Cisco Video Surveillance Storage System Hardware Installation Guide

Models CPS-SS-4RU and CPS-SS-4RU-EX

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Cisco Video Surveillance Storage System Hardware Installation Guide
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CONTENTS

Preface vii

Overview vii

Organization vii

Safety Precautions viii

Obtaining Documentation and Submitting a Service Request xii

CHAPTER 1 **Cisco Video Surveillance Storage System Component Overview** 1-1

Overview of the CPS-SS-4RU and CPS-SS-4RU-EX 1-1

Front Panel (Both Units) 1-1

Field-Replaceable Modules 1-2

Other Modules 1-2

LEDs 1-2

Other Items 1-2

Rear Panel (CPS-SS-4RU) 1-3

Field-Replaceable Modules 1-3

Other Modules 1-3

Connectors 1-4

LEDs 1-4

Switches 1-5

Host Port Options 1-5

Rear Panel (CPS-SS-4RU-EX) 1-6

Field-Replaceable Modules 1-6

Other Modules 1-6

Connectors 1-7

LEDs 1-7

Drawer Interior (Both Units) 1-8

Field-Replaceable Modules 1-8

Other Modules 1-8

LEDs 1-8

CHAPTER 2 **Unpacking and Preparing Components** 2-1

Before you Begin 2-1

Required Tools and Equipment 2-1

Preparing the Site 2-2

Mechanical Loading 2-2
Power Supply and Circuit Overloading 2-2
Reliable Grounding 2-2
Ambient Temperature 2-2
Single and Dual Controller Configurations 2-3
Taking Delivery of Components 2-3
Preparing the Units 2-7

CHAPTER 3 **Rack Mounting Components** 3-1
Rack Mounting the CPS-SS-4RU and CPS-SS-4RU-EX 3-1
Preparing the Mounting Rails 3-1
Mounting the Chassis into the Rack 3-3
Restoring the Rear Modules 3-5
Loading Disk Drives 3-7

CHAPTER 4 **Cabling & Power-up Procedures** 4-1
Attaching Communication and Expansion Cables 4-1
CPS-SS-4RU 4-1
CPS-SS-4RU-EX 4-1
Powering Up the Units 4-2
CPS-SS-4RU-EX 4-2
CPS-SS-4RU 4-3

CHAPTER 5 **Field-Replaceable Units** 5-1
Power Supply Units (PSUs) 5-1
RAID Controllers 5-2
Expansion Controllers 5-4
Disk Drives 5-6
Front Drive Drawer Fan Assembly 5-9
Rear Drive Drawer Fan Assembly 5-11

APPENDIX A **CPS-SS-4RU Technical Specifications** A-1
Dimensions A-1
Power A-1
Cooling A-2
Materials A-2
Environment A-2

APPENDIX B

CPS-SS-4RU-EX Technical Specifications B-1

Dimensions B-1

Power B-1

Cooling B-2

Materials B-2

Environment B-2

INDEX

Preface

Overview

This document describes the hardware components and installation procedures that must be completed to deploy Cisco Video Surveillance Storage System components. It provides information for the following Cisco Video Surveillance Storage System models:

- CPS-SS-4RU—A three-drawer, 60-disk RAID storage unit
- CPS-SS-4RU-EX—A three-drawer, 60-disk expansion storage unit which connects to a CPS-SS-4RU via a Fibre Channel interface.

These systems are capable of two RAID or Expansion controllers for host failover and redundancy.

This document it is intended for experienced system integrators and technicians who are installing these devices.

Organization

This document is organized as follows:

Chapter	Description
Chapter 1, “Cisco Video Surveillance Storage System Component Overview”	Describes connectors and LED status for the CPS-SS-4RU and CPS-SS-4RU-EX.
Chapter 2, “Unpacking and Preparing Components”	Describes procedures for unpacking and preparing the CPS-SS-4RU and CPS-SS-4RU-EX for rack mounting.
Chapter 3, “Rack Mounting Components”	Describes the procedures for rack mounting the CPS-SS-4RU and CPS-SS-4RU-EX.
Chapter 4, “Cabling & Power-up Procedures”	Describes the cabling and power-up procedures for the CPS-SS-4RU and CPS-SS-4RU-EX.
Chapter 5, “Field-Replaceable Units”	Describes the installation and replacement procedures for the CPS-SS-4RU and CPS-SS-4RU-EX FRUs.
Appendix A, “CPS-SS-4RU Technical Specifications”	CPS-SS-4RU Specifications
Appendix B, “CPS-SS-4RU-EX Technical Specifications”	CPS-SS-4RU-EX Specifications

Chapters 1 through 5 contain common procedures and specifications for Cisco Video Surveillance Storage System components. Any variation for an individual component is documented beneath the specific component heading. The paragraphs below are an example of specifying individual differences in specific components:

CPS-SS-4RU and CPS-SS-4RU-EX

The CPS-SS-4RU and CPS-SS-4RU-EX are designed to run from a nominal 200-240V supply, owing to their high peak power loading.

Safety Precautions

This section covers safety precautions for the Cisco Video Surveillance Storage System, including the CPS-SS-4RU and CPS-SS-4RU-EX.

Caution **IMPORTANT SAFETY INSTRUCTIONS**
This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. SAVE THESE INSTRUCTIONS Statement 1071

Caution Cisco Storage Series products contain hazardous materials. Only a trained operator may remove certain field-replaceable units (FRUs). Only trained service engineers are authorized to disassemble any other part of the unit, and only when the unit is powered off.

Caution There are multiple power connections. Remove all power leads completely to isolate the power. Always use the IEC power cords supplied with Cisco Storage Series products.

Caution The Cisco Video Surveillance Storage System units are heavy and require two people to lift them out of the packaging or slide them onto the mounting rails. Do NOT attempt to lift or mount the units by yourself.

Caution When removing Cisco Video Surveillance Storage System units from their packaging, DO NOT lift the unit by any module handles or plastic parts on the chassis. Doing so may cause damage to the chassis or to internal components, or both. Lift the unit ONLY by the bottom edges of the chassis, using safe lifting practices.

Caution Computer components and disk drives are sensitive to electrostatic discharge (ESD). Be sure to ground any electrostatic charge from your person before touching components with your hands or with any tools. While installing the unit, use the anti-static wrist-strap shipped with the Cisco Video Surveillance Storage System units.

Please refer to the Regulatory Compliance and Safety Information (RCSI) document for complete and translated warnings.

Note The statement number following each definition references the Warning Statement in the RCSI document.

Warning **Do not work on the system or connect or disconnect cables during periods of lightning activity.** Statement 1001

Warning **Read the installation instructions before connecting the system to the power source.** Statement 1004

Warning **This product relies on the building's installation for short-circuit (over current) protection. Ensure that the protective device is rated not greater than: 20A** Statement 1005

Warning **To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:**

This unit should be mounted at the bottom of the rack if it is the only unit in the rack.

When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006

Warning **This equipment has been designed for connection to TN and IT power systems.** Statement 1007

Warning **There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.** Statement 1015

Warning **Take care when connecting units to the supply circuit so that wiring is not overloaded.** Statement 1018

Warning **The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device.** Statement 1019

Warning **This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024

Warning **This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.** Statement 1028

Warning **Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.** Statement 1029

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

Warning **To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit.** Statement 1032

Warning **Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.** Statement 1034

Warning **When installing or replacing the unit, the ground connection must always be made first and disconnected last.** Statement 1046

Warning **To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 35°C.** Statement 1047

Warning **Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.** Statement 1048

Warning **The chassis should be mounted on a rack that is permanently affixed to the building.** Statement 1049

Warning **Never install an AC power module and a DC power module in the same chassis.** Statement 1050

Warning **Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard.** Statement 1056

Warning **When you connect or disconnect the power and relay connector with power applied, an electrical arc can occur. This could cause an explosion in hazardous area installations. Be sure that power is removed from the switch and alarm circuit. Be sure that power cannot be accidentally turned on or verify that the area is nonhazardous before proceeding.**

Failure to securely tighten the power and relay connector captive screws can result in an electrical arc if the connector is accidentally removed. Statement 1058

Warning **Do not disconnect connections to this equipment unless power has been removed or you have verified that the area is nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.**

Substitution of components may impair suitability for Class I, Division 2. Statement 1062

Warning **This equipment is intended to be grounded to comply with emission and immunity requirements. Ensure that the switch functional ground lug is connected to earth ground during normal use.** Statement 1064

Warning **To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 300 mm.** Statement 1076

Warning **The covers are an integral part of the safety design of the product. Do not operate the unit without the covers installed.** Statement 1077

Warning **Explosion Hazard—Do not connect or disconnect wiring while the field-side power is on; an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or that the area is nonhazardous before proceeding.** Statement 1081

Warning **Explosion Hazard—Substitution of components may impair suitability for Class I, Division 2/Zone 2.** Statement 1083

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

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CHAPTER 1

Cisco Video Surveillance Storage System Component Overview

This chapter provides an Overview of the CPS-SS-4RU and CPS-SS-4RU-EX Cisco Video Surveillance Storage System components.

Overview of the CPS-SS-4RU and CPS-SS-4RU-EX

Front Panel (Both Units)

Figure 1-1 CPS-SS-4RU and CPS-SS-4RU-EX Front Panel

1	Drawer Front Fan Assembly	**5**	Environment LED
2	Active Drive Drawer	**6**	Status LED
3	Power LED	**7**	Drawer Lock
4	Disk LED		

Field-Replaceable Modules

Drawer Front Assembly w/ Fan—Each assembly can be field-replaced in the event of a fan failure by removing a screw on each side of the drive drawer (see Front Drive Drawer Fan Assembly, page 5-9).

Other Modules

Active Drive Drawers (3)—Each drawer can hold up to 20 3.5" disk drives, for a total of up to 60 drives in the unit. Can only be replaced by a fully-trained Service Engineer.

LEDs

Each drive drawer has four LEDs:

- Power LED (**PWR**)—Indicates the status of power to the components in the drawer. Green indicates that all power levels are within specifications. Red indicates that one or more power levels are outside of specifications. The **Environmental Information** page (under System Information) in the graphical user interface (GUI) displays details (see the Software Manual).

  If the **PWR** LED on the left drive drawer is amber and all other front panel LEDs are off, this means that the unit has been powered down through the graphical user interface (GUI).
- Disk LED (**DSK**)—Indicates the status of the disk drives in the drawer. Green indicates that all disk drives are operating within specifications. Red indicates that one or more disk faults have been detected. The **Disk Drives** page (under RAID Information) in the graphical user interface (GUI) displays details (see the Software Manual).
- Environment LED (**ENV**)—Indicates the temperature and fan status for the drawer. Green indicates that the drawer temperature is within specifications and that all fans are operating properly. Red indicates that the temperature exceeds specifications or that one or more fans are not operating properly. The **Environmental Information** page (under System Information) in the graphical user interface (GUI) displays details (see the Software Manual).
- Status LED (**STAT**)—Indicates overall status. Green indicates that the unit is operating within specification. Amber indicates that the drawer is unlocked. Red indicates a fault in the unit, which could be any of the following:
  - A Power Supply Unit issue with the fan, temperature, or voltage
  - A RAID Controller issue with the temperature, voltage, battery, firmware, or other hardware (CPS-SS-4RU only)
  - A drawer voltage issue

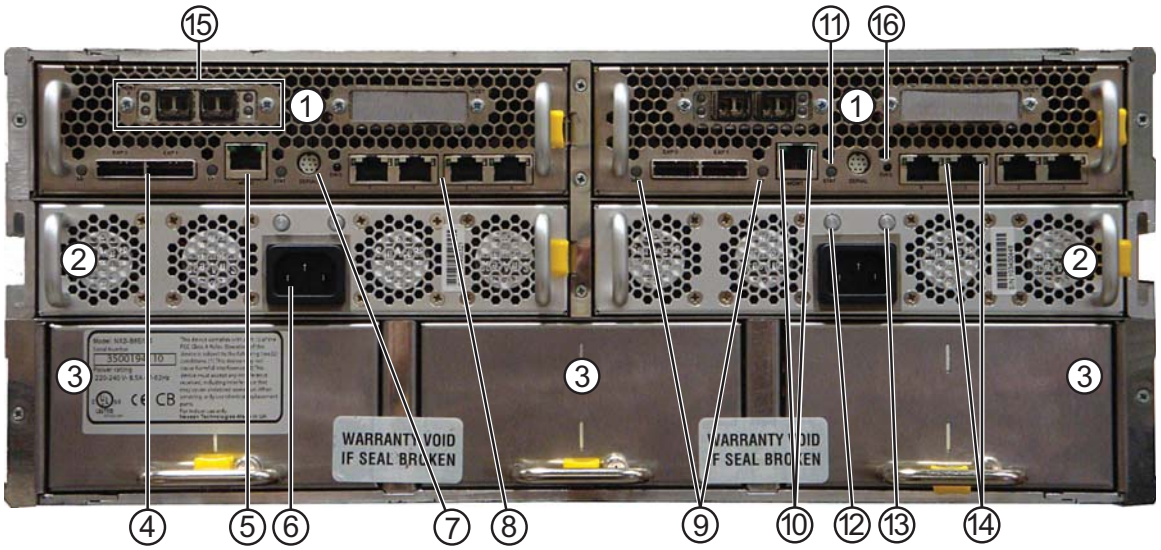
  The **Environmental Information** page (under System Information) in the graphical user interface (GUI) displays details (see the Software Manual).

Other Items

Drawer Lock—Secures the drive drawer in place. When this lock is disengaged, the **STAT** LED turns amber.

Rear Panel (CPS-SS-4RU)

Figure 1-2 CPS-SS-4RU Rear Panel



1	RAID Controllers	**9**	SAS port status LEDs
2	Power Supply Units (PSUs)	**10**	**MGMT** port status/activity LEDs
3	Interconnect Service Modules (ISMs)	**11**	Controller status (**STAT**) LED
4	SAS ports (4)	**12**	PSU status LED
5	Management (**MGMT**) ports (2)	**13**	PSU fan status LED
6	Power connector	**14**	iSCSI port status/activity LEDs
7	Serial ports (2)	**15**	Host ports (see Figure 1-3)
8	iSCSI ports (8)	**16**	**SW0** switch

Field-Replaceable Modules

The rear panel field-replaceable modules are:

- RAID Controller(s) (1 or 2)—Each unit can be field-replaced in the event of failure (see RAID Controllers, page 5-2). RAID Controllers are designated Controller 0 (left) and Controller 1 (right) in the graphical user interface (GUI) (see the Software Manual).

Note In single-controller units, the second slot contains a back plate which helps regulate air flow.

- Power Supply Units (PSUs) (2)—Each unit can be field-replaced in the event of a PSU or PSU fan failure (see Power Supply Units (PSUs), page 5-1).

Other Modules

Interconnect Service Modules (ISMs) (3)—Can only be replaced by a fully-trained Service Engineer.

Connectors

The rear panel connectors are:

- Two SAS ports (**EXP 0** and **EXP 1**) per RAID Controller—Mini-SAS 26 pin I-Pass (8088) expansion connectors, each with four 3GB/s SAS links
- One Management port (**MGMT**) per RAID Controller—Ethernet 10/100 dedicated management port (RJ45) for web-based configuration
- Power (2)—220–240VAC, 47–63Hz
- One **SERIAL** port per RAID Controller—Mini-DIN serial port for low-level reporting (Support use only)
- Four iSCSI ports (**NETWORK PORTS 0** through **3**) per RAID Controller—1Gb/s Ethernet ports (RJ45s) for iSCSI. If a host port option (see Host Port Options, page 1-5) is installed, only ports **0** and **1** are usable.

LEDs

The rear panel LEDs are:

- SAS port LEDs (**L0** and **L1**)—Indicate the connection status for each SAS port. Green indicates that the SAS cable is properly connected. Flashing amber indicates that the cable is improperly connected. If no cable is connected, this LED is off.
- Management port LEDs (activity and speed)—The left LED flashes green when there is port activity. The right LED lights up green when there is a 100Mb/s connection. When there is only a 10Mb/s connection, the right LED is off.
- Controller status LED (**STAT**)—Indicates the status of the RAID Controller:
  - Solid blue indicates that the controller is operating within specifications and that there is no user data in the cache.
  - Solid green indicates that the controller is operating within specifications and that there is user data in the cache, which will be retained in flash memory upon power-down and then restored when the unit is powered up again.
  - Flashing red (once per second) indicates that the controller is offline due to a fault being detected.
  - Flashing green (twice per second) indicates that the controller is operating in battery-backed mode and is backing up cached data to flash memory. This can take several minutes.
  - Alternating blue and red indicates that the controller is booting in Emergency mode (see Switches, page 1-5).
- **PSU** LED—Indicates the status of power. Green indicates that the 12V and 3V3 outputs are within specification. Red indicates that one or the other, or both, are outside of specified limits. Orange indicates that the PSU is in standby mode.
- **FAN** LED—Indicates the status of the PSU fans. Green indicates that all fans are operating within specifications. Red indicates that one or more fans are either running too slowly or have failed. When the PSU is in standby mode, this LED is off.
- iSCSI port LEDs (activity and status)—For 1Gb/s and 100Mb/s connections, the left LED illuminates green, and both LEDs flash green when there is activity. For 10Mb/s connections, the left LED remains off, and the right LED flashes green where there is activity.

Switches

SW0 Switch—This switch can be used to turn the RAID Controller off or on, boot the controller in Emergency mode, or silence an audible alarm.

With the unit powered on:

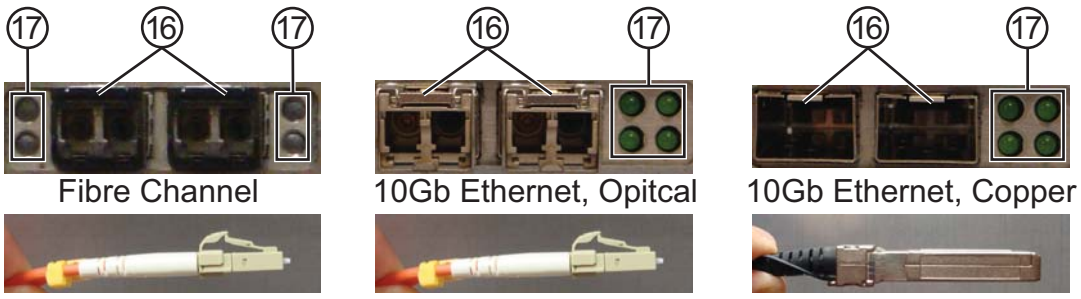
- Briefly press the **SW0** switch to silence the audible alarm. This can also be done via the graphical user interface (GUI) (see the Software Manual).
- Press and hold the **SW0** switch for 8 seconds to power down the RAID Controllers. If there is data in the cache, it will be stored in flash memory. This is the same as performing a System Shutdown via the graphical user interface (GUI) (see the Software Manual). On dual-controller systems, both **SW0** switches must be held simultaneously for 8 seconds.

With the unit powered off:

- Press and hold the **SW0** switch on either RAID Controller for 4 seconds to power up the unit. Release the **SW0** switch to boot normally.
- Continue pressing the **SW0** switch after the unit powers up to put the RAID Controllers into Emergency mode (see the Software Manual). Emergency mode is indicated by the controller status LED alternating between blue and red (see LEDs, page 1-4).

Host Port Options

Figure 1-3 Host Port Options



16	Ports (Fibre Channel or 10Gb iSCSI)	**17**	Port LEDs

The two host ports are either of the following:

- Two Fibre Channel ports (**0** and **1**) per RAID Controller—8Gb/s Fibre Channel optical SFPs on a single PCIe card

  OR

- Two 10Gb iSCSI (10GbE) ports (**0** and **1**) per Controller—10Gb/s Ethernet optical SFPs or copper SFP sockets for iSCSI on a single PCIe card.

The host port LEDs operate in either of the following ways, depending on the host port option:

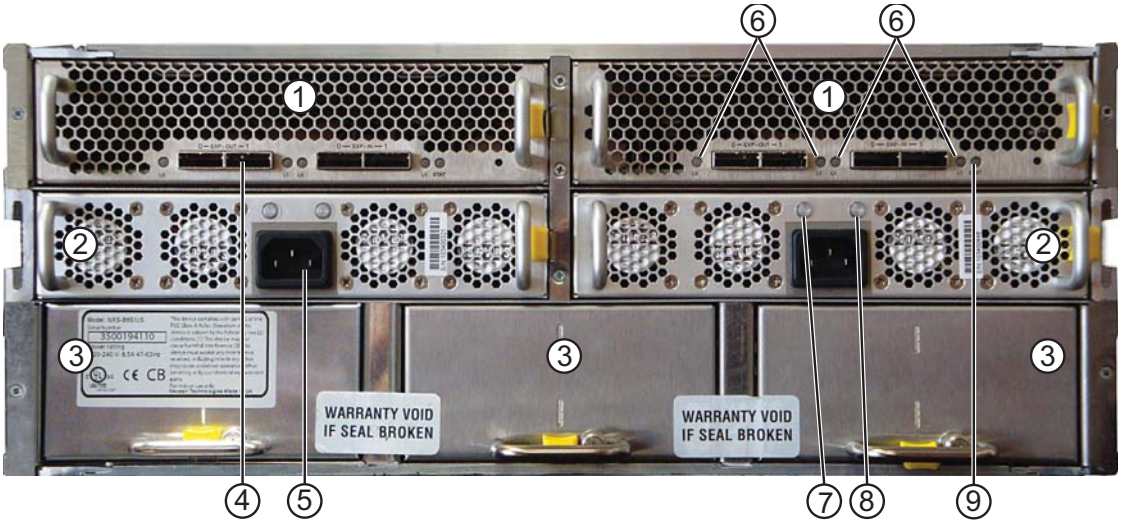
- Fibre Channel port LEDs (speed and activity)—The upper LED is orange when there is a 2Gb/s connection and green when there is a 4Gb/s connection. The lower LED flashes yellow for data activity, but also lights up yellow when there is an 8Gb/s connection. When there is an 8Gb/s connection, the upper LED is off. During the power-up sequence, both Fibre Channel port LEDs are solid yellow. If both LEDs are flashing yellow, the Fibre Channel connection has been lost.

OR

- 10Gb iSCSI port LEDs (connection and activity)—For each 10Gb iSCSI connection (left and right), the lower LED lights up green when there is a 10GbE connection and the upper LED flashes green when there is activity. When there is no connection, these LEDs are off.

Rear Panel (CPS-SS-4RU-EX)

Figure 1-4 CPS-SS-4RU-EX Rear Panel



1	Expansion Controllers	**6**	SAS port status LEDs
2	Power Supply Units (PSUs)	**7**	PSU status LED
3	Interconnect Service Modules (ISMs)	**8**	PSU fan status LED
4	SAS ports (4)	**9**	Controller status (**STAT**) LED
5	Power connector		

Field-Replaceable Modules

The rear panel field-replaceable modules are:

- Expansion Controllers (2)—Each unit can be field-replaced in the event of failure (see Expansion Controllers, page 5-4).
- Power Supply Units (PSUs) (2)—Each unit can be field-replaced in the event of a PSU or PSU fan failure (see Power Supply Units (PSUs), page 5-1).

Other Modules

Interconnect Service Modules (ISMs) (3)—Can only be replaced by a fully-trained Service Engineer.

Connectors

The rear panel connectors are:

- Four SAS ports (**EXP IN 0** and **1**, **EXP OUT 0** and **1**) per Expansion Controller—Mini-SAS 26 pin I-Pass (8088) expansion connectors, each with four 3Gb/s SAS links (**EXP IN** usable, **EXP OUT** reserved for future use)
- Power (2)—220–240VAC, 47–63Hz

LEDs

The rear panel LEDs are:

- SAS port LEDs (**EXP IN L0** and **L1**, **EXP OUT L0** and **L1**)—Indicate the connection status for each SAS port. Green indicates that the SAS cable is properly connected. Flashing amber indicates that the cable is improperly connected. If no cable is connected, this LED is off.
- PSU Status LED—Indicates the status of power. Green indicates that the 12V and 3V3 outputs are within specification. Red indicates that one or the other, or both, are outside of specified limits. Orange indicates that the PSU is in standby mode.
- PSU Fan LED—Indicates the status of the PSU fans. Green indicates that all fans are operating within specifications. Red indicates that one or more fans are either running too slowly or have failed. When the PSU is in standby mode, this LED is off.
- Controller status LED (**STAT**)—Indicates the status of the Expansion Controller:
  - Flashing green indicates that the controller is operating within specifications.
  - Flashing red indicates that the controller is restarting.
  - Solid red indicates that there is an issue with the Expansion Controller. The **Environmental Information** page (under System Information) in the graphical user interface (GUI) displays details (see the Software Manual).

Drawer Interior (Both Units)

Figure 1-5 CPS-SS-4RU and CPS-SS-4RU-EX Drawer Interior

1	Disk drives	**3**	Disk drive rails
2	Rear fan assembly	**4**	Drive status LEDs

Field-Replaceable Modules

The field-replaceable modules inside the drive drawers are:

- Disk Drives—Up to 20 3.5" disk drives in each drawer. Disk drives can be field-replaced in the event of failure (see Disk Drives, page 5-6).
- Rear Fan Pack—Dual-fan assembly located at the rear of each drawer. Can be field-replaced in the event of failure (see Rear Drive Drawer Fan Assembly, page 5-11).

Other Modules

Drive Guides—Align with plastic rails on disk drives to guide installation. These are integral to the drive drawer and cannot be individually replaced (see Front Panel (Both Units), page 1-1).

LEDs

Drive status—One for each disk drive slot. Solid green indicates that the disk is operating within specifications and is not currently being accessed. Flashing green indicates disk activity. Red indicates that a disk fault has been detected and that the disk is not currently being used by the system. For disk drive slots where no disk drive is installed, this LED is off.

CHAPTER 2

Unpacking and Preparing Components

This chapter describes the preliminary steps and precautions for installing Cisco Video Surveillance Storage System components.

- Before you Begin
- Taking Delivery of Components
- Preparing the Units

Before you Begin

Required Tools and Equipment

To perform the installation, you will need the following tools and equipment:

- A suitable equipment rack with sufficient load capacity to hold the unit:
  - For CPS-SS-4RU and CPS-SS-4RU-EX units, a 1200mm deep rack is recommended (see Appendices A and D: CPS-SS-4RU Technical Specifications and CPS-SS-4RU-EX Technical Specifications)
- A size P1 Phillips-head screwdriver
- A 5mm (for CPS-SS-4RU and CPS-SS-4RU-EX) Allen wrench
- Enough CAT5 or CAT6 Ethernet cable to connect the unit to the local area network (LAN)
- Enough CAT6 Ethernet cable, fibre-optic cable, or twisted-pair copper cable to connect the unit to the storage area network (SAN) (see Chapter 4, Cabling & Power-up Procedures)

Preparing the Site

Before unpacking or installing the unit, prepare the installation site and rack as follows:

Mechanical Loading

Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading. Ensure the unit is properly mounted within the rack, with no overhangs likely to make the rack unstable.

Warning **Always fully stabilize racks with wall anchors or stabilizing legs, or both, before mounting the unit or any other components on the rack.**

Warning **Ensure that the floor beneath the mounting rack has enough load bearing capacity to support the rack and all mounted components.**

Power Supply and Circuit Overloading

Ensure that the A/C power socket/outlet is installed near the equipment and is easily accessible.

Ensure that the power drawn by the unit does not overload the available electrical supply (see Appendix A, “CPS-SS-4RU Technical Specifications” and Appendix B, “CPS-SS-4RU-EX Technical Specifications”).

The CPS-SS-4RU and CPS-SS-4RU-EX are designed to run from a nominal 220–240V supply due to their high peak power loading.

Reliable Grounding

Caution Computer components and disk drives are sensitive to electrostatic discharge (ESD). Be sure to ground any electrostatic charge from your person before touching components with your hands or with any tools. While installing the unit, use the anti-static wrist-strap shipped with the unit.

Reliable grounding of rack-mounted equipment and the rack itself should be maintained per the manufacturer’s instructions. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

Ensure that proper ESD safeguards are in place.

Ambient Temperature

Caution Do not obstruct the front or rear of the product. Disk damage, data loss or electronic damage may occur if the unit is operated beyond the maximum ambient temperature.

If the temperature at the installation site is not actively regulated, ensure that daily and seasonal temperature changes will not result in the ambient temperature exceeding the limits prescribed below.

If the unit is installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than that the ambient room temperature. A unit's ambient temperature requirements remain the same when multiple units are present. Always ensure that the ambient operating temperature in the unit's immediate area does not exceed the limits prescribed below.

Ensure that full airflow is possible at the front and rear of each unit and rack. Full air flow is necessary for the safe operation of each unit.

Ensure the ambient temperature of the installation site is between 5°C (41°F) and 35°C (95°F). If the unit is rack-mounted (recommended), ensure that the unit's intake air temperature is no higher than 35°C (95°F).

Drawer Temperature

Before opening any of the drive drawers on the unit, be sure that the internal temperature is 10°C (50°F) or above. If the unit has been shipped or stored in very low temperatures, allow the unit to come to room temperature. Failure to do so may result in internal cable damage.

Fan Failure

In the event of a fan failure, ensure the fan is replaced as soon as possible. There are numerous ways within the system's software to set up a mechanism to inform the System Administrator or other responsible operator of the unit about failures such as a failed fan (e.g. alarm sounder, SNMP trap, email messages, etc.).

If prolonged operation with a failed fan is unavoidable you can ensure disk reliability by maintaining the ambient temperature at or below 27°C (80°F).

Single and Dual Controller Configurations

The Cisco Video Surveillance Storage System support single RAID Controller and dual RAID Controller configurations.

Dual controller systems are recommended, because they provide extra protection in the event of cable or controller failure.

This install guide focuses predominantly on the dual controller installation, but with added information, where necessary, for a single controller installation.

Taking Delivery of Components

On receipt of your Cisco Video Surveillance Storage System components, check to ensure no damage has been sustained in transit. If there is visible damage on the packaging, contact your shipper before proceeding.

Carefully unpack your CPS-SS-4RU or CPS-SS-4RU-EX unit and inspect each item before installation.

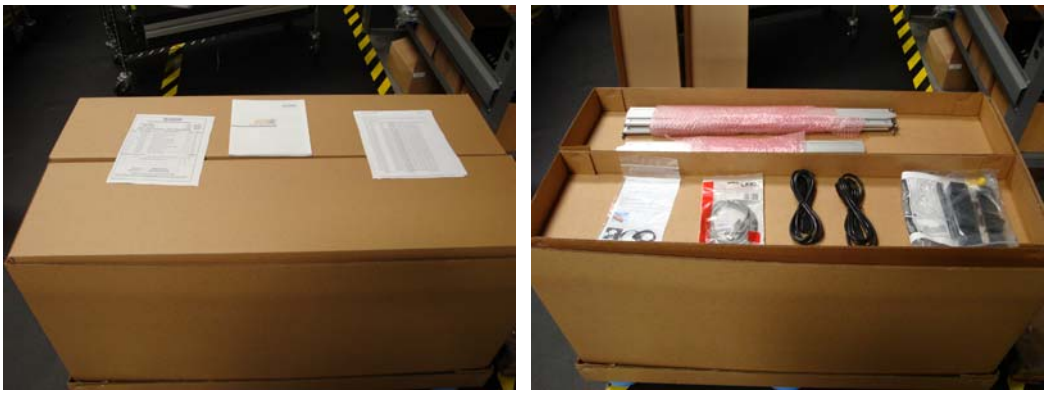
Procedure

Step 1 Carefully cut the straps holding the box closed and remove the outer lid.

Figure 2-1 Opening the Outer Box

Step 2 Open the accessory boxes and make sure that all expected contents are present.

Figure 2-2 Accessory Boxes and Contents (Example)



The accessory boxes should contain:

- Rack-mounting hardware:
  - Two (2) rail assemblies
  - Eight (8) large screws for securing the rails to the rack
  - Two (2) chassis rack-mount “ears”, one left and one right
  - Four (4) screws for attaching the chassis “ears” to the unit
  - Two (2) cage nuts and two (2) bolts for securing the unit to the rack
- Two (2) power cables
- Disposable ESD strap
- Serial cable (CPS-SS-4RU only)
- Any additional items that may have been ordered, such as SAS cables

Step 3 Remove the accessory boxes from the outer packaging.

Step 4 Remove the disk boxes from the outer packaging.

Figure 2-3 Removing Disk Boxes from Outer Box

Step 5 Open the disk boxes and make sure that the proper number of disk drives is included.

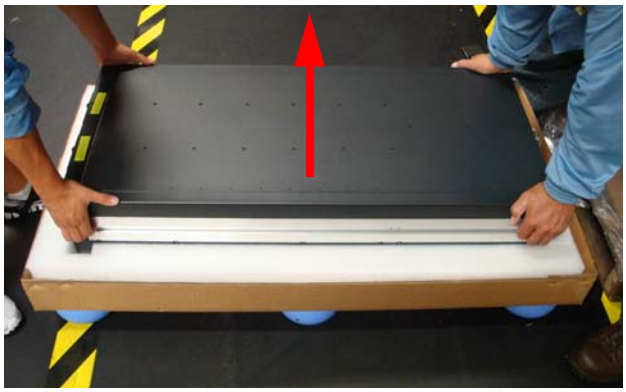
Figure 2-4 Contents of a Disk Box (Example)

Step 6 Remove the outer packaging sleeve and the foam lid covering the CPS-SS-4RU or CPS-SS-4RU-EX unit.

Figure 2-5 Removing the Outer Packaging Sleeve and Foam Lid

Step 7 With the help of a second person, carefully lift the unit out of the packaging.

Figure 2-6 Removing the Unit From the Box



Caution When removing the unit from the packaging, *do not* lift the unit by any plastic parts or module handles on the chassis. Doing so may cause damage to the chassis or to internal components, or both. Lift the unit *only* by the bottom edges of the chassis or by the provided lifting straps, using safe lifting practices.

The packaging that the unit ships in is reusable and should be retained for future re-shipment. Be sure to keep all packaging components.

Preparing the Units

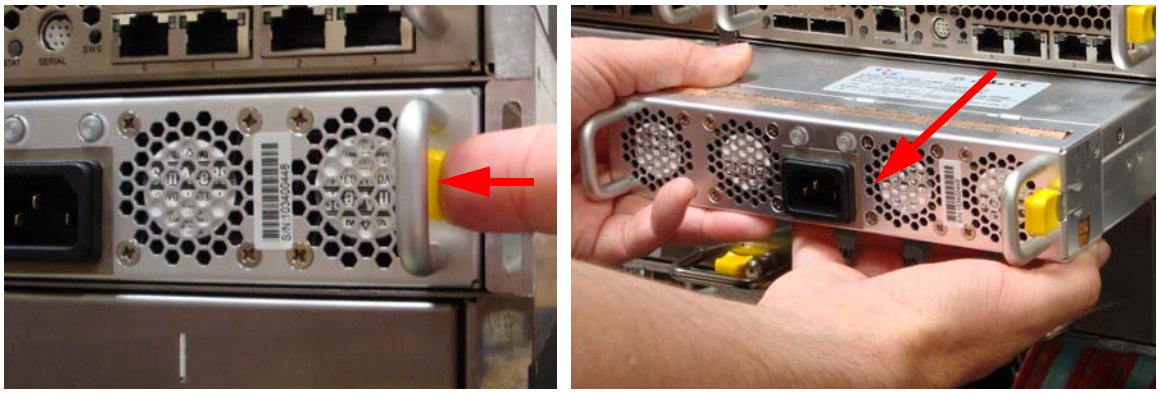
Perform the following procedure to prepare the CPS-SS-4RU and CPS-SS-4RU-EX for installation:

Procedure

Step 1 Remove the two Power Supply Units (PSUs) and one or two RAID Controllers/Expansion Controllers from the unit:

a. PSU—Press the spring lock tab away from the edge of the PSU, then carefully remove the PSU from the unit. Support the weight of the PSU with your free hand while removing it.

Figure 2-7 Removing the PSUs From the CPS-SS-4RU or CPS-SS-4RU-EX



b. RAID/Expansion Controller—Press the spring lock tab away from the edge of the controller, then carefully remove it from the unit. Support the weight of the controller with your free hand while removing it.

Figure 2-8 Removing the RAID Controllers From the CPS-SS-4RU

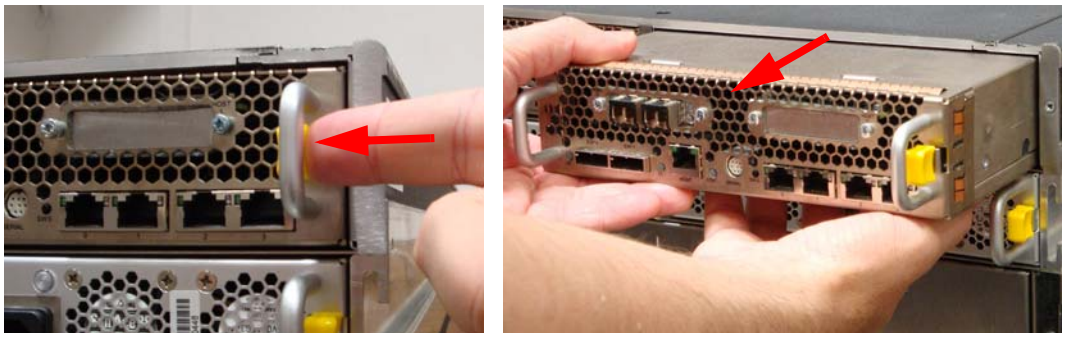
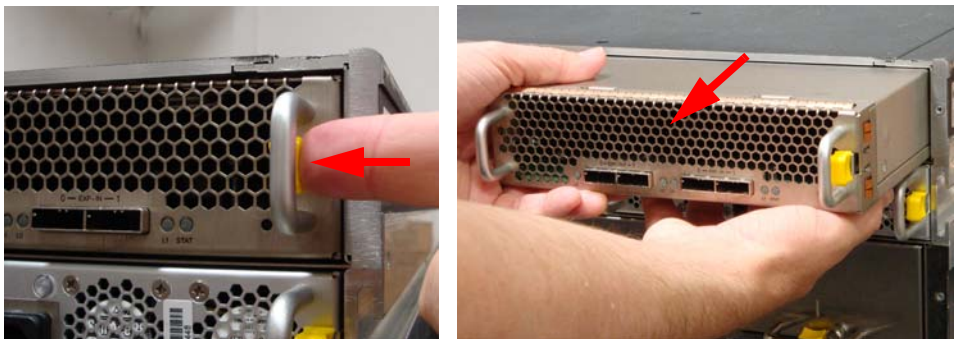


Figure 2-9 Removing the Expansion Controllers From the CPS-SS-4RU-EX



Note For dual-controller units, remember to put each controller back into the same bay from which you removed it. It may be helpful to label them "Left" and "Right" before removing them.

Set the PSUs and RAID/Expansion Controllers aside.

Step 2 Attach the chassis rack-mount "ears" to the front of the unit using the supplied screws.

For CPS-SS-4RU and CPS-SS-4RU-EX, extend the right and left drawers slightly before attaching the ears.

Figure 2-10 Unlocking and Extending the Drawers on the CPS-SS-4RU or CPS-SS-4RU-EX

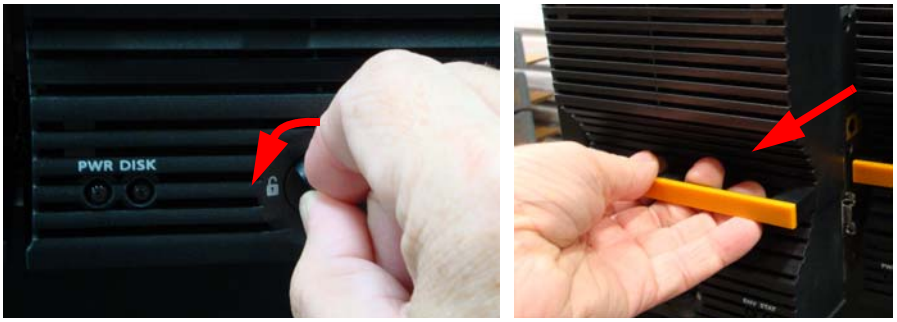


Figure 2-11 Attaching the Chassis Rack-Mount "Ears" to the CPS-SS-4RU or CPS-SS-4RU-EX

Close and lock the drawers again once the ears are attached.

CHAPTER 3

Rack Mounting Components

This chapter describes the installation procedures for Cisco Video Surveillance Storage System components. The CPS-SS-4RU and CPS-SS-4RU-EX components follow a similar set of install steps.

- Rack Mounting the CPS-SS-4RU and CPS-SS-4RU-EX

Rack Mounting the CPS-SS-4RU and CPS-SS-4RU-EX

The CPS-SS-4RU and CPS-SS-4RU-EX components follow a similar set of installation steps.

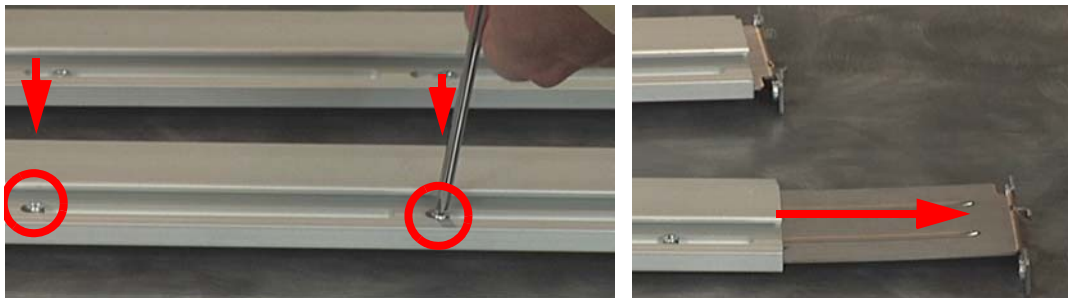
Preparing the Mounting Rails

The rack-mount system consists of left and right rail assemblies.

Caution Ensure that your rack can support the total weight of all mounted components and that your floor is sufficiently strong. Since the unit is a fixed-in-rack design, rear cable management arms are not required.

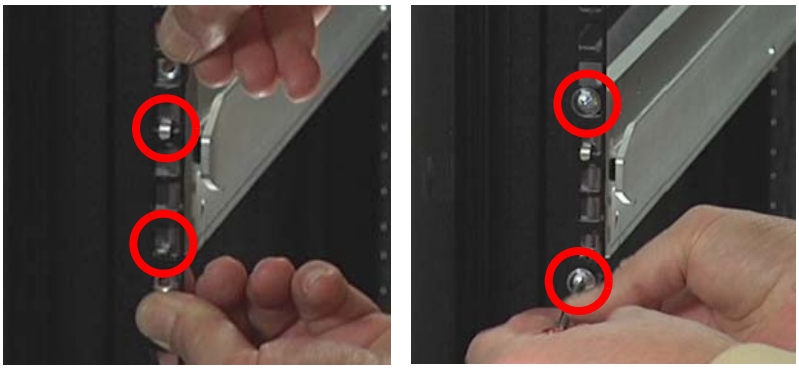
Step 1 Adjust the rail length by loosening the four screws holding the rear mount in place and sliding the mount out until it is the correct length. Do not retighten the screws yet.

Figure 3-1 Adjusting the Rack-Mount Rails



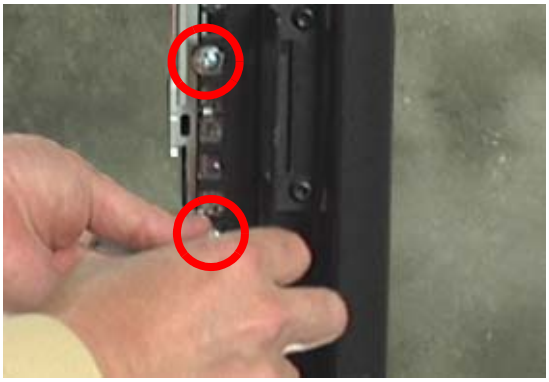
Step 2 Hook the front bracket hooks on each rail into the square holes in the rack at the proper level, then *loosely* attach the two front screws to hold each rail in place.

Figure 3-2 Attaching the Mounting Rails in Front



Step 3 Connect the back end of each rail to the rack by *loosely* attaching the two rear screws holding each rail in place.

Figure 3-3 Attaching the Mounting Rails in Back



Step 4 Retighten the screws that you loosened in Step 1 to hold the rear mount in place on each rail.

Caution Be sure to fully tighten the screws holding each rail together. Failure to do so may result in the rail coming apart during the mounting procedure, which may damage the unit or cause injury to personnel.

The mounting rails are now ready to receive the unit.

Mounting the Chassis into the Rack

The main chassis has large, keyed grooves in the extruded side plates. These are designed so that the rack-mount assemblies attached to the rack (in the previous procedures) can slide into these grooves and support the chassis.

Caution Computer components and disk drives are sensitive to electrostatic discharge (ESD). Be sure to ground any electrostatic charge from your person before touching components with your hands or with any tools. While installing the unit, use the anti-static wrist-strap shipped with the unit.

Caution The units are heavy and require two people to lift them and slide them onto the mounting rails. *Do not* attempt to mount the units onto the mounting rails by yourself.

Step 1 Ground any electrostatic charge from your person by touching a metal part of the rack.

Step 2 Attach one end of the disposable anti-static wrist-strap to a metal part of the rack. Wrap the other end around your wrist. Both people lifting the unit should do this.

Figure 3-4 Putting On and Attaching the Anti-Static Wrist-Strap

Warning **Only support the unit by placing hands under the metal chassis. DO NOT support the weight of the unit by any plastic parts or module handles.**

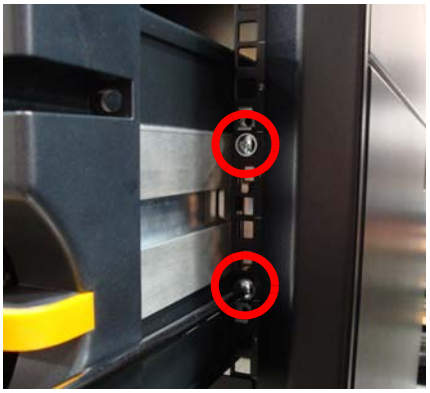
Step 3 With the help of a second person, carefully lift the unit so that the grooves in the side of the chassis line up with the mounting rails on the rack.

Step 4 Carefully slide the unit onto the mounting rails, leaving a few inches between the front of the unit and the front of the rack.

Figure 3-5 Sliding the Unit Onto the Mounting Rails

Step 5 While still supporting the unit from below, tighten the mounting rail screws at the front of each rail.

Figure 3-6 Tightening the Front Mounting Rail Screws



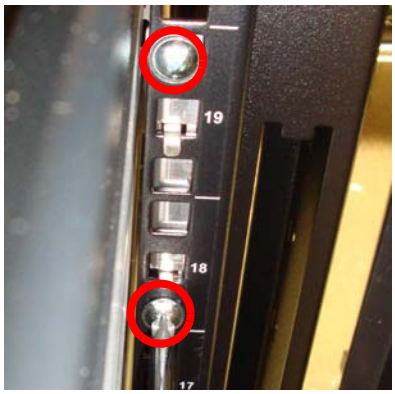
Step 6 Slide the unit the rest of the way into the rack so that the mounting ears sit against the rack.

Step 7 Tightly bolt the front of the unit to the rack.

Figure 3-7 Bolting the CPS-SS-4RU (Left) or CPS-SS-4RU-EX (Right) in Place

Step 8 Tighten the mounting rail screws at the back of each rail.

Figure 3-8 Tightening the Rear Mounting Rail Screws



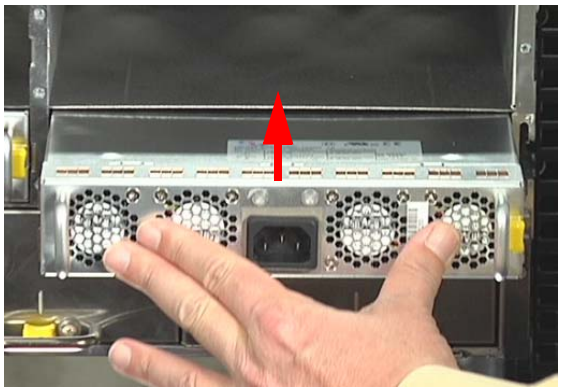
Restoring the Rear Modules

Step 1 Insert the two Power Supply Units (PSUs) into the back of the unit:

a. Make sure that the PSU is right-side up. The yellow spring lock tab should be on the right side.

b. Insert the PSU into the slot and carefully slide it back until the spring lock tab clicks into place.

Figure 3-9 Inserting the PSU



c. Repeat Step 1 a and b for the second PSU.

Note Do not connect the power cords to the PSUs at this time.

Step 2 Insert the RAID Controllers or Expansion Controllers into the back of the unit.

a. Make sure that the RAID Controller or Expansion Controller is right side up. The yellow spring lock tab should be on the right side.

b. Insert the RAID Controller or Expansion Controller into the slot and slide it back until the spring lock tab clicks into place.

Figure 3-10 Inserting the RAID Controller

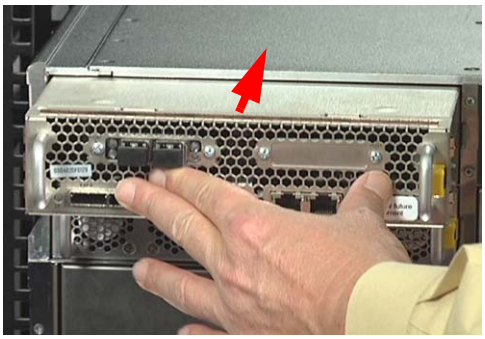
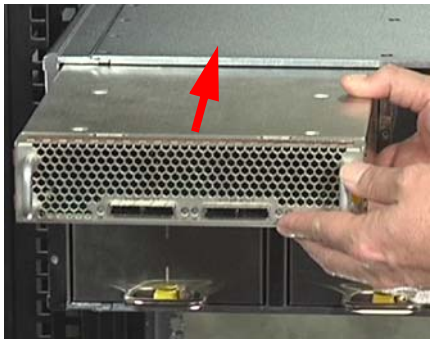


Figure 3-11 Inserting the Expansion Controller on the CPS-SS-4RU-EX



c. Repeat Step 2 a and b for the second RAID Controller/Expansion Controller.

Loading Disk Drives

Caution Before opening any of the drive drawers on the unit, be sure that the internal temperature is 10°C (50°F) or above. If the unit has been shipped or stored in very low temperatures, allow the unit to come to room temperature. Failure to do so may result in internal cable damage.

Step 1 Turn the drawer lock counter-clockwise to unlock the left drive drawer.

Figure 3-12 Unlocking the Drive Drawer

Caution Only open ONE drawer at a time. Fully close and lock each drawer before opening another one. Failure to do so may overbalance the rack, causing equipment damage or injury to personnel.

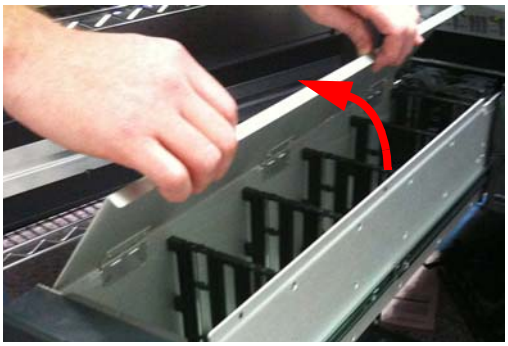
Step 2 Carefully slide the drawer all the way out until the side rail locking tab clicks into place.

Figure 3-13 Sliding the Drive Drawer Out

Caution Do not lean on or place any heavy object on an open drive drawer. Doing so may damage the drawer slide mechanism or overbalance the rack.

Step 3 For CPS-SS-4RU or CPS-SS-4RU-EX units, open the drive drawer lid.

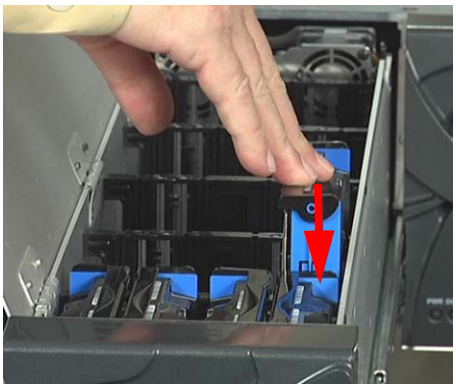
Figure 3-14 Opening the Drive Drawer Lid



Caution Disk drives are shock sensitive. Perform all actions involving disk drives carefully to avoid damage and data loss.

Step 4 Using the drive guides to help you orient the disks, carefully load each disk drive into a drive slot. Make sure that each disk is fully seated and that the drive ejection handles are flat against each drive.

Figure 3-15 Loading a Disk Drive Into a Unit



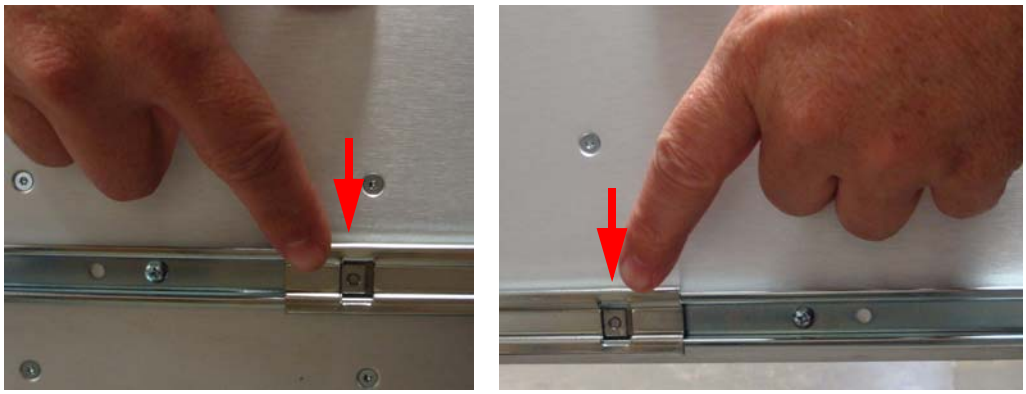
Caution Always load disk drives in rows of four across the width of the drive drawer. Leaving large gaps between disk drives decreases cooling efficiency and may result in some disk drives overheating.

Note You can mix SAS and SATA drives in the same drive drawer, but it is recommended that all SAS drives are loaded towards the front of the drawer, with the SATA drives behind the SAS drives.

Step 5 Close the drive drawer lid.

Step 6 Press the latches on either side of the drive drawer to disengage the drawer, then carefully slide the drawer back into the unit, making sure that it is flush with the rest of the front panel.

Figure 3-16 Disengaging the Drawer Side Rail Latches



Step 7 Turn the drawer lock clockwise to lock the drawer into place.

Step 8 Repeat Step 1 through Step 7 for the other drive drawers.

CHAPTER 4

Cabling & Power-up Procedures

This section describes how to connect the communication, SAS, and power cables to the Cisco Video Surveillance Storage System components, and how to power them up. It includes the following sections:

- Attaching Communication and Expansion Cables
- Powering Up the Units

Attaching Communication and Expansion Cables

CPS-SS-4RU

Connect all necessary communication cables to the RAID Controller (or Controllers) on the rear of the unit:

- Connect the unit to your local area network (LAN) by attaching a CAT 5 or CAT 6 Ethernet cable to the management port (**MGMT** for CPS-SS-4RU; This enables you to access the unit's graphical user interface (GUI).
- Connect the unit to your Host (server) by attaching fiber-optic cables to the Fibre Channel ports (**Host 0** and/or **Host 1**).
- If you are connecting a CPS-SS-4RU-EX to your unit, attach SAS cables to the SAS ports (**EXP 0** and **EXP 1** on CPS-SS-4RU). Connect the other ends of the SAS cables to the CPS-SS-4RU-EX's SAS ports (**EXP IN 0** and **EXP IN 1**).

CPS-SS-4RU-EX

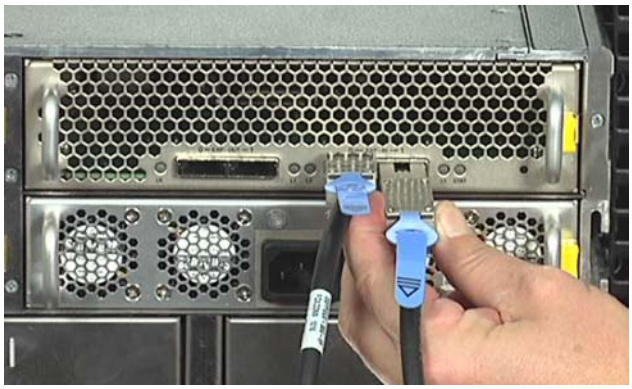
The CPS-SS-4RU-EX requires another Cisco Video Surveillance Storage System unit to provide RAID functionality and host/network connectivity to the CPS-SS-4RU-EX. The CPS-SS-4RU-EX should be mounted in the same rack as the unit to which it is to be connected or in an immediately adjacent rack (see Preparing the Site, page 2-2).

Using the supplied SAS cables, attach the CPS-SS-4RU-EX to the main storage unit as follows:

Step 1 Insert one SAS cable into each SAS port on the first RAID Controller in the main storage unit.

Step 2 Insert the other ends of the SAS cables into the **EXP IN 0** and **1** SAS ports on one of the Expansion Controllers in the CPS-SS-4RU-EX.

Figure 4-1 Plugging the SAS cables into the Expansion Controller



Step 3 Repeat Step 1 and Step 2 for the second RAID Controller and Expansion Module.

NOTE: If the main storage unit is a single-controller unit, Step 3 will not apply.

Either RAID Controller can be connected to either Expansion Controller. However, you cannot connect one RAID Controller to more than one Expansion Controller, or more than one RAID Controller to an Expansion Controller.

Note The maximum SAS cable length is 4m. Applications requiring greater than 4m should consult Technical Support.

Powering Up the Units

CPS-SS-4RU-EX

Caution When applying power to the CPS-SS-4RU-EX, use ONLY the IEC power cords originally supplied with the unit. *Do not* use other power cords, even if they appear identical to the supplied cords.

Step 1 Using the two supplied power cords, connect each PSU on the CPS-SS-4RU-EX to main power.

Step 2 Wait approximately 10 seconds, then power up the unit to which the CPS-SS-4RU-EX is attached (see CPS-SS-4RU, page 4-3, CPS-SS-4RU, page 4-3).

Step 3 Once the main unit is fully powered up, check the **EXP IN L0** and **L1** LEDs next to the SAS ports on the Expansion Modules. Both LEDs should be green.

Note If either of the **EXP IN** LEDs are flashing amber, you must power down both units, correct the cabling (see Attaching Communication and Expansion Cables, CPS-SS-4RU-EX, page 4-1), and then repeat steps 1 through 3.

After the unit has finished booting up, you can configure it using the graphical user interface (GUI). For detailed instructions, see the Software Manual.

CPS-SS-4RU

Caution When applying power to the CPS-SS-4RU, use ONLY the IEC power cords originally supplied with the unit. *Do not* use other power cords, even if they appear identical to the supplied cords.

Note If you are connecting a CPS-SS-4RU-EX to your CPS-SS-4RU, power up the CPS-SS-4RU-EX first (see CPS-SS-4RU-EX, page 4-2).

Step 1 Using the two supplied power cords, connect each PSU to main power.

Step 2 If necessary, press and hold one of the two **SW0** switches on the rear of the unit for 4 seconds to initiate the power-up sequence.

Once the unit has finished booting up, you can configure it using the graphical user interface (GUI). For detailed instructions, see the Software Manual.

CHAPTER 5

Field-Replaceable Units

In order to use the Cisco Storage Series components, it is important for you to know how to correctly install and remove the plugable components. This chapter describes how to replace each of these modules in the field while the unit is running:

- Power Supply Units (PSUs)
- RAID Controllers
- Expansion Controllers
- Disk Drives
- Front Drive Drawer Fan Assembly
- Rear Drive Drawer Fan Assembly

Warning **Risk of ELECTRIC SHOCK if components are removed or tampered with when unit power is on. ONLY a TRAINED OPERATOR may remove and replace the field-replaceable modules while power is on.**

Power Supply Units (PSUs)

In the event of a power supply or PSU fan failure, use the following procedure to replace the PSU:

Caution DO NOT REMOVE THE FAILED PSU until the new PSU has arrived and is ready to be installed. Removing a PSU reduces air flow and cooling and can result in the system overheating.

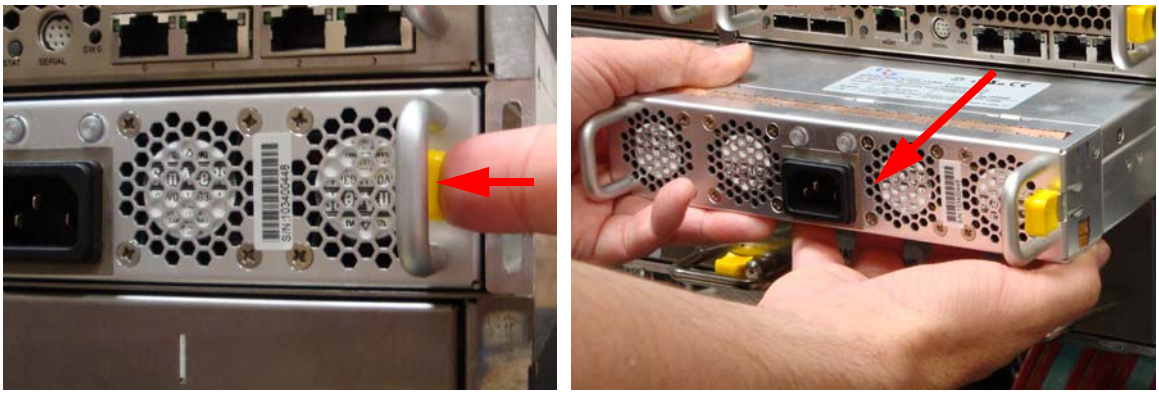
Procedure

Step 1 Determine which PSU or PSU fan has failed by examining the PSU status LEDs on each module (see Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, Rear Panel (CPS-SS-4RU), page 1-3, or Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, Rear Panel (CPS-SS-4RU-EX), page 1-6). A red LED indicates the failed module. The **Home** page of the graphical user interface (GUI) also tells you which unit has failed (see the Software Manual).

Step 2 Remove the power cable from the power cable socket on the PSU where the failure has occurred.

Step 3 Press the spring lock tab away from the edge of the PSU, then carefully remove the PSU from the unit. Support the weight of the PSU with your free hand while removing it.

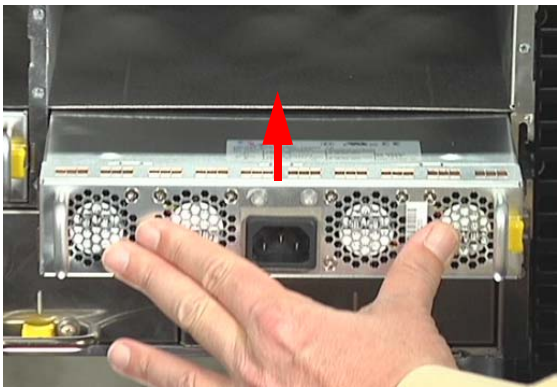
Figure 5-1 Removing the PSUs from the CPS-SS-4RU or CPS-SS-4RU-EX



Step 4 Make sure that the PSU is right-side up. The yellow spring lock tab should be on the right side.

Step 5 Insert the PSU into the slot and carefully slide it back until the spring lock tab clicks into place.

Figure 5-2 Inserting the PSU



Step 6 Plug the power cable into the power cable socket on the replacement PSU.

The two PSU status LEDs light up green to indicate that the unit is functioning properly and supplying power to the unit.

Step 7 In the graphical user interface (GUI), go to the **Home** page and verify that the status bar for the new Power Supply Unit is green. See the Software Manual for more information.

RAID Controllers

In the event of a RAID Controller failure, use the following procedures to replace the controller:

Caution DO NOT REMOVE THE FAILED RAID CONTROLLER until the new RAID Controller has arrived and is ready to be installed. Removing a RAID Controller reduces air flow and cooling and can result in the system overheating.

Procedure

Step 1 Determine which RAID Controller has failed by examining the **STAT** LED on each module (see Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, Rear Panel (CPS-SS-4RU), page 1-3). A flashing red LED indicates the failed unit. The **Home** page of the graphical user interface (GUI) also tells you which unit has failed (see the Software Manual).

Note In some cases, a RAID Controller needs to be replaced even if it has not failed outright. In this case, you must determine which RAID Controller to replace by following the troubleshooting procedures in the Software Manual.

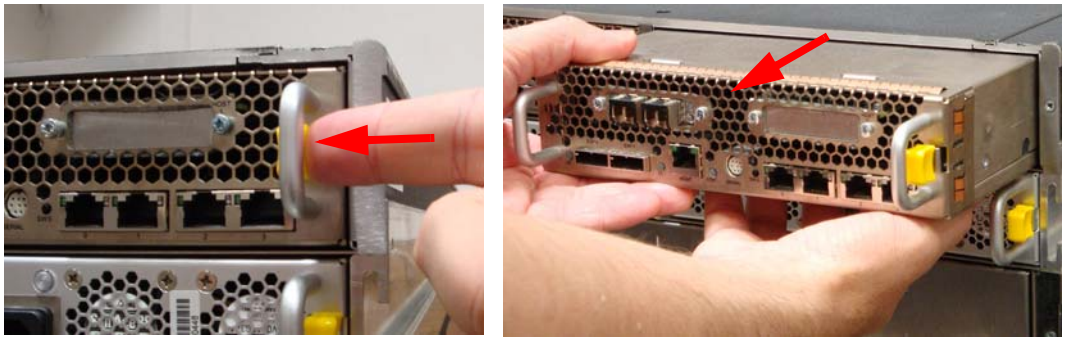
Step 2 Do one of the following:

- If you have a dual-controller unit, navigate to **System Admin > Reboot** in the graphical user interface (GUI). Under Controller Maintenance, select the controller that has failed, select the confirmation check box, and click **Execute NOW**.
- If you have a single-controller unit, navigate to **System Admin > Reboot** in the graphical user interface (GUI), select **System Shutdown**, select the confirmation check box, and click **Execute NOW**.

Step 3 Remove all cables from the failed RAID Controller.

Step 4 Press the spring lock tab away from the edge of the controller, then carefully remove the controller from the unit. Support the weight of the controller with your free hand while removing it.

Figure 5-3 Removing the RAID Controller from the CPS-SS-4RU

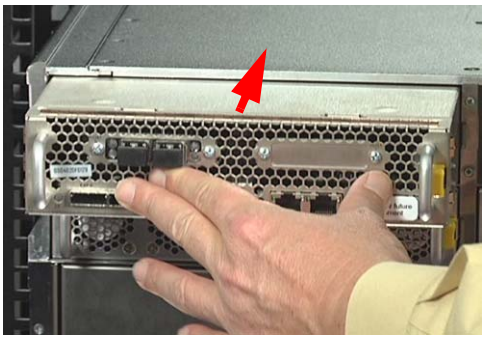


Step 5 Make sure that the replacement RAID Controller is right side up. The yellow spring lock tab should be on the right.

Note If you have a CPS-SS-4RU-EX expansion unit attached to your main storage unit, plug the SAS cables from the CPS-SS-4RU-EX into the SAS ports on the replacement RAID Controller BEFORE you insert the RAID Controller into its slot.

Step 6 Insert the replacement RAID Controller into the slot and carefully slide it back until the spring lock tab clicks.

Figure 5-4 Inserting the RAID Controller



The STAT LED lights up blue or green to let you know that the unit is functioning properly.

Step 7 Attach all other cables (Fibre Channel/10Gb iSCSI, Ethernet, serial) to the appropriate connectors on the replaced RAID Controller.

Note If you have a single-controller unit, press and hold the **SW0** switch for approximately four seconds to turn the unit back on.

Step 8 In the graphical user interface (GUI), go to the **Home** page and verify that the status bar for the new RAID Controller is green. See the Software Manual for more information.

Expansion Controllers

In the event of an Expansion Controller failure on a CPS-SS-4RU-EX, use the following procedure to replace the controller:

CPS-SS-4RU-EX only

Caution DO NOT REMOVE THE FAILED RAID CONTROLLER until the new RAID Controller has arrived and is ready to be installed. Removing a RAID Controller reduces air flow and cooling and can result in the system overheating.

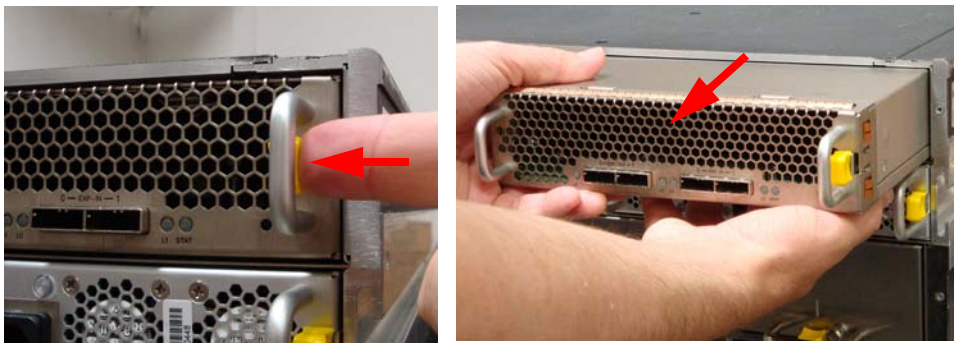
Procedure

Step 1 Determine which Expansion Controller has failed by examining the **STAT** LED on each module (see Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, Rear Panel (CPS-SS-4RU-EX), page 1-6). A flashing red LED indicates the failed unit. The **Home** page of the graphical user interface (GUI) also tells you which unit has failed (see the Software Manual).

Step 2 Remove the SAS cables from the failed Expansion Controller.

Step 3 Press the spring lock tab away from the edge of the controller, then carefully remove the controller from the unit. Support the weight of the controller with your free hand while removing it.

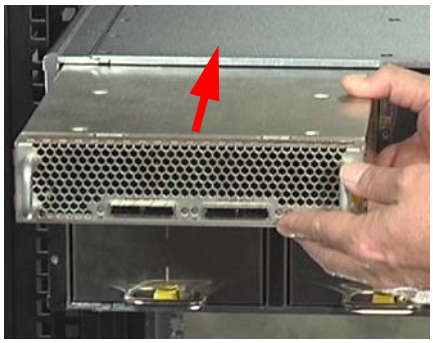
Figure 5-5 Removing the Expansion Controller from the CPS-SS-4RU-EX



Step 4 Make sure that the replacement Expansion Controller is right side up. The yellow spring lock tab should be on the right.

Step 5 Insert the replacement Expansion Controller into the slot and carefully slide it back until the spring lock tab clicks.

Figure 5-6 Inserting the Expansion Controller on the CPS-SS-4RU-EX



The **STAT** LED lights up green to let you know that the unit is functioning properly.

Step 6 Attach the SAS cables to the **EXP IN 0** and **1** connectors on the replaced Expansion Controller.

Step 7 In the graphical user interface (GUI), go to the **Home** page and verify that the status bar for the new RAID Controller is green. See the Software Manual for more information.

Disk Drives

In the event of a disk drive failure, use the following procedures to replace the drive:

Caution Disk drives are shock sensitive. Perform all actions involving disk drives carefully to avoid damage and data loss.

Procedure

Step 1 Determine which drive drawer contains the failed drive by examining the **DSK** LEDs on the front of each drawer (see Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, page 1-1, Front Panel (Both Units), page 1-1). A red LED indicates which drawer contains the failed drive. The **Disk Drives** page (under RAID Information) of the graphical user interface (GUI) also tells you which drawer contains the failed drive (see the Software Manual).

Step 2 Turn the drawer lock counter-clockwise to unlock the left drive drawer.

Figure 5-7 Unlocking the Drive Drawer

The **STAT** LED turns amber to let you know that the drive drawer is unlocked.

Caution Only open ONE drawer at a time. Fully close and lock each drawer before opening another one. Failure to do so may overbalance the rack, causing equipment damage or injury to personnel.

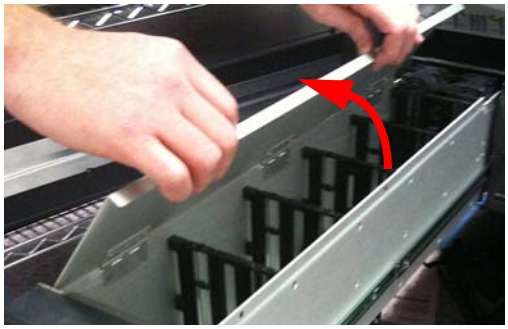
Step 3 Carefully slide the drawer all the way out until the side rail locking tab clicks into place.

Figure 5-8 Sliding the Drive Drawer Out

Caution Do not lean on or place any heavy object on an open drive drawer. Doing so may damage the drawer slide mechanism or overbalance the rack.

Step 4 For CPS-SS-4RU or CPS-SS-4RU-EX units, open the drive drawer lid.

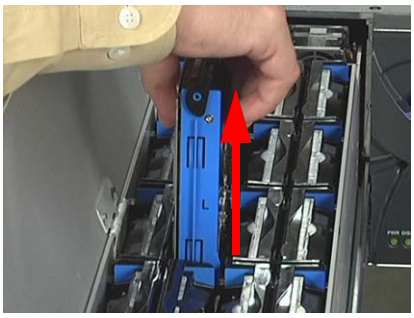
Figure 5-9 Opening the Drive Drawer Lid



Step 5 Determine which drive has failed by examining the arrow-shaped drive status LEDs next to each drive (see Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, page 1-1, Drawer Interior (Both Units), page 1-8). A red LED indicates the failed drive.

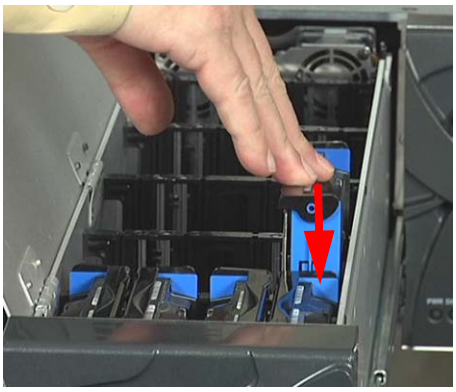
Step 6 Carefully lift the drive's ejection handle to disengage the drive, then remove the drive from the drive slot. Support the weight of the drive with your free hand while removing it.

Figure 5-10 Removing a Disk Drive



Step 7 Using the drive guide to help you orient the disk, carefully load the replacement disk drive into the drive slot. Make sure that the disk is fully seated and that the drive ejection handle is flat against the drive.

Figure 5-11 Replacing the Disk Drive

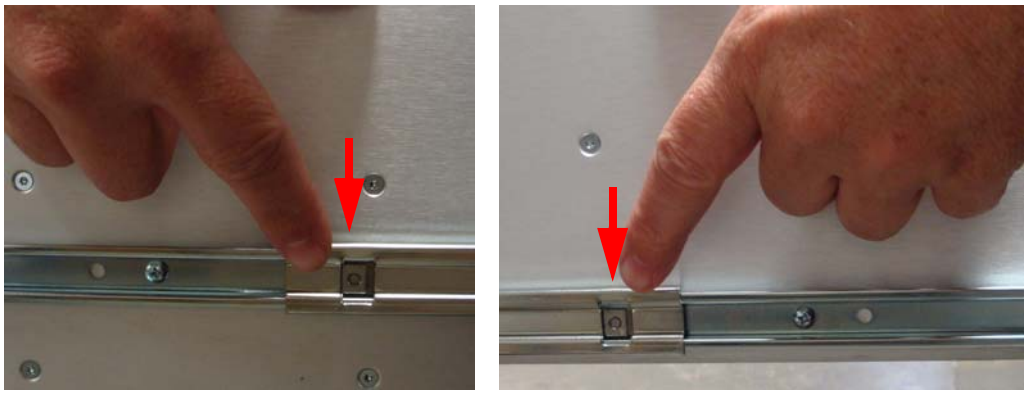


The drive status LED lights up green to let you know that the disk is connected and functioning properly.

Step 8 For CPS-SS-4RU or CPS-SS-4RU-EX units, close the drive drawer lid.

Step 9 Press the latches on either side of the drive drawer to disengage the drawer, then carefully slide the drawer back into the unit, making sure that it is flush with the rest of the front panel.

Figure 5-12 Disengaging the Side Rail Latches



Step 10 Turn the drawer lock clockwise to lock the drawer into place.

The **STAT** LED on the front of the drawer turns from amber to green to let you know that the drive drawer is properly latched. The **DSK** LED lights up green to let you know that all drives are functioning properly.

Step 11 In the graphical user interface (GUI), go to the **Home** page and verify that the status bar for the new drive is blue, meaning that it has been automatically detected and assigned as a pool spare. See the Software Manual for more information.

Note If the status bar for the new drive is gray, you must manually assign the drive. See the Software Manual for instructions.

Front Drive Drawer Fan Assembly

In the event of the failure of a front drive drawer fan, use the following procedure to replace the drawer front assembly:

Procedure

Step 1 Determine which drive drawer contains the failed fan by examining the **ENV** LEDs on the front of each drawer see Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, page 1-1, Front Panel (Both Units), page 1-1). A red LED indicates which drawer has the failed fan. The **Home** page of the graphical user interface (GUI) also tells you which fan has failed (see the Software Manual).

Step 2 Turn the drawer lock counter-clockwise to unlock the left drive drawer (see Figure 5-7).

The **STAT** LED turns amber to let you know that the drive drawer is unlocked.

Caution Only open ONE drawer at a time. Fully close and lock each drawer before opening another one. Failure to do so may overbalance the rack, causing equipment damage or injury to personnel.

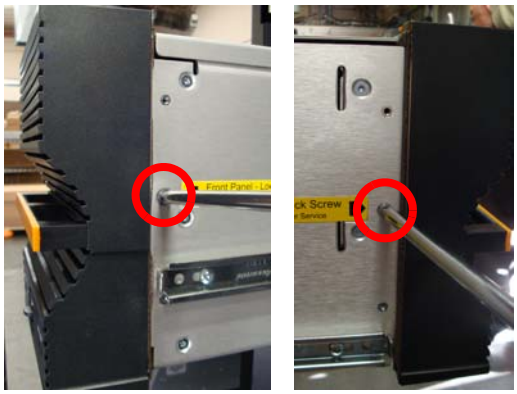
Step 3 Carefully slide the drawer all the way out until the side rail locking tab clicks into place (see Figure 5-8).

Caution Do not lean on or place any heavy object on an open drive drawer. Doing so may damage the drawer slide mechanism or overbalance the rack.

Step 4 Open the drive drawer lid (see Figure 5-9).

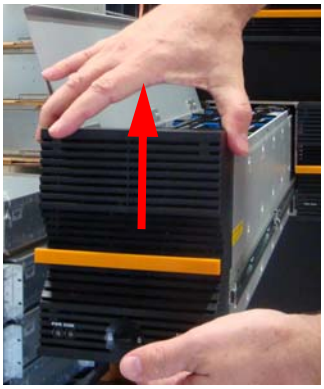
Step 5 Unscrew the retaining screws on either side of the drive drawer.

Figure 5-13 Unscrewing the Drawer Front Assembly Retaining Screws



Step 6 Carefully slide the drawer front assembly upwards to disengage it, then remove it from the front of the drive drawer.

Figure 5-14 Removing the Drawer Front Assembly



Step 7 Guide the replacement drawer front assembly onto the guides in the front of the drawer, then carefully push down to seat it.

Figure 5-15 Replacing the Drawer Front Assembly

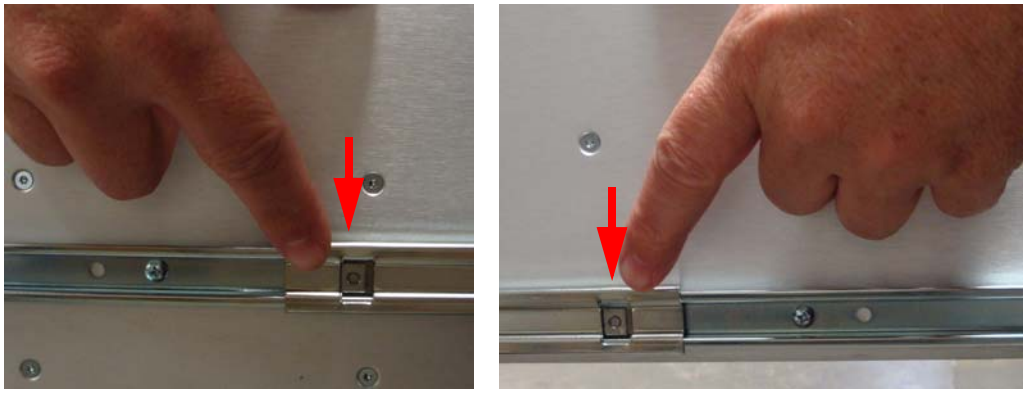
The LEDs on the front of the drawer front assembly light up to let you know that the assembly is properly in place.

Step 8 Replace the retaining screws on the sides of the drive drawer.

Step 9 Close the drive drawer lid.

Step 10 Press the latches on either side of the drive drawer to disengage them, then carefully slide the drawer back into the unit, making sure that it is flush with the rest of the front panel.

Figure 5-16 Disengaging the Side Rail Latches for CPS-SS-4RU/CPS-SS-4RU-EX



Step 11 Turn the drawer lock clockwise to lock the drawer into place.

The **STAT** LED on the front of the drawer turns from amber to green to let you know that the drive drawer is properly latched. The **ENV** LED lights up green to let you know that the fan is functioning properly and that the drawer temperature is within specifications.

Step 12 In the graphical user interface (GUI), go to the **Home** page and verify that the status bar for the new fan assembly is green. See the Software Manual for more information.

Rear Drive Drawer Fan Assembly

In the event of the failure of a rear drive drawer fan, use the following procedure to replace the rear fan assembly:

Procedure

Step 1 Determine which drive drawer contains the failed fan by examining the **ENV** LEDs on the front of each drawer see Overview of the CPS-SS-4RU and CPS-SS-4RU-EX, page 1-1, Front Panel (Both Units), page 1-1). A red LED indicates which drawer has the failed fan. The **Home** page of the graphical user interface (GUI) also tells you which fan has failed (see the Software Manual).

Step 2 Turn the drawer lock counter-clockwise to unlock the left drive drawer (see Figure 5-7).

The **STAT** LED turns amber to let you know that the drive drawer is unlocked.

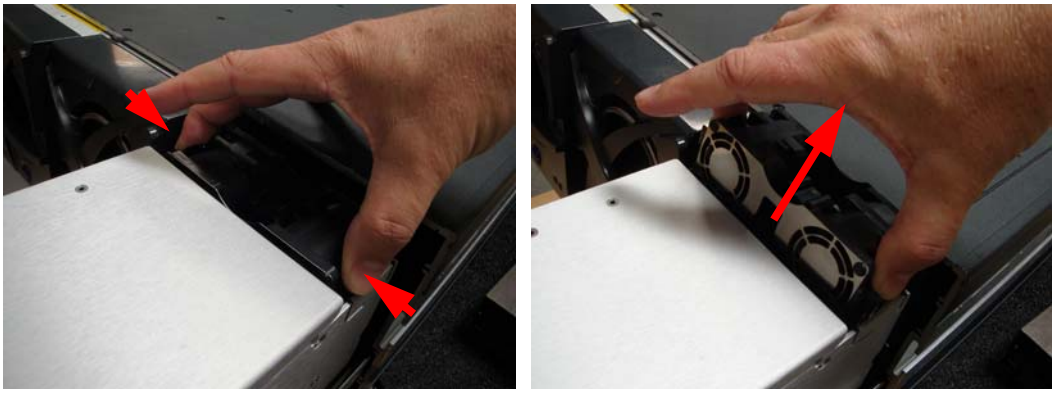
Caution Only open ONE drawer at a time. Fully close and lock each drawer before opening another one. Failure to do so may overbalance the rack, causing equipment damage or injury to personnel.

Step 3 Carefully slide the drawer all the way out until the side rail locking tab clicks into place (see Figure 5-8).

Caution Do not lean on or place any heavy object on an open drive drawer. Doing so may damage the drawer slide mechanism or overbalance the rack.

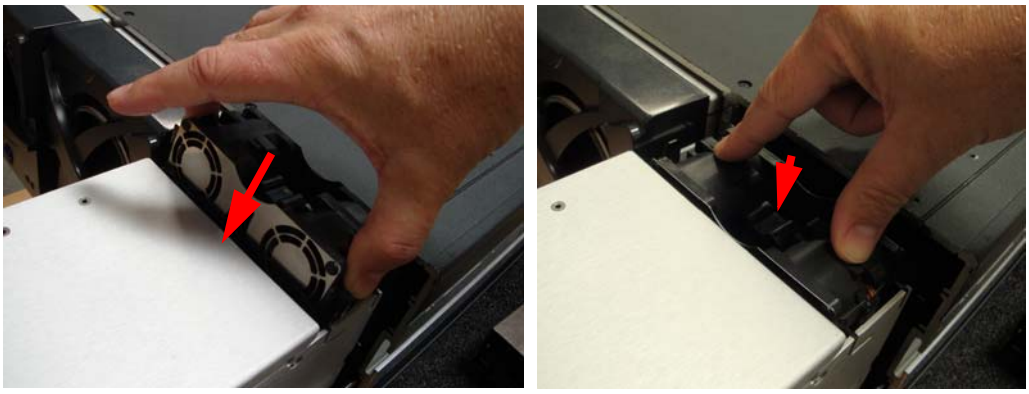
Step 4 On the fan assembly at the back of the drawer, press the left and right release tabs inward. Then carefully pull the fan assembly out of the drawer.

Figure 5-17 Disengaging and Removing the Rear Fan Assembly



Step 5 Carefully slide the replacement fan assembly down until the two tabs click into place.

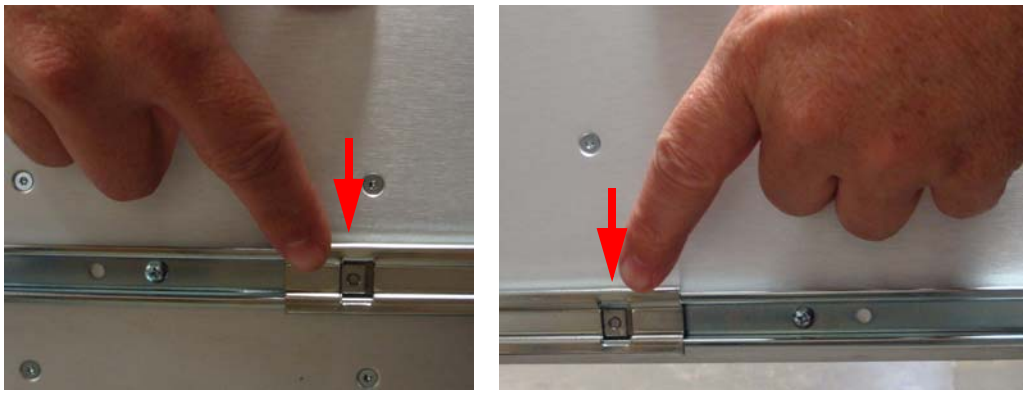
Figure 5-18 Inserting the Rear Fan Assembly.



Step 6 Close the drive drawer lid.

Step 7 Press the latches on either side of the drive drawer to disengage them, then carefully slide the drawer back into the unit, making sure that it is flush with the rest of the front panel.

Figure 5-19 Disengaging the Side Rail Latches for CPS-SS-4RU/CPS-SS-4RU-EX



Step 8 Turn the drawer lock clockwise to lock the drawer into place.

The **STAT** LED on the front of the drawer turns from amber to green to let you know that the drive drawer is properly latched. The **ENV** LED lights up green to let you know that the fan is functioning properly and that the drawer temperature is within specifications.

Step 9 In the graphical user interface (GUI), go to the **Home** page and verify that the status bar for the new fan assembly is green. See the Software Manual for more information.

APPENDIX **A**

CPS-SS-4RU Technical Specifications

Dimensions

Height	4U	177.00 mm (6.97")
Length	Overall	950 mm (37.4")
	Chassis Ear mounting to face to end of unit (allow at least 150mm for cables at rear; a 1200mm rack is recommended)	1026 mm (40.39") including fascia and handles
Width	Overall	482.6 mm (19")
	Of chassis body	430 mm (16.9")
Weight - no drives	Chassis	48 Kg (106 lbs)
Weight with drives	2 TB	93 Kg (205 lbs)
	1 TB	90 Kb (198.4 lbs)
Rack Mounting Kit	Small (special order)	660 mm to 762 mm (26" to 30")
	Large	762 mm to 864 mm (30" to 34")
	Max Weight	2.5 Kg (5.5 lbs) approximately

Power

- Two 1600W load-sharing, hot-plugable, redundant PSUs.
- Nominal input voltage is 220-240V AC, 47-63Hz.
- Typical power consumption is 1494W (6.35A) for 600GB SAS drives & 914W (3.90A) for 2TB SATA drives. Peak current is up to 15A.

Cooling

Front Panel	One 120mm 12V axial fan (life 40,000hrs) per drive drawer, for a total of three.
Internal	Two double-gang 12V axial fans (life 40,000hrs) per drive drawer, for a total of six.
PSUs	Four 12V axial fans (life 40,000hrs) per PSU, for a total of eight.

Materials

Chassis (external)	Extruded aluminium with welded or riveted sections and sheet steel.
Chassis (internal)	Aluminium supports, steel divider plates
Fascia	ABS (blend) Thermoplastic UL 94 V.0.

Environment

Ambient operating temperature	5°C–35°C (41°F–95°F)
Minimum drawer operation temperature	10°C (50°F)

APPENDIX **B**

CPS-SS-4RU-EX Technical Specifications

Dimensions

Height	4U	177.00 mm (6.97")
Length	Overall	950 mm (37.4")
	Chassis Ear mounting to face to end of unit (Allow at least 150mm for cables at rear; a 1200mm rack is recommended)	1026 mm (40.39") including fascia and handles
Width	Overall	482.6 mm (19")
	Of chassis body	430 mm (16.9")
Weight - no drives	Wielded Chassis	48 Kg (106 lbs)
Weight with drives	2 TB	93 Kg (205 lbs)
	1 TB	90 Kb (198.4 lbs)
Rack Mounting Kit	Small (special order)	660 mm to 762 mm (26" to 30")
	Large	762 mm to 864 mm (30" to 34")
	Max Weight	2.5 Kg (5.5 lbs) approximately

Power

- Two 1600W load-sharing, hot-plugable, redundant PSUs
- Nominal input voltage is 220-240V AC, 47-63Hz.
- Typical power consumption is 1418W (6.09A) for 600GB SAS drives & 824W (3.52A) for 2TB SATA drives. Peak current is up to 15A.

Cooling

Front Panel	One 120mm 12V axial fan (life 40,000hrs) per drive drawer, for a total of three.
Internal	Two double-gang 12V axial fans (life 40,000hrs) per drive drawer, for a total of six.
PSUs	Four 12V axial fans (life 40,000hrs) per PSU, for a total of eight.

Materials

Chassis (external)	Extruded aluminium with welded or riveted sections and sheet steel.
Chassis (internal)	Aluminium supports, steel divider plates
Fascia	ABS (blend) Thermoplastic UL 94 V.0.

Environment

Ambient operating temperature	5°C–35°C (41°F–95°F)
Minimum drawer operation temperature	10°C (50°F)

INDEX

Numerics

10GbE iSCSI
- port 1-5 to 1-6
- port LED 1-6

A

audible alarm, silencing 1-5

D

disk drives
- description 1-8
- inserting 5-8
- loading procedures 3-7 to 3-9
- removing 5-7 to 5-8
- replacement procedures 5-6
- unpacking 2-5

E

electrostatic discharge (ESD) 2-2, 3-3

emergency mode 1-4, 1-5

F

fans
- drawer front fans
  - CPS-SS-4RU 1-2, A-2
  - CPS-SS-4RU-EX 1-2, B-2
  - inserting 5-10
  - removing 5-10
  - replacement procedures 5-9 to 5-11
- failure 2-3
- LEDs
  - environment (ENV) 1-2, 5-11
  - Power Supply Unit fan status 1-4, 1-7, 5-1
- rear fan pack
  - CPS-SS-4RU 1-8, A-2
  - CPS-SS-4RU-EX 1-8, B-2
  - inserting 5-12
  - removing 5-12
  - replacement procedures 5-11 to 5-13

Fibre Channel
- port 1-5 to 1-6, 4-1
- port LED 1-5

field-replaceable modules
- disk drives
  - description 1-8
  - inserting 5-8
  - loading procedures 3-7 to 3-9
  - removing 5-7 to 5-8
  - replacement procedures 5-6
  - unpacking 2-5
- expansion controller
  - description 1-6
  - inserting 3-5 to 3-6, 5-5
  - removing 2-7 to 2-8, 5-4
  - replacement procedures 5-4 to 5-5
- fans
  - description 1-2, 1-8
  - inserting 5-10, 5-12
  - removing 5-10, 5-12
  - replacement procedures 5-9
  - specifications A-2, B-2

Power Supply Unit (PSU)
description 1-3, 1-6
inserting 3-5, 5-2
removing 2-7, 5-2
replacement procedures 5-1
RAID controller
description 1-3
emergency mode 1-4, 1-5
inserting 3-5 to 3-6, 5-4
powering down 1-5
removing 2-7 to 2-8, 5-3
replacement procedures 5-2
single-controller configuration 1-3, 2-3
single-controller shutdown 5-3
front panel
CPS-SS-4RU 1-1 to 1-2
CPS-SS-4RU-EX 1-1 to 1-2

G

grounding
equipment 2-2
rack. *See* rack, grounding
yourself 2-2, 3-3, 3-3

I

installing
cabling procedures 4-1 to 4-2
CPS-SS-4RU 3-1 to 3-9
CPS-SS-4RU-EX 3-1 to 3-9
grounding yourself 2-2, 3-3, 3-3
mounting hardware 3-1 to 3-2
preparing units 2-7
rack mounting hardware 2-8
tools and equipment required 2-1
unpacking 2-3
iSCSI
port 1-4
port LEDs 1-4

L

LEDs
10GbE iSCSI port 1-6
controller status (STAT), rear panel 1-4, 1-7, 5-3, 5-4
disk (DSK), front panel 1-2, 5-6
disk status, interior 1-8, 5-7
environment (ENV) 1-2, 5-11
expansion port (EXP IN L0/L1) 1-7, 4-2
Fibre Channel port 1-5
front panel
CPS-SS-4RU 1-2
CPS-SS-4RU-EX 1-2
iSCSI port 1-4
management port 1-4
power (PWR) 1-2
Power Supply Unit fan status (FAN) 1-4, 1-7, 5-1
Power Supply Unit status (PSU) 1-4, 1-7, 5-1
rear panel
CPS-SS-4RU 1-4
CPS-SS-4RU-EX 1-7
SAS port 1-4
unit status (STAT), front panel 1-2, 5-9

M

modules
active drawer
closing 3-8 to 3-9, 5-8
description 1-2
lock 1-2, 3-7, 5-6
opening 3-7 to 3-8, 5-6 to 5-7
STAT LED 1-2, 5-6, 5-9, 5-11
disk drives
description 1-8

inserting 5-8
loading procedures 3-7 to 3-9
removing 5-7 to 5-8
replacement procedures 5-6
unpacking 2-5
expansion controller
description 1-6
inserting 3-5 to 3-6, 5-5
removing 2-7 to 2-8, 5-4
replacement procedures 5-4 to 5-5
fans
description 1-2, 1-8
inserting 5-10, 5-12
removing 5-10, 5-12
replacement procedures 5-9
specifications A-2, B-2
Interconnect Service Module (ISM) 1-3, 1-6
Power Supply Unit (PSU)
description 1-3, 1-6
inserting 3-5, 5-2
removing 2-7, 5-2
replacement procedures 5-1
RAID controller
description 1-3
emergency mode 1-4, 1-5
inserting 3-5 to 3-6, 5-4
powering down 1-5
removing 2-7 to 2-8, 5-3
replacement procedures 5-2
single-controller configuration 1-3, 2-3
single-controller shutdown 5-3

N

non-field-replaceable modules
active drawer
closing 3-8 to 3-9, 5-8
description 1-2
lock 1-2, 3-7, 5-6
opening 3-7 to 3-8, 5-6 to 5-7
STAT LED 1-2, 5-6, 5-9, 5-11
Interconnect Service Module (ISM) 1-3, 1-6

P

port
10GbE iSCSI 1-5 to 1-6
cabling procedures 4-1 to 4-2
expansion 1-7, 4-1, 5-5
Fibre Channel 1-5 to 1-6, 4-1
host port options 1-5 to 1-6
iSCSI 1-4
management 1-4, 4-1
SAS 1-4, 4-1
serial 1-4
power
applying 1-5, 4-2
overloading, prevention 2-2
socket 1-4, 1-7, 5-1, 5-2
specifications 1-4, 1-7, 2-2, A-1, B-1
switches 1-5, 4-3, 5-4

R

rack
grounding 2-2
mechanical loading 2-1, 2-2, 3-1
mounting hardware
installing 2-8, 3-1 to 3-2
specifications A-1, B-1
unpacking 2-4
mounting procedures
CPS-SS-4RU 3-1 to 3-9
CPS-SS-4U-EX 3-1 to 3-9
rails. *See* mounting hardware
size 2-1, A-1, B-1
rear panel

CPS-SS-4RU 1-3 to 1-6
CPS-SS-4RU-EX 1-6 to 1-7

S

switches
SW0 1-5, 4-3, 5-4

T

technical specifications
CPS-SS-4RU A-1 to A-2
CPS-SS-4RU-EX B-1 to B-2
temperature specifications
ambient temperature 2-2
chassis 2-2, A-2, B-2
drawer 2-3, 3-7, A-2, B-2
environment (ENV) LED 1-2, 5-11
fan failure 2-3
FAN LED 1-4, 1-7, 5-1
STAT LED 1-2

U

unpacking
CPS-SS-4RU 2-6
CPS-SS-4RU-EX 2-6
disk drives 2-5
rack mounting hardware 2-4