

Replacing the power supply of the PoE switch



Overview

Installing a Power Supply Unit Insert the new power supply into the power-supply slot, and gently push it into the slot. When correctly inserted, the power.

Key Takeaways

Modifying a PoE switch's power supply involves understanding the input voltage requirements, power budget, and internal voltage conversion stages to safely support higher-power devices or multiple power sources.

Understanding Po

E Power Requirements PoE switches deliver both data and power over Ethernet cables to powered devices (PDs) such as IP cameras, access points, and VoIP phones. The power delivered is governed by standards like IEEE 802.3af (15.

4 W per port), 802.3at (30 W per port), and 802.3bt (up to 90 W per port).

Each switch has a total power budget, which limits the combined power available across all ports, and exceeding this budget can cause ports to be underpowered or shut down automatically. Input Voltage Options PoE switches typically accept different input voltages depending on the design: 12V adapter: Requires 12–48V to supply the PSE chip input. Internal buck converters step down voltage to 12V, 5V, 3.

3V, etc. 48V/53V adapter: Can directly supply the PSE, but may require step-down ICs for internal circuits. Dual input (48V/53V + 12V): Some high-power switches use two voltages to eliminate intermediate boost/buck stages, improving efficiency.

When modifying a switch, it is critical to match the input voltage to the switch's PSE and internal power conversion requirements to avoid damage. Internal Power Conversion
 High-power PoE switches often use multiple stages of voltage conversion:
 High-current buck converters: Step down input voltage to supply the PSE and internal circuits.
 2A–3A buck converters: Provide regulated voltages for core logic, I/O, and DDR memory.

Boost or step-down ICs: Used when input voltage does not match the required internal voltage. Modifying the power supply may involve upgrading these converters to handle higher currents or adding additional input channels for redundancy.

Power Sharing and Budget Management

For switches with multiple power inputs, current sharing ensures that each input contributes proportionally without exceeding individual limits. The switch monitors the total power delivered to PDs and adjusts allocation dynamically using protocols like CDP or LLDP. Any modification must maintain compliance with IEEE standards to prevent overloading PDs or violating safety limits.

Practical Considerations

Check the switch's maximum power rating: Ensure the new supply can meet the total PoE budget. Maintain voltage regulation: Use appropriate buck/boost converters to supply stable voltages to internal circuits.

Observe IEE

E compliance: Avoid exceeding per-port or total power limits to prevent damage to PDs. Consider redundancy: Dual-input designs can improve reliability and allow hot-swapping of power sources. Monitor thermal performance: Higher power delivery increases heat; ensure adequate cooling.

By carefully selecting compatible input voltages, upgrading internal converters if necessary, and respecting the switch's power budget, you can safely modify a PoE switch to support higher-power devices or multiple power sources while maintaining compliance and reliability.

Article Content

Installing a Power Supply Unit

Insert the new power supply into the power-supply slot, and gently push it into the slot. When correctly inserted, the power supplies (excluding the power cord retainer) are flush with the switch rear panel.

Cisco Catalyst 9200 Series Switches Hardware Installation Guide

All switches ship with a blank cover in the second power supply slot. The main module is field replaceable and the redundant module is hot-swappable. The redundant power supply can also

Ubiquiti 48 port switch (US 48 G1) power supply replacement

A switch with a power supply failure will fail to turn on if powered on mains power, but will turn on if given 24-25V on the separate 25V port. This guide shows how to replace the power supply

Dead USW-24-POE power supply: A Success Story

I found this thread when searching for psu replacement on my switch that just died. I have the Pro 24 poe model, so it is an L3 switch as well and different poe wattage. The interesting thing on mine is

Replace Power Supplies

However, the procedure for replacing a power supply is the same for all Extreme Networks switches. Read all of the information in this chapter thoroughly before attempting to replace a power supply.

PoE Switch Tutorial: Simplifying Network Power Management

A PoE switch simplifies network installation by providing power and data transmission over a single Ethernet cable. However, to take full advantage of a PoE switch, it's crucial to

Installing and Troubleshooting Power over Ethernet (PoE)

A guide to how PoE works, how to select compatible equipment, and what you need to be aware of and test for when installing or troubleshooting PoE.

A Comprehensive guide to PoE Switches and their Uses

There are different types of PoE switches, including PoE (IEEE 802.3af), which supplies up to 15.4W per port, PoE+ (IEEE 802.3at), which provides up to 30W per port, and PoE++ (IEEE 802.3bt), capable

US-24-250W PSU Replacement : r/Ubiquiti

After having no luck tracking down a new replacement PSU, I ran across a post on the Ubiquiti forums where someone had used 2 separate power supplies (24V and 48V) installed inside the switch to get

460W Switch Mode PSU teardown, detailed overview and repair

Teardown and repair of a 460W switch mode power supply (SMPS) from a 24-port Cisco 3550 PWR Ethernet switch with PoE functionality.

Fortinet FS-PSU-920 AC Power Supply for FS-548D-FPOE | FortiSwitch

Maintain PoE headroom on the FortiSwitch FS-548D-FPOE with the Fortinet FS-PSU-920 AC power supply. Built as a proprietary replacement for this specific switch platform, it supports the power

The Gear Page

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PoE Availability and Modes

PoE Availability and Power Requirements PoE Availability is a switch's total power, in Watts, that it can distribute among all connected clients. Your PoE Availability must be greater than the sum of all

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