

Enterasys S-Series®

S1 Chassis

Hardware Installation Guide



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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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.

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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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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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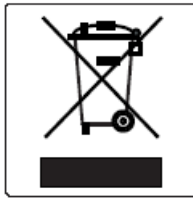
AS/NZS CISPR 22



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 explosión si la batería se reemplaza con el tipo 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 55×10^{-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 $8 \times 10^3 \text{ W m}^{-2} \text{ sr}^{-1}$.

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

**CLASS I
LASER DEVICE**

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.

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

**DISPOSITIF LASER
DE CLASSE I**

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

Warnhinweis: Faseroptikanschlüsse - Optische Sicherheit

**LASERGERÄT
DER KLASSE I**

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.**

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About This Guide

This guide provides an overview, installation and troubleshooting instructions, and specifications for the Enterasys S-Series® S1 chassis:

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 S1 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 S1 chassis. A general working knowledge of data communications networks is helpful when setting up the S1 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 S1 chassis and its features.	Chapter 1, Introduction
Instructions for installing the S1 chassis hardware and connecting the S1 chassis to the network.	Chapter 2, Installing the S1 Chassis
Information on system and power supply LEDs.	Chapter 3, Troubleshooting
Specifications, environmental requirements, and physical properties of the S1 chassis.	Appendix A, Specifications
Instructions for installing the S1 chassis using the optional S1-MOUNT-KIT.	Appendix B, Installing the S1-MOUNT-KIT
PoE overview information.	Appendix C, About PoE (Power over Ethernet)
Environmental guidelines for operating your Enterasys equipment.	Appendix D, Environmental Guidelines

Related Documents





The *Enterasys S-Series Configuration Guide* and *Enterasys S-Series CLI Reference Guide* provide information on how to use the CLI to set up and manage the S1 chassis.

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

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

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: Verweist 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 S1 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

Introduction

This chapter provides an overview of the capabilities of the Enterasys S-Series S1 chassis.

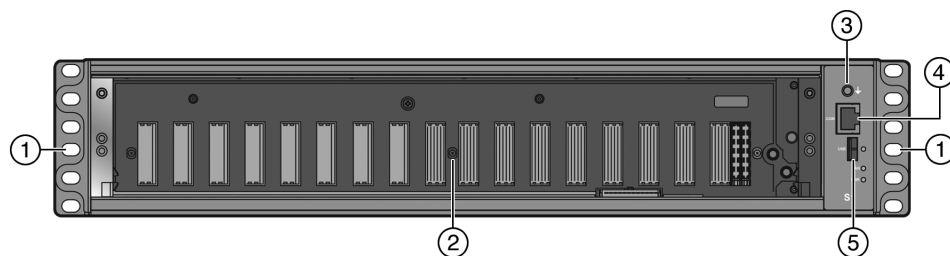
For information about software features of the S1 chassis and how to configure them, refer to the *Enterasys S-Series Configuration Guide*.

Overview

The S1 chassis is a one-slot chassis in which you can install an S-Series I/O fabric module. The S1 chassis supports the S130, S150, and S155 classes of I/O fabric modules.

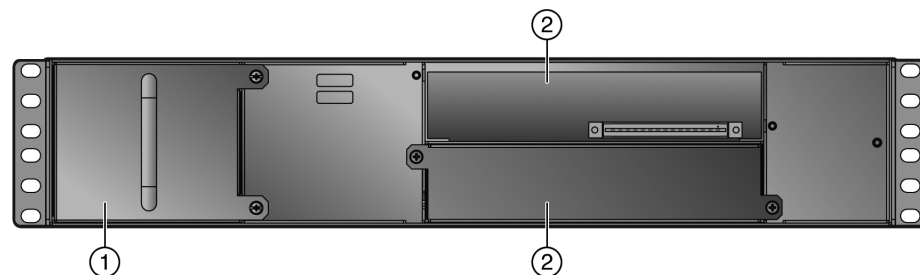
[Figure 1-1](#) shows the front of the S1 chassis. [Figure 1-2](#) shows the rear of the S1 chassis.

Figure 1-1 S1 Chassis (Front)



- | | | | |
|---|--------------------------|---|----------|
| 1 | Mounting brackets | 4 | COM port |
| 2 | I/O fabric module slot | 5 | USB port |
| 3 | ESD grounding receptacle | | |

Figure 1-2 S1 Chassis (Back)



- | | | | |
|---|----------|---|------------------------|
| 1 | Fan tray | 2 | Power supply slots (2) |
|---|----------|---|------------------------|

AC Power Supplies

The S1 chassis supports up to two SSA-AC-PS-1000W AC power supplies, which are installed in the rear of the S1 chassis. You must order the power supplies separately.



Note: The S1 chassis DOES NOT support the SSA-AC-PS-625W power supply.

The AC power supply automatically adjusts to the input voltage and frequency, which allows for an input voltage of 100 to 240 Vac, and a frequency between 50 and 60 Hz. See the operating specifications in [Appendix A, Specifications](#). No additional adjustments are necessary. For installations in North America, a 15 Amp power cord is required. See [“Powering Up the S1 Chassis”](#) on page 2-7 for more details.

Two operational modes of power supply redundancy are supported:

- **Redundant** mode, in which the power made available to the system is equal to the maximum output of one SSA-AC-PS-1000W AC power supply (1000 watts). If you choose to use two power supplies in a redundant power configuration, system power redundancy is guaranteed if one supply is lost. Power supplies are hot swappable in this operational mode.
- **Non-redundant**, or additive, mode, in which the combined output of two supplies (2000 watts) is made available to the system. If you choose to use two power supplies in a non-redundant power configuration, the loss of a single supply may result in a system reset. Power supplies are not hot swappable in this operational mode.

For more information, see [“Installing the Power Supplies”](#) on page 2-5. For information on the power supply LEDs, see [“Power Supply LEDs”](#) on page 3-3.

Fans

The S1 chassis features a removable fan tray that is accessible from the rear of the chassis. This unit is hot swappable, which allows it to be replaced without powering down the chassis. The FAN LED on the front of the S1 chassis indicates the status of the fan tray (normal/fault/not installed). Refer to [“System LEDs”](#) on page 3-1 for a full description of the FAN LED states.

USB Port

The USB port on the S1 chassis allows you to use a USB drive to upgrade the chassis and upload and download files, such as configuration files and firmware images. For information on connecting to the USB port, refer to the *Enterasys S-Series CLI Reference Guide*.



Note: The USB port on the S1 chassis is not used for out-of-band management.

Power over Ethernet

The S1 chassis supports both IEEE 802.3af and 802.3at Power over Ethernet (PoE) standards. The number of powered devices on RJ45 ports to which the S1 chassis can supply PoE power depends on your power supply and I/O fabric card configuration.

For an overview of PoE, see [Appendix C, About PoE \(Power over Ethernet\)](#).

Management

You can manage the S1 chassis either in-band or out-of-band. In-band remote management is possible using the Enterasys Networks' NetSight[®] management application or the command line interface (CLI) via Telnet. Out-of-band management is provided through the RJ45 COM (Communication) port on the front panel using a PC, a VT terminal, or a VT terminal emulator. For more information, see "[Connecting to the COM Port for Local Management](#)" on page 2-10.

Installing the S1 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.

For information about...	Refer to page...
Required Tools	2-1
Unpacking the S1 Chassis	2-2
Installation Site Requirements	2-3
Mounting the S1 Chassis	2-3
Unpacking the Power Supplies	2-5
Installing the Power Supplies	2-5
Powering Up the S1 Chassis	2-7
Removing and Installing a Fan Tray	2-9
Installing a Fabric Module and Connecting to the Network	2-10
Connecting to the COM Port for Local Management	2-10
Completing the Installation	2-12

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 S1 chassis)
- Phillips screwdriver

Unpacking the S1 Chassis

Unpack the S1 chassis as follows:

1. Open the box and remove the packing material protecting the S1 chassis.
Save the shipping box and materials in the event the unit must be reshipped.
2. Remove and set aside the kit that ships with the S1 chassis.
The S1 chassis does not include screws for attaching the S1 chassis to rack posts.
3. Verify the contents of the carton as listed in the [Table 2-1](#).

Table 2-1 Contents of S1 Chassis

Item
S1 chassis
RJ45 management cable
RJ45-to-DB9 converter
USB-A to micro-USB-B cable
Anti-static wrist strap
Adhesive rubber feet (4)



Notes: Power supplies and the I/O fabric module ship separately from the S1 chassis. The optional S1-MOUNT-KIT also ships separately from the S1 chassis.

Screws for mounting the S1 chassis in an equipment rack are not included with the S1 chassis. If you plan to install the S1 chassis in an equipment rack, you must supply at least eight rack screws.

4. Inspect the S1 chassis for any signs of physical damage.

If there are any signs of damage, DO NOT install the S1 chassis; instead, contact Enterasys Networks. Refer to [“Getting Help”](#) on page xvii for details.

Installation Site Requirements

If you plan to cable your S1 chassis with SFP or SFP+ pluggable transceivers, you may need to have 3–4 inches of clearance at the front of the S1 chassis.

The installation site must be within reach of the network cabling and meet the requirements listed below:

- Appropriate grounded power receptacles must be located within 2.13 meters (7 feet) of the site.
- A temperature of between 5°C (41°F) and 40°C (104°F) must be maintained at the installation site with fluctuations of less than 10°C (18°F) per hour.



Caution: To ensure proper ventilation and prevent overheating, leave a minimum clearance space of 5.1 cm (2.0 in.) at the left, right, and rear of the device.

Precaución: Para asegurar una buena ventilación y evitar que el sistema se sobrecaliente, deje un espacio mínimo de 5.1 cm (2 pulgadas) con respecto a los lados y a la parte posterior del aparato.



Warning: Before rack-mounting the device, ensure that the rack can support it without compromising stability. Otherwise, personal injury and/or equipment damage may result.

Advertencia. Antes de montar el equipo en el rack, asegurarse que el rack puede soportar su peso sin comprometer su propia estabilidad, de otra forma, daño personal o del equipo puede ocurrir.

Warnhinweis: Überzeugen Sie sich vor dem Einbau des Gerätes in das Rack von dessen Stabilität, ansonsten könnten Personenschäden oder Schäden am Gerät die Folge sein.

Mounting the S1 Chassis

You can install an S1 chassis as follows:

- On a desktop. See [Desktop Installation](#).
- In a 48.26-centimeter (19-inch) equipment rack. See [Front Mounting the S1 Chassis in a Rack](#).



Note: For rack installations requiring more robust support for high shock or vibration, install the S1 chassis using the optional rail kit, S1-MOUNT-KIT.

To mid-mount an S1 chassis, you must use the S1-MOUNT-KIT rail kit, which is available for purchase separately.

For information on installing S1 chassis in an equipment rack using the S1-MOUNT-KIT, see [Appendix B, Installing the S1-MOUNT-KIT](#).

Desktop Installation

For desktop installation, you must attach the adhesive rubber feet to the bottom of the S1 chassis.

To attach the rubber feet to the bottom of the S1 chassis.

1. Place the S1 chassis upside down on a sturdy, flat surface.
2. Remove the adhesive backing from the four rubber feet.
3. Adhere the rubber feet to the round, recessed areas on the bottom of the S1 chassis.

You can now unpack and install the S1 chassis power supplies. See [“Unpacking the Power Supplies”](#) on page 2-5 and [“Installing the Power Supplies”](#) on page 2-5.

Front Mounting the S1 Chassis in a Rack

You can front mount an S1 chassis in an equipment rack using the mounting brackets attached to the S1 chassis.

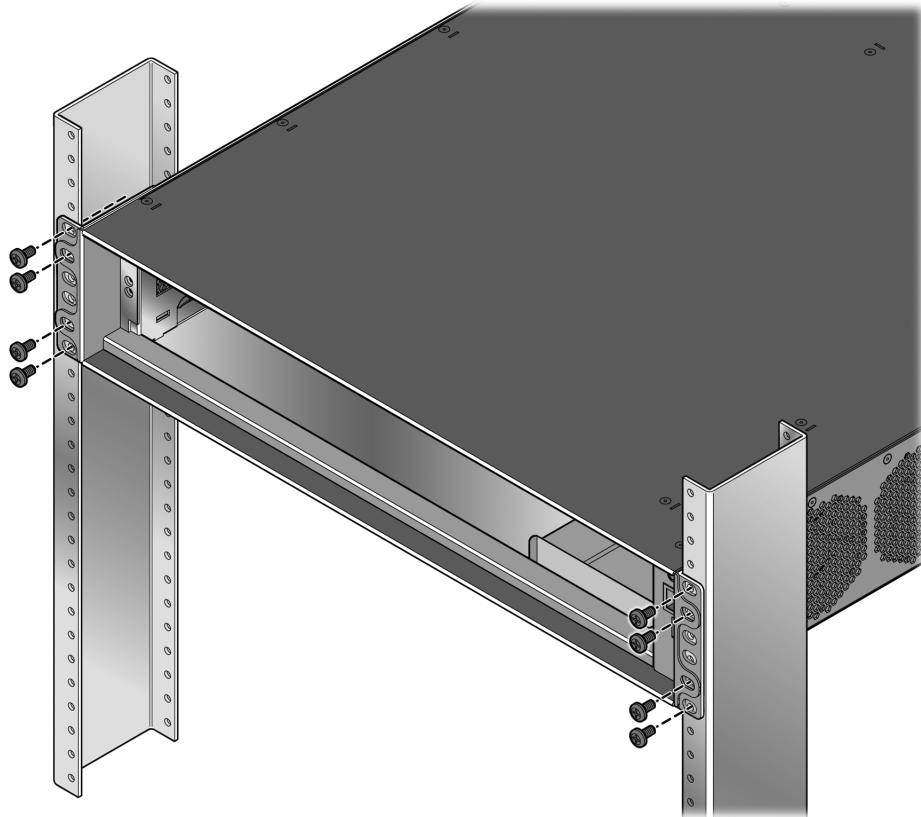


Note: The S1 chassis does not ship with mounting screws. You must supply at least eight screws to install the S1 chassis in a rack (four screws in each mounting bracket).

To front mount the S1 chassis:

1. Slide the S1 chassis into the equipment rack until the front mounting brackets are flush against the front screw holes of the rack posts. See [Figure 2-1](#).
2. Secure the front of the S1 chassis to the rack by screwing the customer-supplied rack screws in the mounting brackets on the right and left front of the S1 chassis. Use at least four screws in each mounting bracket.

Figure 2-1 Installing the S1 Chassis in an Equipment Rack



Note: For rack installations requiring more robust support for high shock or vibration, install the S1 chassis using the optional rail kit, S1-MOUNT-KIT.

To mid-mount an S1 chassis, you must use the S1-MOUNT-KIT rail kit, which is available for purchase separately.

For information on installing S1 chassis in an equipment rack using the S1-MOUNT-KIT, see [Appendix B, Installing the S1-MOUNT-KIT](#).

You can now unpack and install the S1 chassis power supplies. See [“Unpacking the Power Supplies”](#) on page 2-5 and [“Installing the Power Supplies”](#) on page 2-5.

Unpacking the Power Supplies

The SSA-AC-PS-1000W power supply modules are shipped in boxes separate from the S1 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 2-2](#).
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.

Table 2-2 Contents of Power Supply Carton

Item	Quantity
SSA-AC-PS-1000W power supply	1
For USA shipments: NEMA Power Cord 6-20, C19, R/A, SHLD Type of power cord is dependent on country of installation.	1
NOTICE Card	1

Installing the Power Supplies

If you plan to install the S1 chassis in an equipment rack, install the power supplies in the S1 chassis after you install the S1 chassis in the equipment rack.

If you are installing only one power supply, you must put the power supply in the top power supply bay (labeled PS1). The S1 chassis ships without a coverplate on the PS1 bay.

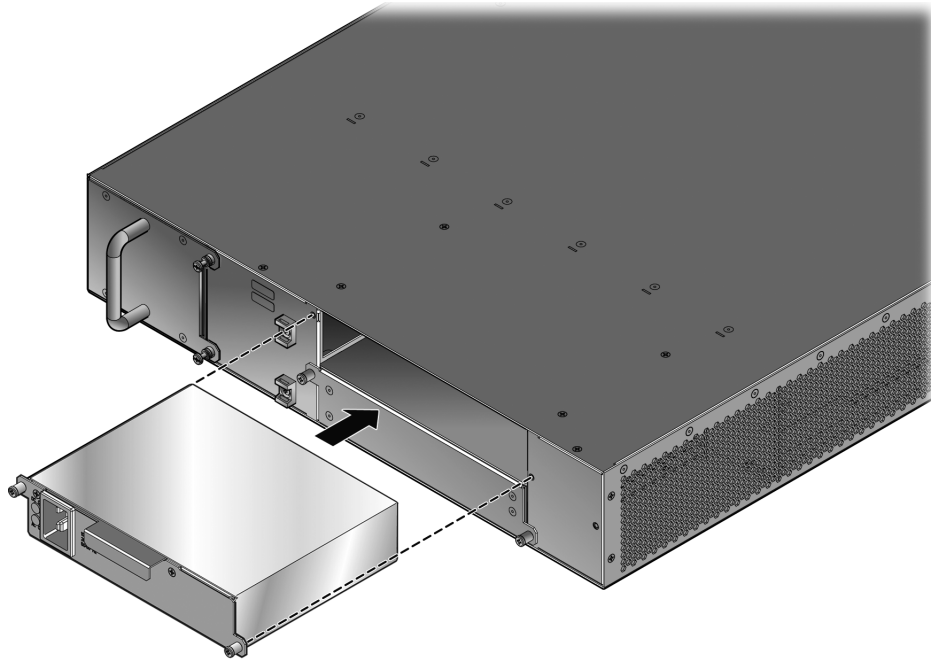


Note: Ensure that you use appropriate ESD protection when handling the power supplies.

To install the power supplies in the S1 chassis:

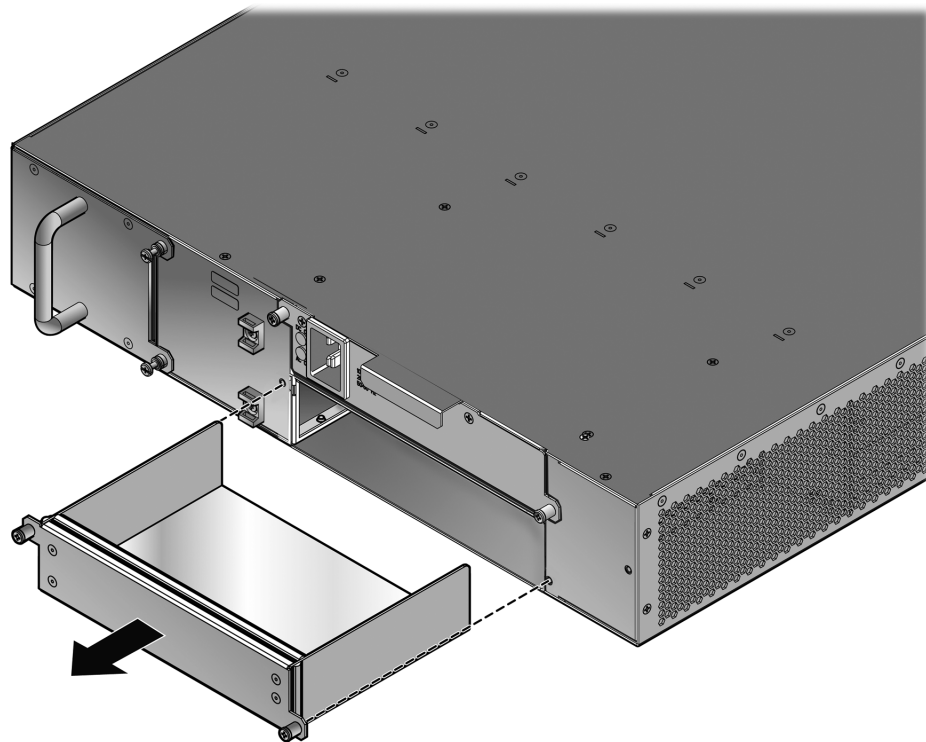
1. Holding the power supply with the handle on top, align the power supply with the top power supply bay (labeled PS1).
2. Slide the power supply forward until it is plugged into the chassis connector and is completely inside the bay. See [Figure 2-2](#).

Figure 2-2 Installing a Power Supply



3. If you are installing a second power supply, remove the coverplate from the bottom power supply bay (labeled PS2) by unscrewing the screws that attach the coverplate to the S1 chassis, as shown in [Figure 2-3](#).

Figure 2-3 Removing the Power Supply Coverplate



Keep the coverplate in the event you need to remove the power supply.

4. Repeat steps 1–2 to install the second power supply in the PS2 power supply bay.

5. Tighten the captive screws of the power supplies.

Powering Up the S1 Chassis

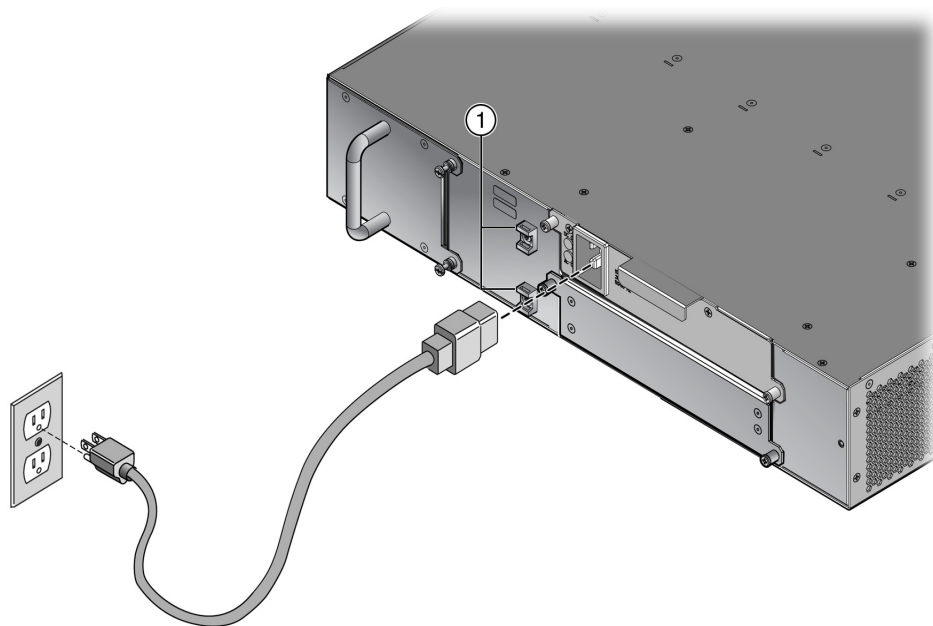
To connect the S1 chassis to the power sources:

1. Plug a power cord into each power supply's AC power receptacle.
2. Plug the power cord into a dedicated grounded AC outlet as shown in [Figure 2-4](#).

To take advantage of redundancy capabilities, plug each power cord into a separate dedicated AC outlet.

3. (Optional) Secure each power cord to the S1 chassis by tying the power cords to the plastic brackets, adjacent to the power supply bays, with customer-supplied zip ties.

Figure 2-4 Connecting Power to the S1 Chassis



- 1 Plastic brackets for securing AC power cords to the S1 chassis

The PWR LED, located on the front panel, turns ON (green). If you have an I/O fabric module installed, the CPU LED turns red until the S1 chassis completes its initialization. When the initialization process is successful, the CPU LED turns green.

Removing a Power Supply

To remove a power supply from the S1 chassis:



Note: Ensure that you use appropriate ESD protection when handling the power supplies.

1. Unplug the associated power cord from the AC outlet.
2. Remove the zip tie, if present, that secures the associated power cord to the S1 chassis.
3. Unplug the associated power cord from the AC inlet.
4. Unscrew the captive screws to release the power supply from the S1 chassis.
5. Remove the power supply by grasping the handle and pulling it straight out of the S1 chassis.
6. If you are not immediately installing another power supply, fasten a coverplate over the empty power supply bay.



Caution: If you plan 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.

Removing and Installing a Fan Tray

The S1 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 an extended period 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

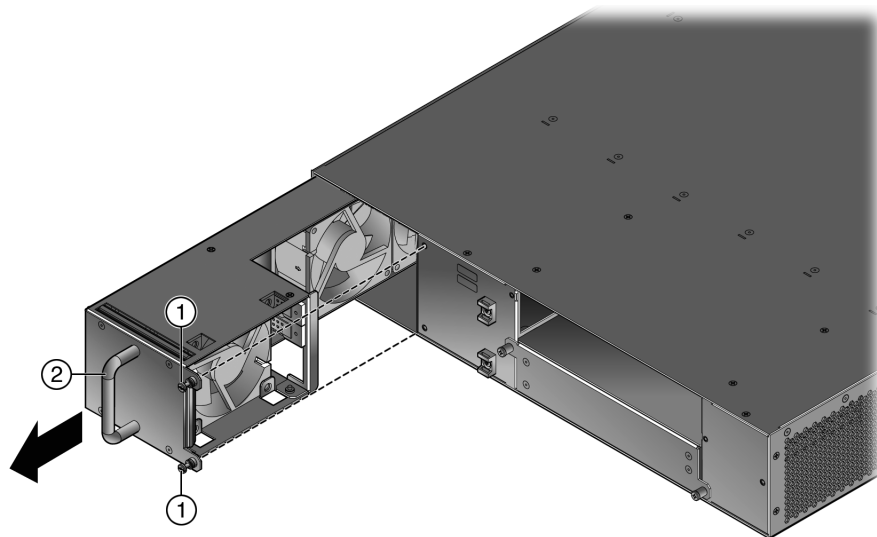


Note: Ensure that you use appropriate ESD protection when handling the fan tray.

To remove a fan tray:

1. Loosen the captive screws located at the right of the fan tray.
2. Slowly slide the fan tray out of its slot in the chassis. See [Figure 2-5](#).

Figure 2-5 Removing the Fan Tray



1 Captive screw (2)

2 Fan tray handle

Installing the Fan Tray



Note: Ensure that you use appropriate ESD protection when handling the fan tray.

To install the fan tray:

1. Hold the handle of the fan tray with one hand and the bottom of the fan tray with the other hand.

Hold the fan so that the captive screws are on the right side.

2. 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.

3. Slide the fan tray into the chassis until the faceplate of the tray is flush with the face of the S1 chassis.

If there is any strong resistance, remove the fan tray and reinsert it.

4. Tighten the two captive screws to secure the fan tray to the S1 chassis.

Installing a Fabric Module and Connecting to the Network

If you plan to install the S1 chassis in an equipment rack, install the I/O fabric module after you install the S1 chassis in the equipment rack.

For information on installing a fabric module and connecting a fabric module to the network, refer to the *Enterasys S-Series® I/O Module Hardware Installation Guide*.

Connecting to the COM Port for Local Management

This section describes how to install a UTP cable with RJ45 connectors and adapters to connect a PC or VT series terminal to an S1 chassis to access Local Management. This section also details adapter pinout assignments.

What Is Needed

The following is a list of the parts that you may need depending on the connection:

- UTP cable with RJ45 connectors (supplied with the S1 chassis)
- RJ45-to-DB9 female adapter (supplied with the S1 chassis)
- RJ45-to-DB25 female adapter (customer-supplied)

Using the UTP cable with RJ45 connectors and RJ45-to-DB9 adapter, you can connect from the S1 chassis RJ45 COM port to a PC running a VT series emulation software package.

Using the UTP cable with RJ45 connectors and an optional RJ45-to-DB25 female adapter, you can connect from the S1 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 the S1 chassis COM port:

1. Connect the RJ45 connector at one end of the cable to the COM port on the S1 chassis.
2. Plug the other end of the cable into an 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 [“Completing the Installation”](#) on page 2-12 for further information.

Connecting to a VT Series Terminal

To connect a VT Series terminal to the S1 chassis COM port, use a UTP cable with RJ45 connectors and an **optional** RJ45-to-DB25 female adapter.

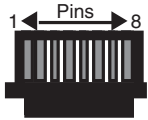
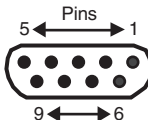
1. Connect the RJ45 connector at one end of the cable to the COM port on the S1 chassis.
2. Plug the RJ45 connector at the other end of the cable into the RJ45-to-DB25 female adapter.
3. Connect the RJ45-to-DB25 adapter to the port labeled COMM on the VT terminal.
4. Turn on the VT terminal and access 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

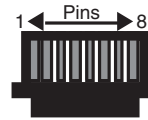
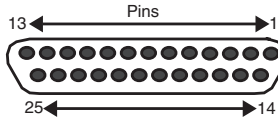
When these parameters are set, the Local Management password screen will display. Refer to [“Completing the Installation”](#) on page 2-12 for further information.

Adapter Wiring and Signal Assignments

COM Port Adapter Wiring and Signal Diagram			
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)

 <p>RJ45 Connector (Female)</p>	 <p>DB9 Connector (Female)</p>
--	--

VT Series Port Adapter Wiring and Signal Diagram			
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

 <p>RJ45 Connector (Female)</p>	 <p>DB25 Connector (Female)</p>
--	---

Completing the Installation

After installing the S1 chassis and making the connections to the network, access the device management startup screen from your PC or terminal connection as described in the following 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 S1 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 (null). 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 2-10. The startup screen displays.

```
login: admin
Password:
```

```
S1 Chassis
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. 2011
```

```
Chassis Serial Number: xxxxxxxxxxxxxx
Chassis Firmware Revision: xx.xx.xx
```

```
S1 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 S1 chassis prompt appear as shown above.

The S1 chassis is now ready to be configured. For information about setting the IP address and configuring Telnet settings for remote access to S1 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>

Troubleshooting

This chapter provides information concerning the following:

For information about...	Refer to page...
LEDs	3-1
Troubleshooting Checklist	3-3

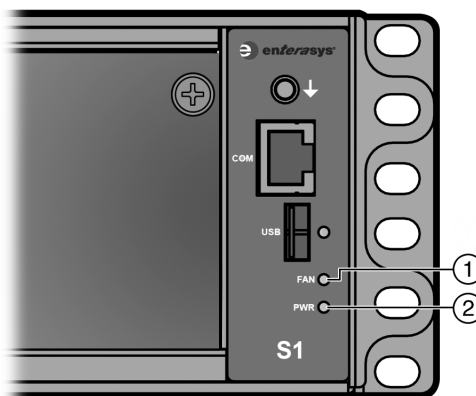
LEDs

The S1 chassis has system and power supply LEDs.

System LEDs

[Figure 3-1](#) shows the S1 chassis system LEDs.

Figure 3-1 S1 Chassis System LEDs



1 FAN LED

2 PWR LED

[Table 3-1](#) describes the LED indications for the system LEDs and provides recommended actions.

Table 3-1 System LEDs

LED	Color	State	Recommended Action
FAN	Off	Fans are off or booting up.	None.
	Green	All fans are operating normally.	None.
	Amber	One fan has failed.	Replace the fan. See “Removing and Installing a Fan Tray” on page 2-9.
	Red	One or more of the following conditions has occurred: <ul style="list-style-type: none"> • Temperature is out of range. • The fan controller has failed. • Two or more fans have failed. 	Check the CLI to determine the exact condition of the fans. Use the show system command. If fans have failed, replace the fan tray. See “Removing and Installing a Fan Tray” on page 2-9.
PWR	Off	The S1 chassis is not receiving power from the power supplies.	Ensure the power cords are plugged in and power is available at the source. Contact Enterasys Networks for technical support.
	Green	Functional. Indicates one of the following conditions: <ul style="list-style-type: none"> • A single power supply is present and operating normally. • Two power supplies are present and operating normally. 	None.
	Amber	One of the following conditions has occurred: <ul style="list-style-type: none"> • Two power supplies are present but only one is operating normally while the other is not connected. • Two power supplies are present but only one is operating normally while the other indicates a fault. • Both power supplies are faulty but the S1 chassis is still receiving power. • Power supplies are operating in additive (non-redundant) mode. • Other internal fault. 	Ensure the power cords are plugged in and power is available at the source. Contact Enterasys Networks for technical support.
	White	Solid. Indicates, in PoE status mode, that two 1000W power supplies are installed.	None.
	White/ Green	Indicates, in PoE status mode, that one 1000W power supply is installed.	None.



Note: The PWR LED status indication is based on power supplies being powered on.

Power Supply LEDs

The SSA-AC-PS-1000W power supply has 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. [Table 3-2](#) describes the different states of the power supply LEDs.

Table 3-2 Power Supply LED Status Definitions

LED	LED Color	Status
AC OK	Green	Sufficient AC power supply (influx).
	Off	Power supply malfunctioning.
DC OK	Green	Power supply successfully providing 48 VDC to the system.
	Off	Power supply malfunctioning.

Troubleshooting Checklist

If the S1 chassis is not working properly, refer to [Table 3-3](#) for a checklist of problems, possible causes, and recommended actions to resolve the problem.

Table 3-3 Troubleshooting Checklist

Problem	Possible Cause	Recommended Action
All LEDs are OFF.	Loss of power.	Ensure the S1 chassis was installed properly according to the installation instructions in Chapter 2, Installing the S1 Chassis , and that the chassis has power.
No Local Management Password screen.	Incorrect terminal setup.	Refer to the <i>S-Series Configuration Guide</i> for proper setup procedures.
	Improper console cable pinouts.	Refer to Appendix A, Specifications for proper COM port pinouts.
Cannot contact the S1 chassis through in-band management.	IP address not assigned.	See <i>S-Series Configuration Guide</i> for instructions to assign an IP address.
	Port is disabled.	Enable port. See <i>S-Series Configuration Guide</i> for instructions to enable/disable ports.
	Host Port policy and/or management VLAN is incorrectly configured, or not configured.	Verify that a management VLAN exists and that it is associated with the Host Port. Refer to the <i>S-Series Configuration Guide</i> for information about Host Port and management VLAN configuration.
	No link to device.	Verify that all network connections between the network management station and the S1 chassis are valid and operating. If the problem continues, contact Enterasys Networks for technical support.



Specifications

This appendix provides the following information:

For information about...	Refer to page...
S1 Chassis and Power Supply Specifications	A-1
Pluggable Transceiver Specifications	A-2
COM Port Pinout Assignments	A-2
Regulatory Compliance	A-2

Enterasys Networks reserves the right to change specifications at any time without notice.

S1 Chassis and Power Supply Specifications

[Table A-1](#) describes physical, electrical, and environmental specifications for the S1 chassis and the power supplies.

Table A-1 Specifications

Item	Specification
Physical	
Dimensions	8.69 cm H x 44.88 cm W x 60.27 cm D 3.42" H x 17.67" W x 23.73" D
Approximate Gross Weight (with fan tray)	10.60 kg (23.35 lb)
Mean Time Between Failure (MTBF)	Refer to the MTBF web site at URL http://www.enterasys.com/support/mtbf/
SSA-AC-PS-1000W	
Input Frequency	50 to 60 Hz
Input (Voltage/Current) at Output Power	100 to 125 Vac: 12 A at 1000 watts 200 to 240 Vac: 7 A at 1200 watts
Approximate Weight	1.22 kg (3.1 lb)

Table A-1 Specifications (continued)

Item	Specification
Environmental	
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 95% (non-condensing)

Pluggable Transceiver Specifications

For SFP and SFP+ transceiver specifications, refer to the datasheet at the following URL:

<http://www.enterasys.com/products/transceivers-ds.pdf>

COM Port Pinout Assignments

The COM port is an RJ45 communications port for local access to local management. Refer to the table below for the COM port pin assignments.

Table A-2 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

The S1 chassis meets the safety, electromagnetic compatibility (EMC), and environmental requirements listed in [Table A-3](#).

Table A-3 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)

Installing the S1-MOUNT-KIT

This appendix provides instructions for installing the S1 chassis in a four-post or two-post equipment rack using the optional S1-MOUNT-KIT rail kit.



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 about...	Refer to page...
Required Tools	B-1
Contents of S1-MOUNT-KIT	B-2
Removing the Mounting Brackets from the S1 Chassis	B-2
Removing the Mounting Brackets from the S1 Chassis	B-2
S1-MOUNT-KIT Mounting Options	B-3
Front Mounting the S1 Chassis in a Four-post Rack	B-3
Mounting the S1 Chassis in a Two-Post Rack	B-5
Securing the Rear of the S1 Chassis to the Rails	B-13

Required Tools

- ESD wrist strap (included with the S1 chassis)
- Phillips screwdriver

Contents of S1-MOUNT-KIT

Table B-1 lists the contents of the S1-MOUNT-KIT.

Table B-1 Contents of S1-MOUNT-KIT

Item	Number
Left and right rails with rail extensions installed	2
Mounting brackets	2
10-32 pan head screws (black)	4
10-32 cage nuts	4
6-32 flat head screws	2
6-32 pan head screw	1

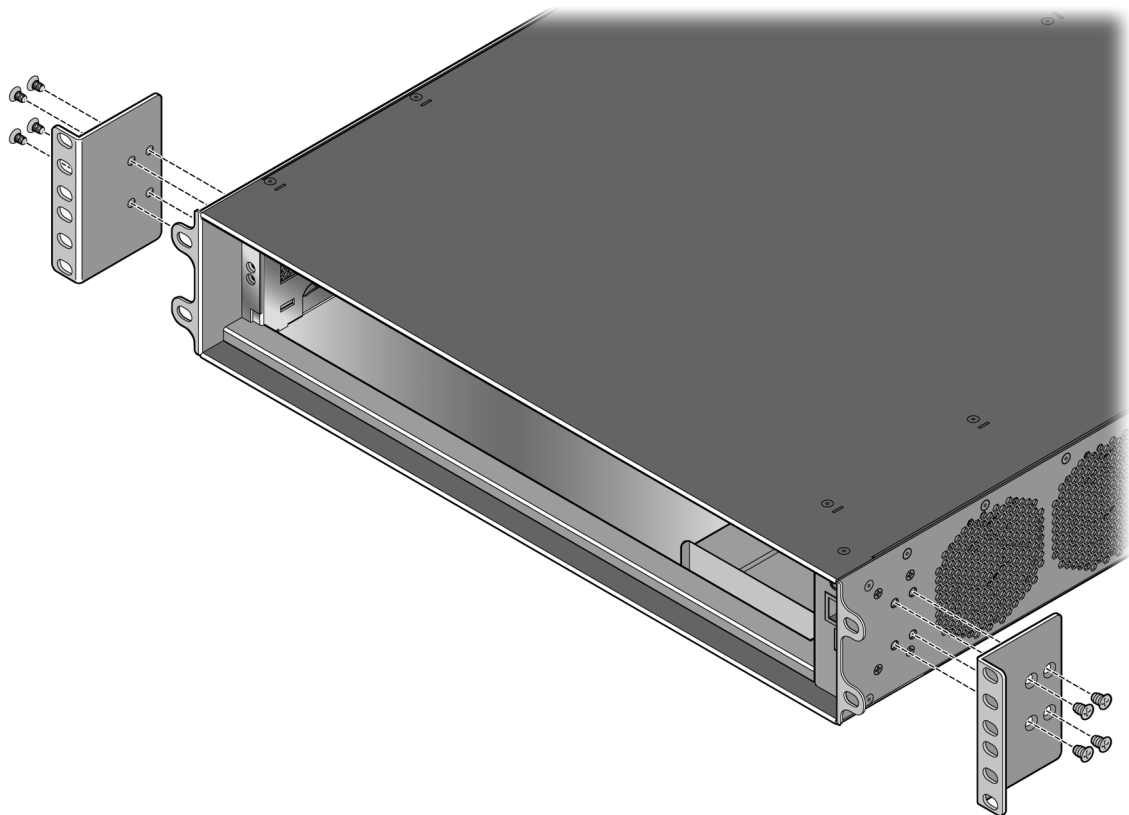


Note: The S1-MOUNT-KIT does not include rack screws. You must provide screws for securing the rails and the S1 chassis in the equipment rack. Each procedure in this guide specifies the number of rack screws that you must provide.

Removing the Mounting Brackets from the S1 Chassis

Before you install the S1 chassis in an equipment rack using the S1-MOUNT-KIT rail kit, you must remove the mounting brackets installed on the S1 chassis. See [Figure B-1](#).

Figure B-1 Removing the S1 Chassis Mounting Brackets



The removed mounting brackets and screws are not used in any of the procedures in this appendix.

S1-MOUNT-KIT Mounting Options

Use the S1-MOUNT-KIT rail kit to mount the S1 chassis as follows:

- In a four-post rack—Front mount the S1 chassis. See [“Front Mounting the S1 Chassis in a Four-post Rack”](#) on page B-3.
- In a two-post rack
 - Front mount the S1 chassis—See [“Front Mounting the S1 Chassis in a Two-post Rack”](#) on page B-7.
 - Mid-mount the S1 chassis—See [“Mid-Mounting the S1 Chassis in a Two-Post Rack”](#) on page B-10.

Before installing the S1 chassis in a two-post rack, you must disassemble the rails. See [“Disassembling the Rails”](#) on page B-6.

Front Mounting the S1 Chassis in a Four-post Rack

In a four-post rack, the S1 chassis is flush-mounted on the rails supplied in the S1 rail kit and secured to the front posts of the rack. If desired, you can secure the rear of the S1 chassis to the rails. See [“Securing the Rear of the S1 Chassis to the Rails”](#) on page B-13.



Note: You must supply at least 12 rack screws to secure the rails and the S1 chassis in a four-post rack.

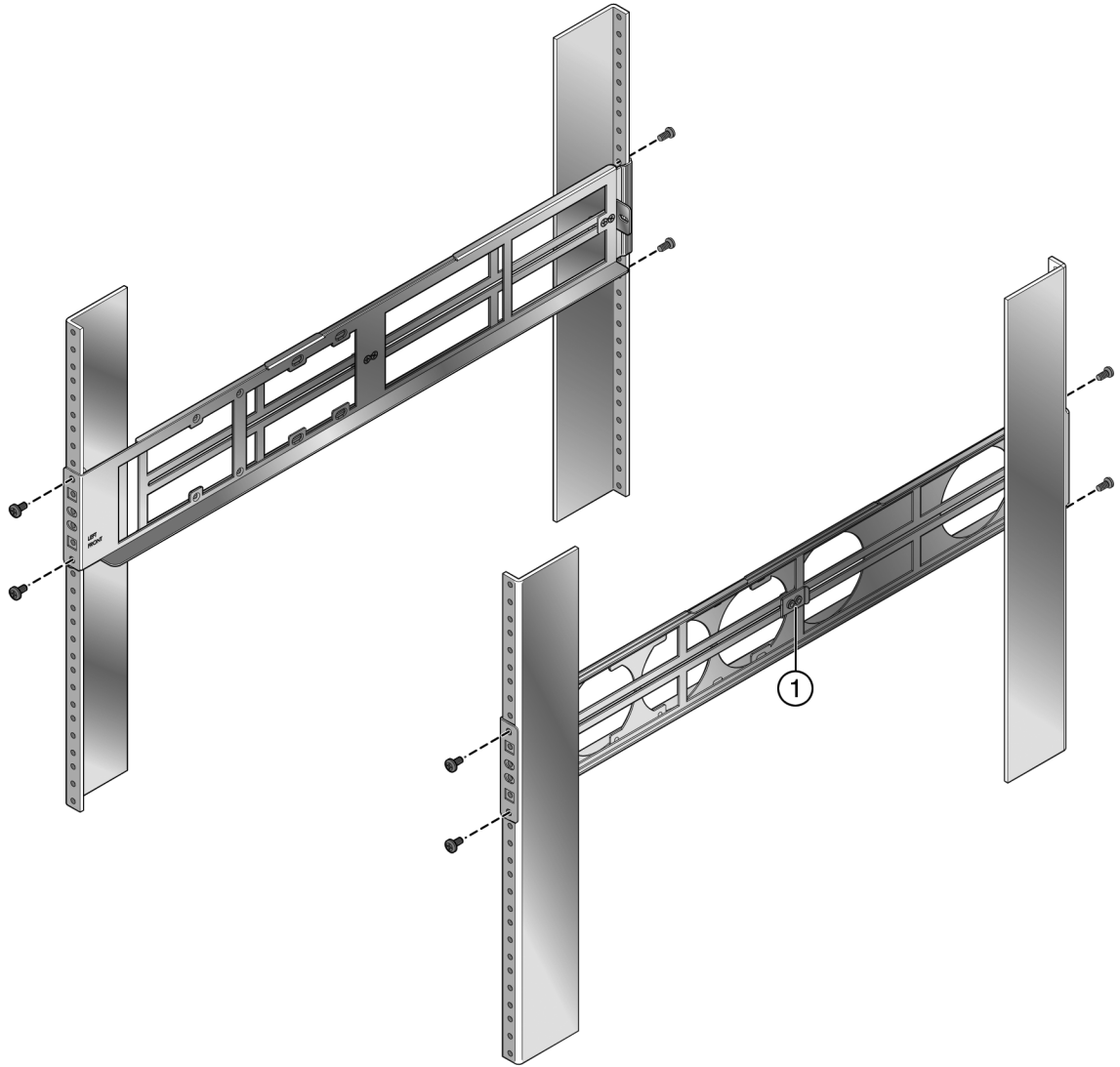
To use the S1-MOUNT-KIT in a four-post rack, the front to back post spacing of your four-post rack must be within the range of 23 inches to 32 inches (584 mm to 813 mm).

To install the S1 chassis in a four-post rack:

1. Extend the left and right rails to fit the outside dimensions of the rack posts.
The rails in the S1 rail kit are shipped with the rail extensions attached. If the rails do not slide easily, loosen the screws that secure the rail extensions to the main rails.
2. Position the left and right rails, which are labeled on the inside of each rail, in the rack with the bottom lip of the rail facing into the rack.

- Using eight customer-supplied rack screws, attach each rail to the rack posts with four screws (two screws in the front and two screws in the back). Insert the screws in the top and bottom screw holes. See [Figure B-2](#).

Figure B-2 Attaching the Rails to a Four-Post Rack



- Rail clamp (one of four—two on each rail)
-

- Tighten the screws in the rail clamps that secure the rail extensions to the main rails.

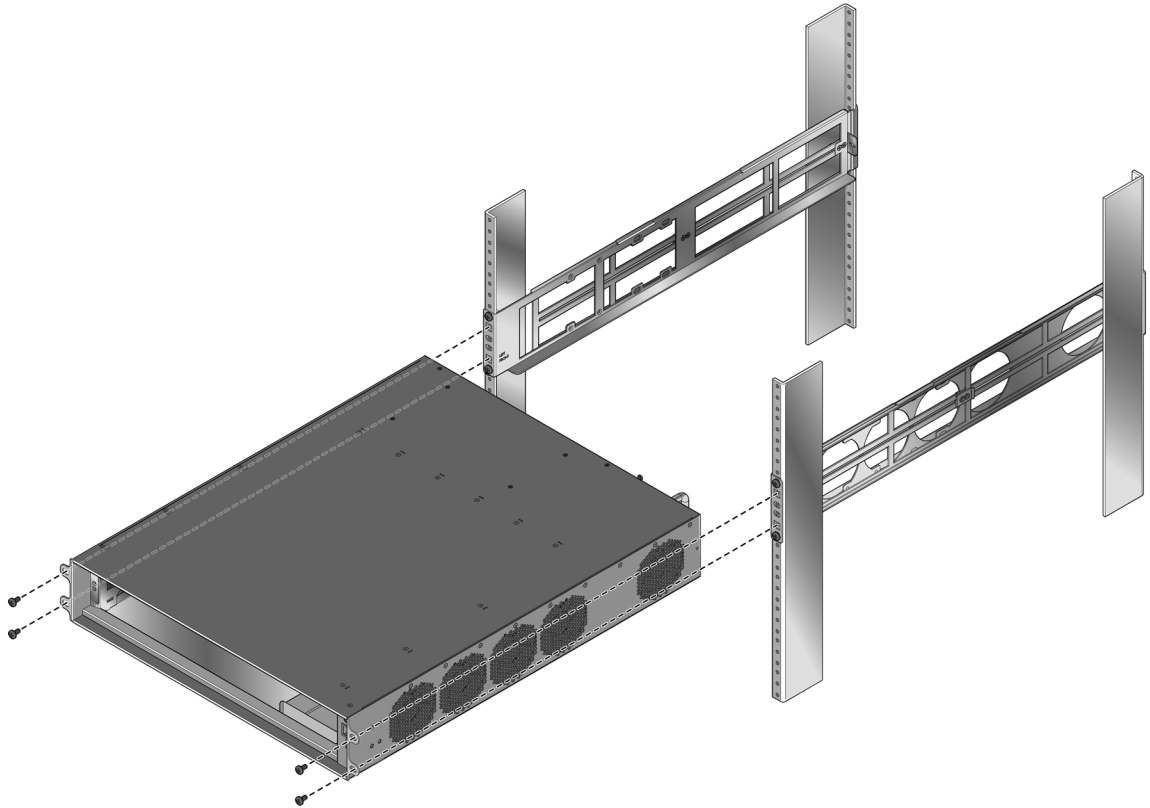


Note: Ensure that these screws are tight before you place the S1 chassis in the rails.

- From the front of the rack, slide the S1 chassis onto the rails until the mounting ears of the S1 chassis are against the front posts of the rack.

- Secure the front of the S1 chassis to the rack by screwing the customer-supplied rack screws in the mounting ears on the left and right front of the S1 chassis. See [Figure B-3](#).

Figure B-3 Installing the S1 Chassis in a Four-Post Rack



- (Optional) Secure the rear of the S1 chassis to the rails. See [“Securing the Rear of the S1 Chassis to the Rails”](#) on page B-13.

You can now unpack and install the power supplies. See [Chapter 2, Installing the S1 Chassis](#).

Mounting the S1 Chassis in a Two-Post Rack

You can front mount or mid-mount your S1 chassis in a two-post rack. See the following sections as applicable:

- [“Front Mounting the S1 Chassis in a Two-post Rack”](#) on page B-7.
- [“Mid-Mounting the S1 Chassis in a Two-Post Rack”](#) on page B-10.

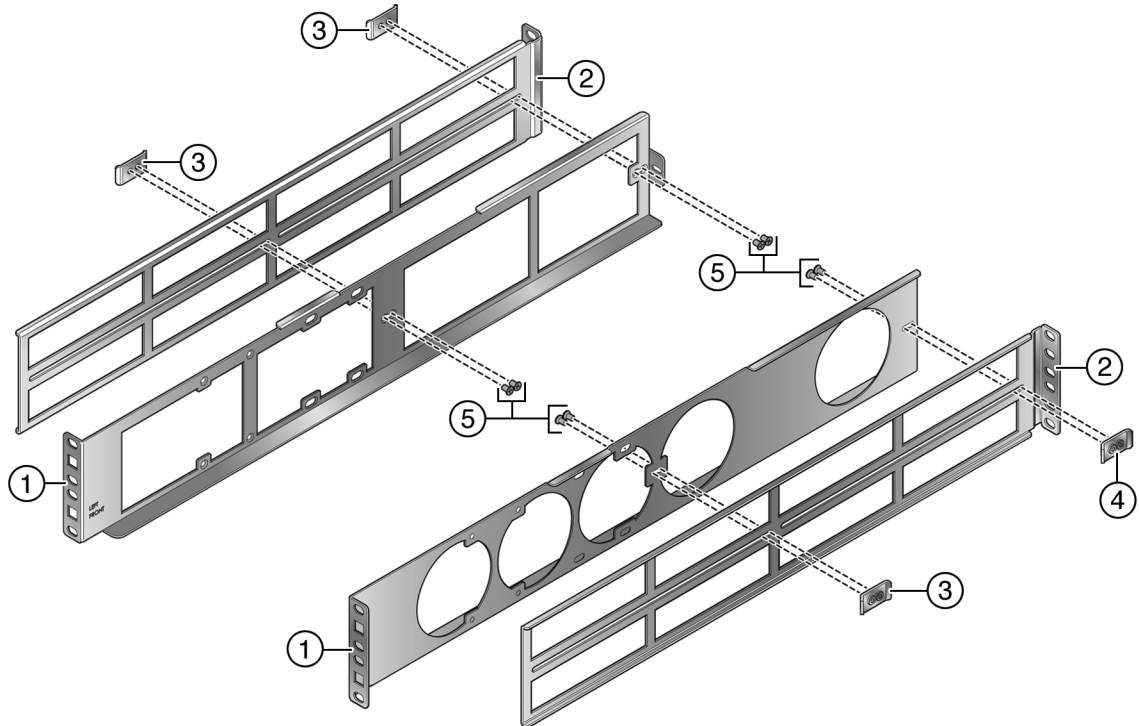
Before installing the S1 chassis in a two-post rack, you must disassemble the rails. See [“Disassembling the Rails”](#) on page B-6.

Disassembling the Rails

To disassemble the rails for installing your S1 chassis in a two-post rack:

1. Remove the rail extensions from the rails by unscrewing the rail clamps. See [Figure B-4](#).

Figure B-4 Removing the Rail Extensions from the Rails



- | | |
|---|--|
| <ol style="list-style-type: none"> 1 Rails 2 Rail extensions 3 Rail clamps | <ol style="list-style-type: none"> 4 Right rear rail clamp 5 Eight 6-32 screws (two screws in each rail clamp) |
|---|--|

2. For both front mounting and mid-mounting options, set aside the following items from the disassembled rails for use in your installation:
 - The rails (callout 1 in [Figure 2](#))
 - The eight 6-32 screws (callout 5)
 - If you are securing the rear of the S1 chassis to the rails, the rear rail clamp on the rail labeled RIGHT (callout 4).

You can now proceed to the appropriate installation procedure.

Front Mounting the S1 Chassis in a Two-post Rack



Note: Front mounting in a two-post rack is supported only in equipment racks that have screw holes in both the front and rear flanges of the rack posts.



Note: You must supply at least 12 rack screws to secure the rails and the S1 chassis in a two-post rack.

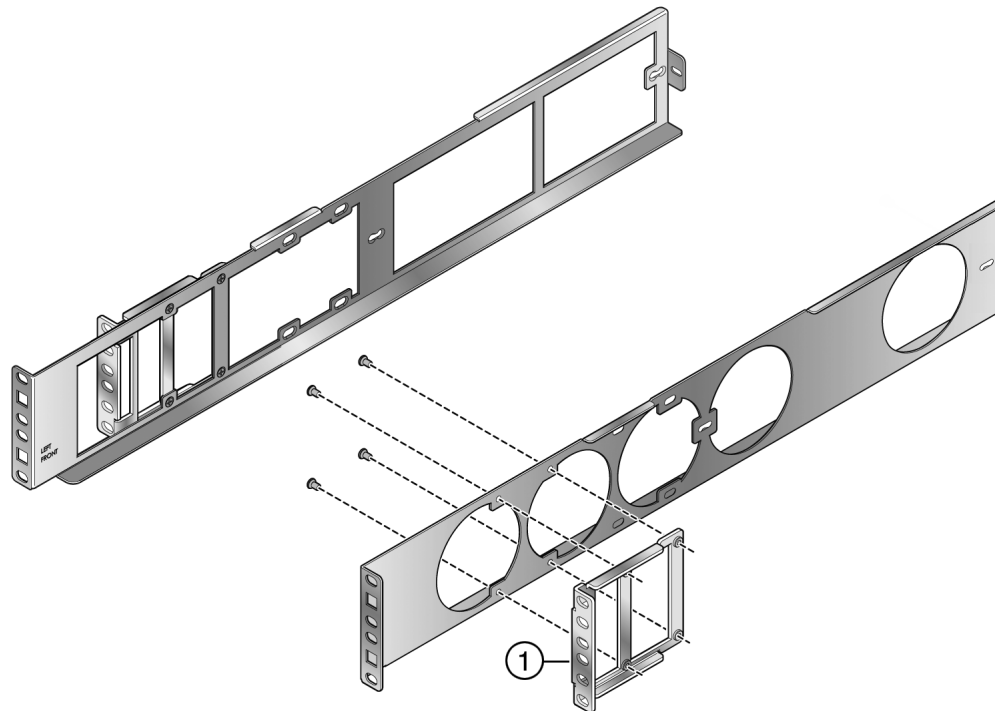
To front mount the S1 chassis in a two-post rack:

1. Disassemble the rails if you have not done so already. See “[Disassembling the Rails](#)” on page B-6.
2. Using the eight 6-32 screws from the disassembled rails, attach the mounting brackets, included in the S1 rail kit, to the left and right rails your equipment rack’s posts.
 - For a rack with 3-inch posts, see [Figure B-5](#) for the correct position of the mounting brackets.
 - For a rack with 7-inch posts, see [Figure B-6](#) for the correct position of the mounting brackets.



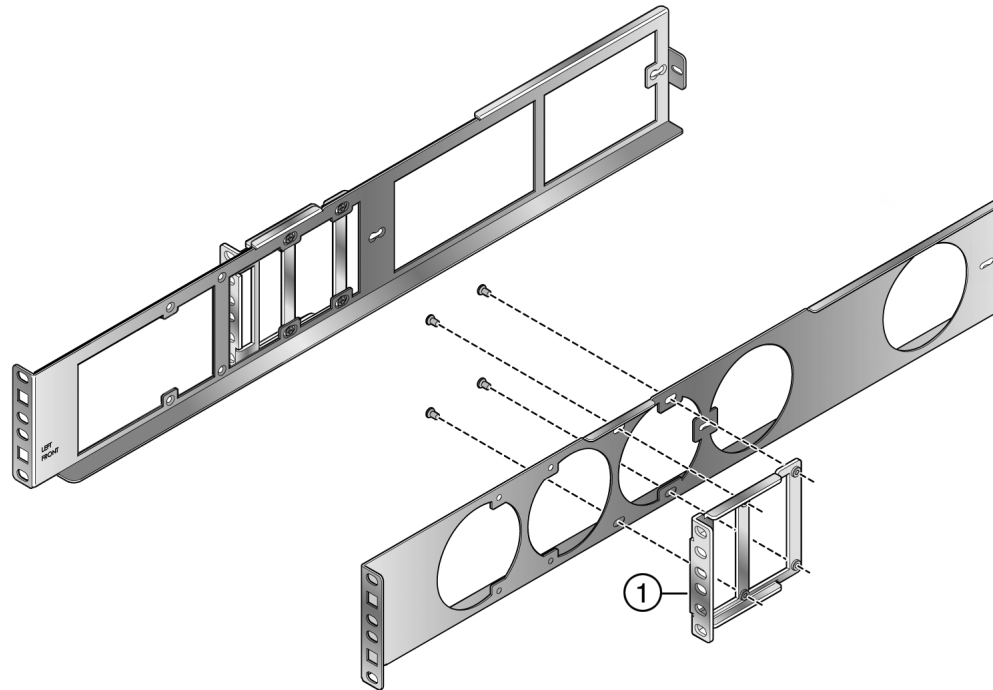
Note: Do not tighten the screws. Leave them loose to position the mounting brackets properly against the rack posts.

Figure B-5 Attaching Mounting Brackets to the Rails (for a Rack with 3-Inch Posts)



- 1 Mounting bracket in front mounting orientation (for a rack with 3-inch posts)

Figure B-6 Attaching Mounting Brackets to the Rails (for a Rack with 7-Inch Posts)



1 Mounting bracket in front mounting orientation (for a rack with 7-inch posts)

3. Position the left and right rails, which are labeled on the inside of each rail, in the rack with the bottom lip of the rail facing into the rack.

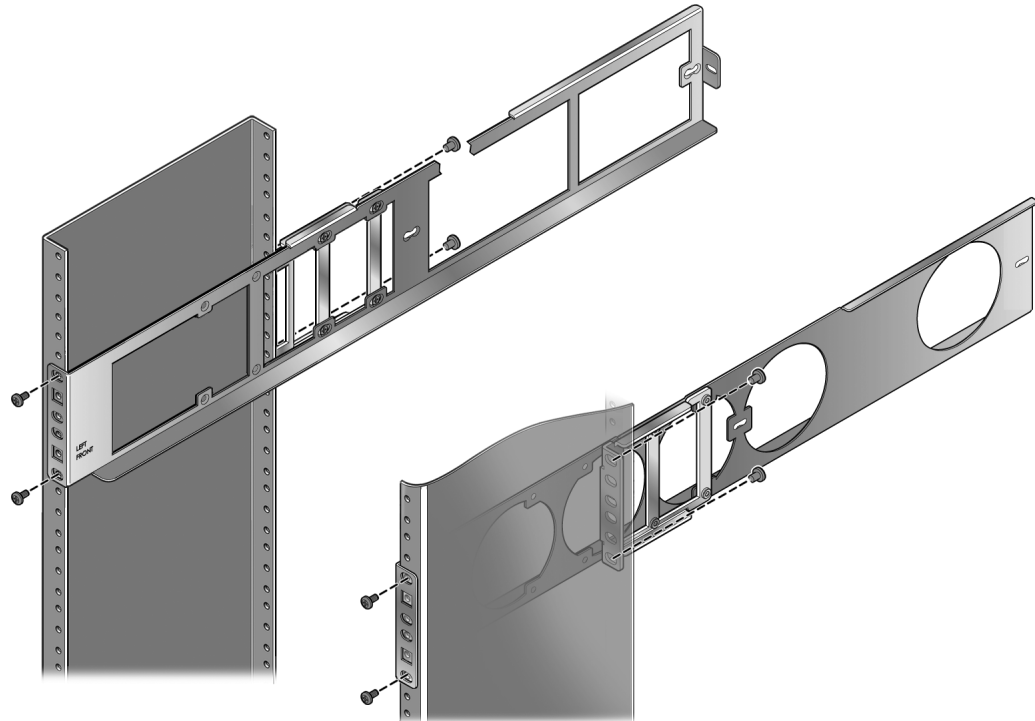
Refer to [Figure B-7](#), which shows the rails being installed in a two-post rack with 7-inch posts.

The front mounting ears of the rails should be flush against the front screw holes of the rack posts. The mounting brackets should be flush against the rear screw holes of the rack posts.



Note: Front mounting is supported only in equipment racks that have screw holes in both the front and rear flanges of the rack posts.

- a. Secure the front of the rails to the front flange of the rack post with two customer-supplied screws in the top and bottom screw holes of the rail.
- b. Secure the mounting bracket to the rear flange of the rack post with two customer-supplied screws in the top and bottom screw holes.

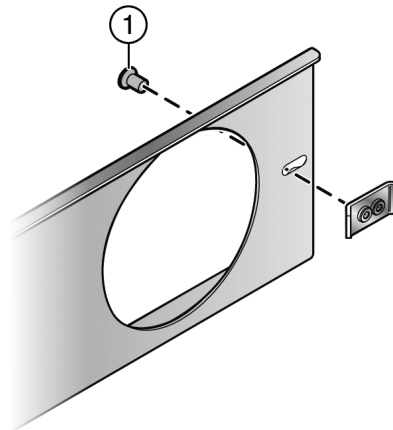
Figure B-7 Installing the Rails in a Two-Post Rack (7-Inch Posts)

4. Tighten the 6-32 screws that secure the mounting brackets to the rails.
5. (Optional) Re-install the rear rail clamp (callout 4 in [Figure B-4](#)) on the rail labeled RIGHT if you plan to secure the rear of the S1 chassis to the rails.

Use one of the additional 6-32 flat head screws included with the S1 rail kit. Insert the screw in the forward screw position of the rail extension clamp. See [Figure B-8](#).



Note: Leave the rear screw position empty. This screw position is used for securing the rear of the S1 chassis to the rails. See [“Securing the Rear of the S1 Chassis to the Rails”](#) on page B-13.

Figure B-8 Attaching the Rear Rail Clamp to the Right Rail

- 1 6-32 screw inserted in the forward screw position

6. Slide the S1 chassis onto the rails until the front of the S1 chassis is against the front of the rack posts.
7. Secure the front of the S1 chassis to the rack by screwing four customer-supplied rack screws in the mounting ears on the left and right front of the S1 chassis.
8. (Optional) Secure the rear of the S1 chassis to the rails. See “[Securing the Rear of the S1 Chassis to the Rails](#)” on page B-13.

You can now unpack and install the power supplies. See [Chapter 2, Installing the S1 Chassis](#).

Mid-Mounting the S1 Chassis in a Two-Post Rack

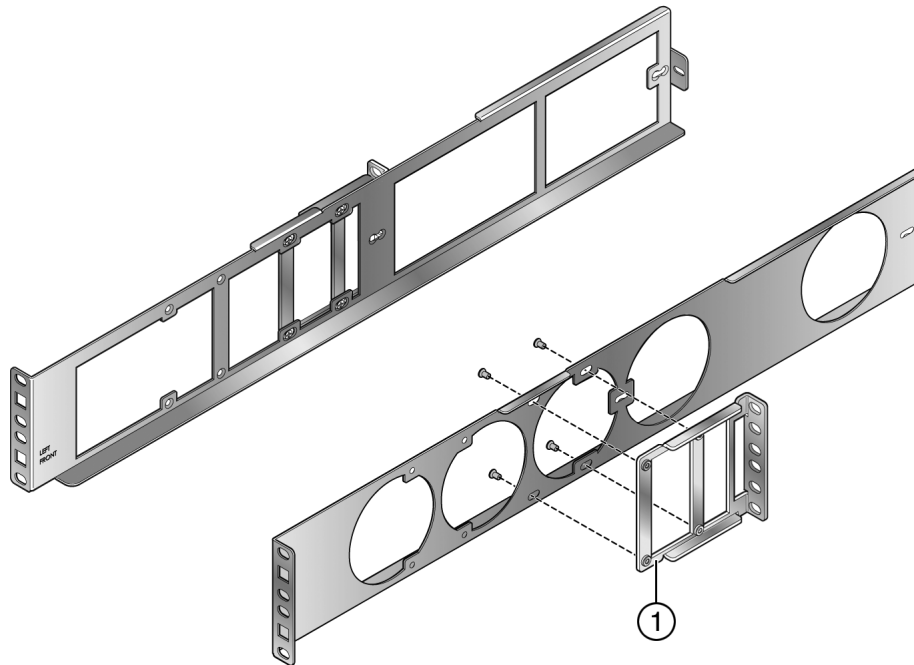


Note: You must supply at least four rack screws to secure the rails in the mid-mount position in a two-post rack.

To mid-mount the S1 chassis in a two-post rack:

1. Disassemble the rails if you have not done so already. See “[Disassembling the Rails](#)” on page B-6.
2. Using the eight 6-32 screws from the disassembled rails, attach the mounting bracket to the left and right rails (four screws for each mounting bracket) in the position shown in [Figure B-9](#).

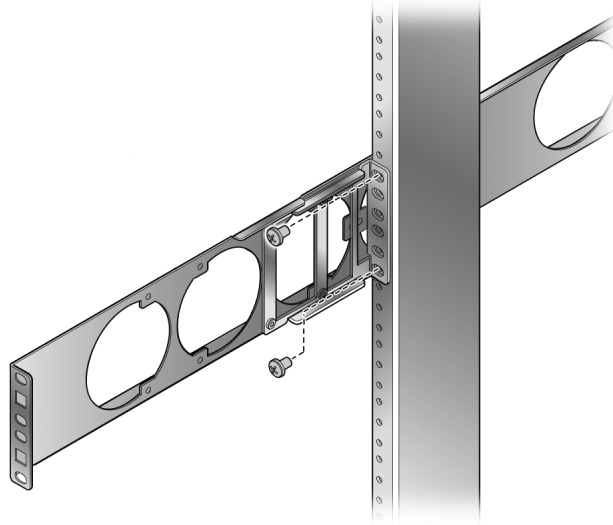
Figure B-9 Securing the Mounting Brackets to the Rails (Mid-Mount Position)



1 Mounting bracket in mid-mount orientation

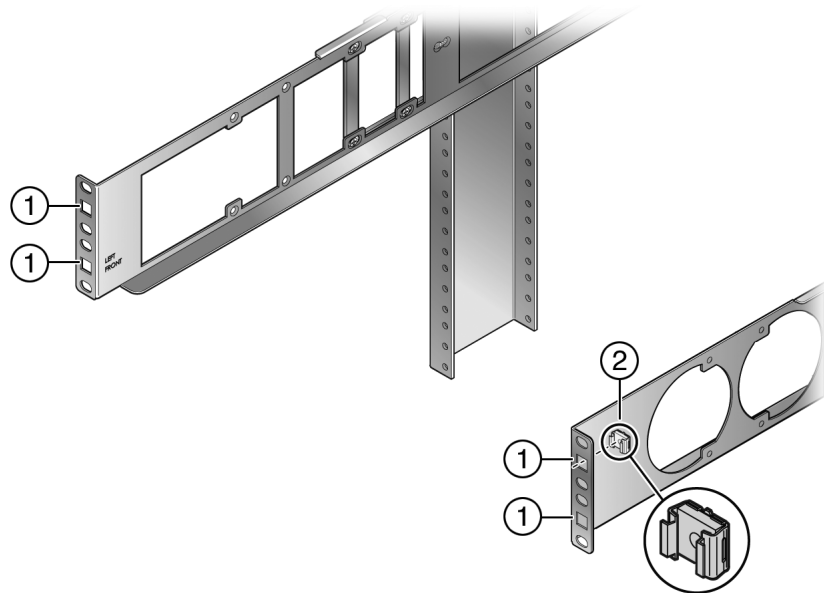
- Secure the mounting brackets to the front of the rack posts with two customer-supplied screws in each mounting bracket. See [Figure B-10](#).

Figure B-10 Installing the Rails in the Mid-Mount Position (Right Rail Shown)



- Snap the four 10-32 cage nuts, included in the S1 rail kit, into the back of the square screw holes on the mounting ears of the rails. See [Figure B-11](#).

Figure B-11 Installing the 10-32 Cage Nuts in the Rail Mounting Ears



- 1** Install the 10-32 cage nuts in the square holes **2** 10-32 cage nut

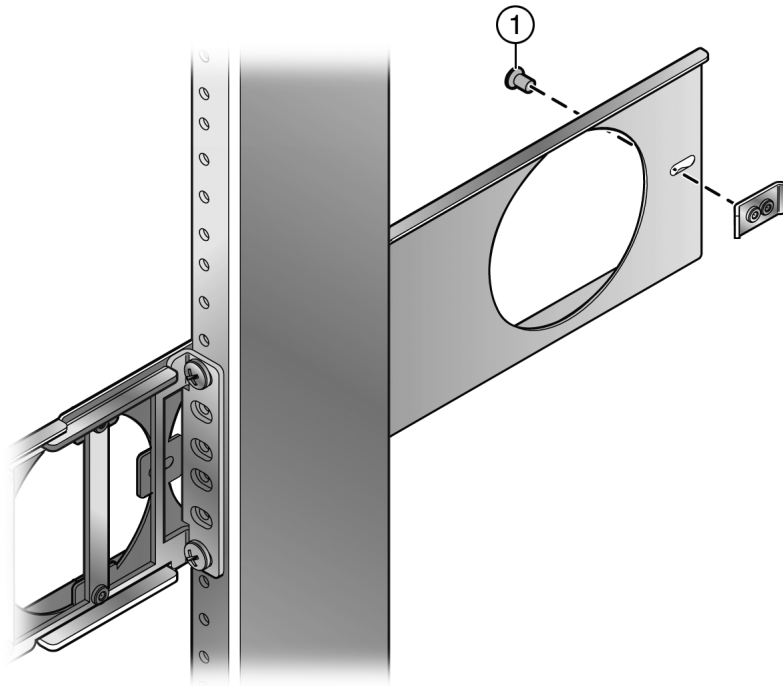
- (Optional) Attach the rear rail clamp to the rail labeled RIGHT if you plan to secure the rear of the S1 chassis to the rails.

Use one of the additional 6-32 flat head screws that are included with the S1 rail kit. Insert the screw in the forward screw position of the rail extension clamp. See [Figure B-12](#).



Note: Leave the rear screw position empty. This screw position is used for securing the rear of the S1 chassis to the rails. See [“Securing the Rear of the S1 Chassis to the Rails”](#) on page B-13.

Figure B-12 Attaching the Rear Rail Clamp to the Right Rail



- 1 6-32 screw inserted in the forward screw position
-

- Slide the S1 chassis onto the rails until the front of the S1 chassis is against the mounting ears of the rails.
- Secure the front of the S1 chassis to the rails by screwing the black 10-32 screws, included in the S1 rail kit, through the mounting ears on the left and right front of the S1 chassis into the 10-32 cage nuts.
- (Optional) Secure the rear of the S1 chassis to the rails. See [“Securing the Rear of the S1 Chassis to the Rails”](#) on page B-13.

You can now unpack and install the power supplies. See [Chapter 2, Installing the S1 Chassis](#).

Securing the Rear of the S1 Chassis to the Rails

The optional procedure of securing the S1 chassis to the rear of the rails applies to all rack installation scenarios (four-post rack, 7-inch two-post rack, and 3-inch two-post rack).

To secure the rear of the S1 chassis to the rails:

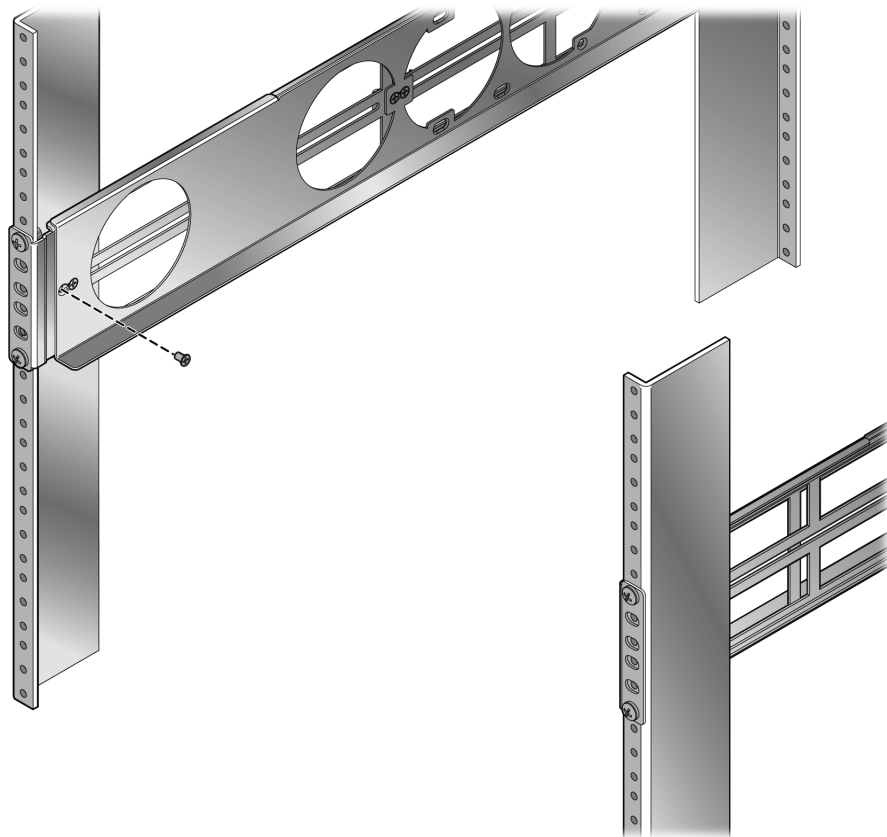
1. If you are installing the S1 chassis in a four-post rack, remove the screw from the rear screw hole in the rear rail clamp attached to the rail labeled RIGHT. See [Figure B-13](#).

If you are installing the S1 chassis in a two-post rack, skip to [step 2](#).



Note: Ensure that the forward screw in the rail clamp is tight before you remove the rear screw. If the forward screw is not tight, the clamp can rotate out of position.

Figure B-13 Removing the Rear Screw from the Rail Clamp (Rail Labeled RIGHT)



Set the 6-32 screw aside for use later in this procedure.

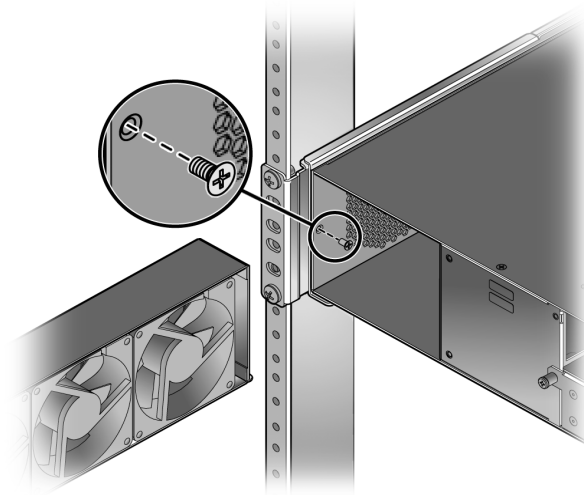
2. Remove the S1 fan tray from the chassis.



Note: Ensure that you use appropriate ESD protection when handling the fan tray.

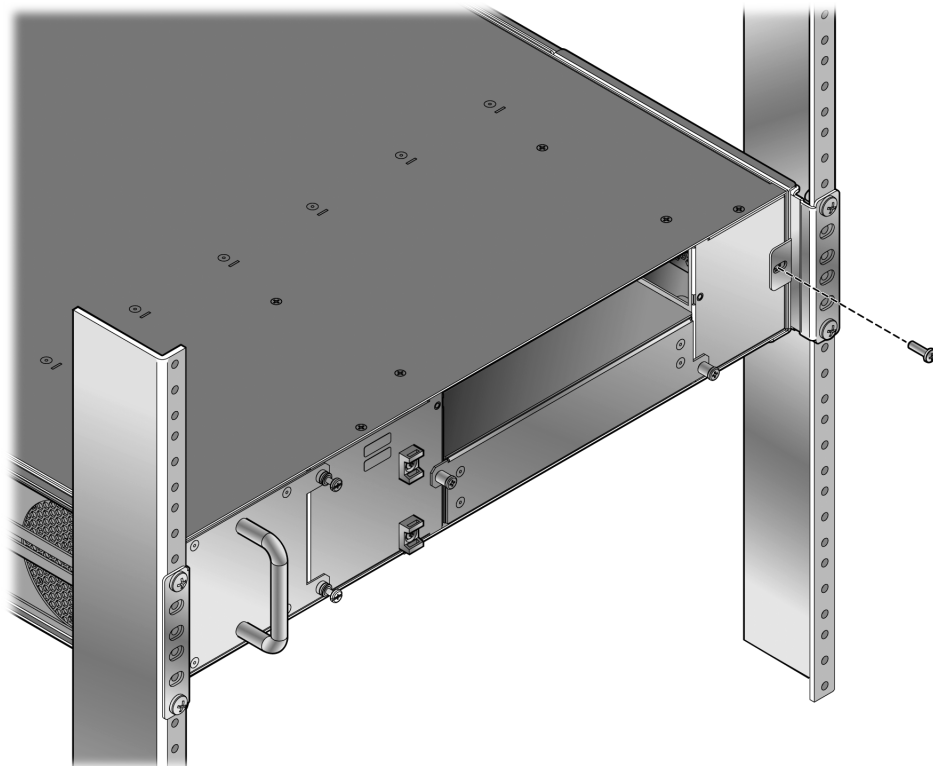
3. Locate the screw hole in the empty fan tray slot. See [Figure B-14](#).

Figure B-14 Securing the Left Rear Corner of the S1 Chassis Through the Fan Tray Slot



4. Insert a 6-32 flat head screw, included with the S1 rail kit, in the screw hole in the empty fan tray slot. See [Figure B-14](#).
5. Tighten the screw.
6. Re-install the S1 fan tray.
7. Using the 6-32 pan head screw included with the S1 rail kit, secure the rear right corner of the S1 chassis to the rear mounting ear on the rail labeled LEFT. See [Figure B-15](#).

Figure B-15 Securing the Rear Right Corner of the S1 Chassis





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 PD (powered device) 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 devices 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 C-1](#) lists the classifications and the associated power ranges.

Table C-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 is indicated by the two-color RX and TX LED display for each port. To observe the PoE port status indications, you must switch the S1 chassis from the default RX/TX status mode to the PoE Port status mode using the red PoE button on the I/O fabric module.

Allocation of PoE Power to Devices

The S-Series firmware determines the power available in the S1 chassis for PoE based on power supply status and power supply redundancy mode. The system calculates and reserves the correct amount of power required by the S1 chassis and then makes the balance of power available for PoE. 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 an SNMP trap to notify the system manager.

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

Power Distribution Upon Power Supply Removal or Addition

When a power supply is removed, the S1 chassis responds to the decrease in available power by doing the following:

1. Detecting the power supply removal and recalculating available power.
2. Subtracting the power capacity for its base system from available power.
3. Distributing remaining power equally for PoE.
4. Dropping support to PoE devices as necessary to stay within the programmed maximum power.

When a power supply is added, the S1 chassis responds to the increase in available power by doing the following:

1. Detecting the power supply addition and recalculating available power.
2. Subtracting the power capacity for its base system from available power.
3. Distributing remaining power equally for PoE.

Management of PoE Power to PDs

You can configure how the S1 chassis makes power available to attached powered devices (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 Guide*.



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 D-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 D-1 Closed Rack Ideal Configuration

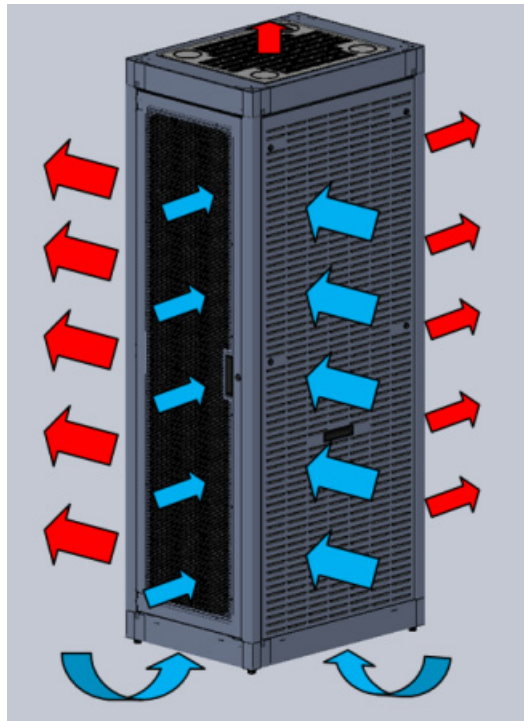





Figure Key	
	Blue arrows indicate cool air ingress
	Red arrows indicate hot air egress
	White arrows indicate airflow through the system

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

Figure D-2 Open Rack Ideal Configuration

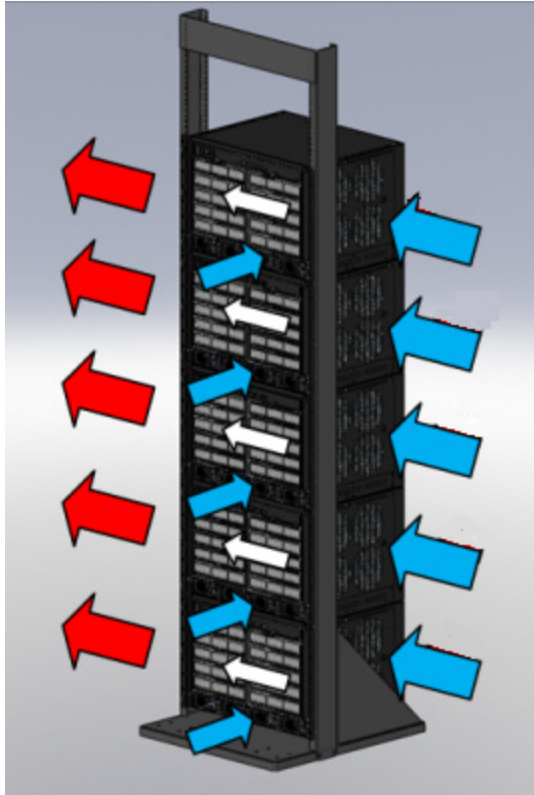
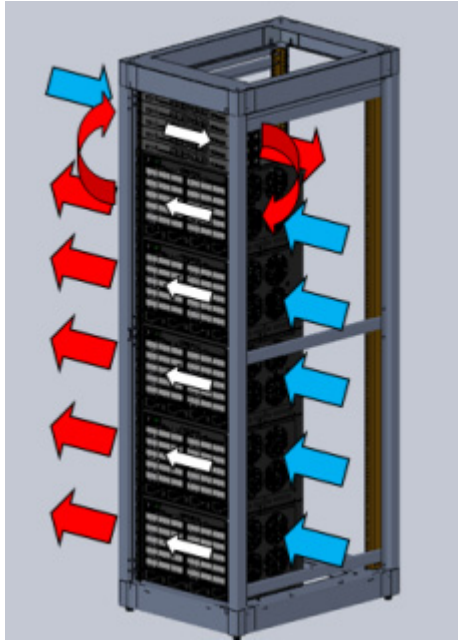


Figure D-3 on page D-4 below shows a non-ideal configuration for an open rack, where sub-systems with mixed flow directions (white arrows) are combined in one rack. Circular red arrows show potential for hot air recirculation.

Figure D-3 Non-ideal Open Rack Configuration



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

Figure D-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 D-4 Mitigated Non-ideal Open Rack Configuration

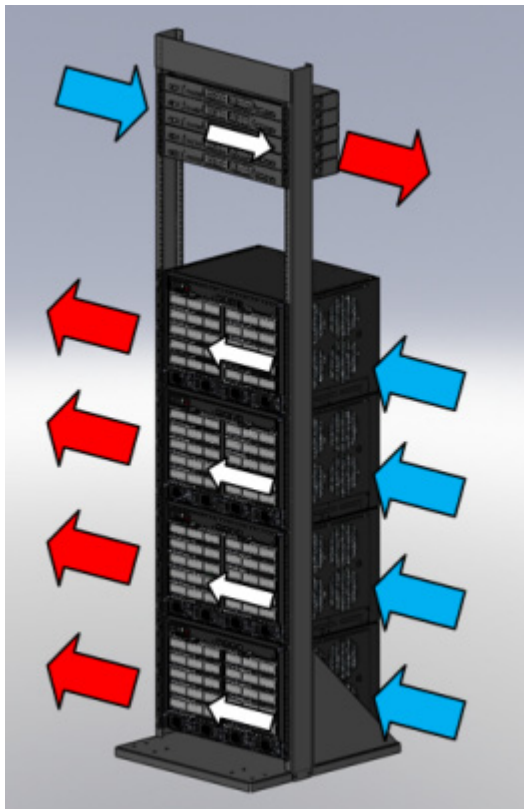
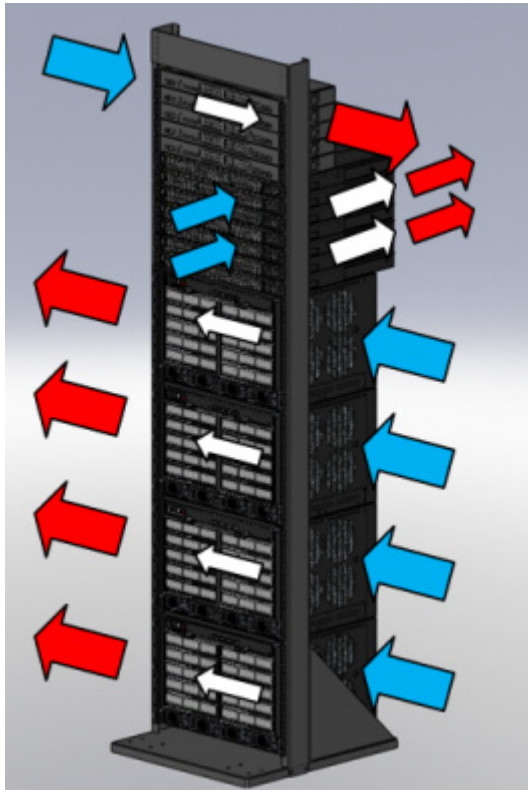


Figure D-5 below shows another mitigation strategy for open racks containing sub-systems with mixed flow direction. Mitigation of potential hot air recirculation is achieved by separating unlike systems with products having front to back airflow patterns.

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

Table D-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>