP 1 | Remove the replacement fan tray from the packaging.

STEP 2 | Identify the failed fan tray by viewing the LEDs.

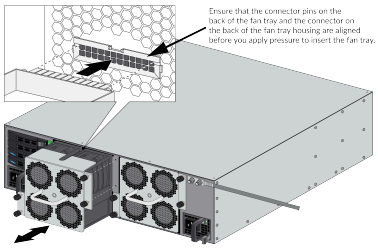
During a failure condition, the fan tray LED on the failed fan tray and the FANS LED on the front of the firewall show red.

STEP 3 | Remove the failed fan tray.

1. Turn the two fan tray thumb screws counter-clockwise until the screws stop.

   Earlier models will have four fan-tray thumb screws rather than two. The procedure for both setups is the same.

2. Grasp the fan tray handle and pull the tray out of the firewall.



STEP 4 | Slide the replacement fan tray into the empty fan-tray slot ensuring that the alignment grooves on the fan tray and the fan-tray slot are aligned. Push the tray in until it seats and then turn the four fan-tray thumb screws clockwise to secure the tray to the firewall.

The fan tray LED turns green and if there are no other failed fans, the FAN LED on the front of the firewall turns green.

If the thermal protection circuit powered off the firewall due to overheating or fan failures, you need to disconnect and reconnect power. On an AC model, disconnect both power cords, wait five seconds, and then plug the cords back in. On a DC model, shut down the DC circuit that is providing power to the firewall, wait five seconds, and then restore the power.

Replace a Power Supply on a PA-5200 Series Firewall

PA-5200 Series firewalls have either two AC or two DC power supplies (the second power supply is for redundancy). If one power supply fails, you can replace it without service interruption as described in the following procedures.

- Replace an AC Power Supply on a PA-5200 Series Firewall
- Replace a DC Power Supply on a PA-5200 Series Firewall

Replace an AC Power Supply on a PA-5200 Series Firewall

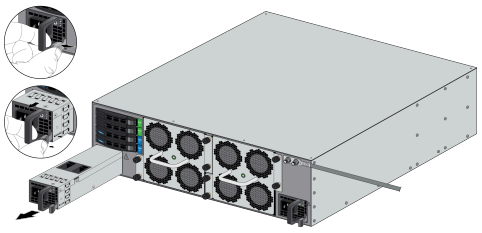
The following procedure describes how to replace an AC power supply.

To avoid injury to yourself or damage to your Palo Alto Networks® hardware or the data that resides on the hardware, read the Product Safety Warnings.

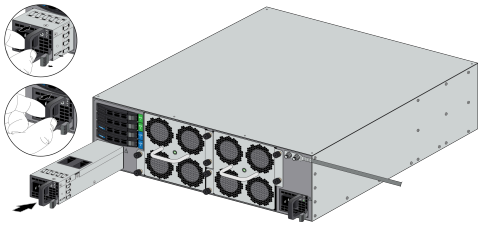
STEP 1 | Identify the failed power supply by viewing the power supply LED on the back of the firewall; when there is a failure the FAIL LED turns solid yellow. For details on the power supply LEDS, see Interpret the LEDs on a PA-5200 Series Firewall.

STEP 2 | Remove the Velcro strap that secures the AC power cord to the power supply and remove the power cord.

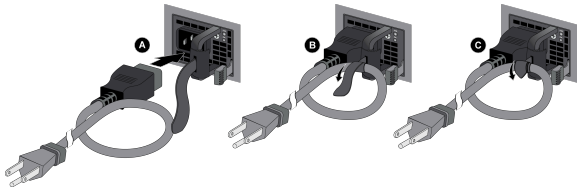
STEP 3 | Grasp the handle on the failed power supply and then simultaneously press the release lever to the left and then pull the power supply outward to remove it.



STEP 4 | Remove the replacement power supply from the packaging and slide it into the empty power supply slot. Push the power supply all the way in until the release lever clicks and secures the power supply.



STEP 5 | Connect the AC power cord to the power supply input and secure it to the power supply using the Velcro strap.



STEP 6 | Connect the other end of the power cord to a grounded AC power source. The new power supply automatically powers on, the OK LED turns green, the FAIL LED turns off, and the power LED (PWR 1 or PWR 2) on the front of the firewall turns green.

Replace a DC Power Supply on a PA-5200 Series Firewall

The following procedure describes how to replace a DC power supply.

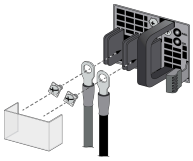
To avoid injury to yourself or damage to your Palo Alto Networks® hardware or the data that resides on the hardware, read the Product Safety Warnings.

STEP 1 | Identify the failed power supply by viewing the power supply LED on the back of the firewall; when there is a failure, the FAIL LED on the failed power supply turns solid yellow. For more details on the power supply LEDS, see Interpret the LEDs on a PA-5200 Series Firewall.

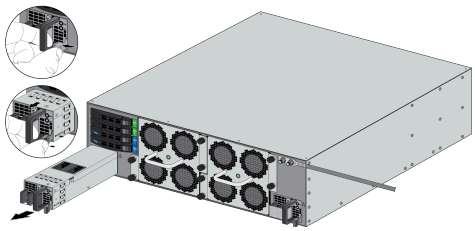
STEP 2 | Power off the DC power source that is connected to the failed DC power supply.

Ensure that the power is off before continuing to the next step.

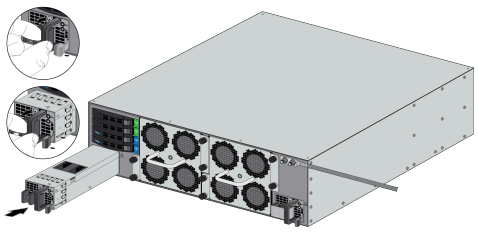
STEP 3 | Remove the plastic cover that protects the DC input terminals and then use a Phillips-head screwdriver to remove the screws holding the positive and negative DC cables to the DC input terminals.



STEP 4 | Grasp the handle on the failed power supply and then simultaneously press the release lever to the left and pull the power supply outward to remove it.

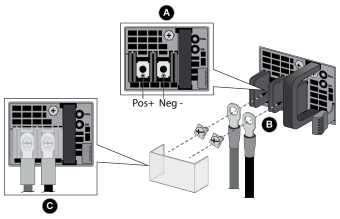


STEP 5 | Remove the replacement power supply from the packaging and slide it into the empty power supply slot. Push the power supply all the way in until the release lever clicks and secures the power supply.



STEP 6 | Reconnect the positive and negative DC power cables to the new power supply using the DC terminal screws.

Make sure you establish the correct polarity: positive to positive and negative to negative.



STEP 7 | When all DC power cables are securely connected and the plastic guard is properly reattached, power on the DC power source.

Replace a Drive on a PA-5200 Series Firewall

The PA-5200 Series firewalls have two solid-state drives (SSDs) used for system files and system logs and two hard-disk drives (HDDs) used for network traffic log storage. Each drive pair is in a RAID 1 array so that if a drive fails, you can replace the failed drive (using the same model drive) without service interruption. The system drives are labeled SYS 1 and SYS 2 and the log drives are labeled LOG 1 and LOG 2.

When ordering a replacement drive from Palo Alto Networks or your reseller, you receive two drives. This ensures that if the replacement drive is not the same model as the failed drive, you can install two new matching drives. If the replacement drive model is the same as the failed drive, you need only replace one failed drive and can store the second drive as a spare. For firewalls in an HA pair, there is no requirement that the drive sizes match between the paired systems.

The procedures to replace a system drive (SSD) and a log drive (HDD) are different.

- Replace a Log Drive on a PA-5200 Series Firewall
- Replace a System Drive on a PA-5200 Series Firewall

Replace a Log Drive on a PA-5200 Series Firewall

The following procedure describes how to replace a failed log drive. There are two scenarios: one where the replacement drive is the same model as the failed drive and one where the replacement drive is not the same model.

In a high availability (HA) configuration, if one log drive fails (or if both log drives fail) in the active firewall, the firewall enters the non-functional HA state and fails over. If the firewall is not in an HA configuration and one log drive fails, the firewall continues to operate. If both log drives fail in a non-HA configuration, the firewall continues to operate but it does not log network traffic and you cannot commit the configuration until there is at least one functioning log drive.

Depending on the size of the drive, it may take several hours for the new disk to be formatted and synced.

STEP 1 | Identify the failed drive and determine the drive model by running the following operational command to view the `status` and `model` fields:

```
admin@PA-5220>          show system raid detail
```

The following output shows that the `Log1` drive failed and that the model number of that drive is `ST2000NX0253`. The system log also shows an error that indicates which drive failed (Log1 or Log2).

```
Disk Pair Log                                Available
Status                                       clean, degraded
```



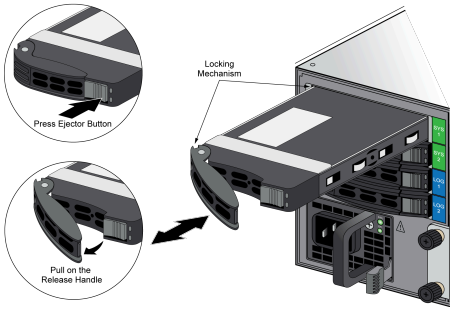
```
Disk id Log1                                Present
       model        : ST2000NX0253
       size         : 1907729 MB
       status       : failed

Disk id Log2                                Present
       model        : ST2000NX0253
       size         : 1907729 MB
       status       : active sync
```

STEP 2 | Remove the failed drive from the RAID 1 array configuration. In this example, run the following command to remove the `Log1` drive from the array:

```
admin@PA-5220> request system raid remove log1
```

STEP 3 | Press the ejector button on the drive carrier to release the carrier handle and gently pull the handle toward you to remove the carrier and drive.

The illustration shows how to remove a system (SYS) drive. The procedure to remove a log drive is the same.

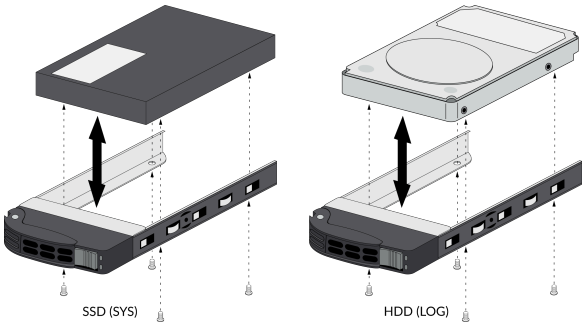


STEP 4 | Remove the replacement drive from the packaging and determine the drive model. You will compare this model number with the model number of the failed drive to determine which replacement procedure to use in 7.

STEP 5 | Install the replacement drive in the drive carrier.

1. Remove the replacement drive from the antistatic bag and place it on an antistatic surface. Place the failed drive next to the replacement drive with the connectors facing the same direction.
2. Remove the four screws that hold the failed drive in the carrier and remove the drive from the carrier.
3. Install the replacement drive in the carrier and secure it using the four screws you removed from the failed drive.

The illustration shows an SSD system drive and an HDD log drive; the procedure to swap the drive is the same for both.



STEP 6 | Install the carrier with the replacement drive:

1. Ensure that the drive carrier lever is in the open position; if it is not, press the ejector button on the drive carrier to release the lever and pull it out until it is fully open.
2. Slide the carrier assembly into the empty drive bay until it is about 1/4” (.64cm) from being fully inserted.
3. Before fully inserting the carrier, ensure that the lever attaches to the locking mechanism on the firewall and then close the lever to seat the carrier.

STEP 7 | Choose from the following two installation procedures based on your findings in 4:

- If the replacement drive is the same model number as the failed drive, continue to 8.
- If the replacement drive is a different model number than the failed drive, continue to 9.

STEP 8 | Same model replacement drive only) Add the replacement drive (that is the same model as the failed drive) to the RAID 1 array:

1. Add the replacement drive to the RAID 1 array. In this example, run the following command to add the LOG 1 drive to the array:

```
admin@PA-5220> request system raid add log1
```

If the replacement drive was previously used in a different Palo Alto Networks firewall, include the force option in this command to force the system to reformat the drive and add it to the array. If you reboot the firewall after removing the failed drive from the array, the force option is not required. This is because the system will recognize that a drive was missing and it will automatically reformat the newly inserted drive and will add it to the array.

2. Periodically view the RAID status until you see that `Disk Pair Log` shows `Available`, the status shows `clean`, and the status for each drive shows `active sync` status. To view RAID status, run the following command:

```
admin@PA-5220> show system raid detail
```

The following output shows that both log drives are in the `active sync` state:

```
Disk Pair Log                           Available
Status                                  clean

Disk id Log1                            Present
       model          : ST2000NX0253
       size           : 1907729 MB
       status         : active sync

Disk id Log2                            Present
       model          : ST2000NX0253
       size           : 1907729 MB
       status         : active sync
```


STEP 9 | Different model replacement drive only) Add the replacement drive (that is a different model than the failed drive) to the RAID 1 array:

When you initiate the copy command as described in the following steps, logging stops and you cannot view logs until the copy is complete and the disk pair shows `Available`.

1. (Optional) Suspend the firewall with the failed drive if it is the active firewall in an HA configuration.

   The firewall will fail over when the copy process in this procedures starts but you can choose to Verify Failover or manually suspend the firewall with the failed drive before you continue.

2. Copy the data from the other drive in the RAID 1 array to the replacement drive. In this example, run the following command to copy the data from the `Log2` drive to the `Log1` drive:

   ```
   admin@PA-5220> request system raid copy from log2 to log1
   ```

3. Run the following CLI command to view the status of the copy:

   ```
   admin@PA-5220> show system raid detail
   ```

   Periodically run this command until the copy is complete and the `Disk Pair Log` shows `Available`.

   At this point, the `Log2` drive shows `not in use` because the drive models are not the same.

   ```
   Disk Pair Log                           Available
   Status                                  clean, degraded

   Disk id Log1                            Present
          model        : ST2000NX0999
          size         : 1907729 MB
          status       : active sync

   Disk id Log2                            Present
          model        : ST2000NX0253
          size         : 1907729 MB
   ```



```
        status       : not in use
```

4. Replace the other drive in the array so the drive models in the array are the same. In this example, physically remove the Log2 drive, remove it from the carrier, and then install the second replacement drive in the carrier. 9.e shows how to swap drives in a carrier.
5. Add the second replacement drive to the RAID 1 array. In this example, run the following command to add the Log2 drive to the array:

   ```
   admin@PA-5220> request system raid add log2
   ```

   The system automatically starts to configure the new drive to mirror the other drive in the RAID 1 array.
6. Periodically view the RAID status until you see that the `Disk Pair Log` shows `Available` and both drives show `active sync` status. To view RAID status, run the following command:

   ```
   admin@PA-5220> show system raid detail
   ```

   The following output shows that both drives are in the `active sync` state:

   ```
   Disk Pair Log                           Available
   Status                                  clean

   Disk id Log1                            Present
          model         : ST2000NX0999
          size          : 1907729 MB
          status        : active sync

   Disk id Log2                            Present
          model         : ST2000NX0999
          size          : 1907729 MB
          status        : active sync
   ```

Replace a System Drive on a PA-5200 Series Firewall

The following procedure describes how to replace a failed system drive. There are two scenarios: one where the replacement drive is the same model as the failed drive and one where the replacement drive is not the same model.

If you replace a system drive with a different model drive, you must boot the firewall into the Maintenance Recovery Tool (MRT) to copy data between drives. In a high availability (HA) configuration, suspend the firewall with the failed drive as described in this procedure.

In a high availability (HA) configuration, if one system drive fails (or if both system drives fail) in the active firewall, the firewall enters the non-functional HA state and fails over. If the firewall is not in an HA configuration and one system drive fails, the firewall continues to operate. If both system drives fail in a non-HA configuration, you will need to replace the systems drives and restore the firewall configuration from a recent configuration backup.

STEP 1 | Identify the failed drive and determine the drive model.

When the system drives are functioning normally, all system drive partitions show both drives with the status `clean`. If a system drive fails, the `Overall System Drives RAID status` shows `degraded`, one or more failed partition array shows `clean, degraded`, and one of the drives will be missing (Sys1 or Sys2).In this example, the output from the `show system raid detail` command shows that the drive model is `MICRON_M510DC_MT`, the panlogs partition shows the status `clean, degraded`, and drive `Sys1` is missing from the panlogs array; together, these indicate that you need to replace the Sys1 drive.

```
admin@PA-5220> show system raid detail

Overall System Drives RAID status           degraded
--------------------------------------------------------------------------------
Drive status
   Disk id Sys1                             Present
 (MICRON_M510DC_MT)
   Disk id Sys2                             Present
 (MICRON_M510DC_MT)
--------------------------------------------------------------------------------
Partition status

panlogs                                     clean, degraded
   Drive id Sys2                            active sync
maint                                       clean
   Drive id Sys1                            active sync
   Drive id Sys2                            active sync
sysroot0                                    clean
   Drive id Sys1                            active sync
   Drive id Sys2                            active sync
sysroot1                                    clean
   Drive id Sys1                            active sync
   Drive id Sys2                            active sync
pancfg                                      clean
   Drive id Sys1                            active sync
   Drive id Sys2                            active sync
panrepo                                     clean
   Drive id Sys1                            active sync
   Drive id Sys2                            active sync
swap                                        clean
   Drive id Sys1                            active sync
   Drive id Sys2                            active sync
```

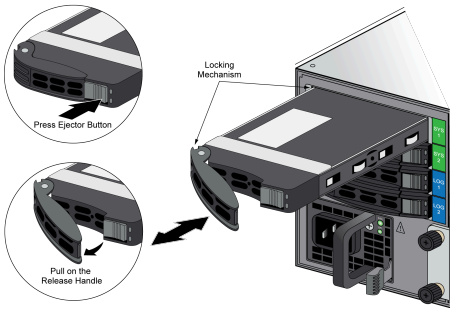
STEP 2 | Remove the failed drive from the RAID 1 array. In this example, run the following command to remove drive `Sys1` from the array:

```
admin@PA-5220> request system raid remove sys1
```


STEP 3 | Confirm that the failed drive is removed from all partitions. In the following output of the `show system raid detail`, you see that `drive id Sys1` is now missing from all partitions.

```
admin@PA-5220> show system raid detail

Overall System Drives RAID status                degraded
--------------------------------------------------------------------------------
Drive status
   Disk id Sys1                                  Present
 (MICRON_M510DC_MT)
   Disk id Sys2                                  Present
 (MICRON_M510DC_MT)
--------------------------------------------------------------------------------
Partition status

panlogs                                          clean, degraded
   Drive id Sys2                                 active sync
maint                                            clean, degraded
   Drive id Sys2                                 active sync
sysroot0                                         clean, degraded
   Drive id Sys2                                 active sync
sysroot1                                         clean, degraded
   Drive id Sys2                                 active sync
pancfg                                           clean, degraded
   Drive id Sys2                                 active sync
panrepo                                          clean, degraded
   Drive id Sys2                                 active sync
swap                                             clean, degraded
   Drive id Sys2                                 active sync
```

STEP 4 | Press the ejector button on the drive carrier to release the carrier handle and gently pull the handle toward you to remove the carrier and drive.

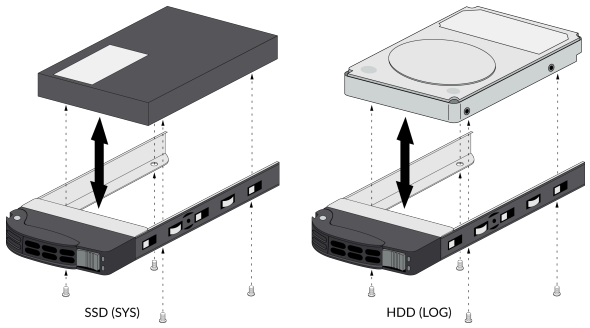


STEP 5 | Remove the replacement drive from the packaging, determine the drive model, and place it on an antistatic surface. Then compare this model number with the model number of the failed drive to determine which replacement procedure to use in 7.

STEP 6 | Install the replacement drive in the drive carrier.

1. Place the failed drive next to the replacement drive with the connectors facing the same direction.
2. Remove the four screws that hold the failed drive in the carrier and remove the drive from the carrier.
3. Install the replacement drive in the carrier and secure it using the four screws you removed from the failed drive.

   The illustration shows an SSD system drive and an HDD log drive; the procedure to swap the drive is the same for both.



STEP 7 | Install the replacement drive in the firewall.

1. Ensure that the drive carrier lever is in the open position; if it is not, press the ejector button on the drive carrier to release the lever and pull it out until it is fully open.
2. Slide the replacement drive and carrier assembly into the empty drive bay until it is about 1/4” (.6cm) from being fully inserted.
3. Before fully inserting the drive carrier, ensure that the lever attaches to the locking mechanism on the firewall and then close the lever to seat the carrier.

STEP 8 | Choose from the following two installation procedures based on your findings in 5:

- If the replacement drive is the same model number as the failed drive, continue to 9.
- If the replacement drive is a different model number than the failed drive, skip to 10.

STEP 9 | Same model replacement drive only) Add the replacement drive (one that is the same model as the failed drive) to the RAID 1 array:

1. Add the replacement drive to the RAID 1 array. In this example, run the following command to add the SYS 1 drive to the array:

```
admin@PA-5220> request system raid add sys1
```

If the replacement drive was previously used in a different Palo Alto Networks firewall, include the `force` option in this command to force the system to reformat the drive and add it to the array. If you reboot the firewall after removing the failed drive from the array, the force option is not required. Because the firewall recognizes that a drive is missing and it will automatically reformat the newly inserted drive and adds it to the array.

2. Periodically view the RAID status until you see that the `Overall System Drives RAID status` shows `Good`, all partitions show `clean`, and both drives show `active sync`. To view RAID status, run the following command:

```
admin@PA-5220> show system raid detail
```

Do not reboot the firewall until all partitions are ready; otherwise, the system drives may become out of sync and the firewall will not boot.

```
Overall System Drives RAID status        Good
-------------------------------------------------------------------------------
Drive status
   Disk id Sys1                          Present
 (MICRON_M510DC_MT)
   Disk id Sys2                          Present
 (MICRON_M510DC_MT)
-------------------------------------------------------------------------------
Partition status

panlogs                                  clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
maint                                    clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
sysroot0                                 clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
sysroot1                                 clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
pancfg                                   clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
panrepo                                  clean
   Drive id Sys1                         active sync
```



```
   Drive id Sys2                              active sync
swap                                          clean
   Drive id Sys1                              active sync
   Drive id Sys2                              active sync
```

STEP 10 | Different model replacement drive only) Add the replacement drive (one that is a different model than the failed drive) to the RAID 1 array:

1. Connect a serial cable from your computer to the Console port on the firewall and connect to the firewall using terminal emulation software that is configured to use 9600-8-N-1 settings.
2. (Optional) Suspend the firewall with the failed drive if it is the active firewall in an HA configuration.

   The firewall fails over when you boot into the Maintenance Recover Tool (MRT) as described in the following step but you can choose to Verify Failover *or manually suspend the firewall that contains the failed drive.*
3. Reboot the firewall with the failed drive into the MRT by running the following command:

   ```
   admin@PA-5220> debug system maintenance-mode
   ```
4. Press **Enter** on `CONTINUE` and then navigate to `RAID` and press **Enter** again.
5. Navigate to the Migrate Drive section and select the drive to migrate. In this example, select `Migrate drive Sys2 -> Sys1` to initiate the process of copying the system data from the Sys2 drive to the Sys1 replacement drive.
6. After migration is complete, remove the other system drive. In this example, remove the Sys2 drive.
7. Press **Esc** to go back to the main menu and then press **Enter** on `Reboot`.
8. After the firewall boots PAN-OS, replace the other drive in the array so the drives in the array are the same model. In this example, first remove the Sys2 drive from the carrier

and install the second replacement drive (one that is the same model as Sys1) into the carrier (see 6). Then, install the second replacement drive in slot Sys 2.

9. Add the second replacement drive to the RAID 1 array. In this example, run the following command to add drive Sys2 to the array

```
admin@PA-5220> request system raid add sys2
```

If the replacement drive was previously used as a system drive in a different Palo Alto Networks firewall, include the `force` option in this command to force the system to reformat the drive and add it to the array. If you reboot the firewall after removing the failed drive from the array, the force option is not required. Because the firewall recognizes that a system drive is missing and automatically reformats the newly inserted drive and adds it to the array.

The system automatically starts to configure the new drive to mirror the other drive in the RAID 1 array.

10. Periodically view the RAID status until you see that the `Overall System Drives RAID status` shows `Good`, all partitions show `clean`, and both drives show `active sync`. To view RAID status, run the following command:

```
admin@PA-5220> show system raid detail
```

Do not reboot the firewall until all partitions are ready; otherwise, the system drives may become out of sync and the firewall will not boot.

```
Overall System Drives RAID status        Good
-------------------------------------------------------------------------------
Drive status
   Disk id Sys1                          Present
 (MICRON_M510DC_MT)
   Disk id Sys2                          Present
 (MICRON_M510DC_MT)
-------------------------------------------------------------------------------
Partition status
panlogs                                  clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
maint                                    clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
sysroot0                                 clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
sysroot1                                 clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
pancfg                                   clean
   Drive id Sys1                         active sync
   Drive id Sys2                         active sync
panrepo                                  clean
```



```
   Drive id Sys1                          active sync
   Drive id Sys2                          active sync
swap                                      clean
   Drive id Sys1                          active sync
   Drive id Sys2                          active sync
```


PA-5200 Series Firewall Specifications

The following topics describe the PA-5200 Series firewall hardware specifications. For feature, capacity, and performance information, refer to the PA-5200 Series firewall datasheet.

PA-5200 Series Physical Specifications

The following table describes PA-5200 Series firewall physical specifications.

The physical specifications are identical for all PA-5200 Series models (PA-5220, PA-5250, PA-5260, and PA-5280 firewalls).

Specification	Value
Rack units and dimensions	Rack units—3U Dimensions—5.25”H X 21”D X 17.25”W (13.33cm X 52.07cm X 43.81cm) *The depth dimension includes hardware that protrudes from the back of the firewall.*
Weight	• Firewall weight—46lbs (20.87Kg) • Shipping weight—62lbs (28.13Kg)

PA-5200 Series Electrical Specifications

The following table describes PA-5200 Series firewall electrical specifications.

Specification	Value
Power supplies	Two 1,100W AC or DC power supplies; the second power supply is for redundancy.
Input voltage	• AC power supplies—100-240VAC (50-60Hz) • DC power supplies—-48 to -60VDC
Power consumption (AC or DC)	870W
Maximum current consumption	• AC power supplies—8.5A@100VAC, 3.6A@240VAC • DC power supplies—19A@-48VDC, 12.7A@-60VDC
Maximum inrush current	The following values include both power supplies. • AC power supplies—50A@230VAC, 50A@120VAC • DC power supplies—200A@72VDC

PA-5200 Series Environmental Specifications

The following table describes the PA-5200 Series firewall environmental specifications.

Specification	Value
Operating temperature range	32°F to 122°F (0°C to 50°C)
Non-operating temperature	-4°F to 158°F (-20°C to 70°C)
Humidity tolerance	5% to 90% non-condensing
Airflow	Front-to-back
Maximum BTUs/hour	2,970 BTUs/hour
Electromagnetic Interference (EMI)	FCC Class A, CE Class A, VCCI Class A

Acoustic noise	Tested in bystander position (ISO 7779)
	• AC Power Supplies
	  • Average—73 dB(A)
	  • Maximum—86 dB(A)
	• DC Power Supplies
	  • Average—67 dB(A)
	  • Maximum—86 dB(A)

Maximum operating altitude	10,000ft (3,048m)

PA-5200 Series Miscellaneous Specifications

The following table describes the PA-5200 Series firewall miscellaneous specifications.

Specification	Value
Mean time between failures (MTBF)	9 years
Storage Capacity	• System file storage—240GB (Two 240GB solid-state drives (SSDs) in a RAID-1 pair). • Log storage—2TBs (Two 2TB hard disk drives (HDDs) in a RAID-1 pair).

PA-5200 Series Firewall Compliance Statements Overview

Palo Alto Networks obtains regulatory compliance certifications to comply with the laws and regulations in each country where there are requirements applicable to our products. Our products meet standards for product safety and electromagnetic compatibility when used for their intended purpose.To view compliance statements for the PA-3200 Series firewalls, see PA-5200 Series Firewall Compliance Statements.

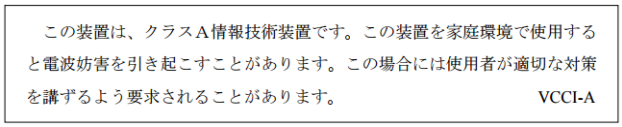
PA-5200 Series Firewall Compliance Statements

The following lists the PA-5200 Series firewall hardware compliance statements:

- 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.

- NEBS Requirements

  The following lists the Network Equipment Building System (NEBS) requirements for PA-5200 Series firewalls.

  - The firewall is intended to be installed in a Network Telecommunication Facility (Central Office) as part of a Common Bonding Network (CBN) or Isolated Bonding Network (IBN). Bare conductors must be coated with an appropriate antioxidant compound before crimp connections are made. All unplated connectors, braided strap, and bus bars must be brought to a bright finish and then coated with an antioxidant before they are connected.

    Fastening hardware must be compatible with the materials being joined and must preclude loosening, deterioration, and electrochemical corrosion of the hardware and the joined materials.
  - The firewall is suitable for connection to the Central Office or Customer Premise Equipment (CPE).
  - The DC battery return wiring on the firewall must be connected as an isolated DC return (DC-I).

    The intra-building ports (RJ-45 Ethernet ports, AUX ports, HA ports, and the MGT port) of the equipment or subassembly are suitable for connection to only intra-building or unexposed wiring or cabling. The intrabuilding port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the Outside Plant (OSP) or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 6) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.The firewall must be connected to an external Special Protection Device (SPD) when installed and connected to commercial AC power.

    The firewall must be connected to an external Special Protection Device (SPD) when installed and connected to commercial AC power.

- **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.
- **CE (European Union (EU) Electromagnetic Compatibility Directive)**

  This device is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive (2014/30/EU).

  The above product conforms with Low Voltage Directive 2014/35/EU and complies with the requirements relating to electrical equipment designed for use within certain voltage limits.

