Enterasys S-Series®

S4 Chassis

Hardware Installation Guide

S4-Chassis

S4-Chassis-POE4

P/N 9034439-08

enterasys®

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

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Enterasys Networks, Inc.
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Andover, MA 01810

Part Number: 9034439-08 March 2012

Documentation URL: https://extranet.enterasys.com/downloads/

Regulatory Compliance Information

Federal Communications Commission (FCC) Notice

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment uses, generates, and can radiate radio frequency energy and if not installed in accordance with the operator's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada Notice

This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Class A ITE Notice

WARNING: 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 adequate measures.

Clase A. Aviso de ITE

ADVERTENCIA: Este es un producto de Clase A. En un ambiente doméstico este producto puede causar interferencia de radio en cuyo caso puede ser requerido tomar medidas adecuadas.

Klasse A ITE Anmerkung

WARNHINWEIS: Dieses Produkt zählt zur Klasse A (Industriebereich). In Wohnbereichen kann es hierdurch zu Funkstörungen kommen, daher sollten angemessene Vorkehrungen zum Schutz getroffen werden.

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This is a class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

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

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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，在這種請況下，使用者會被要求採取某些適當的對策。

AS/NZS CISPR 22

Hazardous Substances

This product complies with the requirements of European Directive, 2002/95/EC, Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment.

European Waste Electrical and Electronic Equipment (WEEE) Notice

In accordance with Directive 2002/96/EC of the European Parliament on waste electrical and electronic equipment (WEEE):

1. The symbol above indicates that separate collection of electrical and electronic equipment is required and that this product was placed on the European market after August 13, 2005, the date of enforcement for Directive 2002/96/EC.
2. When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
3. It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
4. It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.

   For information about the available collection system, please go to www.enterasys.com/support/ or contact Enterasys Customer Support at 353 61 705586 (Ireland).

Battery Notice

This product contains a battery used to maintain product information. If the battery should need replacement it must be replaced by Service Personnel. Please contact Technical Support for assistance.

Caution: There is an explosion risk if you replace the battery with the incorrect type. Dispose of expended battery in accordance with local disposal regulations.

Precaución: Hay riesgo de explosion si la bateria se reemplaza con el typo incorrecto. Deshágase de las baterías gastadas de conformidad con las regulaciones de eliminación local.

产品说明书附件
Supplement to Product Instructions

部件名称 (Parts)	有毒有害物质或元素 (Hazardous Substance)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 (Metal Parts)	×	○	○	×	○	○
电路模块 (Circuit Modules)	×	○	○	×	○	○
电缆及电缆组件 (Cables & Cable Assemblies)	×	○	○	×	○	○
塑料和聚合物部件 (Plastic and Polymeric parts)	○	○	○	○	○	×
电路开关 (Circuit Breakers)	○	○	×	×	○	○

○： 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。
Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T 11363-2006 standard.

×： 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006 标准规定的限量要求。
Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T 11363-2006 standard.

对销售之日的所售产品, 本表显示,
凯创供应链的电子信息产品可能包含这些物质。注意:在所售产品中可能会也可能不会含有所有所列的部件。
This table shows where these substances may be found in the supply chain of Enterasys' electronic information products, as of the date of sale of the enclosed product. Note that some of the component types listed above may or may not be a part of the enclosed product.

除非另外特别的标注, 此标志为针对所涉及产品的环保使用期标志. 某些零部件会有一个不同的环保使用期(例如, 电池单元模块)贴在其产品上.
此环保使用期限只适用于产品是在产品手册中所规定的条件下工作.
The Environmentally Friendly Use Period (EFUP) for all enclosed products and their parts are per the symbol shown here, unless otherwise marked. Certain parts may have a different EFUP (for example, battery modules) and so are marked to reflect such. The Environmentally Friendly Use Period is valid only when the product is operated under the conditions defined in the product manual.

Safety Information
Class 1 Laser Transceivers

The single mode interface modules use Class 1 laser transceivers.
Read the following safety information before installing or operating these modules.

The Class 1 laser transceivers use an optical feedback loop to maintain Class 1 operation limits. This control loop eliminates the need for maintenance checks or adjustments. The output is factory set, and does not allow any user adjustment. Class 1 Laser transceivers comply with the following safety standards:

- 21 CFR 1040.10 and 1040.11 U.S. Department of Health and Human Services (FDA).
- IEC Publication 825 (International Electrotechnical Commission).
- CENELEC EN 60825 (European Committee for Electrotechnical Standardization).

When operating within their performance limitations, laser transceiver output meets the Class 1 accessible emission limit of all three standards. Class 1 levels of laser radiation are not considered hazardous.

When the connector is in place, all laser radiation remains within the fiber. The maximum amount of radiant power exiting the fiber (under normal conditions) is -12.6 dBm or 55 x 10^{-6} watts.

Removing the optical connector from the transceiver allows laser radiation to emit directly from the optical port. The maximum radiance from the optical port (under worst case conditions) is 0.8 W cm^{-2} or 8 x 10^{3} W m^{2} sr-1.

Do not use optical instruments to view the laser output. The use of optical instruments to view laser output increases eye hazard. When viewing the output optical port, power must be removed from the network adapter.

Safety Compliance

Warning: Fiber Optic Port Safety

When using a fiber optic media expansion module, never look at the transmit laser while it is powered on. Also, never look directly at the fiber TX port and fiber cable ends when they are powered on.

Avertissment: Ports pour fibres optiques - sécurité sur le plan optique

Ne regardez jamais le laser tant qu'il est sous tension. Ne regardez jamais directement le port TX (Tramsmission) à fibres optiques et les embouts de câbles à fibres optiques tant qu'ils sont sous tension.

Warnhinweis: Faseroptikanschlüsse - Optische Sicherheit

Niemals ein Übertragungslaser betrachten, während dieses eingeschaltet ist. Niemals direkt auf den Faser-TX-Anschluß und auf die Faserkabelenden schauen, während diese eingeschaltet sind.

Declaration of Conformity

Application of Council Directive(s):	**2004/108/EC** **2006/95/EC**
Manufacturer's Name:	**Enterasys Networks, Inc.**
Manufacturer's Address:	**50 Minuteman Road** **Andover, MA 01810** **USA**
European Representative Name:	**Enterasys Networks, Ltd.**
European Representative Address:	**Nexus House, Newbury Business Park** **London Road, Newbury** **Berkshire RG14 2PZ, England**
Conformance to Directive(s)/Product Standards:	**EC Directive 2004/108/EC** **EN55022:2006** **EN 55024:1998** **A1:2001** **A2:2003** **EN 61000-3-2:2006** **EN 61000-3-3:1995** **A1:2001** **A2:2005** **EC Directive 2006/95/EC** **EN 60950-1:2006** **A11:2009** **A1:2010** **EN 60825-1:2007** **EN 60825-2:2004** **A1:2007**
Equipment Type/Environment:	**Information Technology Equipment, for use in a Commercial or Light Industrial Environment.**

Enterasys Networks, Inc. declares that the equipment packaged with this notice conforms to the above directives.

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10. **ENFORCEMENT.** You acknowledge and agree that any breach of Sections 2, 4, or 9 of this Agreement by You may cause Enterasys irreparable damage for which recovery of money damages would be inadequate, and that Enterasys may be entitled to seek timely injunctive relief to protect Enterasys' rights under this Agreement in addition to any and all remedies available at law.

11. **ASSIGNMENT.** You may not assign, transfer or sublicense this Agreement or any of Your rights or obligations under this Agreement, except that You may assign this Agreement to any person or entity which acquires substantially all of Your stock assets. Enterasys may assign this Agreement in its sole discretion. This Agreement shall be binding upon and inure to the benefit of the parties, their legal representatives, permitted transferees, successors and assigns as permitted by this Agreement. Any attempted assignment, transfer or sublicense in violation of the terms of this Agreement shall be void and a breach of this Agreement.

12. **WAIVER.** A waiver by Enterasys of a breach of any of the terms and conditions of this Agreement must be in writing and will not be construed as a waiver of any subsequent breach of such term or condition. Enterasys' failure to enforce a term upon Your breach of such term shall not be construed as a waiver of Your breach or prevent enforcement on any other occasion.

13. **SEVERABILITY.** In the event any provision of this Agreement is found to be invalid, illegal or unenforceable, the validity, legality and enforceability of any of the remaining provisions shall not in any way be affected or impaired thereby, and that provision shall be reformed, construed and enforced to the maximum extent permissible. Any such invalidity, illegality, or unenforceability in any jurisdiction shall not invalidate or render illegal or unenforceable such provision in any other jurisdiction.

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Appendix B: About PoE (Power over Ethernet)

Appendix C: Environmental Guidelines

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About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys S-Series® S4 chassis models:

- S4-Chassis
- S4-Chassis-POE4

Who Should Use This Guide

Electrical Hazard: Only qualified personnel should install or service this unit.

Riesgo Electrico: Nada mas personal capacitado debe de instalar o darle servicio a esta unida.

Elektrischer Gefahrenhinweis: Installationen oder Servicearbeiten sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

This guide is intended for a network administrator who is responsible for installing and setting up the S-Series chassis.

How to Use This Guide

Read through this guide completely to familiarize yourself with its contents and to gain an understanding of the features and capabilities of the S4 chassis. A general working knowledge of data communications networks is helpful when setting up this chassis.

This preface provides the following:

- An overview of this guide and the S-Series manual set
- A brief summary of each chapter
- Definitions of the conventions used in this document
- Instructions regarding how to obtain technical support from Enterasys Networks.

To locate information about various subjects in this guide, refer to the following table.

For...	Refer to...
An overview of the S4 chassis	Chapter 1, **Introduction**
Network requirements that you must meet before installing the S4 chassis	Chapter 2, **Installation Requirements and Guidelines**
Instructions to install the S4 chassis hardware	Chapter 3, **Chassis Setup**
Specifications, environmental requirements, and physical properties of the S4 chassis	Appendix A, **Specifications and Regulatory Compliance**
An overview of PoE on S-Series devices	Appendix B, **About PoE (Power over Ethernet)**
Environmental guidelines for operating your Enterasys equipment.	Appendix C, **Environmental Guidelines**

Related Documents

The manuals listed below can be obtained from the World Wide Web in Adobe Acrobat Portable Document Format (PDF) at the following site:

https://extranet.enterasys.com/downloads

- *Enterasys S-Series Configuration Guide* and *Enterasys S-Series CLI Reference Guide* provide information on how to use the Command Line Interface to set up and manage the Enterasys S4 chassis and S-Series modules.
- *Enterasys S-Series I/O Module Hardware Installation Guide*
- *Enterasys S-Series Option Module Hardware Installation Guide*
- *Enterasys S-Series I/O Module Quick Reference*
- *Enterasys S-Series Option Module Quick Reference*
- *Enterasys S-Series PoE Subsystem Upgrade Installation Guide*

Typographical Conventions

The following typographical conventions and icons are used in this document.

blue type	Indicates a hypertext link. When reading this document online, click the text in blue to go to the referenced figure, table, or section.
Lowercase x	Indicates the general use of an alphanumeric character.
	**Note:** Calls the reader's attention to any item of information that may be of special importance.
	**Caution:** Contains information essential to avoid damage to the equipment. **Precaución:** Contiene información esencial para prevenir dañar el equipo. **Achtung:** Verweißt auf wichtige Informationen zum Schutz gegen Beschädigungen.
	**Warning:** Warns against an action that could result in personal injury or death. **Advertencia:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte. **Warnhinweis:** Warnung vor Handlungen, die zu Verletzung von Personen oder gar Todesfällen führen können!
	**Electrical Hazard:** Warns against an action that could result in personal injury or death due to an electrical hazard. **Riesgo Electrico:** Advierte contra una acción que pudiera resultar en lesión corporal o la muerte debido a un riesgo eléctrico. **Elektrischer Gefahrenhinweis:** Warnung vor sämtlichen Handlungen, die zu Verletzung von Personen oder Todesfällen – hervorgerufen durch elektrische Spannung – führen können!

Getting Help

For additional support related to the Enterasys S4 chassis or this document, contact Enterasys Networks using one of the following methods:

World Wide Web	http://www.enterasys.com/support
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-978-684-1888 For the Enterasys Networks Support toll-free number in your country: http://www.enterasys.com/support
Email	support@enterasys.com To expedite your message, please type **[S-Series]** in the subject line.

Before contacting Enterasys Networks for technical support, have the following data ready:

- Your Enterasys Networks service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (for example, changing mode switches or rebooting the unit)
- The serial and revision numbers of all involved Enterasys Networks products in the network
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load and frame size at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any previous Return Material Authorization (RMA) numbers

1

Introduction

This chapter provides an overview of the S4 chassis and its features.

Overview

The S4 chassis design provides four slots for S-Series modules. All S-Series modules installed in the S4 chassis operate as a system with a single IP address.

The S4 chassis supports the following:

- Hot-swappable S-Series modules
- Load-sharing I/O fabric modules
- Field-replaceable fan trays
- Redundant power supplies
- IEEE 802.3af and 802.3at Power over Ethernet (PoE)

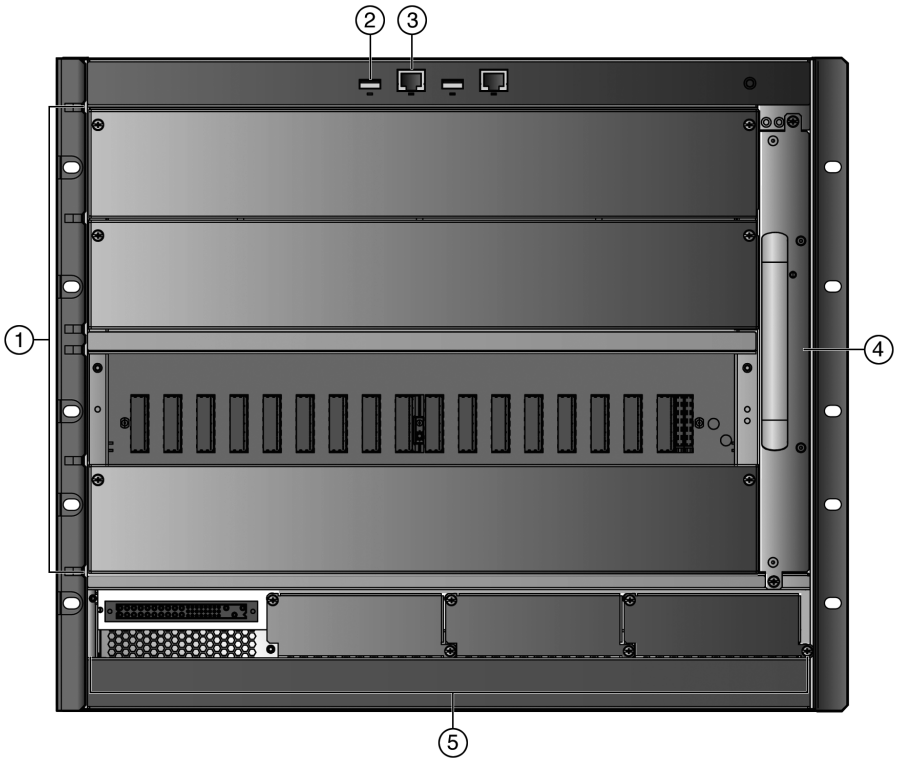
The S4 chassis can be installed as a freestanding unit or installed into a standard 48.26-centimeter (19-inch) rack.

All chassis components (power supplies, fan tray, and modules) are installed from the front of the chassis for ease of maintenance. All LED indicators are observable from the front of the chassis to aid in monitoring network operational status and performing maintenance.

The S4 chassis can be installed by itself or with a PoE subsystem to provide dedicated PoE power. The S4 chassis supports the four bay PoE subsystem.

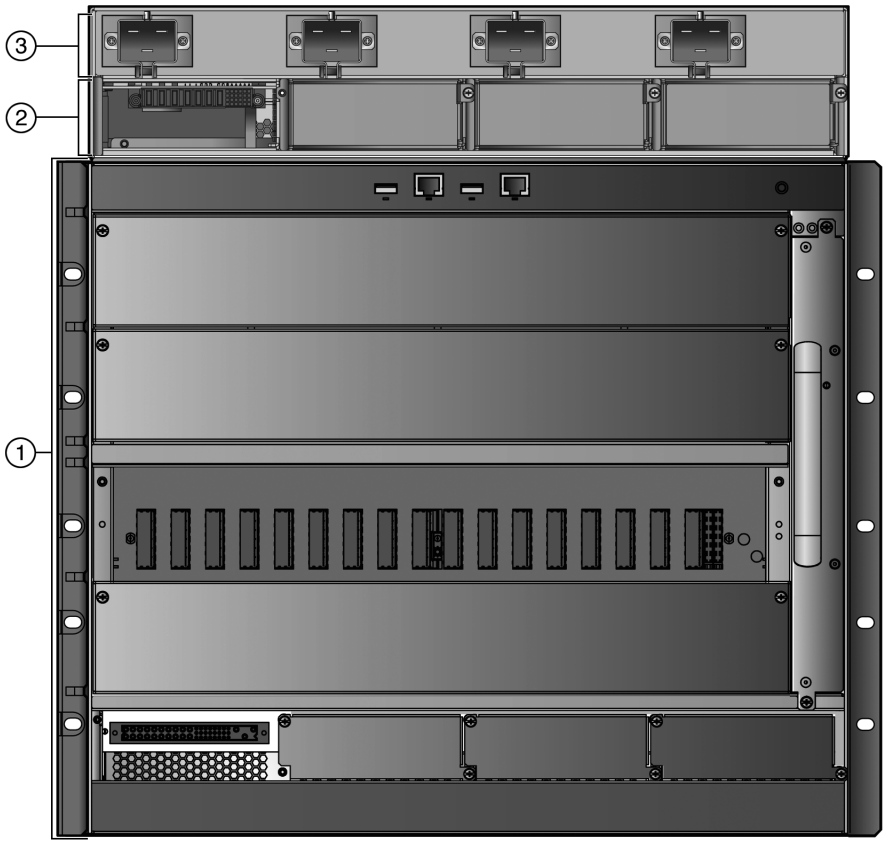
Figure 1-1 shows the S4 chassis (S4-Chassis) with slots for two I/O fabric modules, two I/O modules, and four redundant power supplies. Figure 1-2 shows the S4 chassis equipped with the four bay PoE subsystem (S4-Chassis-POE4).

Figure 1-1 S4 Chassis (S4-Chassis)



1 Module slots (4 total)
2 USB ports (2 ports)
3 Slot-specific COM ports (2 ports)
4 Fan tray (S-FAN)
5 Power supply slots (AC or DC power supplies) (4)

Figure 1-2 S4 Chassis with Four Bay PoE Subsystem (S4-Chassis-POE4)



1 Chassis (S4-Chassis)

2 PoE power supply slots (S-POE-PS) (4)

3 AC power receptacles

Features

S-Series Modules

The S4 chassis supports S-Series S130 and S155 I/O fabric modules and I/O modules, with some of these modules designed to be expanded with option modules. Port options on the S-Series modules are 10/100/1000BASE-TX RJ45 ports, 1000BASE-X SFP ports, and 10GBASE-X SFP+ ports. IEEE 802.3af and 802.3at Power over Ethernet (PoE) is supported on the 10/100/1000BASE-TX RJ45 ports.

The S4 chassis, which has four slots, can accept up to two I/O modules and two fabric I/O modules.

AC Power Supplies

Models

Two AC power supply models are available for use with the S4 chassis:

- S-AC-PS—The S-AC-PS power supply draws either 110 Vac 16A or 220 Vac 10A service, providing 1200 or 1600 watts per power supply, depending upon the electrical infrastructure of the site where the S4 chassis is located. Each S-AC-PS power supply requires a dedicated 100–240 Vac, 20 Amp earth-grounded circuit.
- S-AC-PS-15A—The S-AC-PS-15A power supply draws either 110 Vac 12A or 220 Vac 8A service, providing 930 or 1600 watts per power supply, depending upon the electrical infrastructure of the site where the S4 chassis is located. Each S-AC-PS-15A power supply requires a dedicated 100–240 Vac, 15 Amp earth-grounded circuit.

Both the S-AC-PS and S-AC-PS-15A power supplies have one front-panel AC input power connector. Power cords shipped with the S-AC-PS and S-AC-PS-15A are country-dependent.

Note: Each S-AC-PS or S-AC-PS-15A power cord must be connected to an independent AC power source to handle the input power requirements.

Redundancy

The S4 chassis supports four AC power supplies that reside in the lower section of the chassis, in slots labeled PS1, PS2, PS3, and PS4. The second, third, and fourth power supplies provide load sharing and, depending on how the S4 chassis is populated, redundancy.

The S-AC-PS and S-AC-PS-15A are capable of load sharing the S4 chassis power load. If a power supply fails, the other power supplies support the entire load of the chassis without interruption to network traffic. Refer to “Precautions” on page 2-2 for power outlet requirements. Refer to “Power Supply Planning” on page 3-13 for information on the methods of load sharing.

Operating Status

The S-AC-PS and S-AC-PS-15A power supplies report information regarding their present operating status. This information includes the following:

- Power supply ID (PS1, PS2, PS3, PS4)
- Power supply status (normal/fault/not installed)
- Power supply redundancy indication (redundant/not available)

Refer to the *Enterasys S-Series CLI Reference Guide* for instructions on how to access power supply status information using Local Management.

Auto-Ranging Input Voltage and Frequency

The S-AC-PS and S-AC-PS-15A power supplies automatically adjust to the input voltage and frequency, which allows for an input voltage of 100 to 220 Vac, and a frequency between 50 and 60 Hz. See the operating specifications in Appendix A. No additional adjustments are necessary. See "Installing the AC Power Supplies" on page 3-14 for more details.

Hot Swapping

To reduce network downtime, a power supply may be hot swapped. When multiple power supplies are installed, this allows the removal of one power supply without powering down the chassis and interrupting network traffic.

DC Power Supplies

You can use the S-DC-PS power supplies in the S4 chassis in place of the AC power supplies (S-AC-PS and S-AC-PS-15A).

Note: You cannot install a combination of AC and DC power supplies in the S4 chassis.

The DC power supply connects a -48/-60 VDC battery voltage to the backplane of the S4 chassis. Each power supply provides a maximum of 1200 watts of power. The DC power supply also provides a +5 VDC auxiliary output.

The S-DC-PS power supply provides the following features:

- Redundancy — A maximum of four supplies can be operated in parallel, sharing a common power bus. Failure of any single supply will not affect operation of the power bus. In addition, inadvertent hot-swapping of energized power supplies will not affect bus operation. This applies to all outputs of the power supply.
- Reverse polarity protection and alarm — No damage will occur to the power supply if the input voltage is inadvertently reversed. An audible alarm will sound upon reverse polarity.
- Visual indicators — The power supply has two LEDs on the front panel. The IN LED lights green when the input voltage is above the minimum required to operate. The OUT LED lights green if all power supply voltage outputs are in regulation.

The S-FAN Chassis Cooling System

The S4 chassis features a removable fan tray that is accessible from the front of the chassis. This unit is hot swappable, which allows it to be replaced without powering down the chassis. The fan tray has one LED located on the front of the unit. This LED indicates the status of the fan tray (normal/fault/not installed). Refer to "S-FAN Fan Tray Status LED" on page 3-29 for a full description of the fan tray LED states.

Standalone or Rack Mountable Chassis

The S4 chassis can be installed as a freestanding unit on a shelf or table. The S4 chassis can also be mounted into a standard 48.26-centimeter (19-inch) equipment rack. In a rack installation, the S4 chassis can be either front mounted or mid-mounted. To mid-mount an S4 chassis, you must use the S-Series mid-mount brackets (S4-MIDMOUNT-KIT) that are available separately. Refer to "Precautions" on page 2-2 for requirements on ventilation and cooling.

RJ45 COM Ports

In the S4 chassis, the RJ45 COM ports are designed for accessing specific I/O fabric modules. For a particular COM port to be functional, an I/O fabric module must be present in the corresponding slot. In the S4 chassis, the COM ports correspond to slots 2 and 3.

USB Ports

The USB ports on the S4 chassis allow you to use a USB drive to upgrade the chassis and upload and download files, such as configuration files and firmware images. A USB port, however, functions only if an I/O fabric module is present in the corresponding slot. In the S4 chassis, the USB ports correspond to slots 2 and 3. For information on connecting to the USB port, refer to the *Enterasys S-Series CLI Reference Guide*.

Power over Ethernet (PoE)

The S4 chassis provides PoE to powered devices (PDs) using the PoE subsystem installed on top of the S-Series chassis. The PoE subsystem can support four S-POE-PS power supplies, providing up to 8,000W of PoE power. In a fully populated S4 chassis, PoE power can be delivered to PDs on all ports simultaneously.

The S-POE-PS power supply features include the following:

- Hot swappable capability as long as the total power needed does not exceed the power output capability of the remaining S-POE-PSs in the PoE subsystem.
- Provides a maximum power output of 1200W (low line) or 2000W (high line) to each S-Series module that supports PoE. The maximum number of PDs (powered devices) supported by each PoE S-Series module is dependent on the PD power consumption as indicated by their Power Classifications.
- Provides power redundancy when two or more S-POE-PSs are installed in the PoE subsystem and there is no more than a 1200W (low line) or 2000W (high line) demand by the connected S-Series modules to support PDs. If one S-POE-PS fails or is removed from the PoE subsystem, the other S-POE-PSs can support the total load.

2

Installation Requirements and Guidelines

This chapter describes the following:

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

For information on environmental guidelines, including airflow considerations, refer to Appendix C, **Environmental Guidelines**.

Site Guidelines

You must follow the guidelines listed below when selecting a site for the S4 chassis.

Location Guidelines

- You must install an S4 chassis, with or without a PoE subsystem, in a restricted access location. This location should only be accessible by people who have been trained or are technically competent enough to be aware of potential risks of accessing the hazardous areas of the chassis. Locations such as a locked wiring closet or locked cabinet meet this requirement.
- You must install an S4 chassis that uses S-DC-PS power supplies in a restricted access location.

Rack Mounting Guidelines

- To install the S4 chassis as a freestanding unit on a shelving unit, the shelf must be able to support 113.4 kilograms (250 pounds) of static weight.
- If you are mid-mounting the S4 chassis, you must bolt the rack to the floor or ensure that the rack is supported in such a way that the mid-mounted S4 chassis does not create a tipping hazard.
- To install the S4 chassis as a rack mounted unit, care must be taken to ensure that the rack used will support the unit and that the rack remains stable.

- To allow proper air flow and cooling within the rack, ensure the following:
  - If multiple products are installed in the rack, the rack must contain products with similar air flow.
  - There must be 5.08 centimeters (2 inches) of clearance behind the S4 chassis and on either side of the S4 chassis.
- If you are installing an S4 chassis at the bottom of an enclosed rack, leave at least 5.08 centimeters (2 inches) between the floor of the rack and the S4 chassis to ensure proper air flow and cooling; otherwise, you risk the modules overheating.

AC Power Supply Guidelines

The S-AC-PS, S-AC-PS-15A, and S-POE-PS power supplies require one three-pronged power receptacle capable of delivering the current and voltage specified in Appendix A, **Specifications and Regulatory Compliance**.

One earth-grounded AC outlet on an independently fused circuit is required for each power supply and must be located as follows:

- **S-AC-PS** and **S-POE-PS:** 20 Amp earth-grounded AC outlet within three meters (9.84 feet) of the site.
- **S-AC-PS-15A:** 15 Amp earth-grounded AC outlet within two meters (6.56 feet) of the site.

The power supply is shipped with the appropriate power cord for the country's outlet type.

- **S-AC-PS** and **S-POE-PS:** In the United States, Canada, and Mexico, one 3-meter power cord with a NEMA 5-20P plug is provided with each power supply.
- **S-AC-PS-15A:** In the United States, Canada, and Mexico, one 2-meter power cord with a NEMA 5-15P plug is provided with each power supply.

Temperature Guidelines

- Ambient temperature at the installation site must be maintained between 5° and 40°C (41° to 104°F). Temperature changes must be maintained within 10°C (18°F) per hour.
- To keep your S4 chassis running at the proper temperature, you may have to vacuum any accumulated dust periodically from the vent holes on the S4 chassis.

Precautions

Ensure that you have read and understood the installation and operation precautions before installing the S4 chassis.

Warning: Install the Enterasys S-Series chassis in a Restricted Access Location only. Access to the equipment by users must be restricted through the use of a tool or lock and key or other means of security and is controlled by the authority responsible for the location.

Advertencia: Instalar el chasis Enterasys S en un lugar de Acceso Restringido. Acceso al equipo debe ser restringido mediante el uso de una herramienta o candado o cualquier otro método de seguridad y debe ser controlado por el responsable del lugar.

Warnhinweis: Installieren Sie das S nur in einer zugangsgeschützten Umgebung. Der Bereich zu den Komponenten sollte durch ein Schloß, einen Schlüssel oder sonstigen Sicherungen geschützt und durch einen Verantwortlichen kontrolliert werden.

3

Chassis Setup

This chapter contains instructions on setting up the S4 chassis.

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

Important Notice

Read the Release Notes specific to the firmware image running in the chassis to check for any exceptions to the supported features and operation documented in this guide.

Required Tools

- ESD wrist strap (included with the S4 chassis)
- Phillips screwdriver
- Flat blade screwdriver

A Phillips screwdriver is needed to install the unit in a 48.26-centimeter (19-inch) equipment rack. A flat blade screwdriver is needed to secure the power supplies and to remove and reinstall the fan tray. Refer to Chapter 2, **Installation Requirements and Guidelines**, for installation guidelines.

Unpacking the S4 Chassis

Note: Unpack the S4 chassis components only as needed. Leave the components in their respective shipping cartons until you are ready to install that component. Save all shipping materials in the event that the chassis has to be repacked.

The S4 chassis, with or without a PoE subsystem, is packed and shipped on a skid. Before unpacking the chassis, examine the outside packaging for obvious damage.

To unpack the S4 chassis:

1. With a box cutter, cut the two shipping straps fastening the corrugated box to the skid.
2. Lift and remove the shipping box from the skid.
3. Remove and save the accessory package, documents, and cable from the top of the styrofoam cap. See Table 3-1.
4. Lift and remove the styrofoam cap from the top of the chassis.
5. Remove the bolts that secure the chassis to the skid.
6. Open the top of the shipping bag covering the unit, then pull the bag down around the chassis.
7. Lift and remove the chassis from the skid.

   Save all shipping materials for future reshipping, if necessary.
8. Inspect the chassis for any signs of physical damage.

   If there are any signs of damage, DO NOT install the chassis; instead, contact Enterasys Networks. Refer to “Getting Help” on page xvii for details.

Table 3-1 Accessories That Ship with the S-Series Chassis

Item
Electrostatic Discharge (ESD) wrist strap
Installation documentation
Rubber feet
USB cable
RJ45 Console port cable
RJ45-to-DB9 adapter
Cable management clips

The following peripherals ship separately:

- I/O modules
- I/O fabric modules
- S-AC-PS power supplies and 20 Amp line (inlet) cords (one per power supply)
- S-AC-PS-15A power supplies and 15 Amp line (inlet) cords (one per power supply)
- S-POE-PS power supplies and 20 Amp line (inlet) cords (one per power supply)
- S-DC-PS power supplies
- Mid-mount brackets (2)

Note: To reship the chassis, refer to the directions above and reverse each step.

Installing the S4 Chassis

The following sections describe the procedures that you must follow to complete the installation of the S4 chassis.

Order of Installation

Once you have chosen a suitable site, you can install the S4 chassis as a freestanding or rack-mounted unit. If you are installing an S4 chassis with a PoE subsystem, ensure that you have read the precautions in "Precautions" on page 2-2.

1. For a freestanding installation, install the rubber feet (Installing Rubber Feet).

   If you are rack mounting the S4 chassis, start at step 2.
2. (Optional) Install the mid-mount brackets (Installing the Mid-Mount Brackets).
3. Mount the chassis in a 48.26-centimeter (19-inch) rack or other secure location (Rack Mounting the S4 Chassis).
4. (Optional) Install the cable management clips (Installing the Cable Management Clips).
5. Attach the Electrostatic Discharge wrist strap (Attaching the Electrostatic Discharge Wrist Strap).
6. Install the AC or DC power supplies (Installing the AC Power Supplies or Installing the S-DC-PS Power Supply).
7. Power up the S4 chassis (Powering Up the S4 Chassis with AC Power Supplies or Powering Up the S4 Chassis with S-DC-PS Power Supplies).
8. If you have an S4 chassis with a PoE subsystem, install the PoE power supplies (Installing the S-POE-PS Power Supplies in the PoE Subsystem).
9. Power up the PoE power supplies (Connecting Power to the S-POE-PS Power Supplies).

Installing Rubber Feet

To install the rubber feet:

1. Place the chassis on its side on a sturdy flat surface to access the bottom of the chassis.
2. Remove the four rubber feet/screw assemblies from their plastic bag in the shipping box.
3. Locate the four tapped holes in the four corners on the bottom of the chassis.
4. Screw and hand tighten each of the four rubber feet into the four tapped holes.

Installing the Mid-Mount Brackets

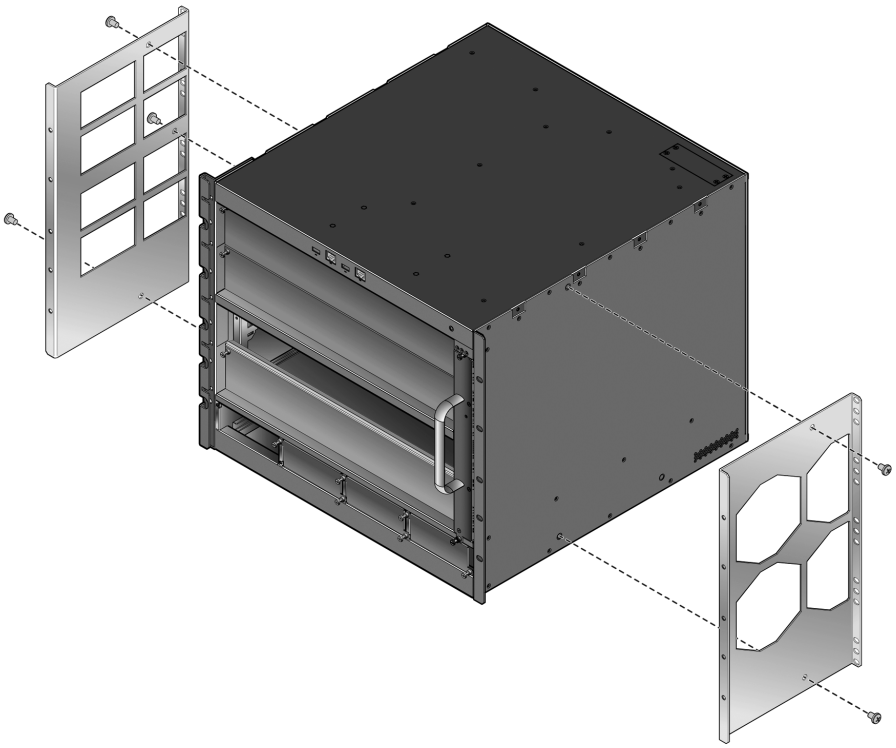
Note: The mid-mount bracket kit (S4-MIDMOUNT-KIT), which you must order separately, ships separately from the S4 chassis.

To install the mid-mount brackets on the S4 chassis:

1. Attach the mid-mount brackets to each side of the S4 chassis with the five 1/4-20 x 3/8 pan head screws supplied with the mid-mount bracket kit (three for the left bracket, two for the right bracket). See Figure 3-1.

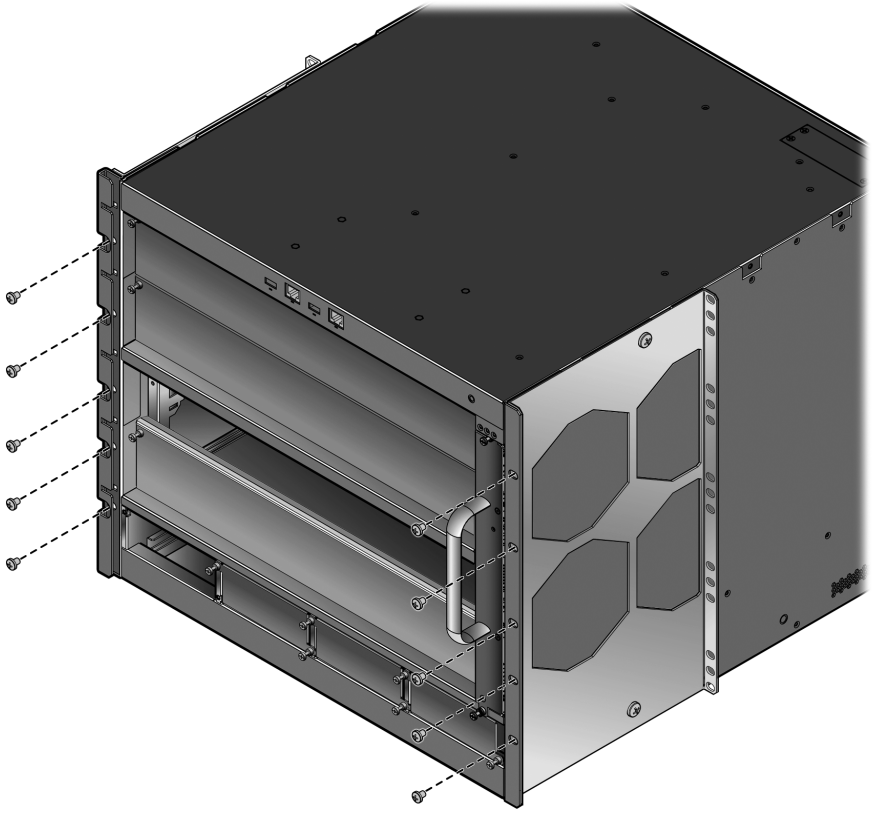
   The cutouts on each bracket match the airflow holes on the S4 chassis. The right bracket has octagonal cutouts; the left bracket has rectangular cutouts.

Figure 3-1 Attaching the Mid-Mount Brackets to the Sides of the Chassis



2. Attach the mid-mount brackets to the front of the S4 chassis with the ten 10-32 pan head screws supplied with the mid-mount bracket kit (five screws for each bracket). See Figure 3-2.

Figure 3-2 Attaching the Mid-Mount Brackets to the Front of the Chassis



Continue to "Mid-Mounting an S4 Chassis" on page 3-7 for the mid-mounting rack installation procedure.

Rack Mounting the S4 Chassis

The S4 chassis can be mounted in two ways in a standard 48.26-centimeter (19-inch) equipment rack:

- Front Mounting an S4 Chassis
- Mid-Mounting an S4 Chassis

Ensure that there is at least 60 centimeters (24 inches) of clearance in front of the rack for chassis installation.

Warning: If the rack is not secured to the floor, it is recommended that you install the chassis in the bottom half of the rack. This helps prevent the rack from being top heavy.

Advertencia: Si el rack no esta asegurado al piso, es recomendable que instales el chasis en la parte de abajo del rack. Esto ayuda a prevenir que el rack este demasiado pesado en la parte superior.

Warnhinweis: Falls das Rack nicht mit Schrauben am Boden gesichert wird, sollte das Chassis in der unteren Hälfte des Racks installiert werden, um ein kippen des Racks zu vermeiden.

Caution: Read Chapter 2 before completing the following procedure to ensure that all installation guidelines are met.

Precaución: Antes de llevar a cabo el siguiente procedimiento, lea Chapter 2 para y asegúrese de cumplir con todos los requisitos de instalación.

Front Mounting an S4 Chassis

To install the S4 chassis in a rack using the S4 chassis front mounting brackets:

Warning: To help prevent personal injury, at least two people are required to lift the chassis into the rack.

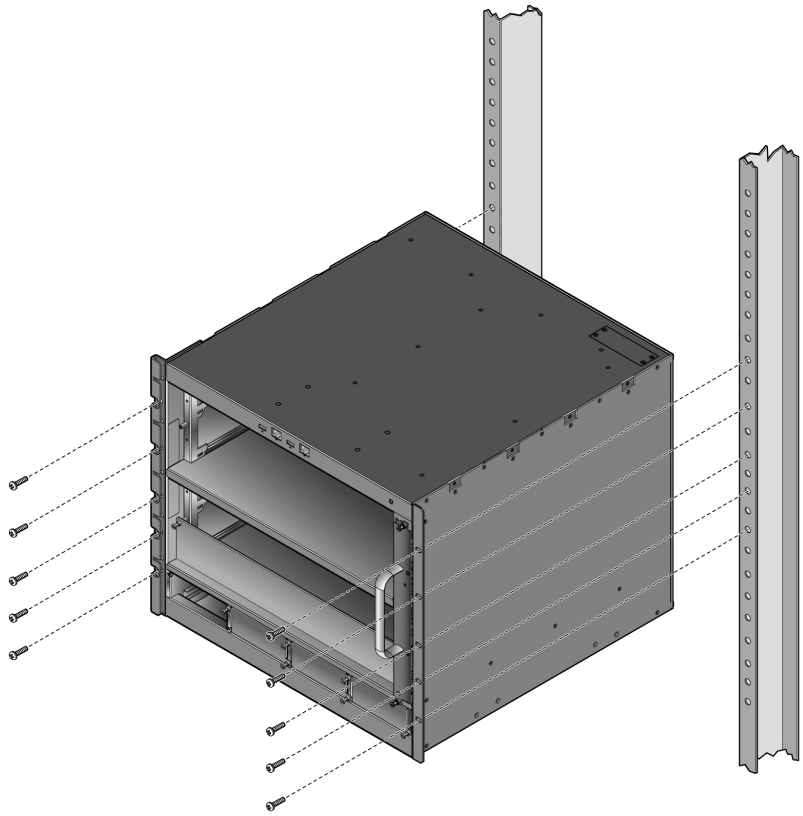
Advertencia: Para ayudar a prevenir alguna lesión personal , al menos dos personas son requeridas para levantar el chasis y meterlo al rack.

Warnhinweis: Zum Schutz vor körperlichen Schäden, sollten sie mit min. zwei Personen das Chassis in das Rack heben.

1. Lift the chassis and slide it all the way into the rack until the front mounting brackets are against the front of the rack posts.
2. Use 10 screws (5 per side) to secure the chassis to the rack, starting with the bottom holes and working toward the top of the chassis. See Figure 3-3.

Note: Refer to Table A-7 on page A-4 for recommended torque values to use when installing the S4 chassis using standard threaded fastener machine screws and bolts.

Figure 3-3 Front Mounting the S4 Chassis in a Rack



Mid-Mounting an S4 Chassis

Note: You must install the mid-mounting brackets on the S4 chassis before installing the S4 chassis in the rack. See “Installing the Mid-Mount Brackets” on page 3-4.

To install the S4 chassis in a rack using the mid-mounting brackets:

Warning: To help prevent personal injury, at least two people are required to lift the chassis into the rack.

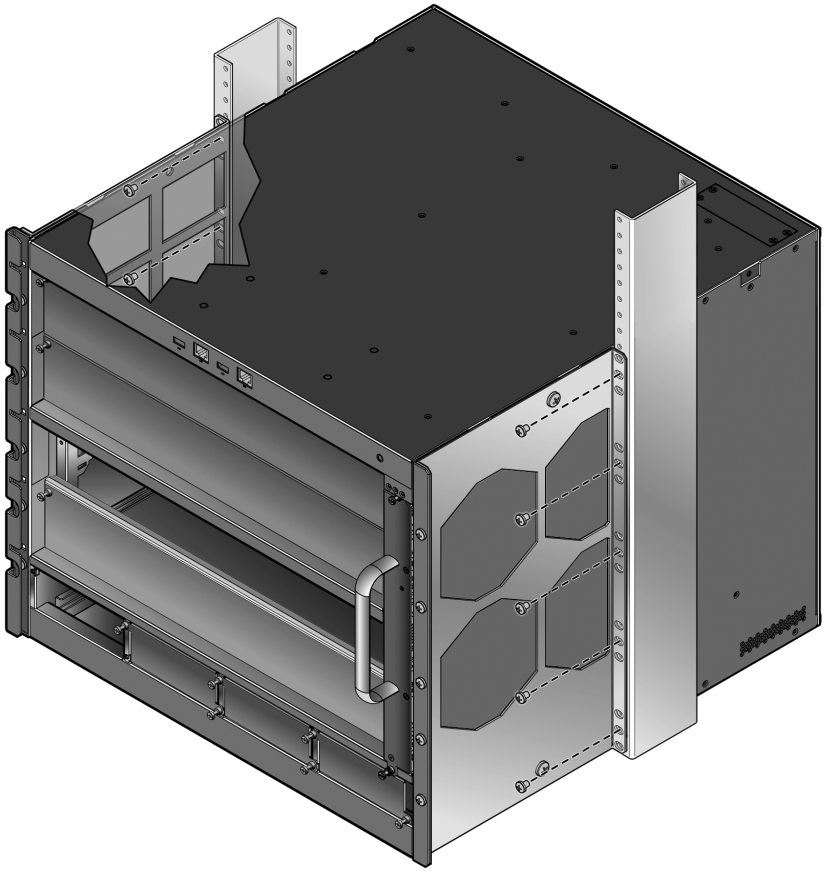
Advertencia: Para ayudar a prevenir alguna lesión personal , al menos dos personas son requeridas para levantar el chasis y meterlo al rack.

Warnhinweis: Zum Schutz vor körperlichen Schäden, sollten sie mit min. zwei Personen das Chassis in das Rack heben.

1. Lift the chassis and slide it all the way into the rack until the mid-mounting brackets are against the front of the rack posts.
2. Use 10 screws (5 per side) to secure the chassis to the rack, starting with the bottom holes and working toward the top of the chassis. See Figure 3-4.

Note: Refer to Table A-7 on page A-4 for recommended torque values to use when installing the S4 chassis using standard threaded fastener machine screws and bolts.

Figure 3-4 Mid-Mounting the S4 Chassis in a Rack



Installing the Cable Management Clips

Note: Installing the cable management clips is optional. If your installation location does not have the space needed for installing the cable management clips (for example, in an enclosed rack), do not install the cable management clips.

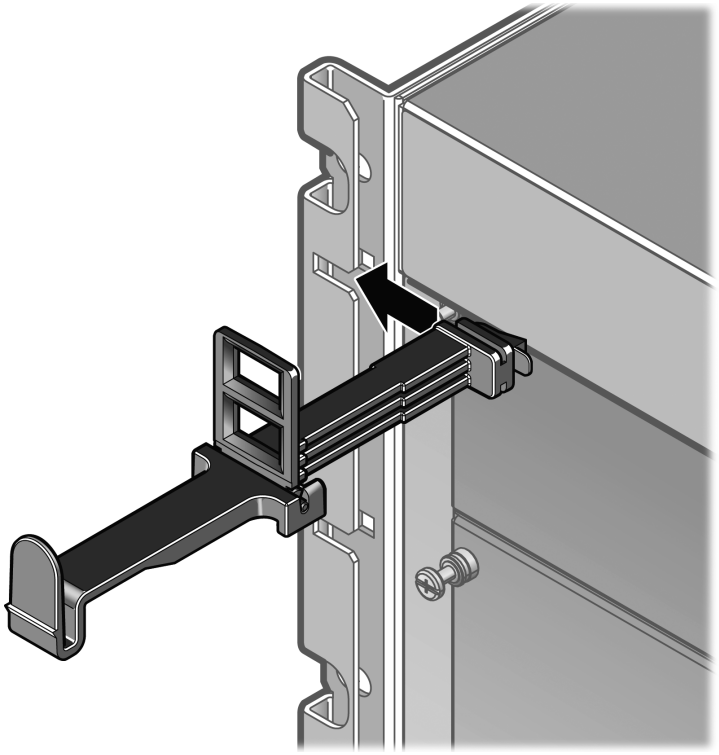
You can keep S-Series module cables neat and secure by installing the cable management clips that are included with the S4 chassis. Using the cable management clips ensures that cables are bundled close to the chassis and that cabling is not accidentally loosened or disconnected from the chassis during operation.

The S4 chassis ships with five cable management clips, which you install on the left front mounting bracket of the chassis after you have installed the chassis. A completed installation creates four separate cable management spaces, one for each module.

To install the cable management clips:

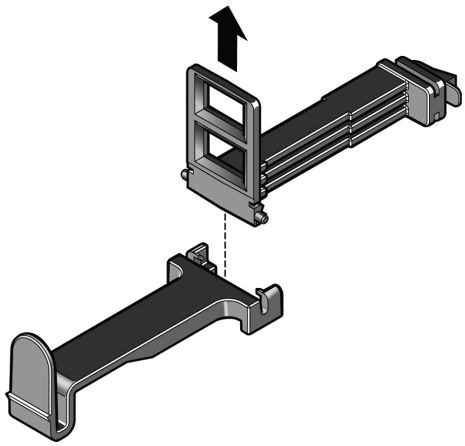
1. Slip each clip into the slots on the left mounting bracket. See Figure 3-5.

Figure 3-5 Installing a Cable Management Clip in the Left Mounting Bracket



2. Before installing the bottom cable management clip, remove its swing arm. See Figure 3-6.

Figure 3-6 Removing the Swing Arm from the Bottom Cable Management Clip



3. Install the bottom cable management clip on the left mounting bracket.
4. Close each cable management clip by snapping its swing arm into the cable management clip below. See Figure 3-7.

Figure 3-7 Closing a Cable Management Clip

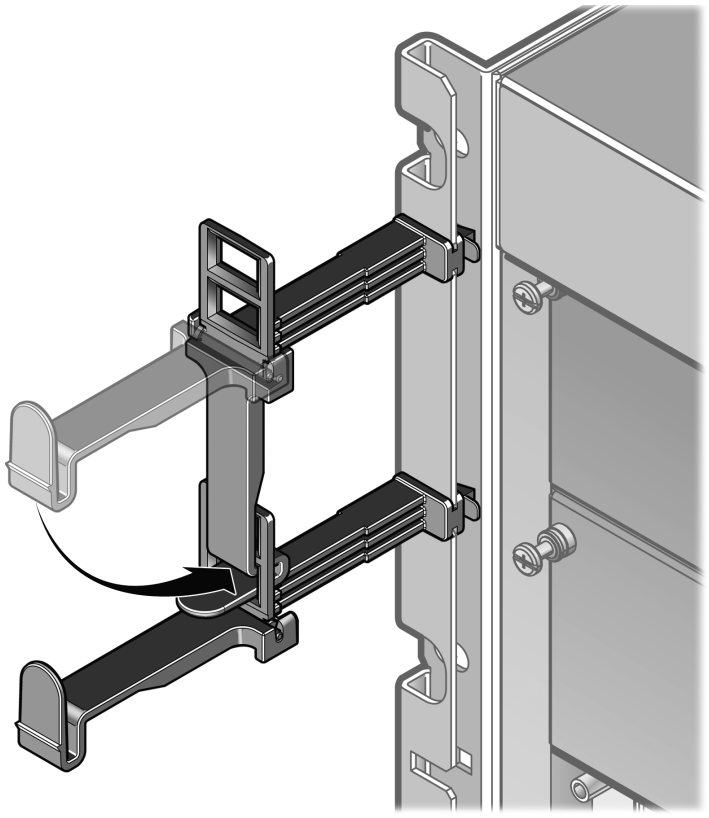
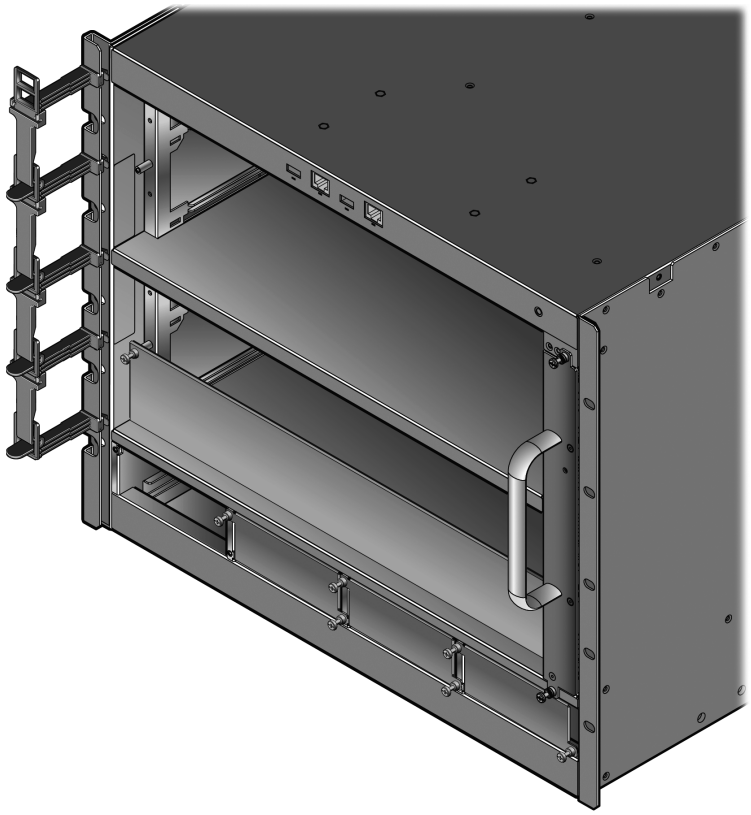


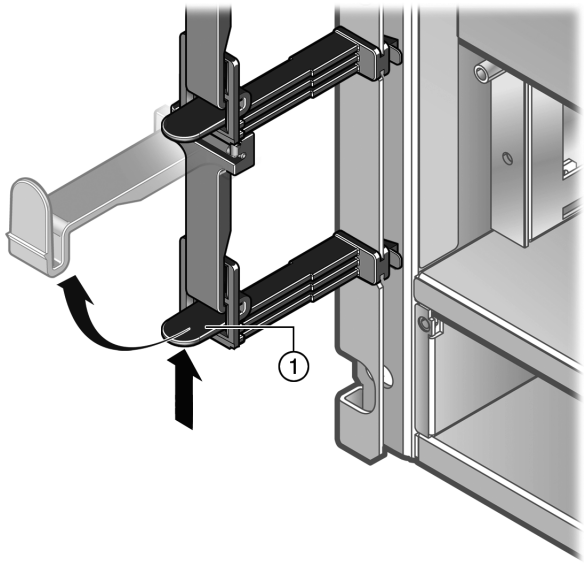
Figure 3-8 shows the completed installation.

Figure 3-8 S4 Chassis with Cable Management Clips



5. Once you have installed and cabled an S-Series module, open the appropriate cable management clip by pushing up on the latch of its swing arm where it attaches to the cable management clip below. See Figure 3-9.

Figure 3-9 Opening a Cable Management Clip



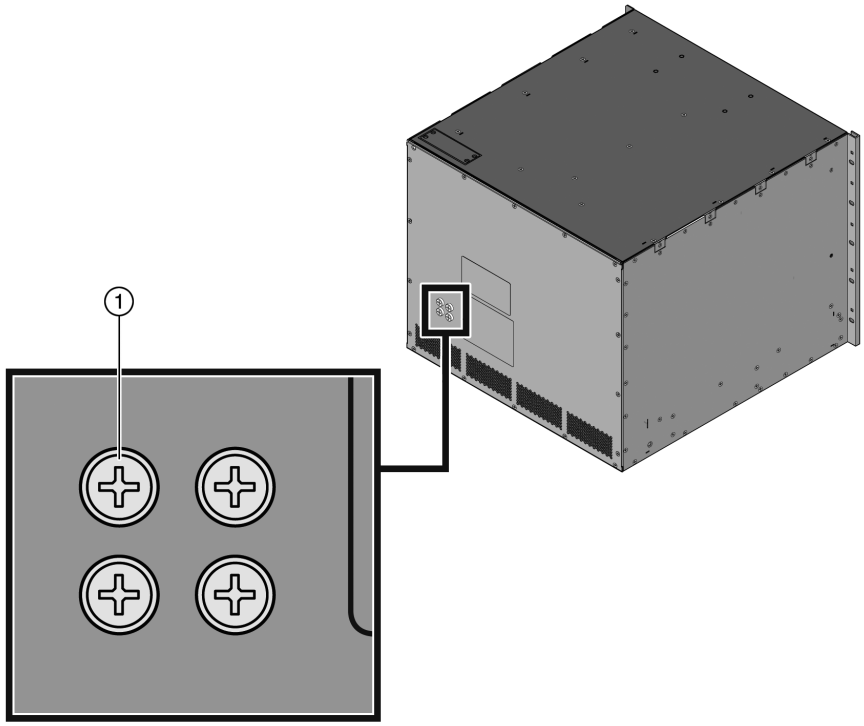
1 Push up on the swing arm latch to open the cable management clip

6. Place the bundled cables in the cable management clip.
7. Close the cable management clip.

Chassis Bonding and Grounding

Installing the chassis as described in this chapter meets the protective earth grounding requirements of the National Electrical Code (NEC) UL 60950 and IEC 60950 standards. However, in some cases it is necessary to use an alternative grounding method at installation sites that must meet the Telcordia GR-1089 Section 9, Bonding and Grounding Requirements, or national deviations. To meet these requirements, use the four tapped holes located on the rear of the chassis.These holes meet the hole grounding bolt pattern requirements, as shown in Figure 3-10.

Figure 3-10 Telcordia GR-1089 Grounding Hole Pattern



1 Ground screws

To ground the chassis according to the Telcordia GR-1089 Section 9, Bonding and Grounding Requirements, or when using the S-DC-PS power supplies, a connection is needed between the chassis and the enclosure metalwork or a nearby point on the Central Office (CO) Ground system or earth ground. To fabricate and install a grounding wire, proceed as follows:

1. Cut an 8 AWG (6^2mm) stranded-copper wire to length, long enough to reach from the grounding location of the chassis to the selected grounding location on the CO Ground, earth ground, or enclosure metalwork.
2. Install a listed two-hole compression-type connector on both ends of the grounding wire.
3. Apply a suitable antioxidant to the chassis grounding location and unpainted surface grounding location on the CO Ground or enclosure metalwork.
4. Connect one ground cable two-hole connector to the chassis using two of the 1/4-20 screws shipped with the chassis. Connect the two-hole connector at the other end of the cable to the CO Ground or enclosure metalwork using user-supplied screws.

5. Torque screws to 67 inch pounds (± 5%).

National Deviations:

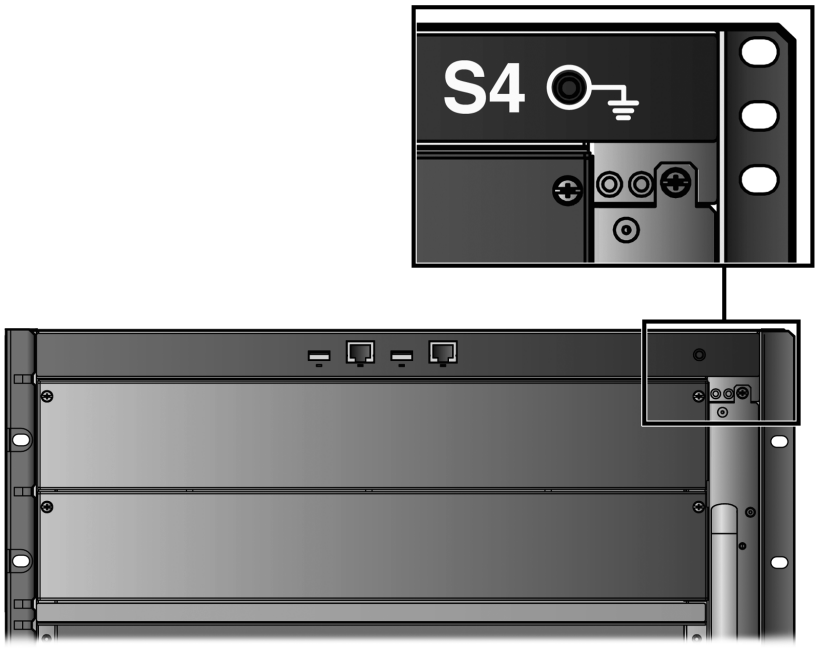
- In Norway, Sweden, and Finland, the same procedure can be used for a permanent protective earth ground connection as required by their national deviation to IEC 60950, Section 5.1.7.
- In Denmark, the chassis must be installed utilizing a Type B grounded plug.

Attaching the Electrostatic Discharge Wrist Strap

The Electrostatic Discharge (ESD) wrist strap must be attached before handling the power supplies, fan tray, and modules used in the S4 chassis. In addition, observe all precautions when handling these modules to prevent damage from electrostatic discharge.

Place the ESD wrist strap on your wrist and plug the other end into the grounding receptacle, at the top right corner of the chassis, shown in Figure 3-11.

Figure 3-11 ESD Grounding Receptacle



Installing and Removing an AC Power Supply

S-AC-PS and S-AC-PS-15A power supplies provide two power output levels relative to the input power source.

- S-AC-PS: 1200/1600 watts
- S-AC-PS-15A: 930/1600 watts

Power cords shipped with the S-AC-PS and S-AC-PS-15A are country-dependent. Each power cord must be plugged into an independent power circuit.

As you add modules to the S4 chassis, you may be required to install more power supplies. Additional power supplies can be installed to provide redundancy. This would require incremental power be added to the base power requirements of the chassis and its components, depending on the power redundancy you want to support.

In a redundant power configuration, when at least two power supplies are installed, the power from each power supply is evenly distributed. If one power supply fails, the second power supply assumes the load. Additional power supplies share the load as required.

Be aware that when you receive your S4 chassis, a coverplate will be in place over all power supply slots except PS1.

Power Supply Planning

Although each power supply requires its own circuit, when planning the S4 chassis power budget you have the option of drawing from one or more sources by either the *N + 1* or *1 + 1* method, respectively.

The N + 1 method protects the S4 chassis against the failure of a single power supply although not against an outage by that source. In a scheme where three modules are installed, you can assign all three modules to one source. This is the most common approach to power supply planning.

Alternately, the 1 + 1 method has the advantage of protecting the S4 chassis against an outage by one of the power sources as well as the failure of one or as many as half of your power supplies. However, this method requires either a backup battery or another power source separate from the first power source.

The number of power supplies required in an S4 chassis is determined by the number and types of modules installed in the chassis and your power supply redundancy strategy.

Unpacking the AC Power Supplies

The S-AC-PS and S-AC-PS-15A power supply modules are shipped in boxes separate from the S-Series chassis. To unpack a power supply:

1. Unpack the power supply by removing it from the shipping box and sliding the two foam end caps off the unit.

   Save the shipping box and materials in the event the unit must be reshipped.

2. Verify the contents of the box using Table 3-2.

3. Remove the power supply from its protective plastic bag.

4. Examine the power supply carefully, checking for damage.

   If any damage is noted, DO NOT install the power supply. Contact Enterasys Networks immediately. Refer to "Getting Help" on page xvii for details.

Table 3-2 Contents of AC Power Supply Carton

Item	Quantity
Power supply (S-AC-PS or S-AC-PS-15A)	1
Type of power cord is dependent on country of installation. • S-AC-PS For USA, Canada, and Mexico shipments: 3-meter NEMA Power Cord 5-20, C19, R/A, SHLD Each S-AC-PS power supply accepts IEC320 C19 power cord plugs. • S-AC-PS-15A For USA, Canada, and Mexico shipments: 2-meter NEMA Power Cord 5-15, C13, R/A, SHLD Each S-AC-PS-15A power supply accepts IEC320 C13 power cord plugs.	1
NOTICE Card	1

Installing the AC Power Supplies

You must install at least one S-AC-PS or S-AC-PS-15A power supply in the S4 chassis. Depending on your module configuration, one power supply may provide sufficient power to the chassis, but multiple power supplies can be installed to provide a redundant, load sharing power source. When you receive your S4 chassis, a cover plate will be in place over power supply slots PS2, PS3, and PS4.

You must install the power supplies in the slots labeled PS1, PS2, PS3, and PS4 at the bottom of the chassis. If you intend to install a single power supply, you must install it in the power supply slot labeled PS1.

To install the S-AC-PS or S-AC-PS-15A power supplies:

1. Attach the anti-static wrist strap as described in "Attaching the Electrostatic Discharge Wrist Strap" on page 3-12 before handling the power supply.

2. Hold the power supply by placing one hand on the handle located on the front panel and using the other hand to support the power supply.

3. Holding the power supply right side up, align the power supply with the plastic guides on the bottom of the opening of the PS1 slot.

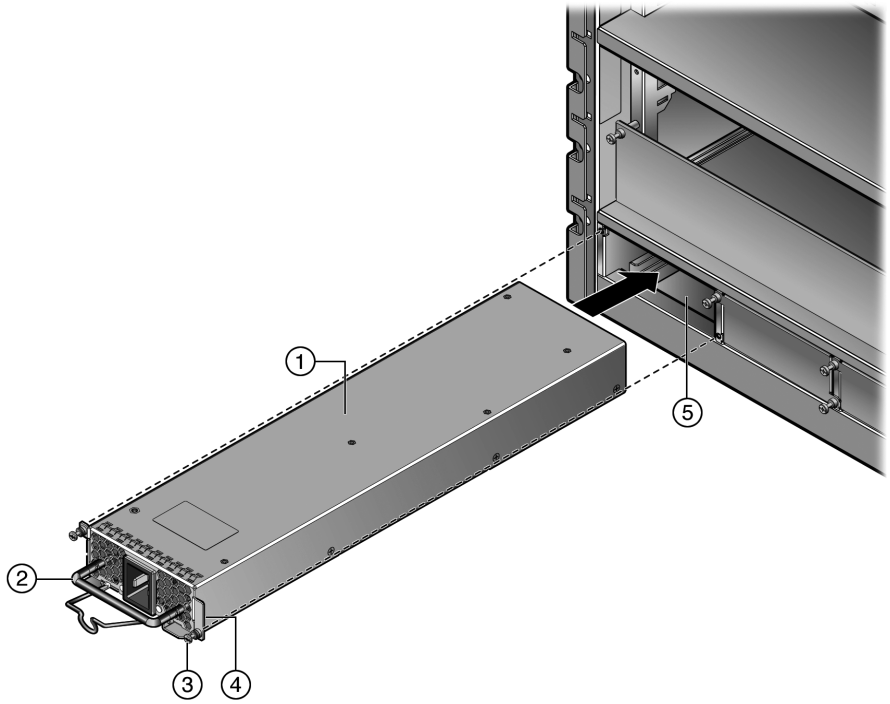
Caution: Forcing a misaligned power supply into place can damage the power supply and/or the chassis backplane.

Precaución: Colocar de manera forzada una fuente de poder o no colocarla bien alineada podría dañarla y/o maltratar el panel posterior del chasis.

4. With the power supply properly inserted into the PS1 slot, carefully slide the supply forward until it is connected to the backplane. See Figure 3-12.

   The front panel should be flush with the face of the S4 chassis. If you encounter significant resistance before the front panel is flush, remove and reinsert the power supply. Do not force the power supply into place.

Figure 3-12 Installing an AC Power Supply



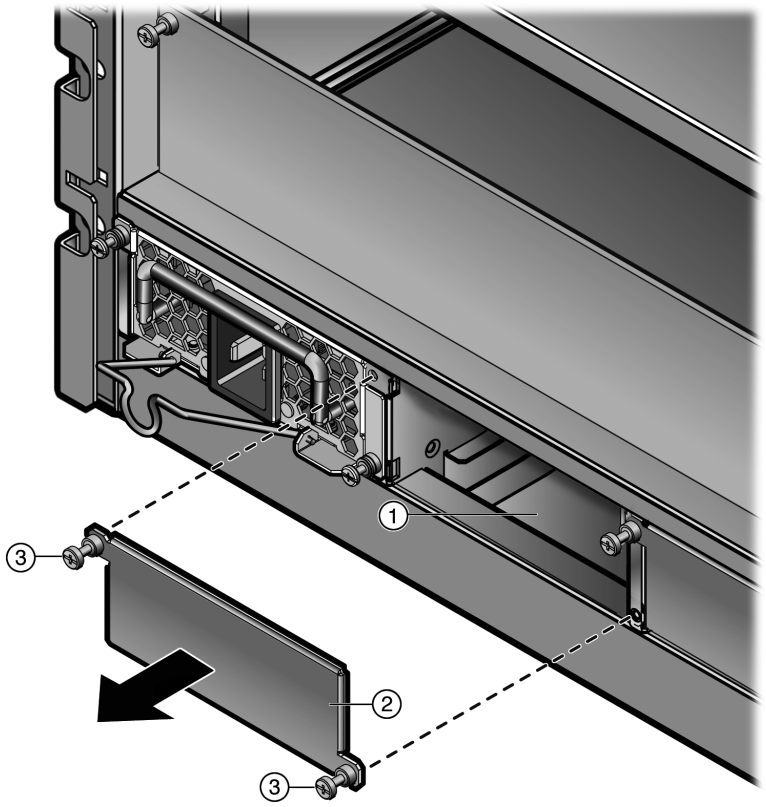
1 Mandatory power supply installed in slot PS1
2 Captive screw
3 Power supply handle
4 Faceplate
5 Power supply slot

5. Secure the power supply to the chassis by screwing the captive screws into the chassis.

6. If you are installing more than one power supply, remove the coverplates from the applicable number of power supply slots, as shown in Figure 3-13.

   Keep the coverplates in the event you need to remove the power supplies.

Figure 3-13 Removing a Coverplate from a Power Supply Slot



1 Power supply slot
2 Coverplate
3 Captive screw

7. Repeat steps 2– 5 for each power supply.

After completing the power supply installations, the S4 chassis is ready to be powered up. Proceed to "Removing and Installing a Fan Tray" on page 3-23 for instructions to power up the chassis.

Removing an AC Power Supply

Whenever possible, you should install a replacement power supply before removing a power supply.

To remove an S-AC-PS or S-AC-PS-15A power supply:

1. Attach the anti-static wrist strap as described in "Attaching the Electrostatic Discharge Wrist Strap" on page 3-12 before handling the power supply.
2. Unplug the power cord from the dedicated AC outlet.
3. Unplug the power cord from the AC power connector of the power supply.
4. Unscrew the captive screws to release the power supply from the chassis.
5. Grasp the power supply handle and pull the power supply straight out of the chassis.

6. Place the power supply on an antistatic surface or in an antistatic bag for future use.

Caution: If you plan to operate the chassis with only one power supply, make sure to install the coverplate in place of the removed power supply to reduce Electromagnetic Interference.

Precaución: Si desea trabajar sólo con una fuente de poder, no olvide colocar la tapa en el compartimiento de la fuente de poder que haya eliminado, para reducir la interferencia electromagnética.

Powering Up the S4 Chassis with AC Power Supplies

To power up the S4 chassis with S-AC-PS or S-AC-PS-15A power supplies:

Note: If multiple power supplies are installed, repeat the following procedure for each supply.

For redundancy using multiple AC power supplies, each of the power cords from the power supplies must be connected to dedicated AC power circuits.

1. Plug one end of each power cord (supplied with the power supply) into the AC power socket on the front panel of the power supplies.
2. Plug the other end of the AC power cord into a separately fused AC power outlet that meets the power specifications provided in Appendix A, **Specifications and Regulatory Compliance**.
3. Ensure that the Power LED on each power supply is green.

   For more information on the power supply LEDs, refer to "AC Power Supply LEDs" on page 3-28.
4. Ensure that all fans in the fan tray are operating properly when power is received from the power supplies (fan tray LED will be green).

If you experience any problems with this installation, contact Enterasys Networks for assistance.

Installing and Removing an S-DC-PS Power Supply

Electrical Hazard: Only qualified personnel should perform installation procedures.

Riesgo Electrico: Solamente personal calificado debe realizar procedimientos de instalacion.

Elektrischer Gefahrenhinweis: Installationen sollten nur durch ausgebildetes und qualifiziertes Personal vorgenommen werden.

Prepare Site Wiring for DC Power Installation

1. Ensure that a branch circuit disconnect device is installed, and that the device is switched to prevent power from being supplied to the DC power supply.
2. If desired, attach your wiring to the 2-hole compression lugs provided.

   For your convenience, Enterasys Networks ships with the DC power supply two 2-hole compression lugs to which you can connect your wiring (6 AWG). These compression lugs are the correct size to fit over the positive and negative terminal studs.

Warning: To reduce the risk of electric shock or energy hazards:

1. Connect to a reliably grounded 48V source.
2. The branch circuit over current protection must be rated at a maximum 50A for the device.
3. Use only 10mm² or 6 AWG 75C solid copper wires on the device.
4. A readily accessible disconnect device that is suitably approved and rated shall be incorporated in the field wiring.
5. To be installed in a restricted access area in accordance with the NEC or authority having jurisdiction.

Advertencia: Para reducir el riesgo de choque electrico:

1. Conectar a una fuente aterrizada de 48V.
2. The branch circuit over current protection must be rated at a maximum 50A for the device.
3. Utilizar unicamente cables de cobre solidos de tipo 75C 10mm² or 6 AWG en el dispositivo.
4. A readily accessible disconnect device that is suitably approved and rated shall be incorporated in the field wiring.
5. Ser instalado en una area de acceso restrictivo, de acuerdo con el NEC o con otra autoridad.

Warnhinweis: Reduzieren sie das Risiko von Stromschlägen oder allgemeinen elektrischen Gefahren:

1. Verbinden Sie das Gerät mit einer zuverlässig geerdeten 48 V Stromquelle.
2. Die maximale Absicherung des Stromkreises für dieses Gerät beträgt 50A.
3. Benutzen Sie zum Anschluß des Gerätes ausschließlich Kabel mit soliden Kupferadern des Querschnitts 10mm² (6 AWG) 75C.
4. Das Stromnetz am Installationsort sollte mit einem frei zugänglichen Spannungs-Unterbrecher (Not-Aus-Schalter) ausgestattet sein, der ausreichend ausgelegt ist und den gängigen Bestimmungen entspricht.
5. Die Installation sollte in zugangskontrollierten Räumen erfolgen, entsprechend den Vorschriften der NEC bzw. der örtlich zuständigen Behörden.

Unpacking an S-DC-PS Power Supply

To unpack the S-DC-PS power supply:

1. Open the box and remove the packing material protecting the power supply.
2. Verify the contents of the carton as listed in Table 3-3.

Table 3-3 Contents of S-DC-PS Carton

Item	Quantity
S-DC-PS power supply	1
Plastic bag containing 5 nuts, 5 lock washers, and two 2-hole compression lugs.	1
DC Power Supply Notice	1

3. Remove the tape seal on the non-conductive bag to remove the module.
4. Perform a visual inspection of the power supply and cable harness for any signs of physical damage. Contact Enterasys Networks if there are any signs of damage. Refer to "Getting Help" on page xvii for details.

Installing the S-DC-PS Power Supply

Caution: To prevent equipment damage, do not install AC and DC power supplies in the same chassis.

Precaución: Para evitar que el equipo se dañe, no utilice las fuentes de poder CC y CA en el mismo chasis.

When you receive your S4 chassis, a coverplate will be in place over all power supply slots except PS1. This slot is left open for your convenience when installing the first power supply.

You must install the power supplies in the slots labeled PS1, PS2, PS3, and PS4 at the bottom of the chassis. If you intend to install a single power supply, you must install it in the power supply slot labeled PS1.

Notes: Before you power up the S4 chassis, you must complete installation of fan trays and modules.

You must install the S-DC-PS power supply in the S4 chassis before powering up the power supply. If you power up the S-DC-PS power supply before installing it in the S4 chassis, the S4 chassis will not properly recognize the power supply.

A Phillips screwdriver is required to install the S-DC-PS power supply in an S4 chassis.

To install S-DC-PS power supplies in your S4 chassis:

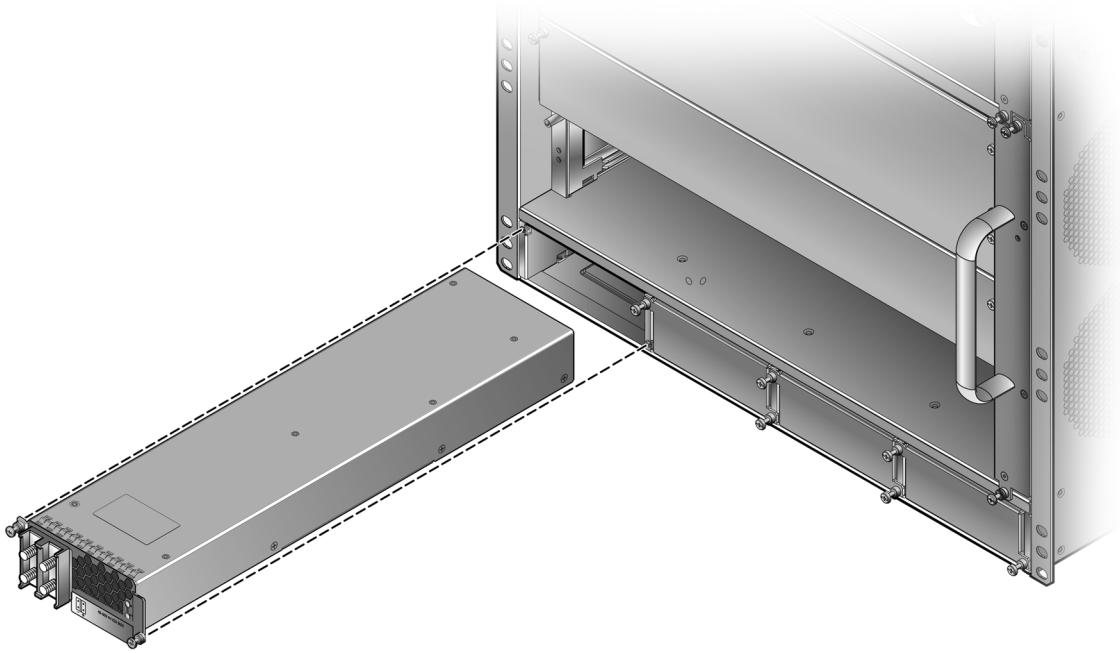
1. Attach the ESD wrist strap shipped with your S4 chassis to your wrist and plug the cable from the ESD wrist strap into the ESD grounding receptacle on your chassis.
2. Locate the PS1 power supply slot, as shown in Figure 1-2 on page 1-3.
3. Ensure that the breaker switch on the DC power supply is set to Off.
4. Hold the power supply by placing one hand on the handle located on the front panel and using your other hand to support the power supply.
5. Holding the power supply with the terminal studs on the left and the handle on the right, align with the slot opening.

Caution: Forcing a misaligned power supply into place can damage the power supply or chassis backplane.

Precaución: Colocar de manera forzada una fuente de poder o no colocarla bien alineada podría dañarla y/o maltratar el panel posterior del chasis.

6. Insert the power supply into the opening and carefully slide the module until it connects to the backplane, as shown in Figure 3-14. The module should be nearly flush with the face of the S4 chassis. If significant resistance is encountered before the power supply is seated, remove and reinsert it. Do not force the module into place.

Figure 3-14 Installing the S-DC-PS Power Supply



7. Secure the power supply to the chassis by tightening the captive screw.
8. If you are installing additional power supplies, remove the coverplates from their slots by loosening their captive screws and repeat steps 4 through 8 to insert them into the chassis.

   Keep the coverplates in a safe location in the event you need to remove the power supply and replace the coverplate.
9. Connect the chassis to earth ground using the earth ground connection on the back of the unit.
   a. Cut an 8 AWG (6^2 mm) stranded copper wire to a length suitable for connecting the grounding location of the chassis to the building earth ground.
   b. Install a listed 2-hole, compression-type connector on both ends of the grounding wire.
   c. Apply a suitable antioxidant to the chassis grounding location and the unpainted surface building earth ground.
   d. Connect the 2-hole connector at one end of the ground cable to the chassis using two of the 1/4-20 screws shipped with the chassis. Connect the 2-hole connector at the other end of the cable to the building earth ground using user-supplied screws.
   e. Torque the screws to 67 in-lb. (± 5%).

Removing an S-DC-PS Power Supply

Warning: Disconnect all power sources before servicing.

Advertencia: Desconectar todas las fuentes de poder antes de dar mantenimiento.

Warnhinweis: Trennen sie die komplette Stromversorgung, bevor sie das Gerät warten.

To remove an S-DC-PS power supply:

1. Ensure that the branch circuit disconnect device is switched to prevent power from being supplied to the DC power supply.
2. Attach the anti-static wrist strap before handling the power supply module.
3. Switch the circuit breaker on the DC power supply to Off.
4. Remove the clear plastic shield over the terminal studs.
5. Remove the cables from the terminal studs.
6. Disconnect the earth ground stud of the power supply from the earth ground.
7. Unscrew the captive screw to release the power supply from the chassis.
8. Remove the power supply by grasping the handle and pulling it straight out of the chassis.
9. Fasten a coverplate over the empty slot.

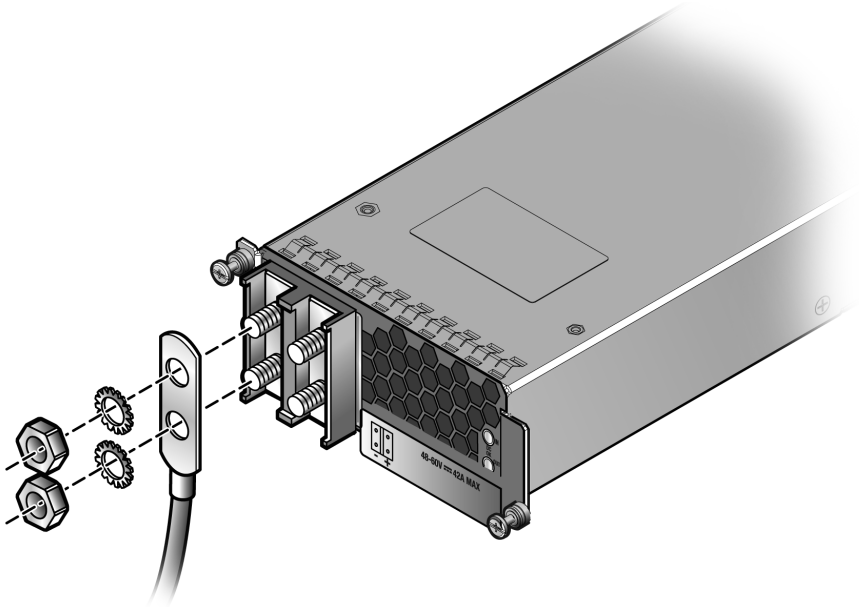
Caution: If you want to operate the chassis with only one power supply, be sure to install the coverplate in place of the removed power supply to contain EMI radiation and ensure proper air circulation.

Precaución: Si desea trabajar sólo con una fuente de poder, no olvide colocar la tapa en el compartimiento de la fuente de poder que haya eliminado, para reducir la interferencia electromagnética y para asegurar una buena ventilación.

Powering Up the S4 Chassis with S-DC-PS Power Supplies

1. Remove the clear plastic shield over the terminal studs.
2. Attach your cables to the terminal studs, making sure that the negative cable is attached to the negative (-) studs and the positive cable is attached to the positive (+) studs. See Figure 3-15.

Figure 3-15 Cabling the S-DC-PS Power Supply



For your convenience, Enterasys Networks has provided two 2-hole compression lugs and four nuts and lock washers of the correct size to fit over the terminal studs. If you are using the compression lugs provided, crimp your cabling to the lugs, then:

a. Place the appropriate 2-hole compression lug over the corresponding terminal studs (positive and negative).

b. Place the lock washers over the positive and negative studs.

c. Place the nuts over the lock washers and tighten. Torque applied must be 36 in-lb.

3. Replace the plastic shield.
4. Repeat steps 9 through 12 for each power supply.
5. Connect the DC input wiring to the DC power source.
6. Switch the branch circuit disconnect device to allow power to reach the DC power supply.
7. Set the circuit breakers on each DC power supply to On.

Removing and Installing a Fan Tray

The S4 chassis is equipped at the factory with a removable fan tray that allows for easy periodic cleaning and/or replacement if a problem occurs with fan operation.

Caution: The fan assembly is hot-swappable. However, do not run the chassis for any extended periods of time without an operating fan assembly, as the chassis will quickly overheat and cause damage.

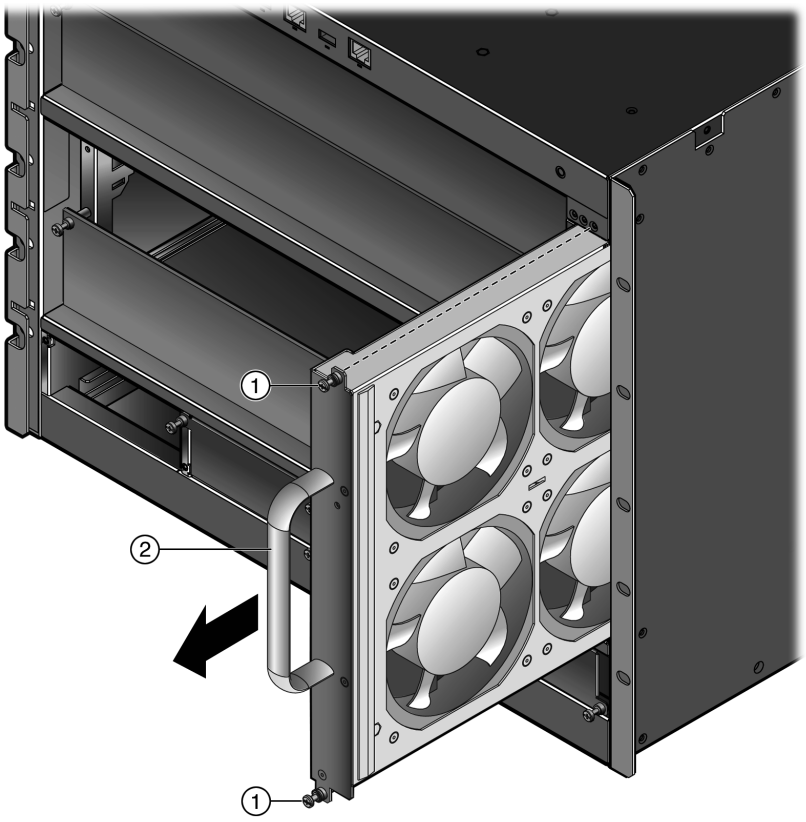
Precaución: El sistema de ventilación se puede reemplazar cuando la unidad está encendida. Sin embargo, no utilice el chasis durante largos períodos sin contar con un sistema de ventilación porque podría sobrecalentarse y dañarse.

Removing a Fan Tray

To remove a fan tray:

1. Attach the anti-static wrist strap as described in "Attaching the Electrostatic Discharge Wrist Strap" on page 3-12 before handling the fan tray.
2. Loosen the captive screws located at the top and bottom of the fan tray.
3. Slowly slide the fan tray out of its slot in the chassis. See Figure 3-16.

Figure 3-16 Removing the Fan Tray



1 Captive screw (2) **2** Fan tray handle

Installing a Fan Tray

To install a fan tray:

1. Attach the anti-static wrist strap as described in "Attaching the Electrostatic Discharge Wrist Strap" on page 3-12 before handling the fan tray.
2. Hold the handle of the fan tray with one hand and the bottom of the fan tray with the other hand.

   You should hold the fan so that the STATUS LED label on the faceplate is right-side up.
3. Line up the top and bottom of the fan tray with the slot guides on the chassis.

Caution: In the following step, ensure that you do not force the fan assembly into place as it may damage the self-aligning power/control connector in the chassis.

Precaución: En el siguiente paso, tenga cuidado de no colocar de manera forzada el sistema de ventilación, porque puede dañar el conector de control de corriente con autoalineación del chasis.

4. Slide the fan tray into the chassis until the faceplate of the tray is flush with the face of the S4 chassis.

   If there is any strong resistance, remove the fan tray and reinsert it.
5. Tighten the two captive screws to secure the fan tray to the S4 chassis.

Installing and Removing an S-POE-PS Power Supply

If your S4 chassis is equipped with a PoE subsystem, you must install S-POE-PS power supplies to provide PoE power to the powered devices (PDs) attached to the 10/100/1000 Mbps RJ45 ports in the installed S-Series I/O modules.

Note: You must order S-POE-PS power supplies separately.

Unpacking the S-POE-PS Power Supplies

The S-POE-PS power supply modules are shipped in boxes separate from the S-Series chassis. To unpack a power supply:

1. Unpack the power supply by removing it from the shipping box and sliding the two foam end caps off the unit.

   Save the shipping box and materials in the event the unit must be reshipped.
2. Verify the contents of the box using Table 3-4.

Table 3-4 Contents of S-POE-PS Power Supply Carton

Item	Quantity
S-POE-PS power supply	1
For USA shipments: NEMA Power Cord 5-20, C19, R/A, SHLD Type of power cord is dependent on country of installation.	1
NOTICE Card	1

3. Remove the power supply from its protective plastic bag.

4. Examine the power supply carefully, checking for damage.

   If there are any signs of damage, DO NOT install the power supply; instead, contact Enterasys Networks. Refer to "Getting Help" on page xvii for details.

Installing the S-POE-PS Power Supplies in the PoE Subsystem

The PoE subsystem must be installed on the S4 chassis before installing the S-POE-PS power supplies in the PoE subsystem. For information on upgrading an S4 chassis with a PoE subsystem, see the *Enterasys S-Series PoE Subsystem Upgrade Installation Guide*.

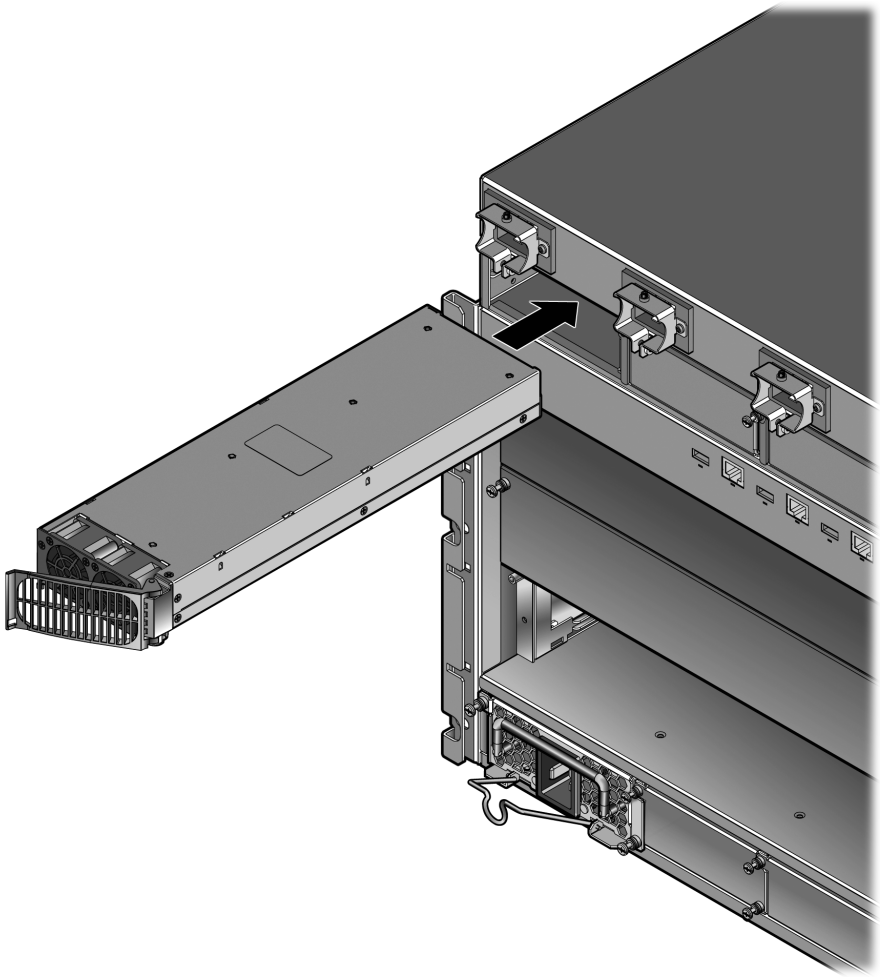
To install the S-POE-PS power supplies in the PoE subsystem:

1. Open the ejection handle faceplate of the S-POE-PS power supply by releasing the spring clip on the lower left of the faceplate.
2. Align the power supply with bay 1 (labeled PS1), then slide the S-POE-PS power supply forward until the S-POE-PS power supply is plugged into the subsystem connector and is completely inside the bay. See Figure 3-17.

   The power supply's faceplate will close as the power supply plugs into the subsystem connector.

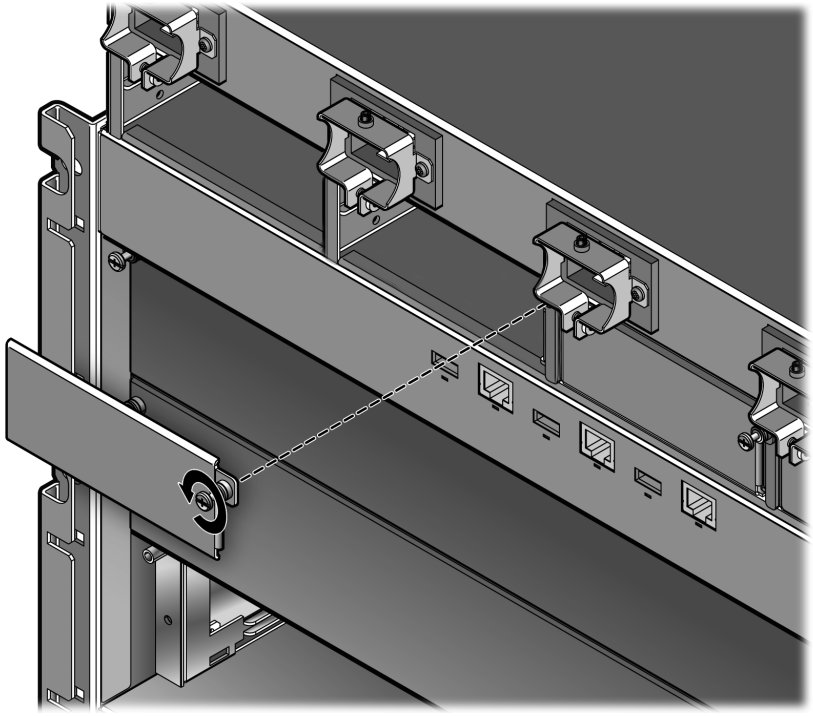
   If you encounter significant resistance before the S-POE-PS power supply is fully inserted, remove and reinsert the power supply.

Figure 3-17 Inserting the S-POE-PS Power Supply in the PoE Subsystem



3. Close the power supply's faceplate completely against the spring clip on the power supply.
4. If you are installing more than one power supply, remove the coverplates from the applicable number of power supply slots by unscrewing the captive screw that attaches each coverplate to the PoE subsystem. See Figure 3-18.

Figure 3-18 Removing Cover Plates from the PoE Subsystem Power Supply Slots



Keep the coverplates in the event you need to remove the power supplies. The PoE subsystem ships without a cover on bay 1.

5. Repeat steps 1 through 3 for each additional power supply.

Removing an S-POE-PS Power Supply

To remove an S-POE-PS power supply:

1. Attach the anti-static wrist strap as described in "Attaching the Electrostatic Discharge Wrist Strap" on page 3-12 before handling the power supply.
2. Unplug the power cord from the dedicated AC outlet.
3. Unplug the power cord from the AC power connector of the appropriate power supply.
4. Release the spring clip on the lower left of the power supply's faceplate to unlock the ejection handle.
5. Grasping the ejection handle, slide the power supply out of the PoE subsystem.

Connecting Power to the S-POE-PS Power Supplies

AC inlets at the front of the PoE shelf provide power to the S-POE-PS power supplies installed in the PoE subsystem. An AC power cord is shipped with each S-POE-PS.

To connect the S-POE-PS power supplies to AC power:

1. Plug the AC power cord into the appropriate AC inlet connector on the PoE shelf. The AC inlet connectors are numbered.
2. Plug the other end of the AC power cord into a separately fused AC power outlet that meets the power specifications provided in Appendix A, **Specifications and Regulatory Compliance**.
3. Check to see if the DC Input LED and the AC Input LED are both green. Otherwise, refer to "S-POE-PS Power Supply LEDs" on page 3-30 to determine the problem.
4. Repeat steps 1 through 3 for each additional power supply.

If you need additional help with this installation, contact Enterasys Networks. Refer to "Getting Help" on page xvii for instructions.

LEDs

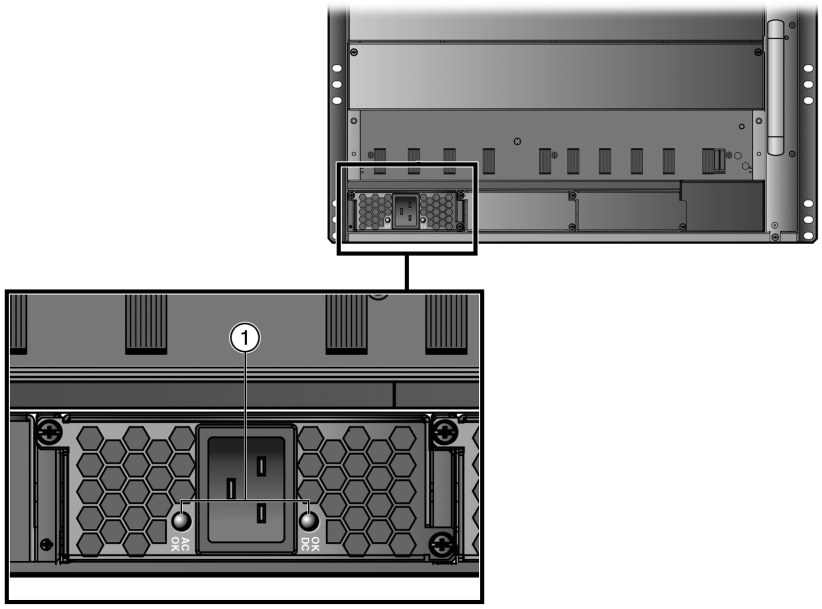
This section contains information about the LEDs on the following S-Series components:

- AC power supplies
- S-FAN fan trays
- S-POE-PS power supplies
- S-DC-PS power supplies

AC Power Supply LEDs

On both the S-AC-PS and S-AC-PS-15A, there are two LEDs: a DC OK LED indicating the operational status of outgoing power and an AC OK LED indicating incoming AC line voltage is sufficient or has fallen below operational limits. Refer to Figure 3-19. Table 3-5 describes the different states of the power supply LEDs.

Figure 3-19 AC Power Supply LEDs (S-AC-PS Shown)



1 AC power supply LEDs

Table 3-5 AC Power Supply LED Status Definitions

LED	LED Color	Status
AC OK	Green	Sufficient AC power supply (influx)
	Off	Power supply malfunctioning or unplugged
DC OK	Green	Power supply successfully providing 12 VDC to the system
	Off	Power supply malfunctioning or unplugged

S-FAN Fan Tray Status LED

Figure 3-20 shows the location of the fan tray LED. Table 3-6 describes the different states of the fan tray LED.

Figure 3-20 Fan Tray Status LED

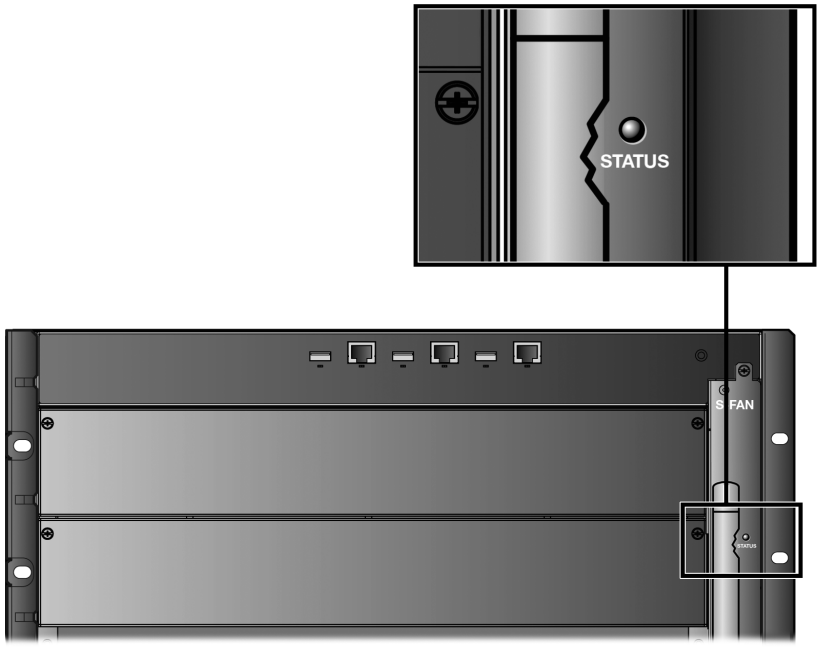


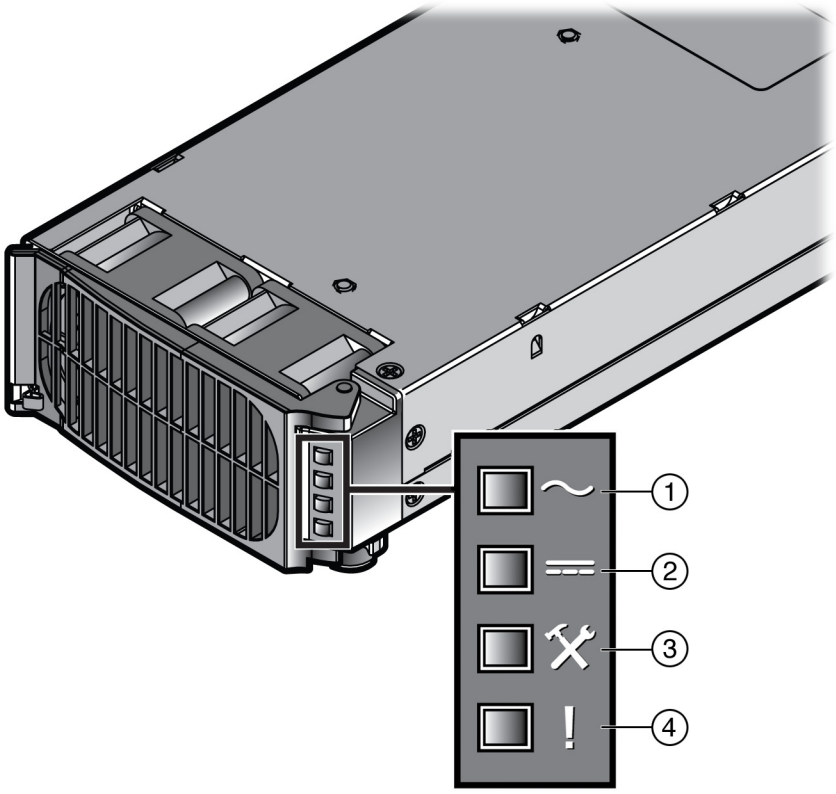
Table 3-6 Fan Tray Status LED States and Their Definitions

LED Color	Status
None	Fan tray is off or booting up.
Green	All fans in the fan tray are operating normally.
Amber	One fan in the fan tray has failed. **Caution:** If a fan in the fan tray fails, you must replace the fan tray as soon as possible to ensure the proper and continued operation of the chassis. **Precaución:** Si uno de los ventiladores en la bandeja de ventiladores falla, debe reemplazarse la bandeja completa tan pronto como sea posible, para asegurar el funcionamiento continuo y adecuado del chasis.
Red	One or more of the following conditions has occurred: • Temperature is out of range. • The fan controller has failed. • Two or more fans have failed.

S-POE-PS Power Supply LEDs

There are four LEDs on each S-POE-PS power supply. Refer to Figure 3-21 for the location of the power supply LEDs. Table 3-7 describes the states of the power supply LEDs.

Figure 3-21 S-POE-PS Power Supply LEDs



1 AC Input **2** DC Output **3** Temperature **4** Fault

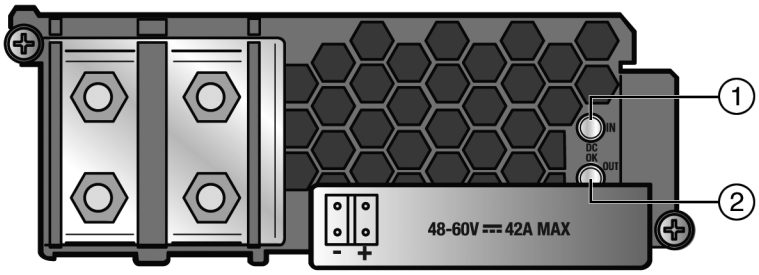
Table 3-7 S-POE-PS Power Supply LED Status Definitions

LED	LED State	Status
AC Input	On	Sufficient AC power supply (influx)
	Blinking	Input out of limits
DC Output	On	Power supply successfully providing 48 VDC
	Blinking	Overload
Temperature	On	Temperature is out of range
	Blinking	Must service the fan
Fault	On	Fault
	Blinking	Fan not communicating

S-DC-PS Power Supply LEDs

Refer to Figure 3-19 for the location of the S-DC-PS power supply LEDs. Table 3-5 describes the states of the power supply LEDs.

Figure 3-22 S-DC-PS Power Supply LEDs



1 DC OK IN LED **2** DC OK OUT LED

Table 3-8 S-DC-PS Power Supply LED Status Definitions

LED	LED Color	Status
DC OK IN	Green	Sufficient DC power supply (influx)
	Off	Power supply malfunctioning or unplugged
DC OK OUT	Green	Power supply successfully providing 12 VDC to the system
	Off	Power supply malfunctioning or unplugged

Connecting to the COM Port for Local Management

This section describes how to install a UTP cable with RJ45 connectors and optional adapters to connect a PC or VT series terminal to an Enterasys Networks device to access Local Management. This section also details adapter pinout assignments.

What Is Needed

The following is a list of the parts that may be needed depending on the connection:

- RJ45-to-DB9 female adapter (supplied with the S4 chassis)
- UTP cable with RJ45 connectors (supplied with the S4 chassis)
- RJ45-to-DB25 female adapter (customer-supplied)

Using the UTP cable with RJ45 connectors and the RJ45-to-DB9 adapter, you can connect an S4 chassis RJ45 COM port to a PC running a VT series emulation software package.

Using the UTP cable and an optional RJ45-to-DB25 female adapter, you can connect an S4 chassis RJ45 COM port to a VT series terminal or VT type terminals running emulation programs for the VT series.

Connecting to a PC or Laptop

To connect a PC or laptop running the VT terminal emulation to an S4 chassis COM port:

1. Connect the RJ45 connector at one end of the cable to one of the COM ports on the S4 chassis.

   The S4 chassis COM port that you connect to must have an I/O fabric module in the corresponding slot.

2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB9 adapter.
3. Connect the RJ45-to-DB9 adapter to the communications port on the PC.
4. Configure the VT emulation package on your PC or laptop as follows:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

When these parameters are set, the Local Management password screen will display. Refer to the "Completing the Installation" on page 3-34 for further information.

Connecting to a VT Series Terminal

To connect a VT Series terminal to the S4 chassis COM port, use a UTP cable with RJ45 connectors and an **optional** RJ45-to-DB25 female adapter.

1. Connect the RJ45 connector at one end of the cable to one of the COM ports on the S4 chassis.

   The S4 chassis COM port that you connect to must have an I/O fabric module in the corresponding slot.

2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB25 female adapter.
3. Connect the RJ45-to-DB25 adapter to the port labeled COMM on the VT terminal.
4. Turn on the VT terminal and access the Setup Directory.
5. Set the following parameters:

Parameter	Setting
Mode	7 Bit Control
Transmit	Transmit=9600
Bits Parity	8 Bits, No Parity
Stop Bit	1 Stop Bit

When these parameters are set, the Local Management password screen will display. Refer to "Completing the Installation" on page 3-34 for further information.

Adapter Wiring and Signal Assignments

Table 3-9 shows the COM port adapter wiring and signal diagram. Table 3-10 shows the VT series port adapter wiring and signal diagram.

Table 3-9 COM Port Adapter Wiring

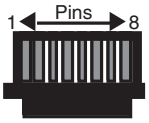
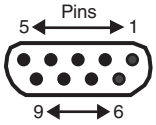
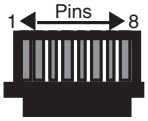
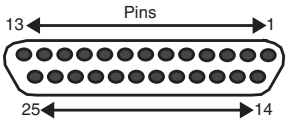
RJ45		DB9	
Pin	**Conductor**	**Pin**	**Signal**
1	Blue	2	Receive (RX)
4	Red	3	Transmit (TX)
5	Green	5	Ground (GRD)
2	Orange	7	Request to Send (RTS)
6	Yellow	8	Clear to Send (CTS)
 RJ45 Connector (Female)		 DB9 Connector (Female)	

Table 3-10 VT Series Port Adapter Wiring

RJ45		DB25	
Pin	**Conductor**	**Pin**	**Signal**
4	Red	2	Transmit (TX)
1	Blue	3	Receive (RX)
6	Yellow	5	Clear to Send (CTS)
5	Green	7	Ground (GRD)
2	Orange	20	Data Terminal Ready
 RJ45 Connector (Female)		 DB25 Connector (Female)	

Completing the Installation

After installing the S4 chassis and making the connections to the network, access the device management startup screen from your PC or terminal connection as described in this section.

Note: This procedure applies only to initial log-in and to logging in to a device not yet configured with administratively-supplied user and password settings.

By default, the S4 chassis is configured with three user login accounts: **ro** for Read-Only access; **rw** for Read-Write access; and **admin** for super-user access to all modifiable parameters. The default password is set to blank (carriage return). For information on changing these default passwords, refer to the *Enterasys S-Series Configuration Guide*.

Start the Command Line Interface (CLI) from the device's local console port as follows:

1. Connect a terminal to the local console port as described in "Connecting to the COM Port for Local Management" on page 3-31. The startup screen displays.

```
login: admin
Password:


S4
Command Line Interface

Enterasys Networks, Inc.
50 Minuteman Rd.
Andover, MA 01810-1008 U.S.A.

Phone:  +1 978 684 1000
E-mail: support@enterasys.com
WWW:    http://www.enterasys.com

(c) Copyright Enterasys Networks, Inc. 2009

Chassis Serial Number:     xxxxxxxxxxx
Chassis Firmware Revision: xx.xx.xx

S Chassis(su)->
```

2. At the login prompt, enter one of the following default user names:
   - **ro** for Read-Only access
   - **rw** for Read-Write access
   - **admin** for Super User access. (This access level allows Read-Write access to all modifiable parameters, including user accounts.)
3. Press **Enter**.
4. The Password prompt displays. Leave this string blank and press **Enter**. The device information and S Chassis prompt displays as shown in Figure 1.

The S4 chassis is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to S4 chassis management, refer to the *Enterasys S-Series Configuration Guide*.

The CLI commands enable you to initially set up and perform more involved management configurations. The *Enterasys S-Series Configuration Guide* is available online at:

https://extranet.enterasys.com/downloads/

A

Specifications and Regulatory Compliance

This appendix provides operating specifications for the S4 chassis. Enterasys Networks reserves the right to change the specifications at any time without notice.

For MTBF information, refer to the following Enterasys Networks support Web site:

http://www.enterasys.com/support/mtbf

S4 Chassis Specifications

Table A-1 S4 Chassis Specifications

Item	Specification
S4-Chassis	
Dimensions	40 cm x 44.70 cm x 47.32 cm (15.75” x 17.60” x 18.63”)
Weight	24.7 kg (54.45 lb)
S4-Chassis-POE4	
Dimensions	48.9 cm x 44.70 cm x 47.32 cm (19.25” x 17.60” x 18.63”)
Weight	36.65 kg (80.8 lb)
Environmental Requirements	
Operating Temperature	5°C to 40°C (41°F to 104°F)
Storage Temperature	-30°C to 73°C (-22°F to 164°F)
Operating Relative Humidity	5% to 90% (non-condensing)

S-AC-PS Power Supply Specifications

Table A-2 S-AC-PS Power Supply Specifications

Item	Specification
Electrical	
Input Frequency	50 to 60 Hz
Input (Voltage/Current) at Output Power	100 to 125 Vac: 16 A at 1200 watts 200 to 240 Vac: 10 A at 1600 watts
Physical	
Dimensions	4.1 cm x 10.16 cm x 40.64 cm (1.60" x 4.00" x 16.00")
Weight	2.38 kg (5.25 lb)
Inlet Type	C20 inlet (accepts C19 cord)

S-AC-PS-15A Power Supply Specifications

Table A-3 S-AC-PS-15A Power Supply Specifications

Item	Specification
Electrical	
Input Frequency	50 to 60 Hz
Input (Voltage/Current) at Output Power	100 to 125 Vac: 12 A at 930 watts 200 to 240 Vac: 8 A at 1600 watts
Physical	
Dimensions	4.1 cm x 10.16 cm x 40.64 cm (1.60" x 4.00" x 16.00")
Weight	2.38 kg (5.25 lb)
Inlet Type	C14 inlet (accepts C13 cord)

S-DC-PS Power Supply Specifications

Table A-4 S-DC-PS Power Supply Specifications

Item	Specification
Electrical	
DC Input	Rated -48 to -60 VDC Min operating input voltage: -40 VDC Max operating input voltage: -72 VDC Max input current: 42 A
DC Output	12 VDC Min load: 0 A Max load: 100 A
Max Output Power	1200 watts
Physical	
Dimensions	4.1 cm x 10.16 cm x 40.64 cm (1.60" x 4.00" x 16.00")
Weight	2.29 kg (5.05 lb)

S-POE-PS Power Supply Specifications

Table A-5 S-POE-PS Power Supply Specifications

Item	Specification
Electrical	
Input Frequency	50 to 60 Hz
Input (Voltage/Current) at Output Power	100 to 125 Vac: 15 A at 1200 watts 200 to 240 Vac: 11 A at 2000 watts
Physical	
Dimensions	4.22 cm x 10.16 cm x 35.18 cm (1.66" x 4.00" x 13.85")
Weight	2.1 kg (4.6 lb)
Inlet Type	C20 inlet (accepts C19 cord)

S-FAN Fan Tray Specifications

Table A-6 S-FAN Fan Tray Specifications

Item	Specification
Dimensions	27.05 cm x 2.77 cm x 42.47 cm (10.65” x 1.09” x 16.72”)
Weight	2.47 kg (5.45 lb)

Torque Values

Table A-7 describes the recommended torque values to use when installing the using standard threaded fastener machine screws and bolts.

Table A-7 Recommended Torque Values by Screw Size

Screw Size		Torque in Pounds			Bit Size
English	Metric	-%5	Nominal	+%5	
N/A	N/A	1.42	1.5	1.57	0
2 – 56	1.5	2.85	3.0	3.15	0
4 – 40	2.5	4.75	5.0	5.25	0/1
6 – 32	3.5	8.55	9.0	9.45	1
8 – 32	4.5	17.10	18.0	18.90	2
10 – 32	5	30.40	32.0	33.60	2
1/4 – 20	6.5	63.65	67.0	70.35	3

COM Port Pinout Assignments

The COM port is an RJ45 communications port for local access to local management. Refer to the Table A-8 for the COM port pin assignments.

Table A-8 COM Port Pin Assignments

Pin	Signal Name	Input/Output
1	Transmit Data (XMT)	Output
2	Data Carrier Detect (DCD)	Output
3	Data Set Ready (DSR)	Input
4	Receive Data (RCV)	Input
5	Signal Ground (GND)	NA
6	Data Terminal Ready (DTR)	Output
7	Request to Send (RTS)	Input
8	Clear to Send (CTS)	NA

Regulatory Compliance

This product meets the safety, electromagnetic compatibility (EMC), and environmental requirements listed in Table A-9.

Table A-9 Compliance Standards

Regulatory Compliance	Standard
Safety	UL 60950-1, FDA 21 CFR 1040.10 and 1040.11, CAN/CSA C22.2 No. 60950-1, EN 60950-1, EN 60825-1, EN 60825-2, IEC 60950-1, 2006/95/EC (Low Voltage Directive)
Electromagnetic Compatibility (EMC)	FCC 47 CFR Part 15 (Class A), ICES-003 (Class A), EN 55022 (Class A), EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZ CISPR-22 (Class A). VCCI V-3. CNS 13438 (BSMI), 2004/108/EC (EMC Directive)
Environmental	2002/95/EC (RoHS Directive), 2002/96/EC (WEEE Directive), Ministry of Information Order #39 (China RoHS)

B

About PoE (Power over Ethernet)

This appendix provides an overview of Power over Ethernet technology and how it is implemented in relation to the S-Series devices.

Overview

Power over Ethernet (PoE) refers to the ability to provide operational power through the same Ethernet cabling to a powered device (PD) connected to a data network. Modern Ethernet implementations employ differential signals over twisted pair cables. This requires a minimum of two twisted pairs for a single physical link. Both ends of the cable are isolated with transformers blocking any DC or common mode voltage on the signal pair. PoE exploits this fact by using two twisted pairs as the two conductors to supply a direct current. One pair carries the power supply current and the other pair provides a path for the return current. While several proprietary legacy implementations of PoE have been deployed by LAN equipment vendors, in 2003 the IEEE published the IEEE 802.3af-2003 specification, which is part of the 802.3 suite of standards.

The S-Series chassis models that support PoE are fully compliant with the IEEE 802.3af and 802.3at standards. They support the standard resistor-based detection method, as well as AC disconnect capability.

Each PD has a PDC (Powered Device Classification) that is transmitted to the S-Series chassis for power management purposes. Table B-1 lists the classifications and the associated power ranges.

Table B-1 Powered Device Classifications

Class	Usage	PD Maximum Power Range Usage
0	Default	0.44 to 12.95 watts
1	Optional	0.44 to 3.84 watts
2	Optional	3.84 to 6.49 watts
3	Optional	6.49 to 12.95 watts
4	Reserved	12.95 to 25.50 watts

Proprietary PD Detection

S-Series devices support a subset of the currently deployed proprietary PoE methods. This includes support for Cisco PDs, including a proprietary capacitor based detection scheme.

PoE Port Status LEDs

The PoE port status of each 10/100/1000 Mbps RJ45 port on an S-Series I/O module is indicated by the RX and TX LEDs for each port. To observe the PoE port status indications, you must switch the S-Series I/O module from the default RX/TX status mode to the PoE port status mode using the red PoE button. The switch operation and a description of how to use the LED indications are described in the *Enterasys S-Series I/O Module Hardware Installation Guide*.

Allocation of PoE Power to Devices

When equipped with a PoE subsystem and S-POE-PS power supplies, the S-Series chassis provides dedicated PoE power for powered devices (PDs) attached to the 10/100/1000 Mbps RJ45 ports on the installed S-Series I/O modules.

The S-Series firmware determines the power available for PoE based on power supply status and power supply redundancy mode. When any change is made to the power supply status or redundancy mode, the firmware recalculates the power available for PoE.

The power available for PoE is distributed based on the configured allocation mode:

- **Automatic** mode (default), in which available power is distributed evenly. Any change in available power, due to a change in power supply status or redundancy mode, will trigger an automatic redistribution of power.
- **Manual** mode, in which the power budget is manually configured, using either CLI commands or the MIBs. The wattage configured cannot exceed the total power available on the switch for PoE.

  The configured wattage assignment is used to calculate the total available PoE power. If the total available PoE power changes, a redistribution of available power will occur, applying the calculated percentage.

If the PoE power needed or requested exceeds the power available, the system will generate a trap to notify the system manager.

For more information on configuring allocation mode, see the *Enterasys S-Series CLI Reference*.

Management of PoE Power to PDs

You can configure how the S-Series chassis makes power available to attached PDs:

- **Real-time** mode (default), in which the PoE controller calculates the power needed by a PD based on the actual power consumption of the attached devices.
- **Class** mode, in which the PoE controller manages power based on the IEEE 802.3at definition of the class limits advertised by the attached devices. In this mode, the maximum amount of power required by a device in the advertised class is reserved for the port, regardless of the actual amount of power being used by the device.

For more information on configuring power management mode, see the *Enterasys S-Series CLI Reference*.

C

Environmental Guidelines

Enterasys Networks provides high quality and reliable products. To ensure customer satisfaction and the continued reliable operation of our products, installation and operation must comply with the environmental guidelines as described in our product documentation. This document references limits on operating temperature and humidity. Failure to operate the equipment in these prescribed ranges can result in reduced performance and damaged equipment. Failure to comply with these limits and guidelines may void the product warranty and it may also exclude the equipment from support entitlements of any applicable maintenance contract agreements. The following information describes these limits and recommendations in further detail.

Temperature and Humidity Guidelines

Operating Temperatures

All equipment must operate within the prescribed temperature and humidity ranges specified in Enterasys documentation. Operation of the equipment outside these limits may result in damaged equipment and/or reduced performance and reliability. This may require reliable, monitored and 24x7 operation of climate control systems (heating and air conditioning).

Inlet Air Temperature Measurement

Operating temperature maximums and minimums are limits on the ambient air temperature entering the switching equipment. This area is located within 1 inch of the main equipment inlet. This is not necessarily the same air temperature throughout the room.

Cooling Air

Many Enterasys switches utilize a side to side airflow method for cooling. Careful consideration is needed when mounting this equipment. Proper inlet and exit spaces must be allowed to get fresh, cool air into the equipment and to allow hot exhaust air to exit away from the equipment. Blocked venting can result in an overheating condition that can damage the equipment. Pay close attention to cable ingress and egress routing to verify that cabling is not blocking venting.

Power Conditioning

Enterasys products are rated to be used with internationally accepted AC input parameters. It is important that these parameters are monitored and verified to operate as expected for the ratings that apply to the equipment installed. Surges and excessive noise outside of these prescribed ranges in the power circuits feeding this equipment may cause permanent damage to the equipment installed and must be monitored and prevented.

Airflow Concerns for Closed Racks

When placing Enterasys switches into enclosed racks, rack exhaust fans must be considered if the rack does not contain adequate inlet and exit venting. These fans may be needed to help exhaust hot air from the rack. They must be sized properly to exhaust the collective volumetric flow from all equipment within the rack.

Figure C-1 illustrates the ideal configuration for a fully vented closed rack. All panels are vented, and side-to-side cooled sub-systems are flowing in the same direction.

Cool air ingress through the bottom of the rack must be carefully allowed to enhance overall system airflow and prevent stagnant air recirculation. This may need to be confirmed through thermal testing at the installation site.

Figure C-1 Closed Rack Ideal Configuration

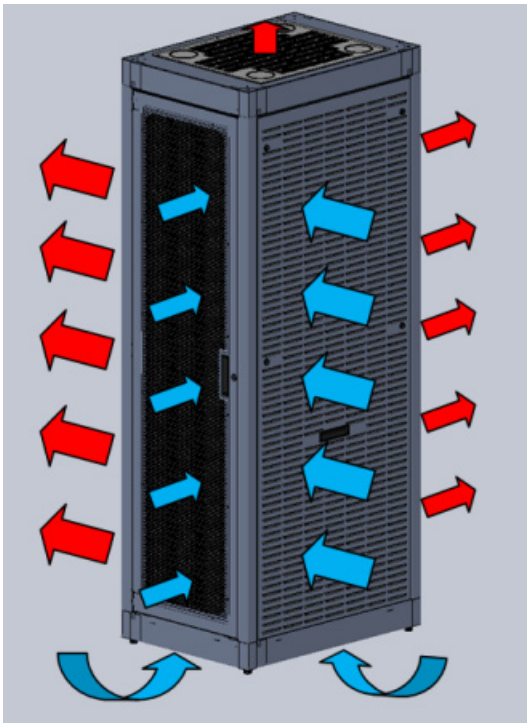


Figure Key

- Blue arrows indicate cool air ingress
- Red arrows indicate hot air egress
- White arrows indicate airflow through the system

Airflow Concerns for Open Racks

Equipment with different air flow cooling patterns, such as front to back or side to side, can present special concerns. Recirculation of heated air through equipment is unwanted because it increases the inlet temperature which causes the equipment components to operate at elevated temperatures. Likewise, equipment in neighboring racks must be planned to prevent hot air exhaust from one system being pulled into the inlet of an adjacent system.

Figure C-2 illustrates the ideal configuration for an open rack. All sub-systems flow in the same direction, as shown by the white arrows.

Figure C-2 Open Rack Ideal Configuration

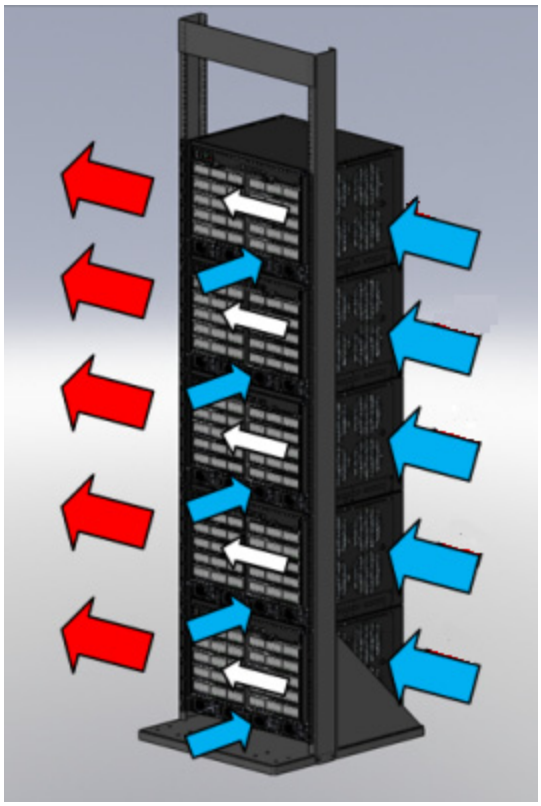
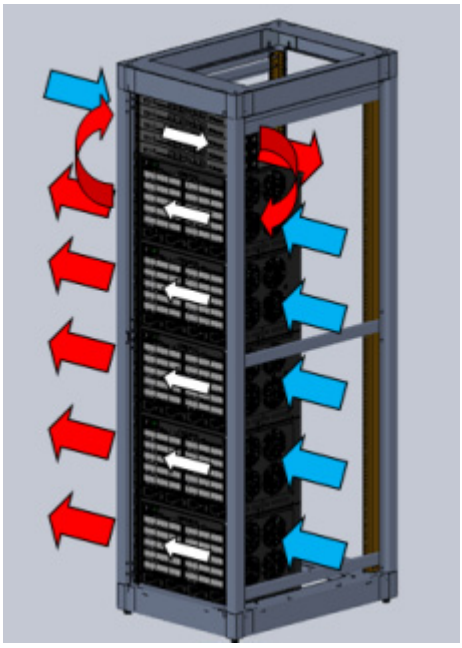


Figure C-3 on page C-4 below shows a non-ideal configuration for an open rack, where sub-systems with mixed flow directions (white arrows) are combined in one rack. Circular red arrows show potential for hot air recirculation.

Figure C-3 Non-ideal Open Rack Configuration



Non-ideal flows should be avoided or mitigated and confirmed through thermal testing.

Figure C-4 below shows a non-ideal open rack configuration containing sub-systems with mixed flow directions (white arrows). This configuration shows mitigation of potential hot air recirculation by leaving a gap in the rack population.

Figure C-4 Mitigated Non-ideal Open Rack Configuration

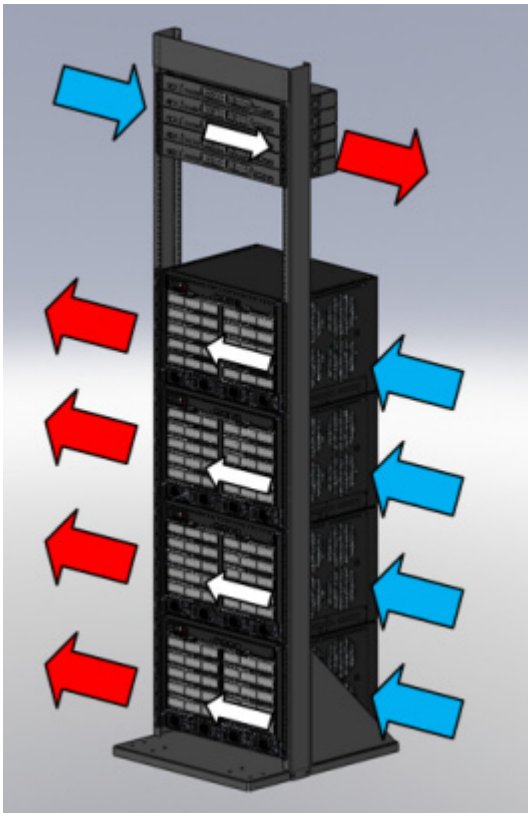
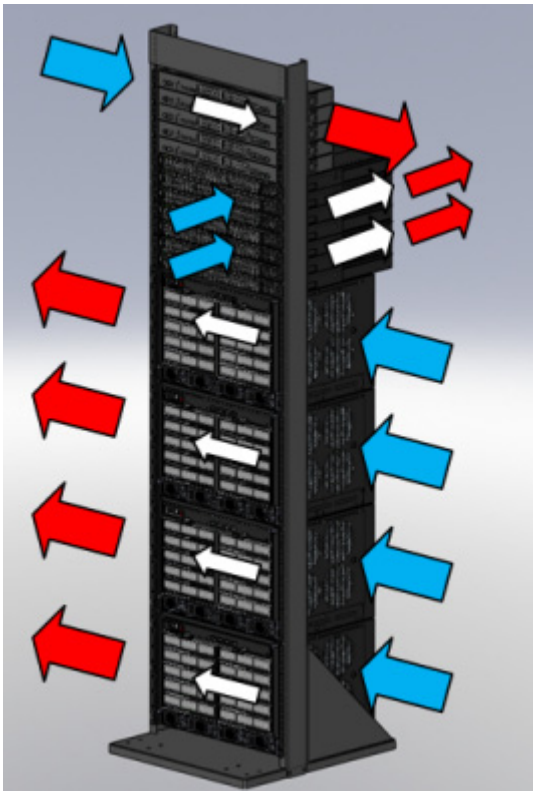


Figure C-5 below shows another mitigation strategy for open racks containing sub-systems with mixed flow direction. Mitigation of potential hot air recirculation is achieved by separating unlike systems with products having front to back airflow patterns.

Figure C-5 Another Mitigated Non-ideal Open Rack Configuration



Dust Mitigation and Prevention

Dust accumulation on inlet and exit venting is not uncommon after prolonged use. In dustier environments this accumulation can be much quicker.

Enterasys strongly recommends routine maintenance to check for clean inlet and exit vents on this equipment. Over time, dust accumulation can create vent blockages, thereby decreasing airflow and increasing component temperatures, resulting in reduced reliability. Recommended maintenance should start with monthly inspections and be adjusted based on dust accumulation levels.

Table C-1 on page C-6 notes the maximum dust and debris accumulation limits for room environments as a reference.

Table C-1 Airborne Dust Specification for Enterasys Equipment — Airborne Dust Maximum Values

Dust	Guidelines
All/Total Airborne Particles (TSP-Dichot 15):[1]	20 µg/m^3
PM10/Coarse Particles (2.5 to 15 microns):[1,2]	Preferred[1]: <10 µg/m^3 Maximum[2]: 20 µg/m^3
PM2.5/Fine particles (< 2.5 microns):[2]	10 µg/m^3

1 Value from NEBs GR-63-CORE issue #3 table 4-12.
2 Recommended value by WHO (World Health Organization) for 2005 air quality.
3 TSP-Dichot 15 = Total Suspended Particulates as determined using a Dichotomous sampler with a 15 micron inlet.
4 µg/m3 = micro grams per cubic meter.
5 Note: The equipment will operate at higher levels than listed above. However, the higher levels can decrease the products' service life.

Dust removal from the equipment is a required part of maintenance. When removing dust:

- Use proper ESD precautions
- Use a vacuum that is properly grounded through a cord having an equipment-grounding conductor and grounding plug

Carefully vacuum the dust particles from the inlet and exit venting of the equipment to allow for proper air flow and ventilation.

Please contact Enterasys Technical Support for additional information about external filter options.

Airborne Chemicals and Prevention

Various airborne chemicals and contaminants can cause corrosion and thus decrease the service life of most vendors' equipment. To reduce the risk of such corrosion, locate the equipment only in areas that are safe for human occupation.

For more product information and documentation, go to:

https://extranet.enterasys.com/downloads