



# Sun Storage J4200/J4400 Array Hardware Installation Guide

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Sun Microsystems, Inc.  
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# Preface

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The *Sun Storage J4200/J4400 Array Hardware Installation Guide* describes the hardware components and status indicators, how to install rack-mounting rails into a cabinet, install the tray into the cabinet, connect the cables, and power on the array.

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## Before You Read This Book

Before you begin to install the Sun Storage J4200/J4400 Array, you must have already prepared the site as described in the following book, which is available at the Sun Download Center <http://Docs.Sun.Com>:

- *Sun Storage J4200/J4400 Array Site Preparation Guide* (820-3219-*nn*)

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## How This Book Is Organized

Chapter 1 provides an overview of the Sun Storage J4200/J4400 array components and status indicators, lists the array shipping kit contents, describes the software management application, and has a hardware installation checklist.

Chapter 2 describes how to install rack-mounting rails and trays into a cabinet, along with removing and replacing disks for the heavy J4400 array.

Chapter 3 describes connecting cables and powering on the array.

# Related Documentation

Application	Title	Part Number
Regulatory and safety information	<i>Sun StorageTek Regulatory and Safety Compliance Manual</i>	96272, Revision A
Multilanguage safety information	<i>Important Safety Information for Sun Hardware Systems</i>	816-7190- <i>nn</i>
Site planning information	<i>Sun Storage J4200/J4400 Array Site Preparation Guide</i>	820-3219- <i>nn</i>
Installation at a glance	<i>Sun Storage J4200 Array Setup Poster</i>	820-3221- <i>nn</i>
Installation at a glance	<i>Sun Storage J4400 Array Setup Poster</i>	820-4691- <i>nn</i>
Complete details of the hardware components, rail and tray installation, and cabling.	<i>Sun Storage J4200/J4400 Array Hardware Installation Guide</i>	820-3218- <i>nn</i>
Late-breaking information not included in the information set	<i>Sun Storage J4200/J4400 Array Release Notes</i>	820-3222- <i>nn</i>
General operation and troubleshooting	<i>Sun Storage J4200/J4400 Array Overview</i>	820-3223- <i>nn</i>
Disk drive replacement procedures	<i>Sun Storage J4200/J4400 Array Disk Drive Replacement Guide</i>	820-3225- <i>nn</i>
SIM board replacement procedures	<i>Sun Storage J4200 Array SIM Board Replacement Guide</i>	820-3226- <i>nn</i>
SIM board replacement procedures	<i>Sun Storage J4400 Array SIM Board Replacement Guide</i>	820-4600- <i>nn</i>
Power supply replacement procedures	<i>Sun Storage J4200 Array Power Supply Replacement Guide</i>	820-3227- <i>nn</i>
Fan replacement procedures	<i>Sun Storage J4200 Array Fan Replacement Guide</i>	820-3229- <i>nn</i>
Power supply and fan replacement procedures	<i>Sun Storage J4400 Array Power Supply/Fan Replacement Guide</i>	820-3228- <i>nn</i>
Chassis replacement procedures	<i>Sun Storage J4200 Chassis Replacement Guide</i>	820-4413- <i>nn</i>
Chassis replacement procedures	<i>Sun Storage J4400 Chassis Replacement Guide</i>	820-4601- <i>nn</i>
Rail kit installation procedures	<i>Sun Storage J4200/J4400 Array Rail Kit Installation Guide</i>	820-3764- <i>nn</i>

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<http://www.sun.com/documentation>

Search for Sun Storage J4200/J4400 Array.

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Please include the title and part number of your document with your feedback:

*Sun Storage J4200/J4400 Array Hardware Installation Guide*, part number 820-3218-*nn*

## The Sun Storage J4200/J4400 Array

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The Sun Storage J4200 and J4400 arrays are general purpose, high-availability, and cost-effective serial attached SCSI (SAS) devices. The J4200 is a 2U, 12-disk tray and the J4400 is a 4U, 24-disk tray. Each supports SAS and Serial Advanced Technology Architecture (SATA) disk drives. The main components in each array are hot-swappable, including the SAS Interface Module (SIM) boards and drives, and the dual load-sharing power supplies and fans, providing a fault-tolerant environment with no single point of failure.

The J4200/J4400 arrays support 15K SAS drives and 7.2K SATA II drives. You can interconnect up to four J4200/J4400 trays, with up to 48 drives in interconnected J4200s and up to 96 drives in interconnected J4400s, all of which are designed to fit into a standard 19-inch cabinet. This renders a raw storage capacity of 14.4 TB for SAS disks (300 GB per disk) or 36 TB for SATA II disks (750 GB per disk) for the J4200, and 28.8 TB for SAS disks (300 GB per disk) or 72 TB for SATA II disks (750 GB per disk) for the J4400. Refer to the *Sun Storage J4200/J4400 Array Release Notes* (820-3222-*nn*) for a complete listing of supported drives.

The J4200/J4400 is available for Solaris, Linux, Windows, and VMware operating systems. You manage the array with the Sun StorageTek Common Array Manager (CAM) software.

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**Note** – If you are using the J4400 array as part of a Sun Storage 7000 Unified Storage System, you do not manage the J4400 array using the Sun StorageTek Common Array Manager (CAM). Instead, you manage the J4400 using the management software provided with the Unified Storage System.

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The trays can be installed into the following cabinets:

- Sun Rack 900/1000 cabinet
- Sun StorageEdge Expansion cabinet
- Sun Fire Expansion cabinet

- Any 19-inch wide, 4-post, EIA-compatible rack or cabinet with a front-to-back depth between vertical cabinet rails of 61 cm to 91 cm (24 in. to 36 in.). The cabinet can have threaded or unthreaded cabinet rails.

The J4200/J4400 array can be delivered fully assembled or packaged as individually ordered components that you install into the chassis. “[Customer-Replaceable Units](#)” on [page 25](#) provides a list of these components. All CRUs have a document describing installation instructions.

[FIGURE 1-1](#) shows the Sun Storage J4200 SAS connection to a data and management host.

**FIGURE 1-1** J4200 Array Connected to a Data and Management Host

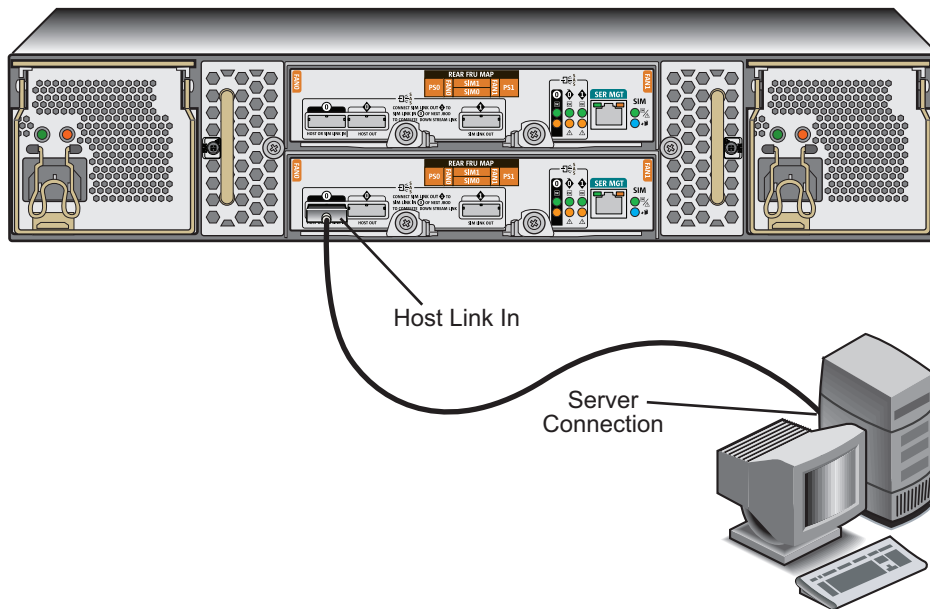




FIGURE 1-2 shows the Sun Storage J4400 SAS connection to a data and management host.

FIGURE 1-2 J4400 Array Connected to a Data and Management Host

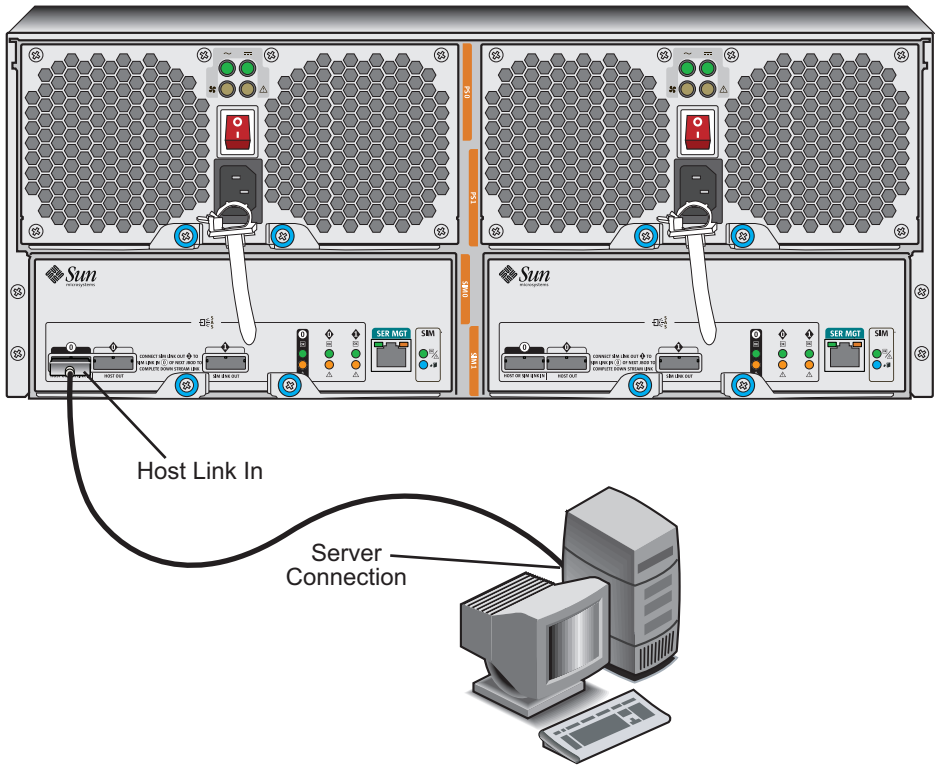


FIGURE 1-3 shows a Sun Storage J4200 interconnected with other J4200 arrays.

**FIGURE 1-3** J4200 Array Interconnected With Three Additional J4200s

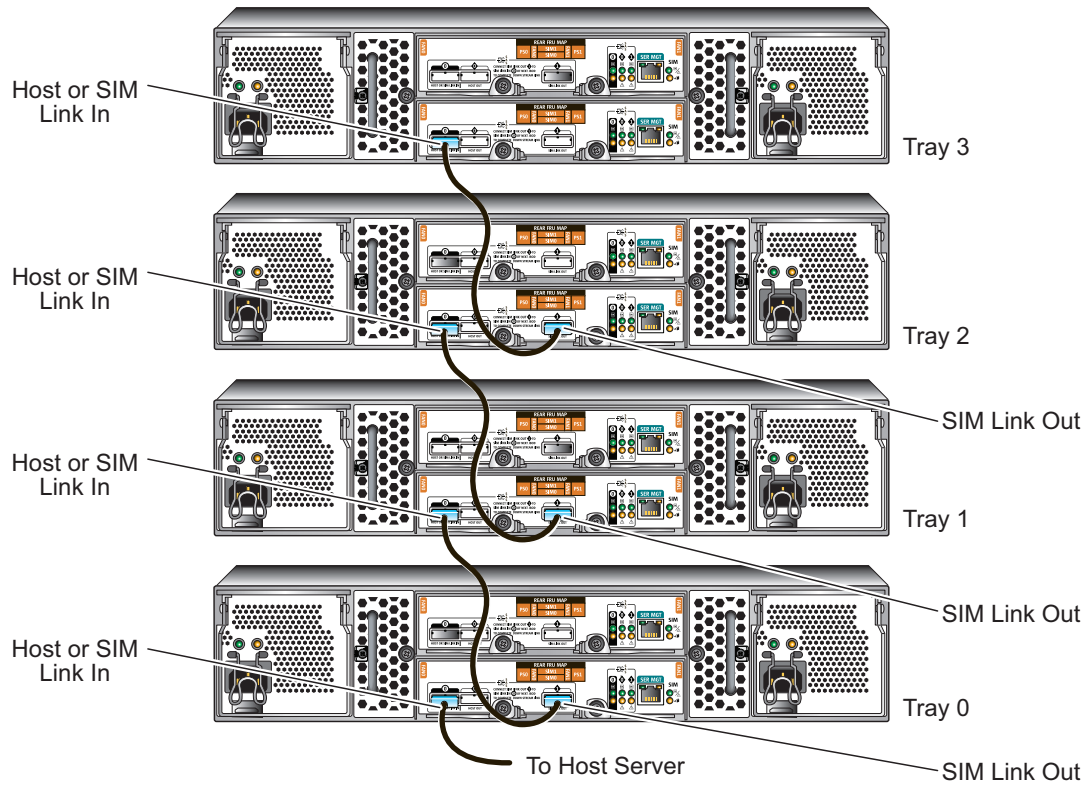
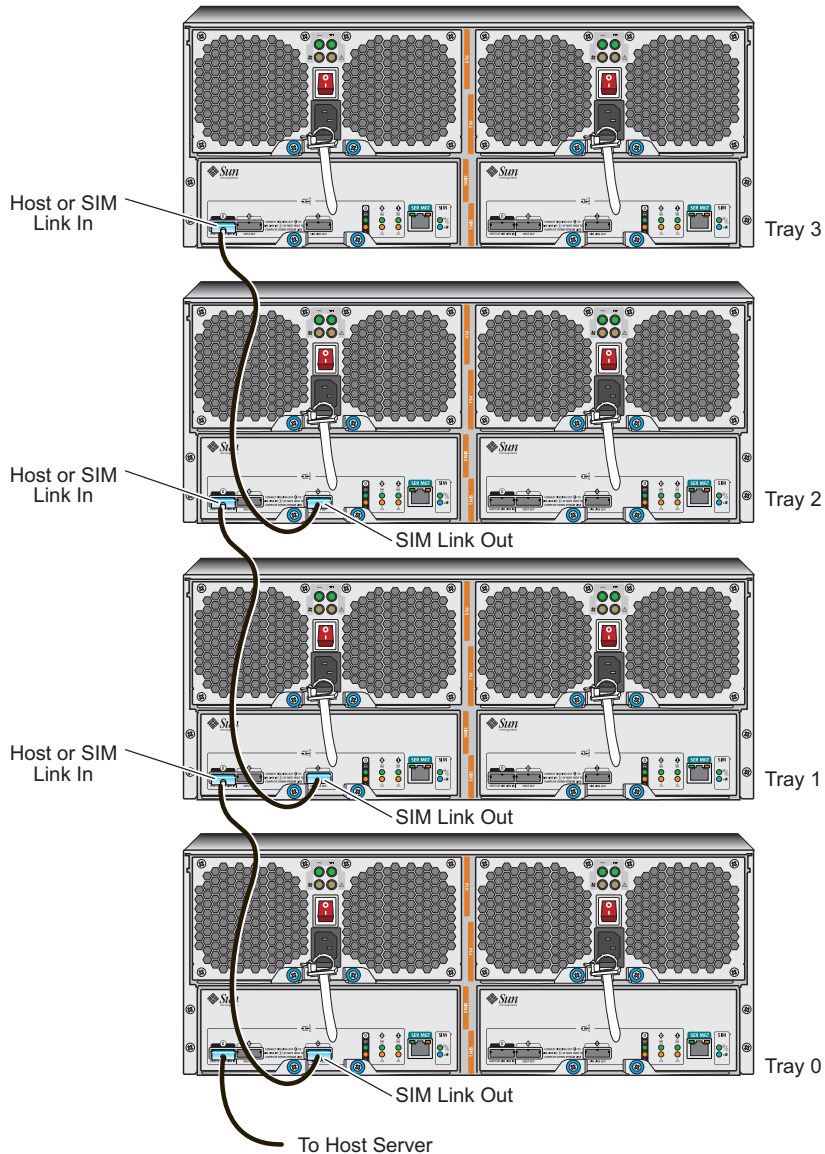


FIGURE 1-4 shows a Sun Storage J4400 interconnected with other J4400 Arrays.

**FIGURE 1-4** J4400 Array Interconnected With Three Additional J4400s



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## J4200 Shipping Kit Contents

Following is a list of the current Sun Storage J4200 Array shipping kit contents. In case of any changes, refer to the *Sun Storage J4200/J4400 Array Release Notes* (820-3222-*nn*) for the latest list:

- Sun StorageTek™ Regulatory and Safety Compliance Manual, Part Number: 96272, Revision: A
- *Accessing Documentation* Rev. A (819-5467-12)
- *Sun Storage J4200 Setup and Installation Poster* (820-3221-*nn*)
- *Sun Storage J4200/J4400 Hardware Installation Guide* (820-3218-*nn*)
- One one-half meter mini-SAS cable
- Power Cords - Country Specific

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## J4400 Shipping Kit Contents

Following is a list of the current Sun Storage J4400 Array shipping kit contents. In case of any changes, refer to the *Sun Storage J4200/J4400 Array Release Notes* (820-3222-*nn*) for the latest list:

- Sun StorageTek™ Regulatory and Safety Compliance Manual, Part Number: 96272, Revision: A
- *Accessing Documentation* Rev. A (819-5467-12)
- *Sun Storage J4400 Setup and Installation Poster* (820-4691-*nn*)
- *Sun Storage J4200/J4400 Hardware Installation Guide* (820-3218-*nn*)
- One one-half meter mini-SAS cable
- Power Cords - Country Specific

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## Rail Kit

- Rail Kit
- *Sun Storage J4200/J4400 Array Rail Kit Installation Guide* (820-3764-10)

[“Check the Rail Kit Contents” on page 30](#) describes the rail kit contents.

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# Hardware Overview

This section provides information on the Sun Storage J4200/J4400 array hardware.

This product is intended for restricted access areas whereby access is controlled through the use of a means of security (e.g., key, lock, tool, badge access), and personnel authorized for access have been instructed on the reasons for the restrictions and any precautions that need to be taken.

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**Caution** – Only trained service personnel should remove the covers on this equipment.

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## Front Access to the J4200/J4400 Array

Components that are accessed from the front (see [FIGURE 1-5](#) for the J4200 and [FIGURE 1-6](#) for the J4400) of the Sun Storage J4200/J4400 include the following:

- **End caps** – Plastic caps on the right and left sides of the tray. The left side has the device's serial number. The right side includes the audible alarm silence button that allows you to turn off an alarm that is sounding. The system identifier dial is not currently supported.
- **Status Indicators** – Two status indicators located on the right end cap provide a system locate indicator and a system OK or fault indicator.
- **Disk Drives** – Twelve or 24 removable disk drives, labeled from 0 on the lower left to 11 (J4200) or 48 (J4400) on the upper right.

FIGURE 1-5 J4200 Array Front Access Components

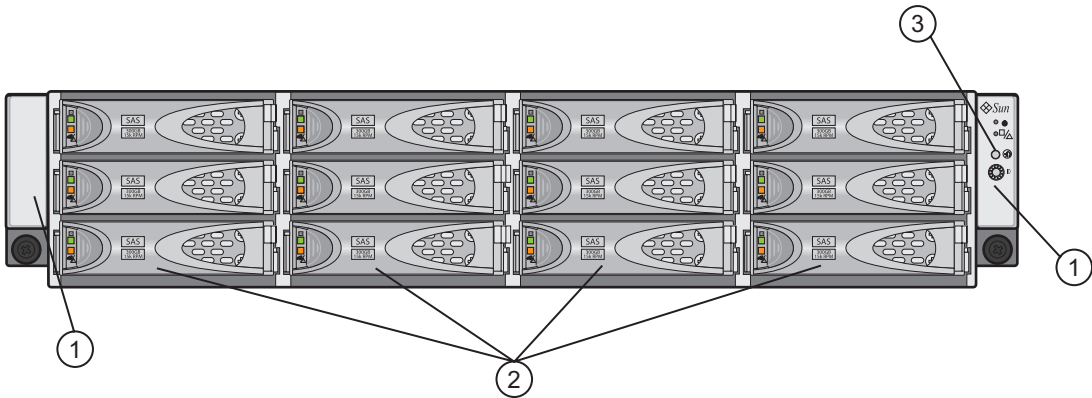


FIGURE 1-6 J4400 Array Front Access Components

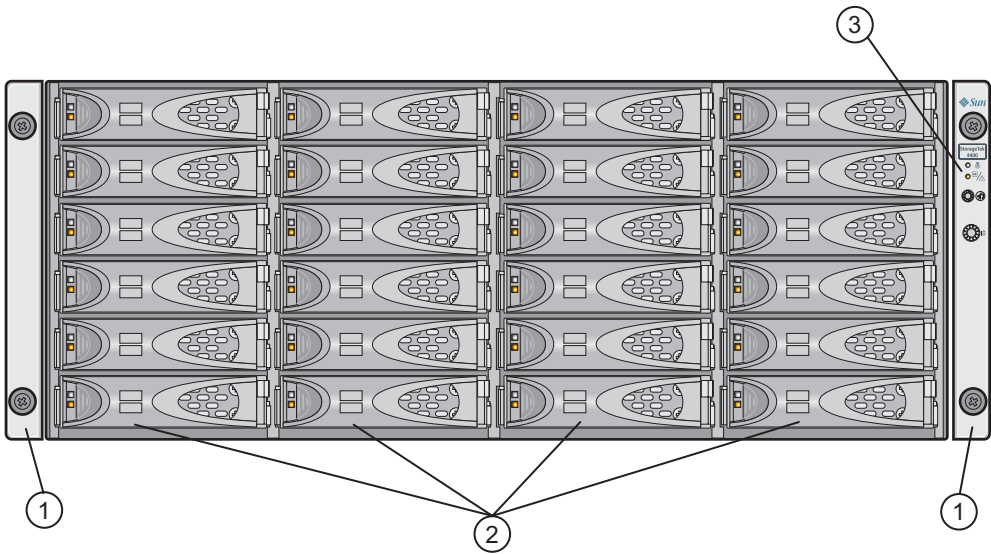


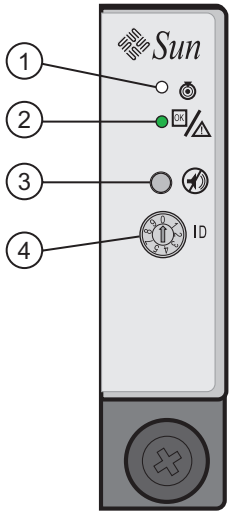
Figure Legend

ID	Description
1	End caps with serial number (left) and status indicators (right)
2	Disks
3	Audible alarm silence button

# Indicators on the Front of the Trays

Two indicators on the front of the Sun Storage J4200/J4400 are located on the right-side end cap of the tray ([FIGURE 1-7](#)).

**FIGURE 1-7** Indicators on the Front of a Sample J4200 Array



Following are the J4200/J4400 Array front panel status indicator descriptions.

**TABLE 1-1** J4200/J4400 Front Panel Status Indicators

ID	Indicator	Color	Condition	Description
1	System Locate	White	Off	Not supported
		White	Blinking @ 1 Hz 50%	Location LED is active
2	System OK/ Fault	Green	On	System is powered on
		Green	Blinking @ 4 Hz 50%	System is booting or being configured
		Green	Off	System is powered off
		Amber	Off	No current faults
		Amber	On	System fault

Following are descriptions for the Audible Alarm Silence Button and the System ID:

3	Audible Alarm Silence Button	When the alarm is sounding, press this button to silence the enclosure's audible alarm.
4	System Identifier	Not supported.

## Disk Drives

Disk drives for the Sun Storage J4200/J4400 array have several components: a hard disk, a hard disk carrier, the disk-release button, the disk ejector handle, and two status indicators (see [FIGURE 1-8](#)). You can access the disk drives from the front of the trays. The J4200/J4400 supports SAS disk drives or SATA II disk drives. A label on the handle indicates the drive type and its size and speed.

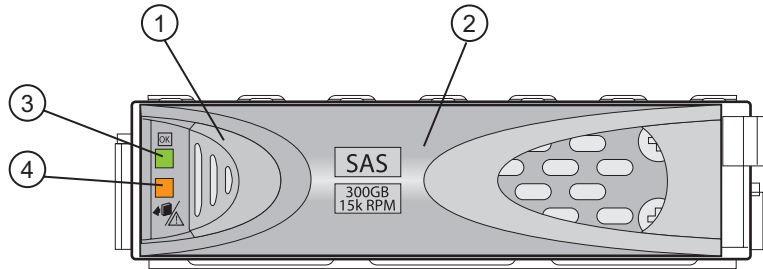
J4200s hold up to 12 disk drives, and four trays can be interconnected for a maximum of 48 disk drives in a chain; J4400s hold up to 24 disk drives, and four trays can be interconnected for a maximum of 96 disk drives in a chain. You must have at least two drives in either array.



Twelve or 24 removable disk drives are numbered from left to right, labeled from 0 on the lower left to 11 (J4200) or 48 (J4400) on the upper right.

FIGURE 1-8 shows the disk-release button, the disk handle, and the status indicators.

**FIGURE 1-8** Disk Drive



**Figure Legend**

ID	Description
1	Release button, press towards the right - disengages the release handle
2	Disk handle
3	OK status indicator
4	Ready to Remove/Fault status indicators

Following are the J4200/J4400 disk drive status indicator descriptions.

**TABLE 1-2** J4200/J4400 Disk Drive Status Indicators

ID	Indicator	Color	Condition	Description
3	OK	Green	On	Ready for access
		Green	Blinking	Spinning down or accessing drives
		Green	Off	Offline or inactive
4	Ready to Remove/Fault	Blue	On	Drives have no pending writes and can be removed safely
		Amber	On	HDD fault - Service Action Required
		Amber	Blinking @ 4 Hz 50%	HDD locator
		Amber	Off	No failures

# Rear-Access Tray Components

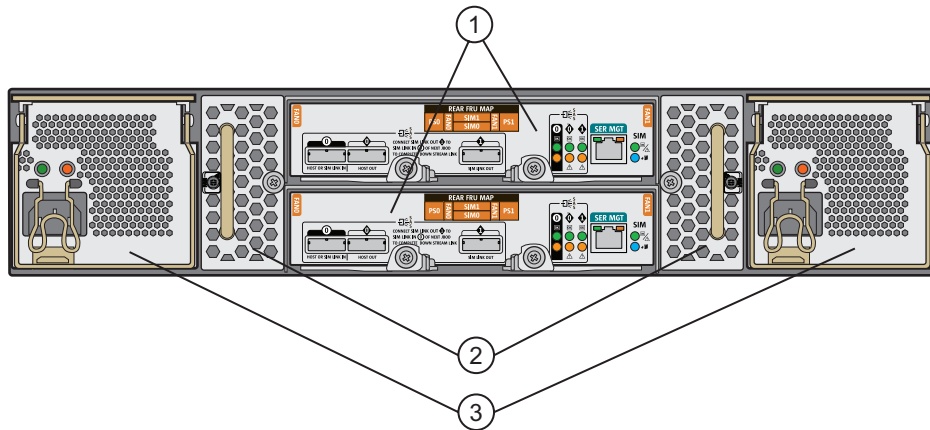
Aside from a larger form factor, the J4200 and J4400 rear components are different. The J4200 has separate power supplies and fans, where the J4400 has an integrated power supply and fan module.

There are three mini-SAS connectors:

- The inbound connection is from the data host and management server.
- The two outbound connections are to another host or to an interconnected J4200/J4400.

FIGURE 1-9 shows the J4200 Array rear-access components.

**FIGURE 1-9** J4200 Array Rear-Access Components



**Figure Legend**

ID	Component	Description
1	SIM Modules	Two removable SAS Interface Module (SIM) boards. Each has a Host or SIM Link In port, a Host Out port, a SIM Link Out port, and an RJ-45 port for serial console access (reserved for Sun Customer Support personnel). The SIM boards are identified as SIM 0 (bottom) and SIM 1 (top).
2	Fan Modules	Two removable cooling fan modules. Fan Module 0 is on the left and Fan Module 1 is on the right.
3	Power Supply Modules	Two removable power supply modules with built-in fans. Power Supply 0 is on the left and Power Supply 1 is on the right.

FIGURE 1-10 J4400 Array Rear-Access Components

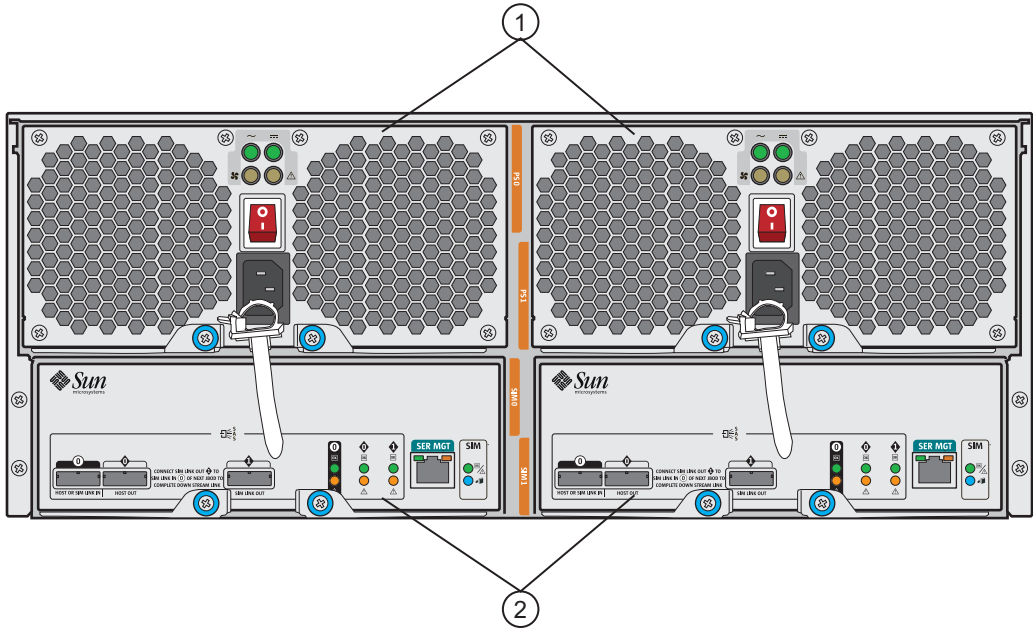


Figure Legend

ID	Component	Description
1	SIM Modules	Two removable SAS Interface Module (SIM) boards. Each has a Host or SIM Link In port, a Host Out port, a SIM Link Out port, and an RJ-45 port for serial console access (reserved for Sun Customer Support personnel). The SIM boards are identified as SIM 0 (left) and SIM 1 (right).
2	Power Supply Modules	Two removable power supply modules with built-in fans. Power Supply 0 is on the left and Power Supply 1 is on the right.

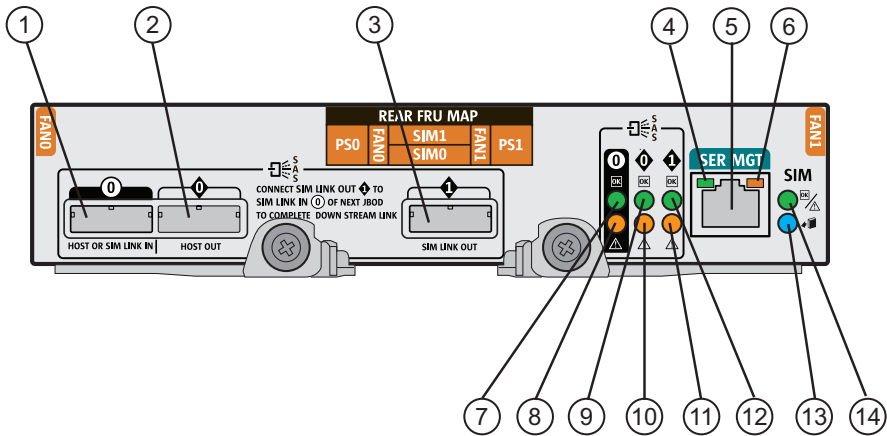
## J4200/J4400 Array SIM Board

The SIM board for each of the arrays includes the same components, indicators, and ports, however, the J4400 SIM board is larger than the J4200 SIM board, as required by the array's form factor.

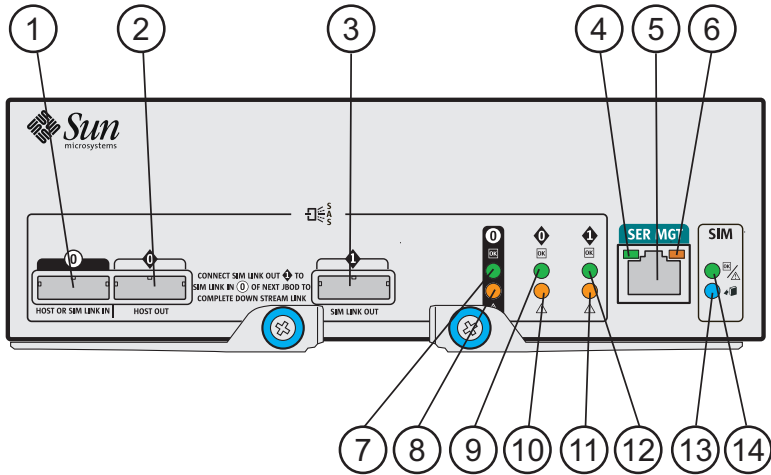
Each hot-swappable SIM board has one SAS inbound connector and two SAS outbound connectors, and one serial management port that is reserved for Sun Customer Support Personnel only.

[FIGURE 1-11](#) and [FIGURE 1-12](#) call out the individual components on the back of the SIM board, and [TABLE 1-3](#) provides descriptions of these components. [TABLE 1-4](#) describes the SIM board component status indicators.

**FIGURE 1-11** J4200 Array SIM Board Components and Status Indicator Descriptions



**FIGURE 1-12** J4400 Array SIM Board Components and Status Indicator Descriptions



**TABLE 1-3** SIM Board Components and Indicator Associations

<b>ID</b>	<b>Component or Indicator</b>	<b>Description</b>
1	Host or SIM Link IN	SAS connection to a data or management host, or a connection from another J4200/J4400.
2	Host OUT	SAS connection to a host.
3	SIM Link Out	SAS connection to another J4200/J4400.
4	Serial Management Port	Left Indicator - Green: Serial port is active.
5	Serial Management Port	Serial port - Reserved for Sun Customer Support Personnel only.
6	Serial Management Port	Right Indicator - Amber: Serial port fault.
7	Host or SIM Link IN	Top Indicator - Green
8	Host or SIM Link IN	Bottom Indicator - Amber
9	Host OUT	Top Indicator - Green
10	Host OUT	Bottom Indicator - Amber
11	SIM Link Out	Bottom Indicator - Amber
12	SIM Link Out	Top Indicator - Green
13	SIM Board	Locate Indicator - Blue: Identified as ready for service (not supported)
14	SIM Board	Power On/Fault Indicator - Green/Amber

## SIM Board Status Indicators

Following are the J4200/J4400 SIM board status indicator descriptions:

**TABLE 1-4** J4200/J4400 Array SIM Board Status Indicator Descriptions

ID	Indicator	Color	Condition	Description
4	Serial Management Port	Green	Serial port is active	Left status indicator - serial management connector
6	Serial Management Port	Amber	Serial port fault	Right status indicator - serial management connector
7 to 12	SAS Faults	Green/Amber	Green is On Amber is Off	Optimal operating status - no activity
		Green/Amber	Green is Off Amber is On	Link not operating
		Green/Amber	Green is Blinking Amber is Off	OK with activity
		Green/Amber	Green is Blinking Amber is On	Link operating with fewer than all four links
13	Locate SIM Board	Blue	On	Identified as ready for service (not supported)
		Blue	Off	Not identified
14	Power SIM Board	Green	On	Power on and system is operating
		Green	Blinking @ 1 Hz 50%	System is booting, being configured, or downloading firmware
		Amber	Off	SIM OK
		Amber	On	SIM fault

## J4200/J4400 Array Power Supplies

The J4200 has separate power supplies and fans, where the J4400 has an integrated power supply and fan module.

Each tray contains two hot-swappable, redundant power supplies. If one power supply is turned off or malfunctions, the other power supply maintains electrical power to the tray.

---

**Caution –** The power supplies in this equipment can produce high energy hazards. Only instructed personnel with authorized access to this equipment can remove and replace modules in the system.

---

[FIGURE 1-13](#) shows J4200 array power supplies and [FIGURE 1-14](#) shows J4400 array power supplies.



FIGURE 1-13 J4200 Array Power Supplies

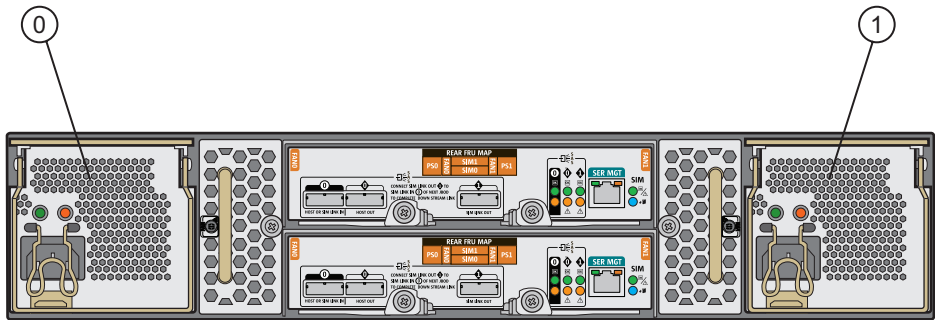


Figure Legend

ID	Component
0	Power Supply 0
1	Power Supply 1

FIGURE 1-14 J4400 Array Power Supplies

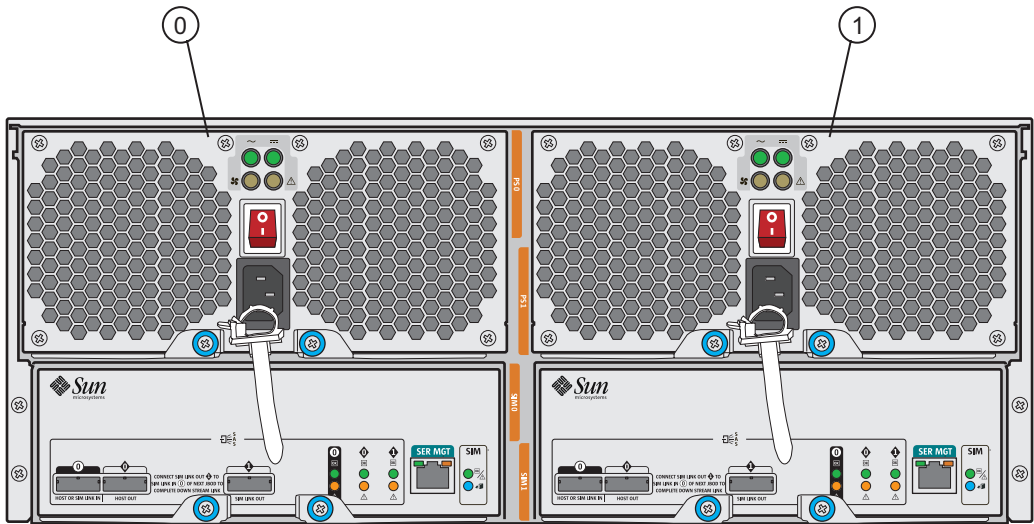
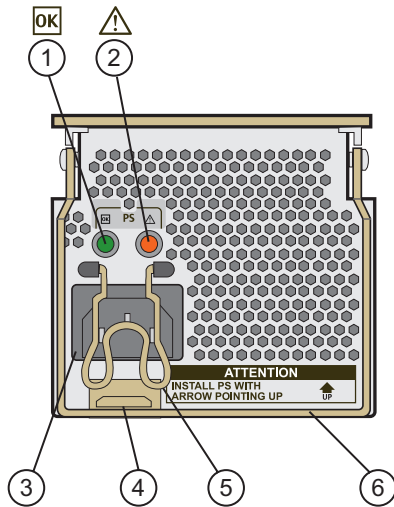


FIGURE 1-15 shows an individual J4200 array power supply and FIGURE 1-16 shows an individual J4400 array power supply.

**FIGURE 1-15** Individual J4200 Power Supply



[TABLE 1-5](#) describes the J4200 power supply components and [TABLE 1-6](#) provides the J4200 power supply status indicator descriptions.

**TABLE 1-5** J4200 Array Power Supply Components

ID	Component	Description
1	Green indicator	See <a href="#">TABLE 1-6</a> .
2	Amber indicator	See <a href="#">TABLE 1-6</a> .
3	Universal power input connector	Power cord connector.
4	Power supply latch	Holds the power supply handle down.
5	Power cord clamp	Holds the power cord in place.
6	Power supply handle	Used to remove the power supply from and insert the power supply into the J4200 enclosure.

# J4200 Power Supply Status Indicators

Following are the J4200 power supply status indicator descriptions.

TABLE 1-6 J4200 Power Supply Indicators

ID	Indicator	Color	Condition	Description
1	Power Status	Green	On	AC/DC Power Ready
		Green	Off	No AC/DC Power Input
		Green	Blinking	AC Present and Standby Output is Available
2	Power Fault	Amber	On	Power Supply Failure
		Amber	Off	Power Supply Healthy

FIGURE 1-16 Individual J4400 Power Supply

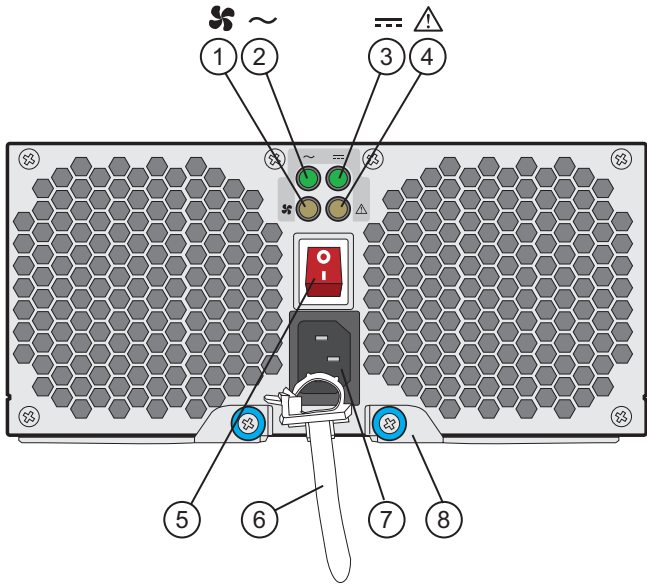


TABLE 1-7 describes the J4400 power supply components and TABLE 1-8 provides the J4400 power supply status indicator descriptions.

**TABLE 1-7** J4400 Array Power Supply Components

ID	Component	Description
1	Cooling fan status indicator	See <a href="#">TABLE 1-8</a> .
2	AC power status indicator	See <a href="#">TABLE 1-8</a> .
3	DC power status indicator	See <a href="#">TABLE 1-8</a> .
4	Power supply status indicator	See <a href="#">TABLE 1-8</a> .
5	Power on/off switch	Turns power to the array on or off.
6	Power cord tie wrap	Holds the power cord in place.
7	Universal power input connector	Provides power to the array.
8	Right ejection arm and captive screw latch	Secures the power supply to the chassis.

## J4400 Power Supply Status Indicators

Following are the J4400 power supply status indicator descriptions.

**TABLE 1-8** J4400 Power Supply Status Indicator Descriptions

ID	Indicator	Color	Condition	Description
1	Cooling fan status indicator	Amber	On	Fan failure
		Amber	Off	Fans healthy
2	AC power status indicator	Green	On	AC power ready
		Green	Off	No AC power input
3	DC power status indicator	Green	On	DC power ready
		Green	Off	No DC power input
4	Power supply status indicator	Amber	On	Power supply failure
		Amber	Off	Power supply healthy

# J4200 Array Fan Modules

The fans circulate air inside the tray by pulling it through the vents on the front of the assembly and pushing it out of the vents on the back of each fan.

Each J4200 array contains two hot-swappable fans for redundant cooling. Fan Module 0 is on the left and Fan Module 1 is on the right. If one of the fans fails, the remaining fan continues to provide sufficient cooling to operate the array. The remaining fan runs at a higher speed until the failed fan is replaced. Replace a failed fan as soon as possible.

FIGURE 1-17 J4200 Array Fans

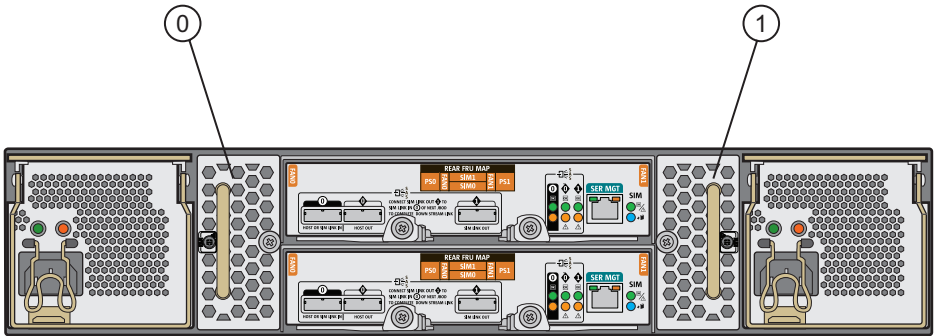
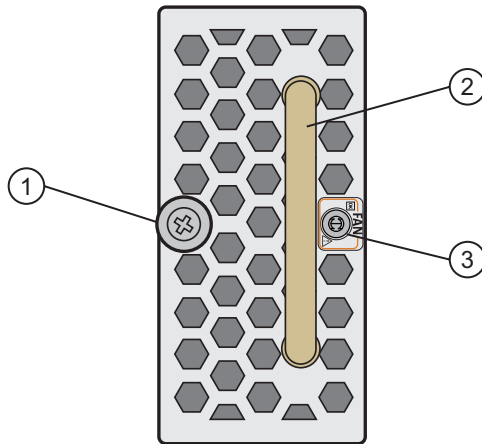


Figure Legend

ID	Description
0	Fan module 0
1	Fan module 1

**FIGURE 1-18** Individual J4200 Array Fan Module



**Figure Legend**

ID	Description
1	Thumbscrew
2	Fan module handle
3	Bicolored (green/amber) status indicator

## J4200 Fan Status Indicators

Following are the J4200 fan status indicator descriptions.

**TABLE 1-9** J4200 Fan Status Indicator Descriptions

Indicator	Color	Condition	Description
Fan Status	Green	Off	No Power
	Amber	Off	
	Green	On	Fan Healthy
	Amber	Off	
	Green	Off	Fan Fault
	Amber	On	

---

# Customer-Replaceable Units

The J4200/J4400 Array can be delivered fully assembled or packaged as individual components that you install into the chassis. All customer-replaceable units (CRUs) have a document describing the installation instructions in its shipping box. Additionally, the Common Array Manager (CAM) software has a Service Advisor application with wizards that guide you through CRU replacements.

The following hardware components are designed to be customer installable:

- SIM Board
- Power Supply
- Fan (J4200 only)
- Disk Drives
- Chassis

---

# Management Software

The Sun StorageTek Common Array Manager (CAM) software suite provides management, monitoring, and service capabilities. The software has both a browser interface and a command-line interface (CLI).

The J4200/J4400 array requires a minimum version of CAM of 6.1.1. For detailed information about which versions of CAM to use with the arrays, refer to the *Sun Storage J4200/J4400 Array Release Notes*, part number 820-3222-xx, which is available at the following location:

<http://docs.sun.com/app/docs/prod/j4200.array>

For complete CAM documentation, go to the following location:

<http://docs.sun.com/app/docs/prod/stor.armmgr>

For more information about CAM, and to download the latest version, go to the following location:

[http://www.sun.com/storagetek/management\\_software/resource\\_management/cam/](http://www.sun.com/storagetek/management_software/resource_management/cam/)

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**Note** – If you are using the J4400 array as part of a Sun Storage 7000 Unified Storage System configuration, you do not use the CAM software suite. Instead, you manage the array using the management software provided with the Unified Storage System.

---

## Full Management Software

The full management software is installed on a management workstation. The management software communicates with the J4000 arrays via a proxy agent that is installed on the data host. It provides:

- A browser interface
- Multiple array management

## Remote Proxy

The remote proxy agent enables communication, equivalent to in-band management, from the full management host to the array over an out-of-band IP network.

If the proxy is enabled, the full install of the Common Array Manager can manage the J4000 Family array directly. To remotely use the browser interface to manage the J4000 Family array, you sign into the IP address of the full management host, sign into the software from the Java Web Console, and select the J4000 array. The remote proxy must be enabled while running the installation wizard or script.

## Command-Line Interface

The Sun StorageTek Common Array Manager software's command-line interfaces provide the same control and monitoring capability as the Web browser and it is scriptable for running frequently performed tasks.

For more information about CLI commands, see:

- `sscs` man page
- CAM documentation, available at:

<http://docs.sun.com/app/docs/prod/stor.armmgr>



# Overview of the Hardware Installation Process

Before you begin to install the J4200/J4400 Array, you must first:

- Read the *Sun Storage J4200/J4400 Array Release Notes* (820-3222-*nn*) for late-breaking information related to the installation and operation of the array.
- Review the *Sun StorageTek Regulatory and Safety Compliance Manual*, part number 96272, Revision A.
- Prepare the site as described in the *Sun Storage J4200/J4400 Array Site Preparation Guide*.

---

**Note** – This product is intended to be used in restricted access locations, such as in dedicated equipment rooms or closets.

---

The following checklist (TABLE 1-10) outlines of the tasks required for installing the Sun Storage J4200/J4400 Array hardware and tells you where to find detailed procedures. To ensure a successful installation, perform the tasks in the order in which they are presented.

**TABLE 1-10** Sun Storage J4200/J4400 Array Hardware Installation Checklist

Step	Installation Task	Where to Find Procedure
1.	Unpack the device and move it into position.	Unpacking guide attached to the outside of the shipping carton
2.	Install and secure the cabinet.	<ul style="list-style-type: none"><li>• <i>Sun StorageEdge Expansion Cabinet Installation and Service Manual</i></li><li>• <i>Sun Rack Installation Guide</i></li></ul>
3.	Unpack the rack mounting kit and check its contents.	<a href="#">“Check the Rail Kit Contents” on page 30</a>
4.	Prepare the cabinet for installation.	<a href="#">“Prepare the Cabinet” on page 32</a>
5.	Attach the rails to the cabinet.	<a href="#">“Installing the Rail Kit in a Sun Rack 900/1000 Cabinet” on page 32</a>
6.	Mount the tray in the cabinet.	<a href="#">“Preparing to Install a Tray in a Cabinet” on page 49</a>
7.	Connect the tray to the data and management host.	<a href="#">“Connecting to the Data and Management Host or Another J4200/J4400 Array” on page 63</a>
8.	Turn on the power.	<a href="#">“Powering On the Array” on page 71</a>



# Installing Rails and Trays in Cabinets

---

This document describes how to install the Sun Storage J4200 and J4400 Array Rail Kits in a cabinet, and how to install the J4200 and J4400 trays into a cabinet.

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**Note** – The instructions and graphical illustrations used throughout this chapter are specific to the J4200 Rail Kit installation. Additional information that is unique to the J4400 Rail Kit is described where appropriate. While most of the illustrations used in this chapter are specific to the J4200 Rail Kit, the J4400 Rail Kit is functionally the same mechanism. The main difference between the two kits is the J4400 rails have wider vertical flanges that require additional screws as noted.

---

This document contains the following sections:

- [“Before You Begin” on page 29](#)
- [“Installing the Rail Kit in a Sun Rack 900/1000 Cabinet” on page 32](#)
- [“Installing the Rail Kit in a Sun StorEdge Expansion or Sun Fire Cabinet” on page 38](#)
- [“Installing the Rail Kit in a Standard 19-Inch Cabinet With Unthreaded Cabinet Rails” on page 44](#)

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## Before You Begin

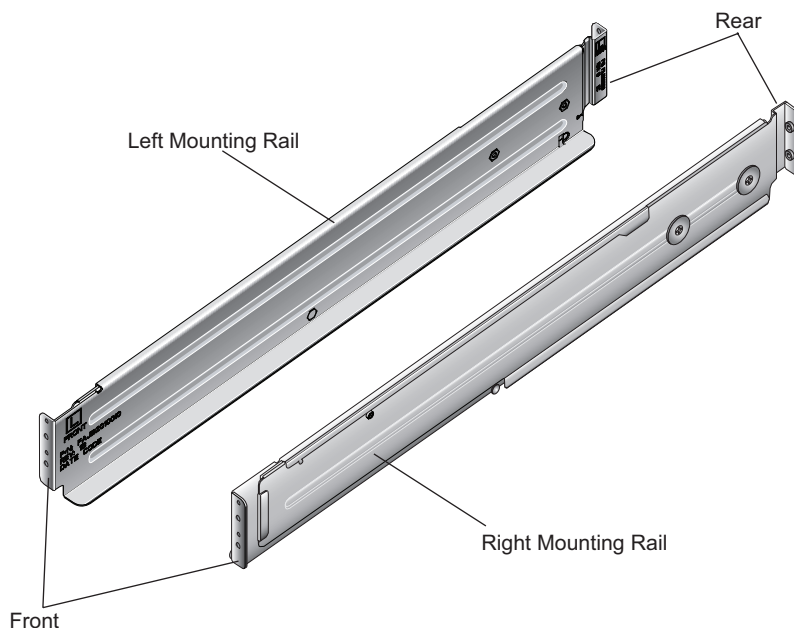
Before you begin to install the rail kit, do the following:

- [“Check the Rail Kit Contents” on page 30](#)
- [“Prepare the Cabinet” on page 32](#)

## Check the Rail Kit Contents

The rail kits for both the J4200 array and J4400 array contain the appropriate cabinet rails and all required mounting hardware for installing in any of the supported cabinet types. Each rail adjusts to cabinet rail depths from 24 inches (60.96 cm) to 36 inches (91.44cm).

**FIGURE 2-1** Left and Right Mounting Rails (J4200 Array Rails Shown)



**TABLE 2-1** lists the rail kit components for the J4200 array, and lists the rail kit components for the J4400 array:

**TABLE 2-1** Rail Kit Contents (J4200 Array)

Quantity	Description	Cabinet
1	Right rail assembly	All supported cabinets
1	Left rail assembly	All supported cabinets
4	Rail plate brackets 10-32	Sun StorEdge Expansion and Sun Fire cabinet
4	Rail plate brackets M6	Sun Rack 900/1000 cabinets
1	Right rear rail adapter bracket	Sun StorEdge Expansion cabinet and Sun Fire cabinet

**TABLE 2-1** Rail Kit Contents (J4200 Array)

Quantity	Description	Cabinet
1	Left rear rail adapter bracket	Sun StorEdge Expansion cabinet and Sun Fire cabinet
4	Rail plate bracket (square hole)	Universal 19"non-threaded cabinet
4	M6 screws	Sun Rack 900/1000 cabinets and Universal 19" non-threaded cabinet
4	M6 square cage nuts	Universal 19" non-threaded cabinet
8	8-32 screws	All supported cabinets
8	10-32 screws	Sun Fire cabinet and Sun StorEdge Expansion cabinet
2	System locking clips	All supported cabinets

**TABLE 2-2** Rail Kit Contents (J4400 Array)

Quantity	Description	Cabinet
1	Right rail assembly	All supported cabinets
1	Left rail assembly	All supported cabinets
4	Rail plate brackets 10-32	Sun StorEdge Expansion and Sun Fire cabinet
4	Rail plate brackets M6	Sun Rack 900/1000 cabinets
1	Right rear rail adapter bracket	Sun StorEdge Expansion cabinet and Sun Fire cabinet
1	Left rear rail adapter bracket	Sun StorEdge Expansion cabinet and Sun Fire cabinet
4	Rail plate bracket (square hole)	Universal 19"non-threaded cabinet
8	M6 screws	Sun Rack 900/1000 cabinets and Universal 19" non-threaded cabinet
8	M6 square cage nuts	Universal 19" non-threaded cabinet
16	8-32 screws	All supported cabinets
16	10-32 screws	Sun Fire cabinet and Sun StorEdge Expansion cabinet
2	System locking clips	All supported cabinets

## Prepare the Cabinet

You can install the rail kit in any of the following cabinets:

- Sun Rack 900/1000 cabinet
  - Sun Fire cabinet
  - Sun StorEdge Expansion cabinet
  - Any 19-inch wide, 4-post, EIA-compatible rack or cabinet with a front-to-back depth between vertical cabinet rails of 61 cm to 91 cm (24 in. to 36 in.). The cabinet can have threaded or unthreaded cabinet rails.
1. **Select the cabinet in which you will be installing the array. Be sure the cabinet is installed as described in the cabinet installation instructions.**
  2. **Stabilize the cabinet as described in the cabinet documentation.**
  3. **If the cabinet has casters, make sure the casters are locked to prevent the cabinet from rolling.**
  4. **Position the data host next to the cabinet in which the array will be installed.**

---

## Installing the Rail Kit in a Sun Rack 900/1000 Cabinet

Use the following procedure for the Sun Rack 900/1000 cabinet.

### Prerequisites

- Check the cabinet installation as described in [“Prepare the Cabinet” on page 32](#).
- Unpack the left and right adjustable rails.
- Obtain a #2 Phillips screwdriver (minimum 4-inch length recommended).
- Gather the required mounting hardware for the cabinet (see [TABLE 2-3](#) or ).

**TABLE 2-3** Sun Rack 900/1000 Cabinet Mounting Hardware (J4200 Array)

Quantity	Description	Purpose
4	M6 rail plate brackets	Attaches to a threaded EIA (vertical) cabinet rails
4	M6 screws	Secures rail plate brackets to cabinet's EIA rails
8	8-32 screws	Secures the rails to the cabinet rails
2	Locking clips	Stabilizes the back of the array in the cabinet

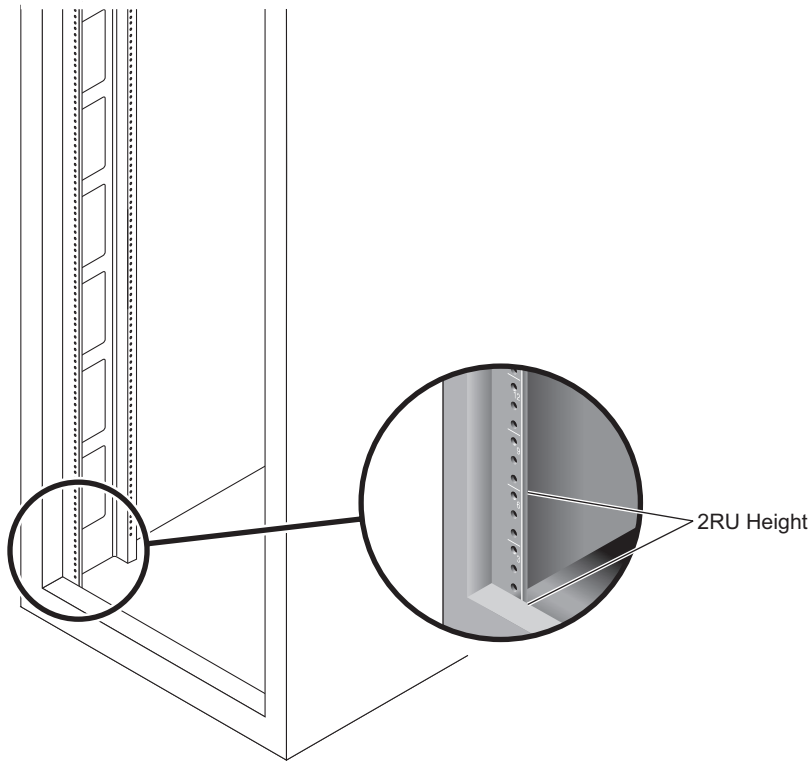
**TABLE 2-4** Sun Rack 900/1000 Cabinet Mounting Hardware (J4400 Array)

Quantity	Description	Purpose
4	M6 rail plate brackets	Attaches to a threaded EIA (vertical) cabinet rails
8	M6 screws	Secures rail plate brackets to cabinet's EIA rails
16	8-32 screws	Secures the rails to the cabinet rails
2	Locking clips	Stabilizes the back of the array in the cabinet

1. Starting at the bottom of the cabinet, locate the appropriate rack unit (RU) height. The J4200 array requires two standard mounting units (2RU) and the J4400 array requires four standard mounting units (4RU) of vertical space in the cabinet.

**Note** – Each standard rack unit (RU) consists of three mounting holes in the left and right cabinet rails.

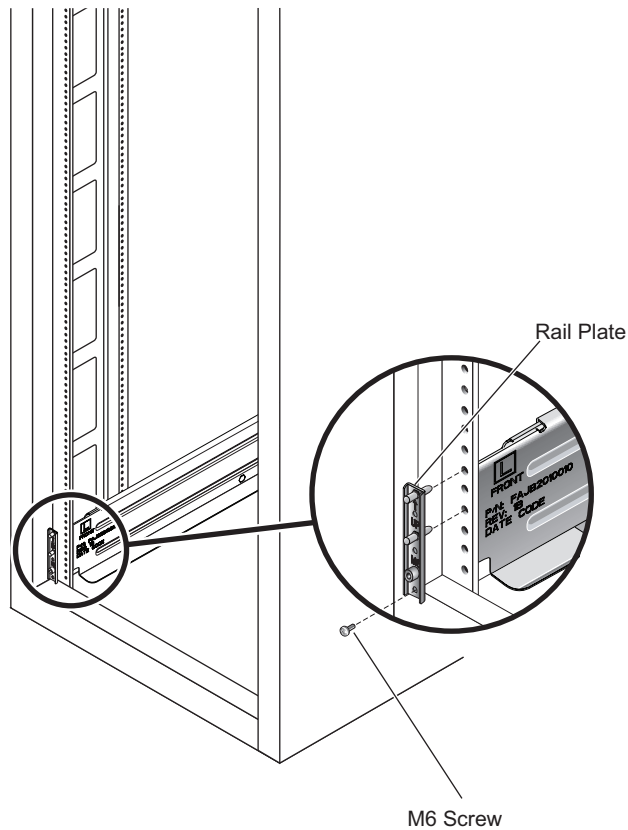
**FIGURE 2-2** Cabinet Rail 2RU Mounting Holes for the J4200 Array



2. Start at the front of the cabinet. Install one of the M6 rail plate brackets to each side of the rack (see [FIGURE 2-3](#)).
  - a. With the text on the bracket facing toward you, align the two pins of the rail plate bracket with the holes on the cabinet rail.
  - b. For the J4200 and J4400 rack mounting plates, insert an M6 screw in the lower hole and tighten. For the J4400, insert an additional M6 screw in the top hole.
3. At the back of the cabinet, repeat step 2 to install the remaining two M6 rail plate brackets.



**FIGURE 2-3** Attaching the Rail Plates to the Cabinet Rail for the J4200 Array



4. For ease of installation, attach the left and right rails from the back of the cabinet. Follow these steps for the left rail:
  - a. Position the front of the rail inside the cabinet, and insert the rail holes onto the two pins of the front rail plate bracket.

---

**Note** – Rails are labeled L (left), Front and Rear, and R (right), Front and Rear. (See [FIGURE 2-1.](#))

---

- b. Adjust the rail length to fit the size of the cabinet.

Be sure to align the rail flange so that the mounting holes at the back correspond to those at the front of the cabinet.
    - c. Insert the two holes of the rail flange onto the two pins on the back rail plate bracket.

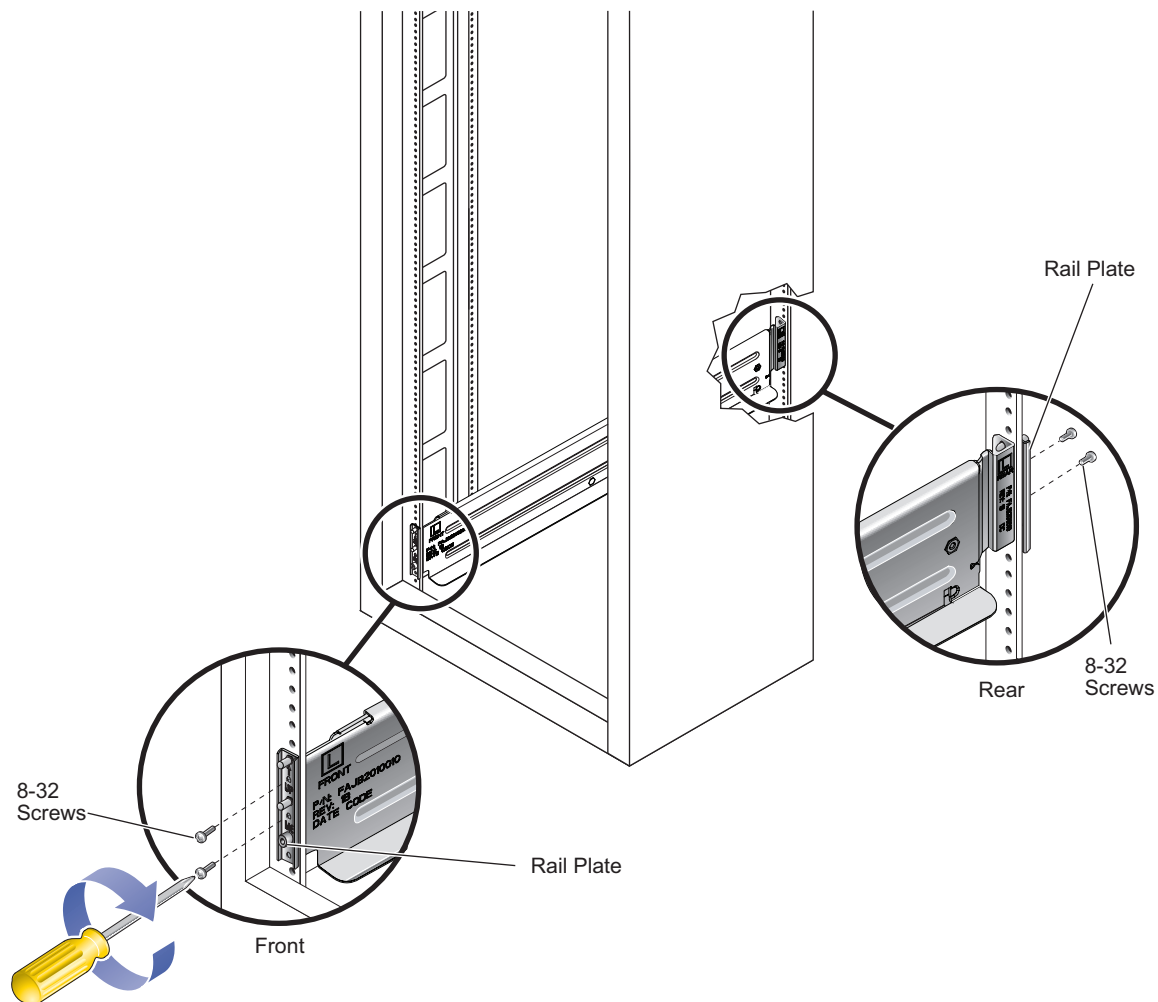
- d. Insert an 8-32 screw into the first and second hole positions (into the first through fourth hole positions for the J4400 array). Use the #2 Phillips screwdriver to tighten each screw to secure the rail to the rack.
  - e. Repeat [Step a](#) through [Step d](#) for the right rail.
5. Install two 8-32 screws in the front of the J4200 rail, and four 8-32 screws in the front of the J4400 rail.

---

**Caution** – Make sure you install the front screws into the rail bracket to secure the rail to the rack and to avoid damage to the device or person installing the device.

---

**FIGURE 2-4** Attaching and Securing the Left Rail to the Cabinet Rail for the J4200 Array



Installation of the rail kit is complete. You are now ready to install the array chassis onto the cabinet rails. See the [“Preparing to Install a Tray in a Cabinet”](#) on page 49 for installation instructions.

---

# Installing the Rail Kit in a Sun StorEdge Expansion or Sun Fire Cabinet

Use the following procedure for Sun StorEdge Expansion or Sun Fire cabinet.

## Prerequisites

- Check the cabinet installation as described in [“Prepare the Cabinet” on page 32](#).
- Unpack the left and right adjustable rails.
- Obtain a #2 Phillips screwdriver (minimum 4-inch length recommended).
- Gather the required mounting hardware for the cabinet (see [TABLE 2-5](#) or [TABLE 2-6](#)).

**TABLE 2-5** Sun StorEdge Expansion Cabinet and Sun Fire Cabinet Mounting Hardware (J4200)

Quantity	Description	Purpose
2	10-32 rail plate brackets	Attaches to front threaded EIA (vertical) cabinet rails.
2	Rear rail adapter bracket (left and right)	Attaches to the rear of the left and right rail assembly. These brackets allow access to the power cabling area at the back of the cabinet.
8	8-32 screws	Secures the rails and rear adapters to the cabinet.
8	10-32 screws	Secures the rails to the cabinet.
2	Locking clips	Stabilizes the back of the chassis in the cabinet.

**TABLE 2-6** Sun StorEdge Expansion Cabinet and Sun Fire Cabinet Mounting Hardware (J4400)

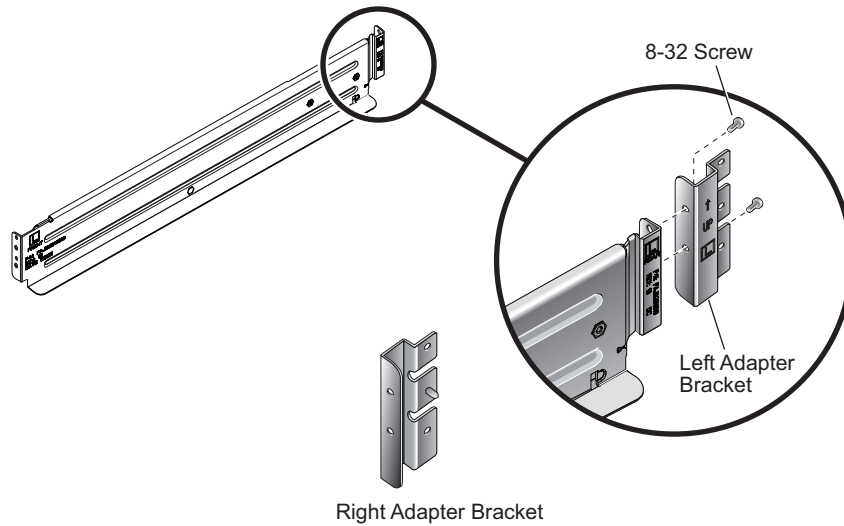
Quantity	Description	Purpose
2	10-32 rail plate brackets	Attaches to front threaded EIA (vertical) cabinet rails.
2	Rear rail adapter bracket (left and right)	Attaches to the rear of the left and right rail assembly. These brackets allow access to the power cabling area at the back of the cabinet.
16	8-32 screws	Secures the rails and rear adapters to the cabinet.
16	10-32 screws	Secures the rails to the cabinet.
2	Locking clips	Stabilizes the back of the chassis in the cabinet.

**1. Install the rear rail adapter brackets onto the left and right rails. (See [FIGURE 2-5.](#))**

**Note** – Rails are labeled L (left), Front and Rear, and R (right), Front and Rear. (See [FIGURE 2-1.](#))

**2. Insert and tighten two 8-32 screws (four 8-32 screws for the J4400) to secure the adapter bracket to each rail.**

**FIGURE 2-5** Attaching the Adapter Brackets to the Rail (J4200)



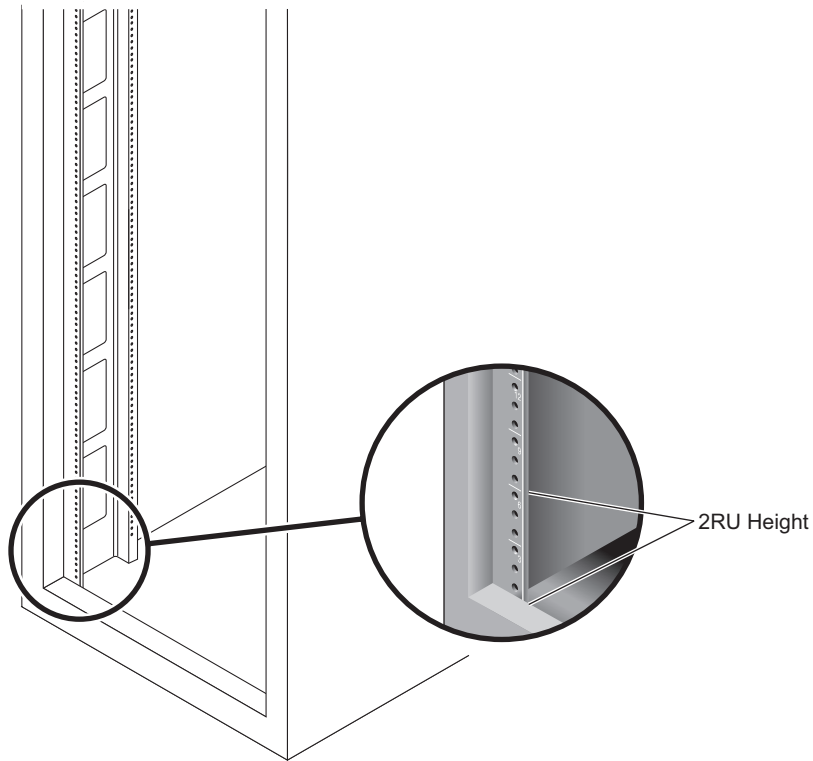
3. Starting at the bottom of the cabinet, locate the appropriate mounting unit height. The J4200 array requires two standard rack units (2RU) and the J4400 array requires four standard rack units (4RU) of vertical space in the cabinet (See [FIGURE 2-6](#)).

---

**Note** – Each standard rack unit (RU) consists of three mounting holes in the left and right cabinet rails.

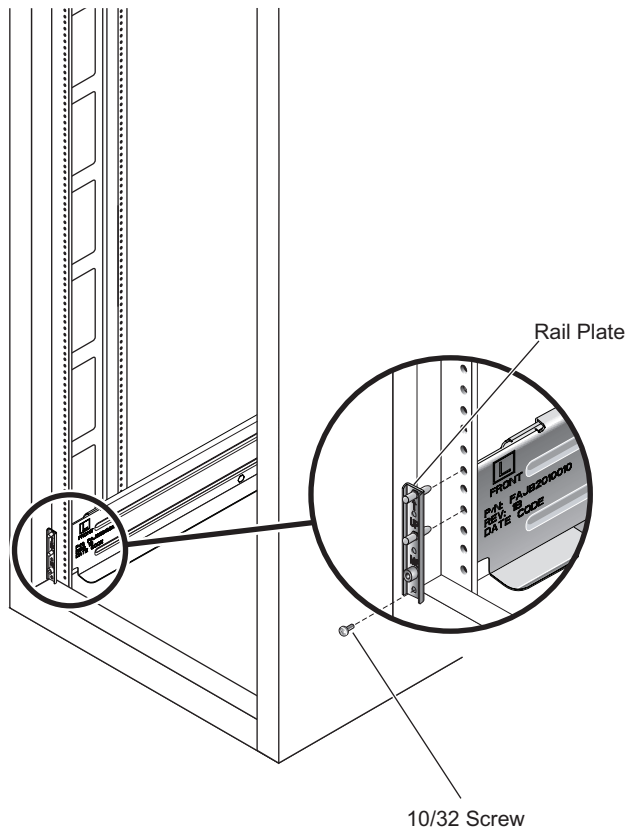
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**FIGURE 2-6** Locating the Rack Unit (RU) Height for the J4200 Array



4. At the front of the cabinet, install the 10-32 rail plate brackets to the left and right cabinet rails.
  - a. With the text on the bracket facing our, align and insert the two pins of the rail plate bracket into the cabinet rail holes.
  - b. For the J4200 and J4400 rack mounting plates, insert a 10-32 screw in the lower hole and tighten. For the J4400, insert an additional 10-32 screw in the top hole.

**FIGURE 2-7** Attaching the Rail Plates to the Cabinet Rail (J4200)



5. For ease of installation, attach the left and right rails from the back of the cabinet. (See [FIGURE 2-8](#).) Follow these steps for the left rail:
  - a. Position the front of the rail inside the cabinet, insert the rail holes onto the two pins of the front rail plate bracket.
  - b. Adjust the rail length to fit the size of the cabinet.

Be sure to align the rail flange so that the mounting holes at the front correspond to those at the back of the cabinet.
  - c. Align and insert the rear rail pin into the cabinet rail hole.
  - d. Add three 10-32 screws (six 10-32 screws for the J4400) to secure the rear adapter to the rack. (See [FIGURE 2-8](#).)
  - e. From the front of the cabinet, insert two 8-32 screws (four 8-32 screws for the J4400) to secure the rail to the cabinet.



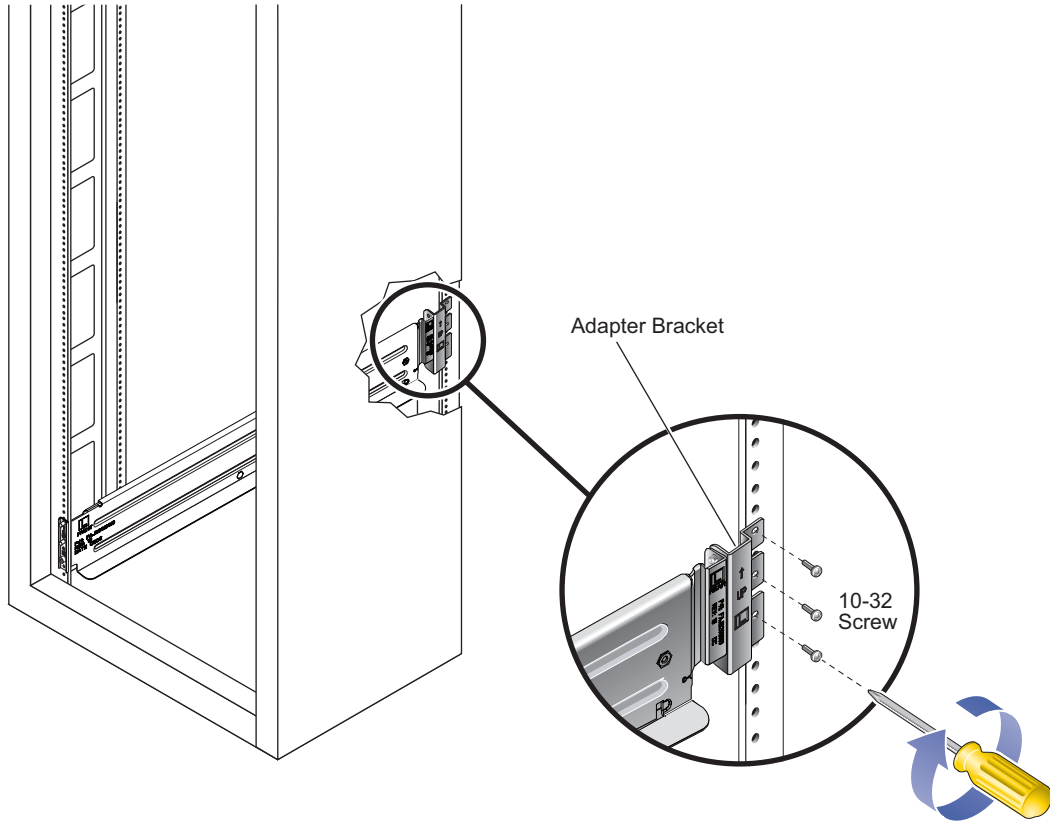
f. Repeat [Step a](#) through [Step e](#) for the right rail.

---

**Caution** – Make sure you install the front screws into the rail bracket to secure the rail to the rack and to avoid damage to the device or person installing the device.

---

**FIGURE 2-8** Securing the Adapter Brackets to the Cabinet Rail (J4200)



Installation of the rail kit is complete. You are now ready to install the array chassis onto the cabinet rails. See the [“Preparing to Install a Tray in a Cabinet”](#) on page 49 for installation instructions.

---

# Installing the Rail Kit in a Standard 19-Inch Cabinet With Unthreaded Cabinet Rails

Use the following procedure to attach the rail kit to any 19-inch wide, 4-post EIA-compatible rack, or cabinet with unthreaded cabinet rails.

## Prerequisites

- Check the cabinet installation as described in [“Prepare the Cabinet” on page 32](#).
- Unpack the left and right adjustable rails.
- Obtain a #2 Phillips screwdriver (minimum 4-inch length recommended).
- Gather the mounting hardware required for the cabinet (see [TABLE 2-7](#) or [TABLE 2-8](#)).

**TABLE 2-7** Universal 19-inch wide, 4-post, EIA-compatible Rack Mounting Hardware (J4200)

Quantity	Description	Purpose
4	M6 square cage nuts	Snaps over the rail mounting holes in the left and right back cabinet rails
4	Square adapter brackets	Attaches to non-threaded EIA (vertical) cabinet rails
4	M6 screws	Secures the square adapter brackets to the cabinet rails
8	8-32 screws	Secures the rails to the cabinet rack
2	Locking clips	Stabilizes the array chassis in the cabinet

**TABLE 2-8** Universal 19-inch wide, 4-post, EIA-compatible Rack Mounting Hardware (J4400)

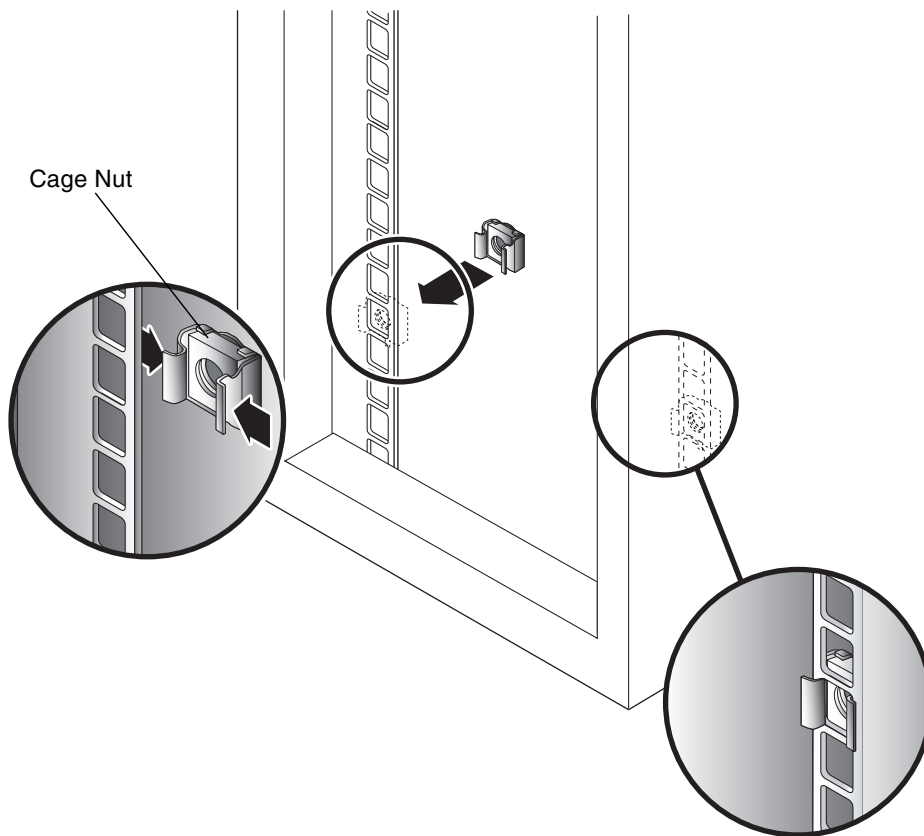
Quantity	Description	Purpose
4	M6 square cage nuts	Snaps over the rail mounting holes in the left and right back cabinet rails
8	Square adapter brackets	Attaches to non-threaded EIA (vertical) cabinet rails
8	M6 screws	Secures the square adapter brackets to the cabinet rails
16	8-32 screws	Secures the rails to the cabinet rack
2	Locking clips	Stabilizes the array chassis in the cabinet

1. Starting at the bottom of the cabinet, locate the appropriate mounting unit height. The J4200 array chassis requires two standard mounting rack units (2RU) of vertical space in the cabinet. The J4400 array chassis requires four standard mounting rack units (4RU) of vertical space in the cabinet.

**Note** – Each standard rack unit (RU) consists of three mounting holes in the left and right cabinet rails.

2. At the front of the cabinet, snap a cage nut into the lower hole of the 2RU of the right rail (and an additional cage nut in the top hole of the 4RU for the J4400). Repeat for the left rail. (See [FIGURE 2-9](#).)

**FIGURE 2-9** Inserting Cage Nuts Into the Cabinet Rail Mounting Holes (J4200)



3. Install the left and right square hole rail plate brackets (four brackets total for J4400).
  - a. For the J4200 and J4400 rack mounting plates, insert an M6 screw in the lower hole and tighten. For the J4400, insert an additional M6 screw in the top hole.
  - b. Using the #2 Phillips screwdriver, tighten the screws to secure the plates to the rail.
4. At the back of the cabinet, snap a cage nut into the lower hole of the 2RU of the right rail (and an additional cage nut in the top hole of the 4RU for the J4400). Repeat for the left rail. (See [FIGURE 2-9](#).)

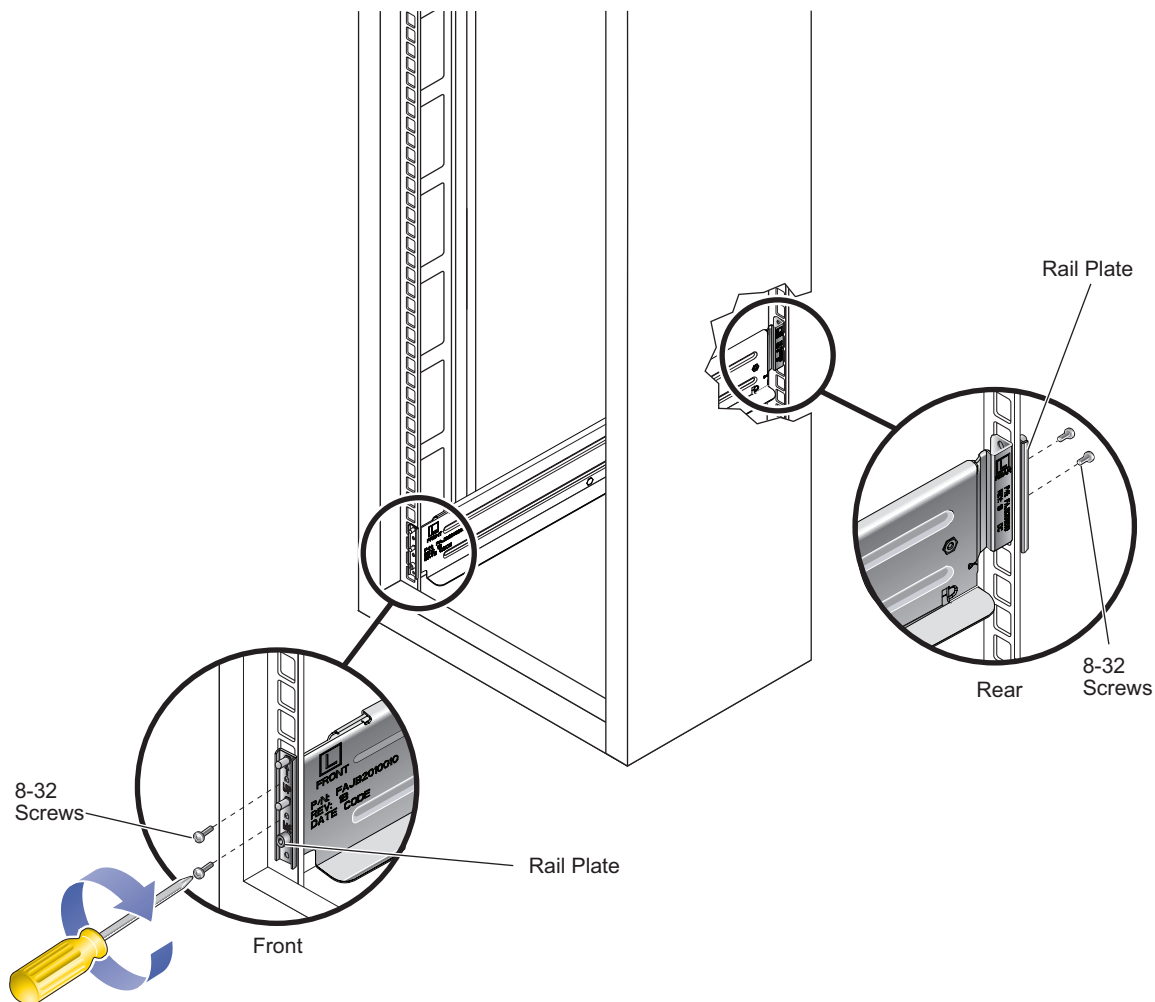
5. For the J4200 and J4400 rack mounting plates, insert an M6 screw in the lower hole and tighten. For the J4400, insert an additional M6 screw in the top hole.  
Be sure to align the rail flange so that the mounting holes at the front correspond to those at the back of the cabinet.
  - a. Insert an M6 screw into the lower hole of the rail plate bracket (lower two holes for J4400).
  - b. Using the #2 Phillips screwdriver, tighten the screws to secure the plates to the rail.
6. For ease of installation, attach the left and right rails from the back of the cabinet. Follow these steps for the left rail:
  - a. Position the front of the rail inside the cabinet, and insert the rail holes onto the two pins of the front rail plate bracket.
  - b. Adjust the rail length to fit the size of the cabinet.  
Be sure to align the rail flange so that the mounting holes at the front correspond to those at the back of the cabinet and the rail is level.
  - c. Align the two holes of the rail flange with the two pins on the back rail plate bracket.
  - d. Install two 8-32 screws to secure the rail to the rack (install four screws for the J4400), as shown in [FIGURE 2-8](#).
  - e. Repeat [Step a](#) through [Step d](#) for the right rail.
7. At the front of the cabinet, insert two 8-32 screws (four screws for J4400) in the remaining holes of the left and right brackets and tighten to secure the rail to the cabinet.

---

**Caution** – Make sure you install the front screws into the rail bracket to secure the rail to the rack and to avoid damage to the device or person installing the device.

---

**FIGURE 2-10** Attaching the Rails to the Cabinet



Installation of the rail kit is complete. You are now ready to install the array chassis onto the cabinet rails. See the [“Preparing to Install a Tray in a Cabinet”](#) on page 49 for installation instructions.

---

## Preparing to Install a Tray in a Cabinet

The J4400 weighs up to 91 pounds (42 kg) fully loaded. You should remove the disks before sliding the tray into the cabinet so that it is easier to lift. “[Removing a Disk Drive](#)” on [page 50](#) describes this procedure.

---

## Removing and Replacing a Disk Drive



---

**Caution** – The power supplies in this equipment can produce high energy hazards. Only trained personnel with authorized access to this equipment should remove and replace modules in the system.

---



---

**Caution** – The replacement disk drive must be the same capacity and same type as the disk drive it is replacing.

---



---

**Caution** – Never remove a disk drive unless the ID/Status LED is blue (see [FIGURE 1-1](#)). If you need to remove multiple disk drives, always remove and replace one disk drive at a time.

---

---

**Note** – The disks are hot-swappable and you do not need to disconnect power from the system or other components in order to replace one of these parts.

---

---

# Removing a Disk Drive

This section describes how to remove a disk drive.

1. From the front of the disk tray, locate the disk drives (see [FIGURE 2-11](#)) you want to remove. The Activity LED is off and the ID/Status LED is blue, indicating that data is not being transferred to or from the disk and that the disk drive is ready to remove.

---

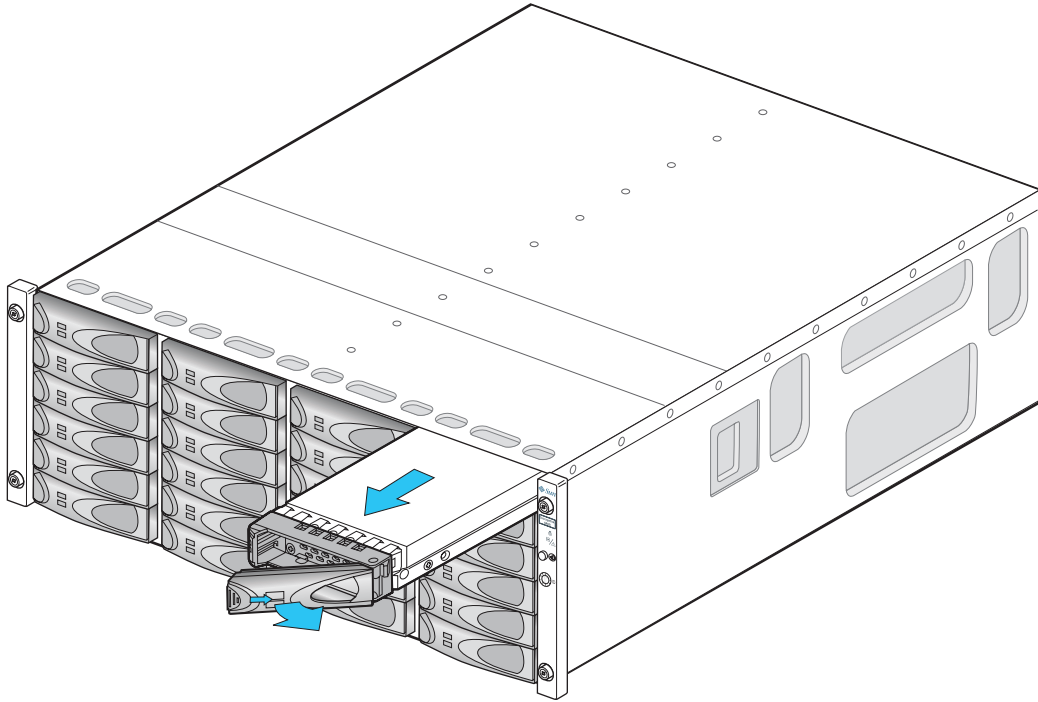
**Caution – Potential loss of data access** - Data might be lost if an active disk drive is removed. If you remove an active disk drive accidentally, wait at least 30 seconds before reinserting it.

---

2. Press the release button in and to the right to release the disk ejection lever.
3. Pull the disk ejection lever fully open to unlock and partially eject the disk drive from the tray.
4. Grasp the middle of the disk drive body and pull it toward you to remove it from the tray.



**FIGURE 2-11** Removing a Disk Drive From a J4400 Array Disk Tray



---

**Caution** – For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

---

## Installing a Tray in a Cabinet

This section describes installing a tray in a cabinet.

1. Using two people, one at each side of the tray, carefully lift and rest the tray on the bottom ledge of the left and right rails ([FIGURE 2-12](#)).

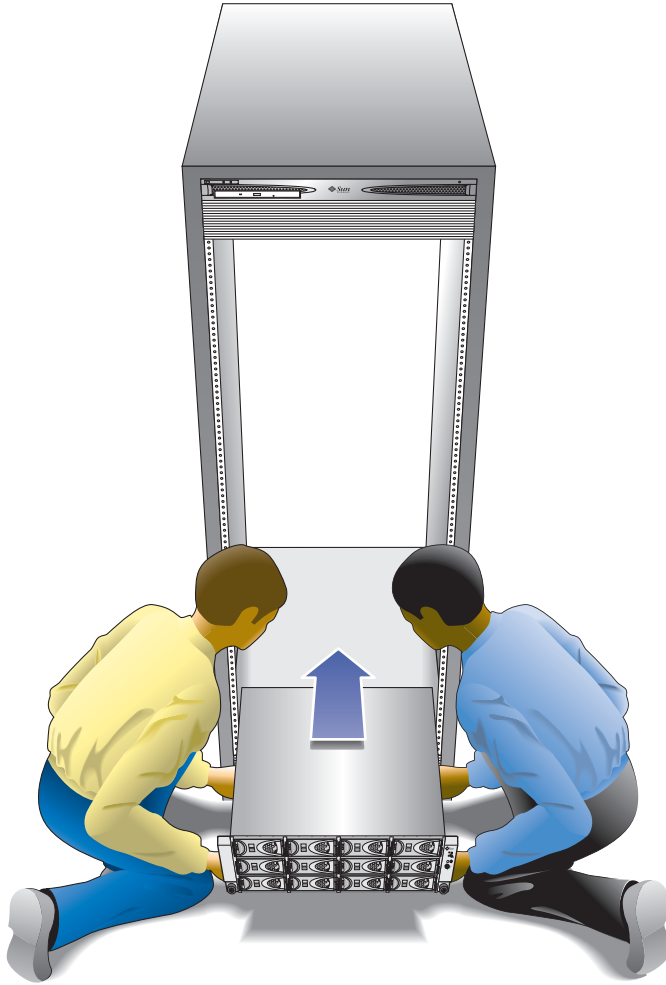


---

**Caution** – Use care to avoid injury. A J4200 tray can weigh up to 53 pounds (24 kg) and a J4400 tray can weigh up to 91 pounds (42 kg).

---

**FIGURE 2-12** Positioning the J4200 Array in the Cabinet

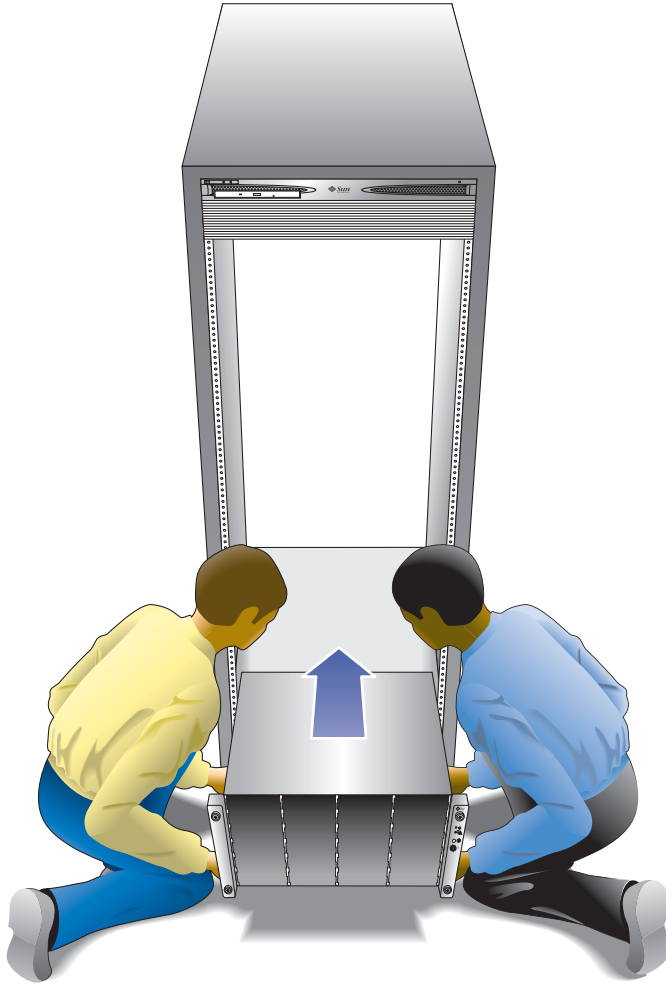


---

**Caution** – Given the excessive weight of a fully loaded J4400 chassis (91 lbs/42 kg), you should remove the components before lifting the tray, as shown in [FIGURE 2-13](#) and as described in [“Removing a Disk Drive”](#) on page 50.

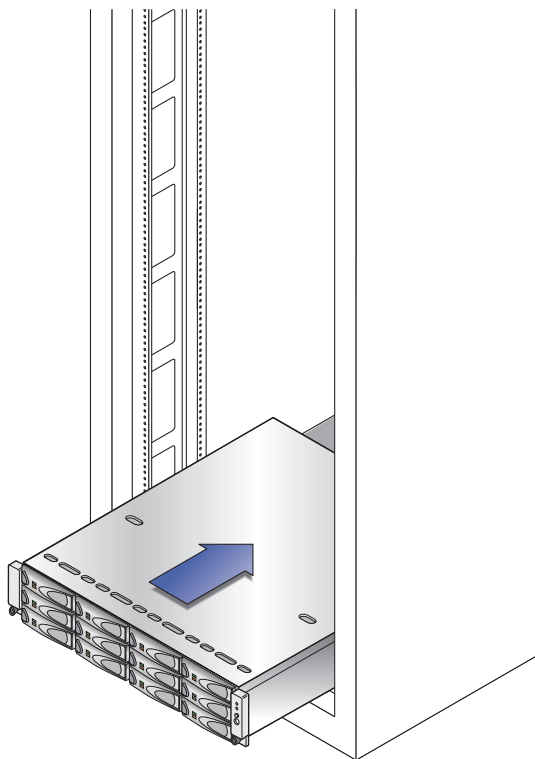
---

**FIGURE 2-13** Positioning the J4400 Array in the Cabinet

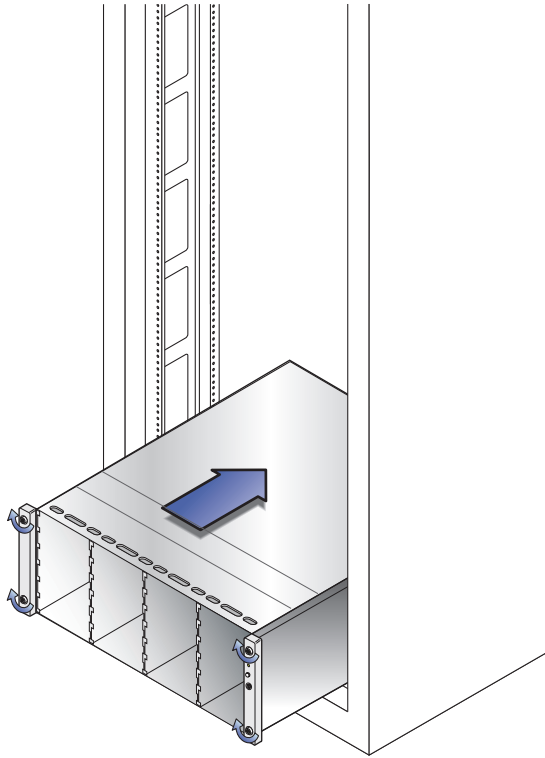


2. Carefully slide the tray into the cabinet until the front flanges of the tray touch the vertical face of the cabinet ([FIGURE 2-14](#) and [FIGURE 2-15](#)).

**FIGURE 2-14** Sliding the J4200 Array Into the Cabinet Rail



**FIGURE 2-15** Sliding the J4400 Array Into the Cabinet Rail



3. You should now replace the disks into the J4400, as described in [“Replacing a Disk Drive”](#) on page 56.

---

# Replacing a Disk Drive

This section describes how to replace a disk drive.



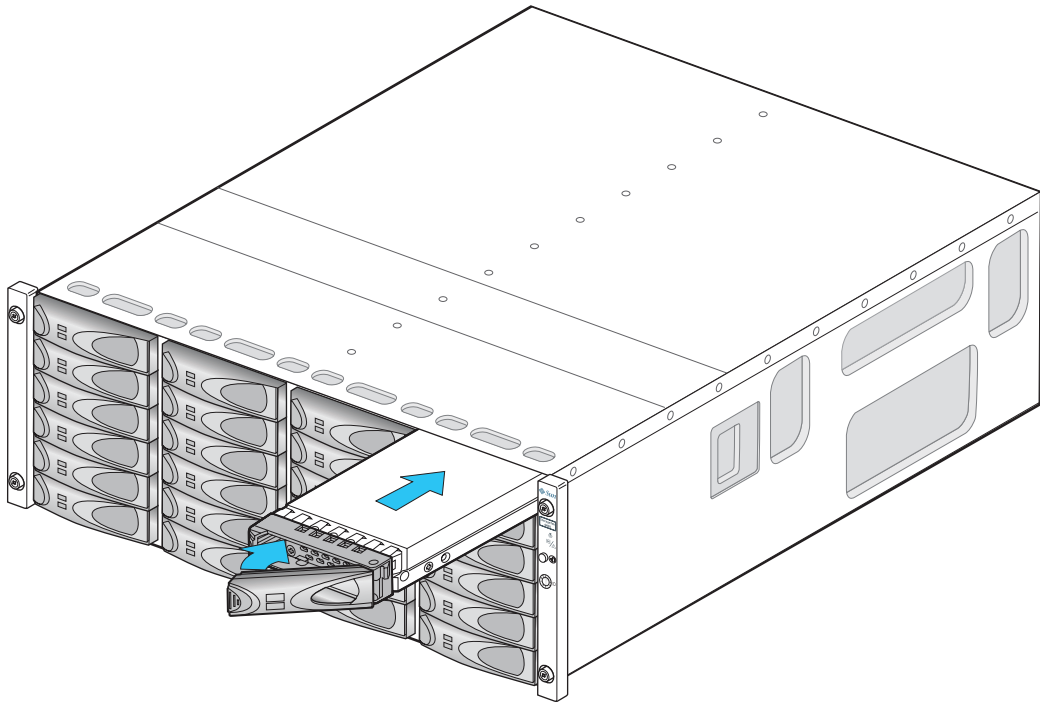
---

**Caution** – Follow normal ESD precautions and use care when handling a disk drive.

---

1. Ensure the disk drive is the same type and same capacity as the disk that was removed.
2. Ensure the disk ejection lever is in the fully extended position (see [FIGURE 2-16](#)).
3. Align the disk drive with the open slot and slide the drive into the disk tray.
4. Push the disk drive into the tray slot until the disk ejection lever engages the tray connectors and begins to swing closed.
5. Press the disk ejection lever closed until it locks in place to seat the drive and lock it into the tray.

**FIGURE 2-16** Inserting a Disk Drive in a J4400 Array Disk Tray



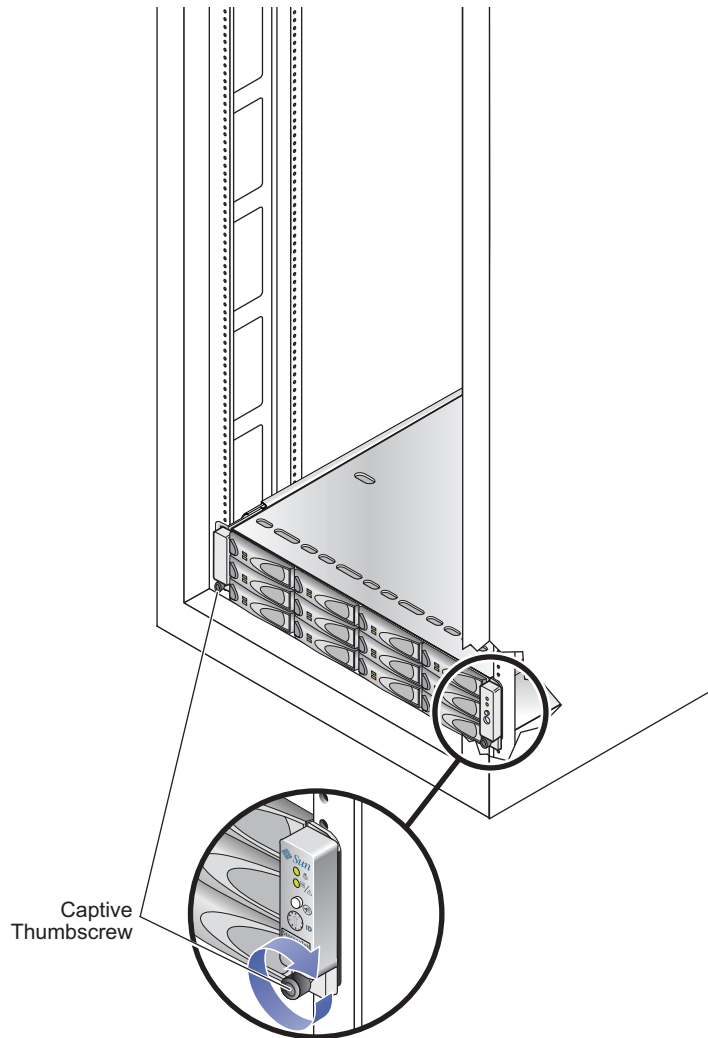
6. After the disk drive is locked in place, the Activity LED will be steady green to indicate a ready state.

---

## Secure the Tray Into the Cabinet

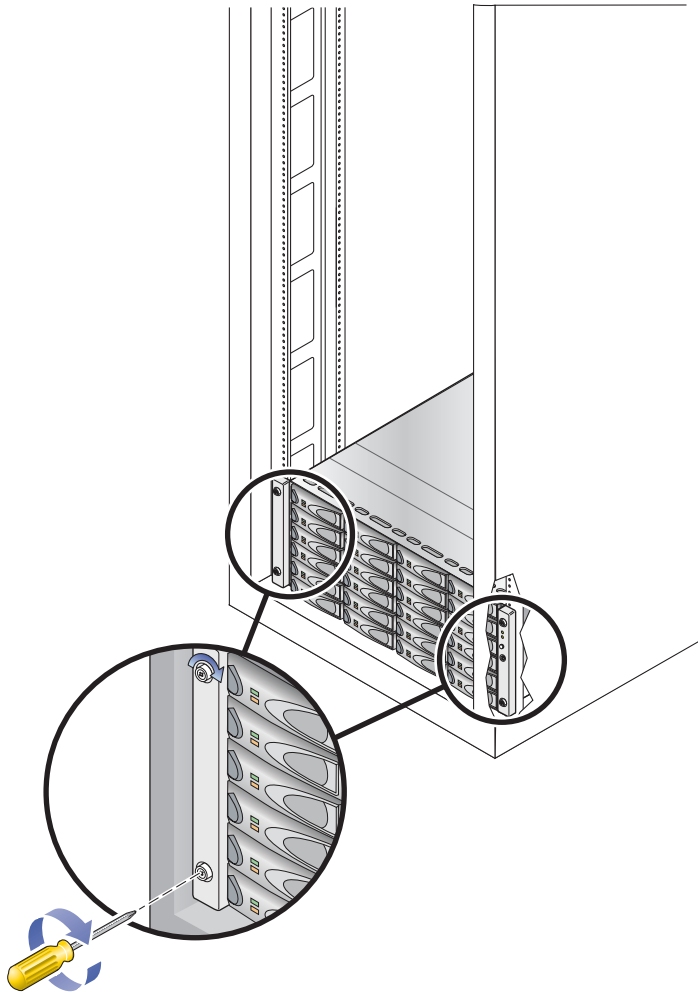
1. Install and tighten the captive screw or screws on each side of the front of the tray to secure the tray to the cabinet ([FIGURE 2-17](#) and [FIGURE 2-18](#)).
2. Replace the components back into the appropriate places (J4400 only).

**FIGURE 2-17** Securing the J4200 Array to the Front of the Cabinet Rail



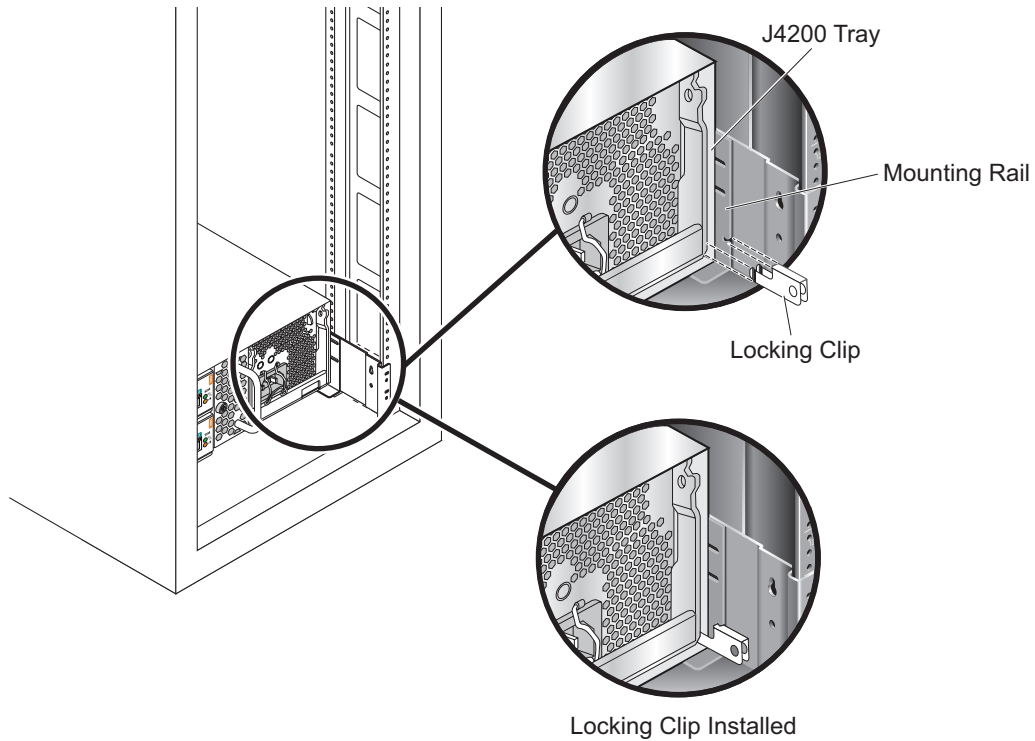


**FIGURE 2-18** Securing the J4400 Array to the Front of the Cabinet Rail

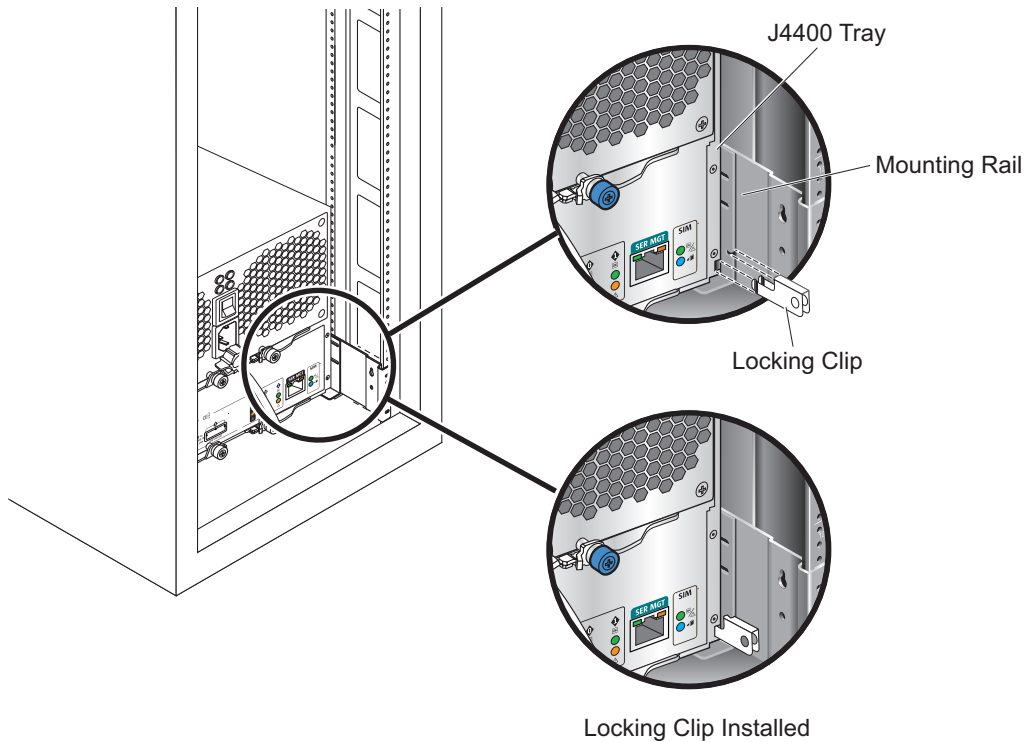


3. Stabilize the back of the J4200/J4400 in the cabinet. At the back, slide a system locking clip onto each lower corner of the J4200/J4400 chassis (FIGURE 2-19 and FIGURE 2-20). You can use a Phillips Head screwdriver for leverage to help you push in the clip.

**FIGURE 2-19** Inserting the J4200 Array System Locking Clip



**FIGURE 2-20** Inserting the J4400 Array System Locking Clip



---

## Next Steps

After you have installed J4200/J4400 trays into a cabinet, you are now ready to connect the devices and power on the trays. Refer to [Chapter 3 “Connecting Devices and Powering On”](#) on page 63 for additional information.



## Connecting Devices and Powering On

---

This chapter provides information about the following:

- [“Connecting to the Data and Management Host or Another J4200/J4400 Array” on page 63](#)
- [“Preparing to Power On the Tray” on page 68](#)
- [“Next Steps” on page 73](#)

---

## Connecting to the Data and Management Host or Another J4200/J4400 Array

This section provides information for:

- [Attaching the Host or SIM Link In Connector to the Data and Management Host](#)
- [Connecting to Another J4200/J4400 Array](#)

### Attaching the Host or SIM Link In Connector to the Data and Management Host

The management host directly manages the Sun Storage J4200/J4400 Array in-band over the mini-SAS host connection.

The mini-SAS cable for the host is not shipped automatically with the J4200/J4400 arrays; you must order or otherwise obtain an appropriate mini-SAS cable for your site.

To attach the J4200/J4400 SAS Host or SIM Link In connector to the data and management host:

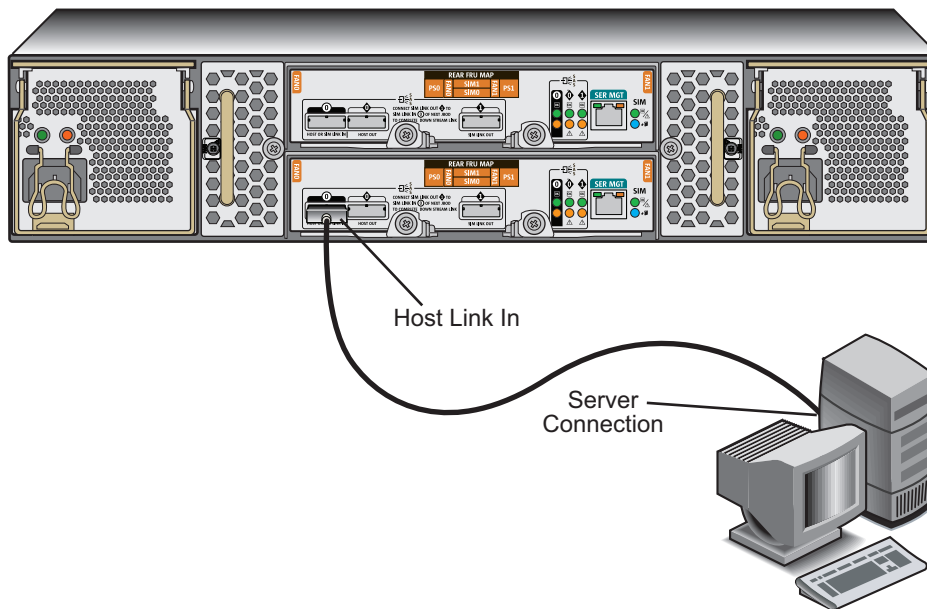
1. **Locate the Host or SIM Link In (SIM 0) connector at the back of the tray** (FIGURE 3-1 and FIGURE 3-2).
2. **Connect the SAS Host or SIM Link In connector to a SAS port on the data host.**

---

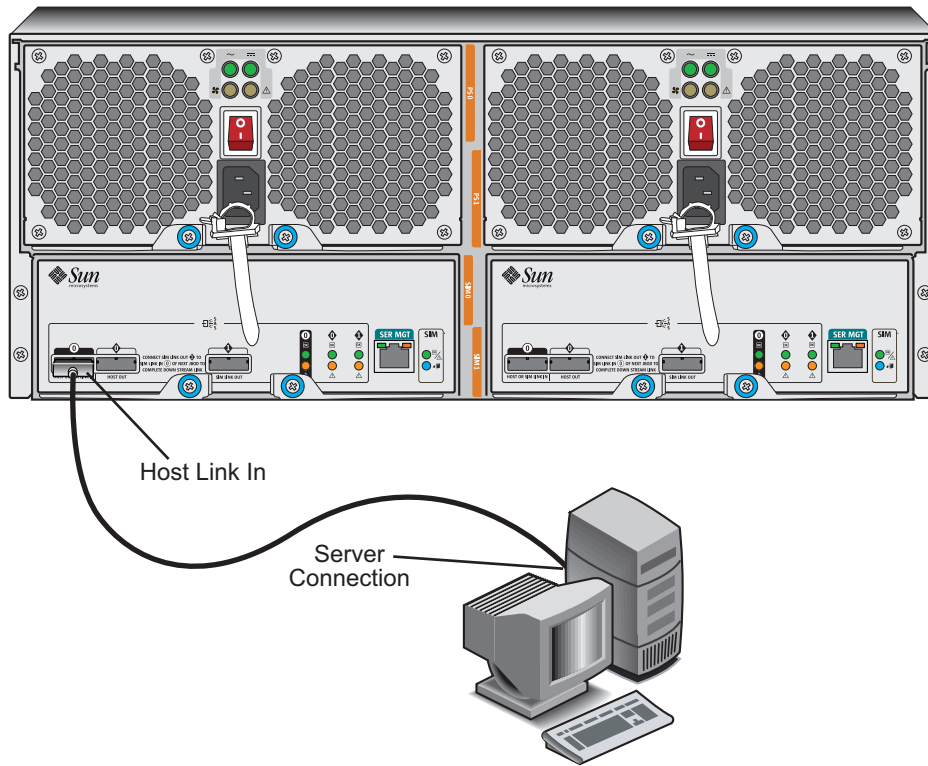
**Caution** – When disconnecting the SAS cable, use two hands. With one hand grasp the metal body of the connector, with the other hand firmly grasp the pull tab. Pull the tab gently toward the connector body and with the other hand extract the connector from the bulkhead. Do not twist or pull the tab in any direction other than parallel with the connector body or you might break the tab. If the tab were to break, a small sharp object (such as a fine-tipped screwdriver) would be required to lift the metal spring at the top of the connector shell to unlatch it.

---

**FIGURE 3-1** J4200 Array Connected to a Management System



**FIGURE 3-2** J4400 Array Connected to a Management System



## Connecting to Another J4200/J4400 Array

To interconnect a J4200/J4400 Array to a second or additional J4200/J4400s:

1. Locate the **SIM Link Out** port on the tray (Tray 0) attached to the data host. (FIGURE 3-1).
2. Locate the **Host or SIM Link In** port of the second tray (Tray 1).
3. Cable these two trays together with the provided mini-SAS cable.

**Caution** – When disconnecting the SAS cable, use two hands. With one hand grasp the metal body of the connector, with the other hand firmly grasp the pull tab. Pull the tab gently toward the connector body and with the other hand extract the connector from the bulkhead. Do not twist or pull the tab in any direction other than parallel with the connector body or you might break the tab. If the tab were to break, a small sharp object (such as a fine-tipped screwdriver) would be required to lift the metal spring at the top of the connector shell to unlatch it.

FIGURE 3-3 shows a Sun Storage J4200 Array interconnected with three other J4200 arrays.

FIGURE 3-3 Interconnected J4200 Arrays

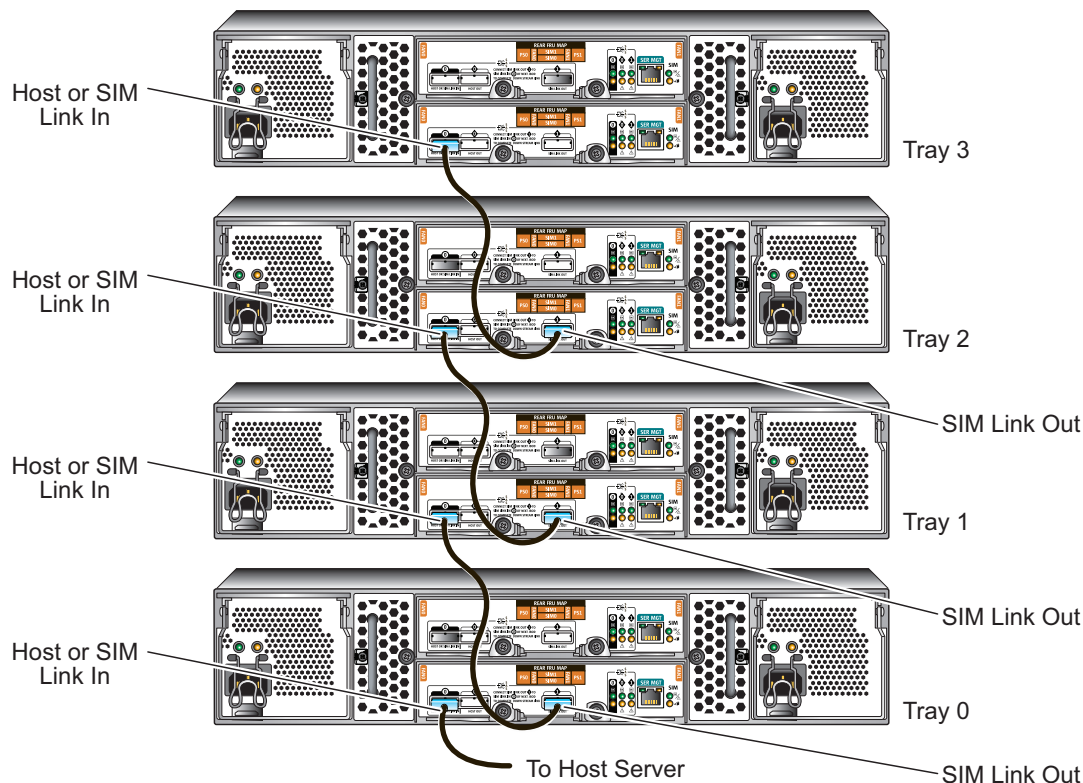
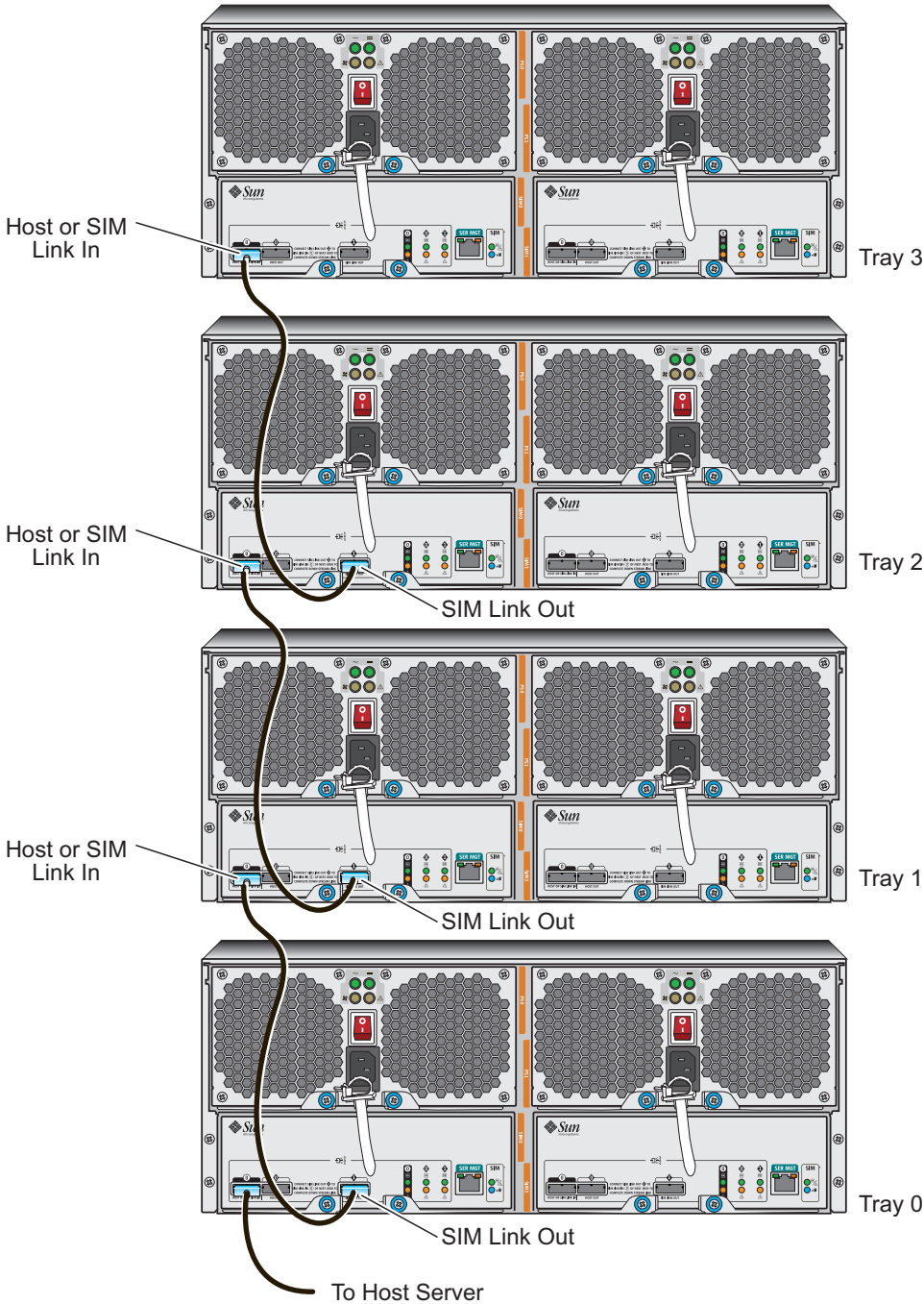


FIGURE 3-4 shows a Sun Storage J4400 array interconnected with three other J4400 arrays.



**FIGURE 3-4** Interconnected J4400 Arrays



---

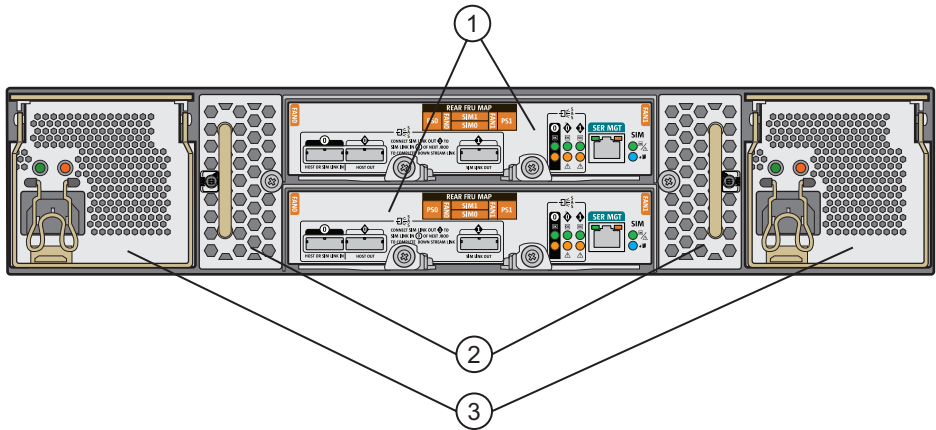
## Preparing to Power On the Tray

This section describes initial tray power-on and power-off procedures.

- [“Preparing to Power On the Tray” on page 68](#)
- [“Powering Off the Tray” on page 72](#)

[FIGURE 3-5](#) and [FIGURE 3-6](#) show the J4200 and J4400 array rear components, including the two power supplies with universal power input connectors.

**FIGURE 3-5** J4200 Array Rear Components



**Figure Legend**

ID	Component	Description
1	SIM Modules	Two removable SAS Interface Module (SIM) boards. Each has a Host or SIM Link In port, a Host Out port, a SIM Link Out port, and an RJ-45 port for serial console access (reserved for Sun Customer Support personnel). The SIM boards are identified as SIM 0 (bottom) and SIM 1 (top).
2	Fan Modules	Two removable cooling fan modules. Fan Module 0 is on the left and Fan Module 1 is on the right.
3	Power Supply Modules	Two removable power supply modules with built-in fans. Power Supply 0 is on the left and Power Supply 1 is on the right.

FIGURE 3-6 J4400 Array Rear Components

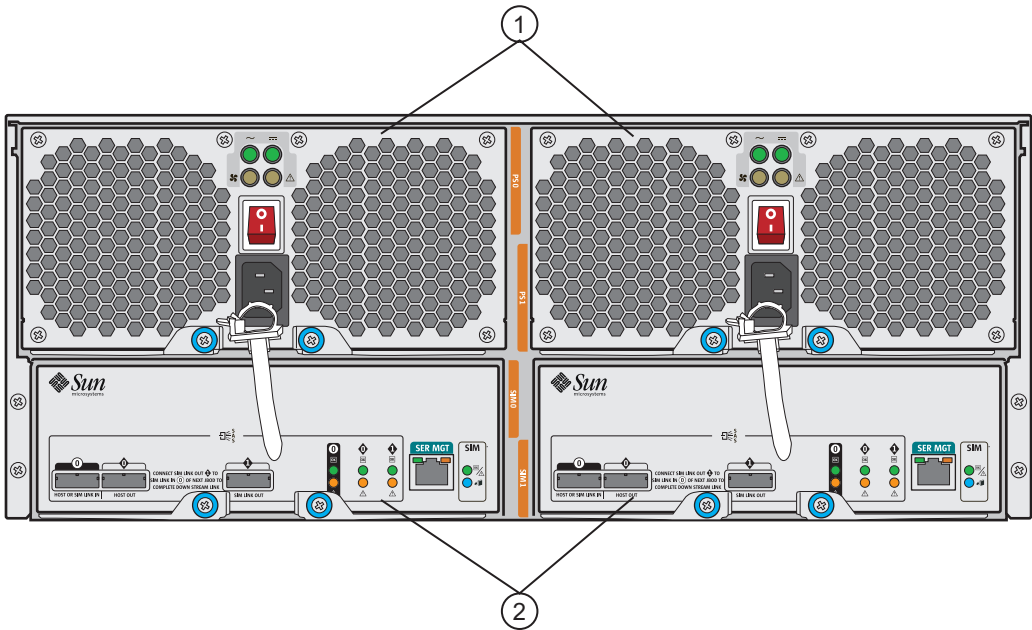


Figure Legend

ID	Component	Description
1	SIM Modules	Two removable SAS Interface Module (SIM) boards. Each has a Host or SIM Link In port, a Host Out port, a SIM Link Out port, and an RJ-45 port for serial console access (reserved for Sun Customer Support personnel). The SIM boards are identified as SIM 0 (left) and SIM 1 (right).
2	Power Supply Modules	Two removable power supply modules with built-in fans. Power Supply 0 is on the left and Power Supply 1 is on the right.

# Powering On the Array

Use this procedure to turn power on for all J4200 trays installed in the cabinet (FIGURE 3-7). The J4200 does not have a power switch; power is turned on by connecting a plug into the array universal power input connectors.

FIGURE 3-7 Tray Power Connectors (J4200)

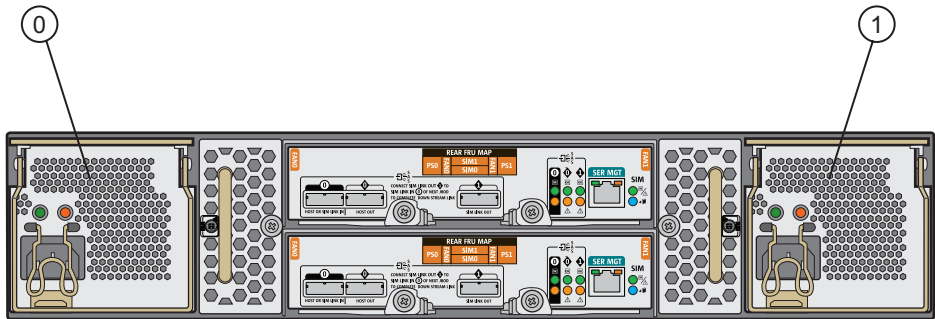


Figure Legend

Number	Component
0	Power Supply 0
1	Power Supply 1

1. Plug the country-specific power cables into each of the tray universal power connectors.
2. Connect the power cables to the cabinet external power source.
3. Turn on the power switches (J4400 only).
4. Turn on the cabinet circuit breakers, if applicable.

While the tray powers on, the green and amber LEDs on the back of the tray turn on and off intermittently. Depending on your configuration, it can take several minutes for the tray to power on. When the power-on sequence is complete, the LEDs are steady green.

## 5. Check the status of each tray.

After the power-on sequence is complete, confirm the following:

- The green OK/Power LEDs on each drive in the tray are steady on.

If all tray and drive Ok/Power LEDs are steady green and the amber Service Required LEDs are off, the power-on sequence is complete and no faults have been detected.

- The amber LED is blinking for any module.

Check to make sure the SAS connections are properly inserted.

Reseat the module to make sure that it is properly installed. If the LED is now green, the module is functioning properly. If the module remains blinking amber, contact Sun Customer Service Personnel.

Refer to the *Sun Storage J4200/J4400 System Overview* (820-3223-10) for additional troubleshooting information.

## Powering Off the Tray

Remove power only when you plan to physically move the tray to another location. Most of the J4200/J4400 components are hot-swappable so you do not need to remove the power while replacing modules.

---

**Caution** – For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

---

To power off the tray:

1. Stop all I/O from the host to the storage array.
2. Wait approximately two minutes until all disk drive status indicators have stopped flashing.
3. Turn off the power switches (J4400 only).
4. Disconnect the power cables from the power supplies.

---

## Next Steps

You are now ready to use the disks in the J4200/J4400 array for storage. Refer to the Common Array Manager (CAM) documentation for your version of CAM for information about the management software. CAM documentation is available at the following URL:

<http://docs.sun.com/app/docs/prod/stor.armmgr>





# Glossary

---

Definitions obtained from the Storage Networking Industry Association (SNIA) Dictionary are indicated with “SNIA” at the end. For the complete SNIA Dictionary, go to [www.snia.org/education/dictionary](http://www.snia.org/education/dictionary).

## A

### **alarm**

A type of event that requires service action. See also [event](#).

### **alert**

A subtype of an event that requires user intervention. The term *actionable event* often describes an alert. See also [event](#).

## B

### **block**

The amount of data sent or received by the host per I/O operation; the size of a data unit.

## C

### **capacity**

The amount of available physical capacity, whether of a disk, a tray of disks, or an interconnected environment with several trays of disks.

### **CLI**

The command-line interface used to manage and monitor the software and hardware.

**control path**

The route used for communication of system management information, in the case of the J4200/J4400 Array, this is the in-band connection.

**customer-replaceable unit (CRU)**

An assembly component that is designed to be replaced on site by a customer, without the array having to be returned to the manufacturer for repair; for example, a SIM board, a power supply, a fan, a rail.

**CRU**

See [customer-replaceable unit \(CRU\)](#).

**D****data host**

Any host that uses the array for storage. A data host is connected directly to the device. See also [host](#).

**data path**

The route taken by a data packet between a data host and the storage device.

**direct attached storage (DAS)**

A storage architecture in which one or two hosts that access data are connected physically to a storage array.

**disk**

A physical drive component that stores data.

**E****event**

A notification of something that happened on a device. There are many types of events, and each type describes a separate occurrence. See also [alarm](#) and [alert](#).

**extent**

A set of contiguous blocks with consecutive logical addresses on a physical or virtual disk.

## F

### **failover and recovery**

The process of changing the data path automatically to an alternate path.

### **fault coverage**

The percentage of faults detected against all possible faults or against all faults of a given type.

## H

### **HBA**

See [host bus adapter \(HBA\)](#).

### **host**

As a function of the Sun Storage J4200/J4400 Array configuration, a data host connected to the device using an HBA.

### **host bus adapter (HBA)**

An I/O adapter that connects a host I/O bus to a computer's memory system. Abbreviated HBA. Host bus adapter is the preferred term in SCSI contexts.

## I

### **in-band management**

Software management traffic that uses the data path between a host and a storage device.

### **IOPS**

A measure of transaction speed, representing the number of input and output transactions per second.

## L

### **LAN**

Local area network.

## M

### **management host**

A host serving the management and monitoring software for the Sun Storage J4200/J4400 Array. The software can be controlled from a standalone Java graphical user interface (GUI) or a command-line interface (CLI) client.

### **multipathing**

A design for redundancy that provides at least two physical paths to a target.

## P

### **power supply**

The assembly that provides power management for the array. The redundant design uses two power supplies in each array so that the array's data path continues to function if one of the power supplies fails.

### **provisioning**

The process of allocation and assignment of storage to hosts.

## R

### **RAID**

An acronym for Redundant Array of Independent Disks, a family of techniques for managing multiple disks to deliver desirable cost, data availability, and performance characteristics to host environments. Also, a phrase adopted from the 1988 SIGMOD paper, A Case for Redundant Arrays of Inexpensive Disks.

### **remote monitoring**

Monitoring of the functions and performance of a hardware system from a location other than where the hardware resides.

## S

### **storage area network (SAN)**

An architecture in which the storage elements are connected to each other and to a server that is the access point for all systems that use the SAN to store data.

### **storage tray**

An enclosure containing disks.

### **stripe size**

The number of blocks in a stripe. A striped array's stripe size is the stripe depth multiplied by the number of member extents. A parity RAID array's stripe size is the stripe depth multiplied by one less than the number of member extents. See also [striping](#).

### **striping**

Short for data striping; also known as RAID Level 0 or RAID 0. A mapping technique in which fixed-size consecutive ranges of virtual disk data addresses are mapped to successive array members in a cyclic pattern. (SNIA).

## **T**

### **target**

The system component that receives a SCSI I/O command. (SNIA).

### **tray**

See [storage tray](#).



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