



# Sun Fire™ V490 Server Setup and Rackmounting Guide

---

Sun Microsystems, Inc.  
www.sun.com

Part No. 817-3959-11  
October 2005, Revision A

Submit comments about this document at: <http://www.sun.com/hwdocs/feedback>

Copyright 2004 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara,,California 95054, U.S.A. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology embodied in the product that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the U.S. patents listed at <http://www.sun.com/patents> and one or more additional patents or pending patent applications in the U.S. and in other countries.

This document and the product to which it pertains are distributed under licenses restricting their use, copying, distribution, and decompilation. No part of the product or of this document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any.

Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and in other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, Sun Fire, Solaris, SunVTS, OpenBoot and the Solaris logo are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

U.S. Government Rights—Commercial use. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

---

Copyright 2004 Sun Microsystems, Inc.,4150 Network Circle, Santa Clara,,California 95054 , Etats-Unis. Tous droits réservés.

Sun Microsystems, Inc. a les droits de propriété intellectuels relatants à la technologie incorporée dans le produit qui est décrit dans ce document. En particulier, et sans la limitation, ces droits de propriété intellectuels peuvent inclure un ou plus des brevets américains énumérés à <http://www.sun.com/patents> et un ou les brevets plus supplémentaires ou les applications de brevet en attente dans les Etats-Unis et dans les autres pays.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, parquelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a.

Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, Sun Fire, Solaris, SunVTS, OpenBoot et le logo Solaris sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays.

Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits protant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciées de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

LA DOCUMENTATION EST FOURNIE "EN L'ÉTAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFAÇON.



# Contents

---

## **Preface** v

### **1. Installing a Sun Fire V490 Server Into a 4-Post Cabinet** 1

Checklist of 4-Post Rackmounting and Setup Tasks 2

Unpacking the Server 3

Checking Inventory for 4-Post Rackmounting 5

Tools Required 6

How to Attach the Inner Glides to the Chassis 7

How to Prepare the Cabinet 8

How to Locate the Mounting Holes 9

Guidelines for Installing Slide Assemblies 10

How to Install the Slide Assemblies 11

How to Install the Server Into the Cabinet 17

### **2. Installing a Sun Fire V490 Server Into a 2-Post Rack** 21

Checklist of 2-Post Rackmounting and Setup Tasks 22

Checking Inventory for 2-Post Rackmounting 23

Tool Required 23

How to Attach the Mounting Brackets  
to the Chassis 24

How to Locate the Mounting Holes 25

How to Install the Mounting Screws	26
How to Install the Server Into the Rack	27
How to Install the Server Into a Populated Rack	29
How to Attach System Cables	30
What Next	31

### **3. Installing the Cable Management Arm and System Cables 33**

About the Cable Management Arm	33
Determining Which CMA is Included with Your System	34
Installing and Securing Cables to CMA Type A	35
▼ How to Install CMA Type A	35
▼ How to Secure the Cables to CMA Type A	40
Installing and Securing Cables to CMA Type B	44
Determining the Correct Mounting Location	44
▼ How to Install CMA Type B	45
▼ How to Secure the Cables to CMA Type B	47
How to Restore the Cabinet	50
What Next	50

#### **A. 4-Post Cabinet Requirements 51**

# Preface

---

This guide provides instructions for installing the Sun Fire™ V490 server into a 4-post Sun™ expansion cabinet or other EIA-compliant 19-inch (48.26-cm) wide cabinet and into a 2-post rack. This guide also provides instructions for installing a cable management arm, connecting power cords, and connecting an Ethernet cable.

When you have completed the procedures in this guide, you are ready to set up a system console, power on the server, install the Solaris™ Operating System, and install the electronic documentation. See the *Sun Fire V490 Server Quick Start Guide* or Part One of the *Sun Fire V490 Server Administration Guide* for information about these procedures.

---

## How This Document Is Organized

This document is organized into the following chapters.

Chapter 1 provides instructions for installing the server into a 4-post cabinet.

Chapter 2 provides instructions for installing the server into a 2-post rack.

Chapter 3 provides instructions for installing a cable management arm, connecting power cords, and connecting an Ethernet cable. [Appendix A](#) provides a list of requirements for 4-post cabinets to be used with this equipment.

---

# Typographic Conventions

Typeface <sup>1</sup>	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
<b>AaBbCc123</b>	What you type, when contrasted with on-screen computer output	% <b>su</b> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

<sup>1</sup> The settings on your browser might differ from these settings.

---

## Related Documentation

The documents listed as online are available at:

<http://www.sun.com/products-n-solutions/hardware/docs/>

---

Application	Title	Part Number	Format	Location
Late-breaking information	<i>Sun Fire V490 Server Product Notes</i>	817-4193	PDF HTML	Online
Initial installation	<i>Sun Fire V490 Server Quick Start Guide</i>	817-3955	Printed	Shipping kit

---

<b>Application</b>	<b>Title</b>	<b>Part Number</b>	<b>Format</b>	<b>Location</b>
Site Planning	<i>Site Planning Guide for Entry-Level Servers Version 1.5</i>	816-1613	PDF	Online
Service	<i>Sun Fire V490 Server Parts Installation and Removal Guide</i>	817-3952	PDF HTML	Documentation CD and online Online
Administration, configuration, diagnostics, and troubleshooting	<i>Sun Fire V490 Server Administration Guide</i>	817-3951	PDF HTML	Documentation CD and online Online

---

## Documentation, Support, and Training

<b>Sun Function</b>	<b>URL</b>	<b>Description</b>
Documentation	<a href="http://www.sun.com/documentation/">http://www.sun.com/documentation/</a>	Download PDF and HTML documents, and order printed documents
Support and Training	<a href="http://www.sun.com/supporttraining/">http://www.sun.com/supporttraining/</a>	Obtain technical support, download patches, and learn about Sun courses

---

## Third-Party Web Sites

Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

---

# Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can submit your comments by going to:

<http://www.sun.com/hwdocs/feedback>

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

*Sun Fire V490 Server Setup and Rackmounting Guide*, part number 817-3959-11.

# Installing a Sun Fire V490 Server Into a 4-Post Cabinet

---

This chapter describes how to install a Sun Fire V490 server into a 4-post Sun expansion cabinet or other EIA-compliant 19-inch (48.26-cm) wide cabinet. If you are installing a Sun Fire V490 server into a 2-post rack, see Chapter 2.

---

**Note** – To install a server into a cabinet with mounting holes sized for U.S. screws, use the 10-32 screws included in the rackmounting kit to attach the slide assemblies to the cabinet. If the mounting holes are sized for metric screws, use the M6 screws included in the rackmounting kit to attach the slide assemblies to the cabinet. Use the same screws to secure the server to the front mounting rails.

---

The service label affixed to the top of the server chassis illustrates the rackmounting steps in a convenient graphical overview.

This chapter contains the following procedures and information:

- [“Checklist of 4-Post Rackmounting and Setup Tasks” on page 2](#)
- [“Unpacking the Server” on page 3](#)
- [“Checking Inventory for 4-Post Rackmounting” on page 5](#)
- [“How to Attach the Inner Glides to the Chassis” on page 7](#)
- [“How to Prepare the Cabinet” on page 8](#)
- [“How to Locate the Mounting Holes” on page 9](#)
- [“How to Install the Slide Assemblies” on page 11](#)
- [“How to Install the Server Into the Cabinet” on page 17](#)

# Checklist of 4-Post Rackmounting and Setup Tasks

**TABLE 1-1** Overview of 4-Post Rackmounting and Setup Tasks

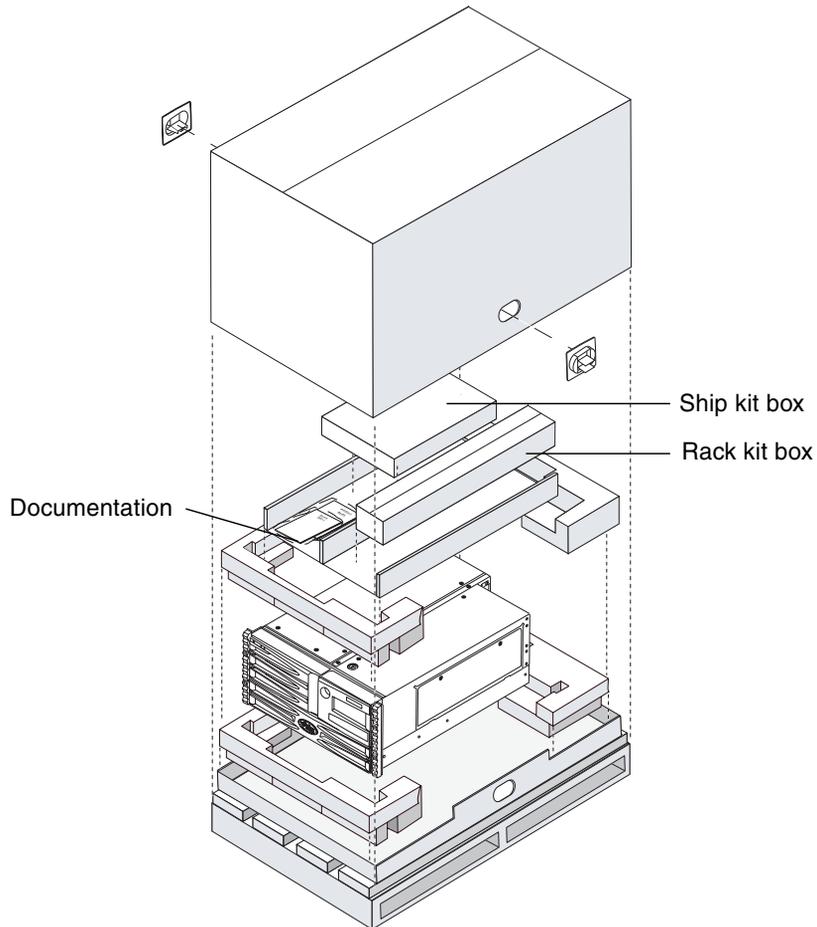
Step	Task	Refer to:
1	Unpack the server, the ship kit, and the rack kit.	<a href="#">“Unpacking the Server” on page 3</a>
2	Check that you have the required parts for rackmounting.	<a href="#">“Checking Inventory for 4-Post Rackmounting” on page 5</a>
3	Install the inner glides onto the chassis.	<a href="#">“How to Attach the Inner Glides to the Chassis” on page 7</a>
4	Prepare the cabinet.	<a href="#">“How to Prepare the Cabinet” on page 8</a>
5	Locate the mounting holes.	<a href="#">“How to Locate the Mounting Holes” on page 9</a>
6	Install the slide assemblies onto the cabinet.	<a href="#">“How to Install the Slide Assemblies” on page 11</a>
7	Install the server into the cabinet.	<a href="#">“How to Install the Server Into the Cabinet” on page 17</a>
8	Check that you have the cable management arm and the cords and cables for setup.	<a href="#">“About the Cable Management Arm” on page 33</a>
9	Install the cable management arm.	<a href="#">“How to Install CMA Type A” on page 35</a> or <a href="#">“How to Install CMA Type B” on page 45</a>
10	Connect the cables.	<a href="#">“How to Secure the Cables to CMA Type A” on page 40</a> or <a href="#">“How to Secure the Cables to CMA Type B” on page 47</a>
11	Restore the cabinet.	<a href="#">“How to Restore the Cabinet” on page 50</a>

---

# Unpacking the Server

Inspect all shipping cartons for evidence of physical damage. If a shipping carton is damaged, request that the carrier's agent be present when the carton is opened. Keep all contents and packing material for the agent's inspections.

Unpack the server, the ship kit, and the rack kit. The documentation tray and the ship kit box contain user documentation.



Check that you have received all of the parts you ordered. Peripherals that are not factory installed are shipped separately. Contact Sun Microsystems or your distributor or reseller if you are missing anything.

---

**Note** – With the exception of internal disk drives and power supplies, all component part installation or replacement must be performed by a qualified service provider. If your server options are not fully installed, see the *Sun Fire V490 Server Parts Installation and Removal Guide* for installation instructions or contact a qualified service provider.

---

---

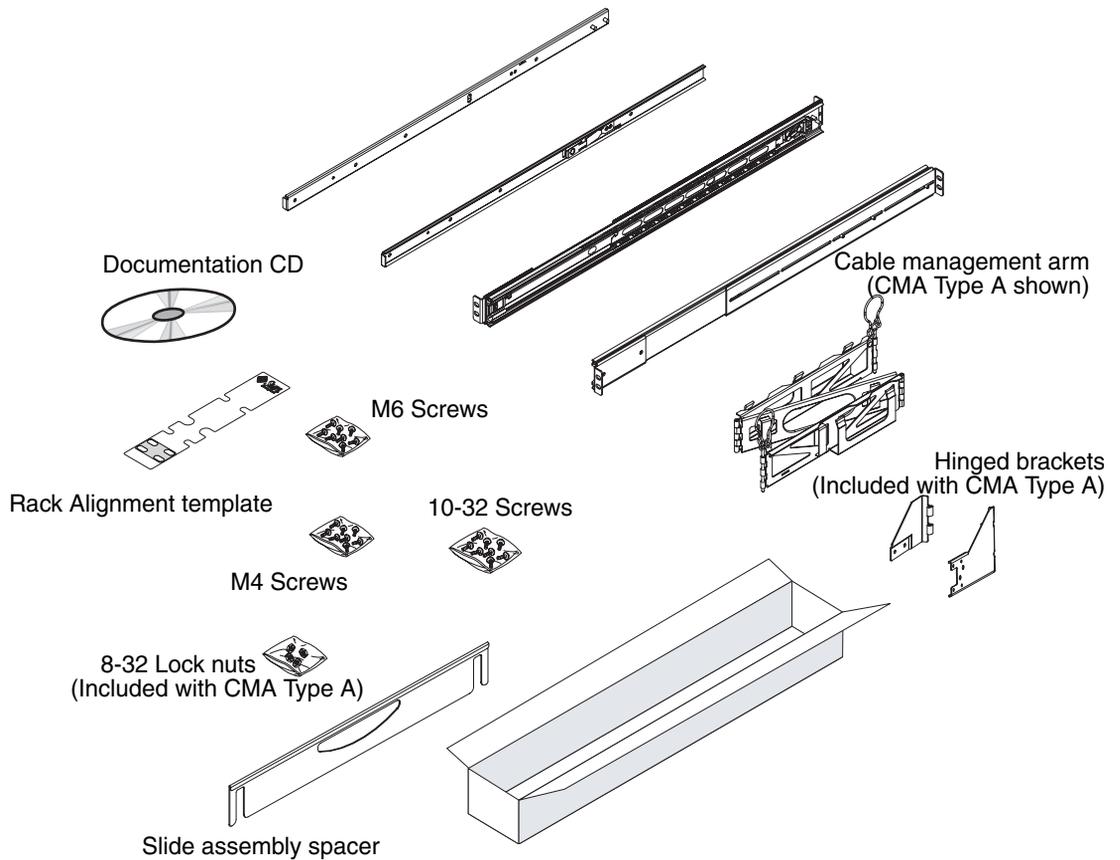
**Note** – 2-post rackmounting kits are shipped separately.

---

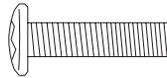
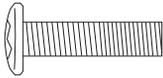
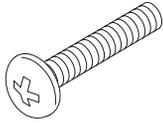
---

# Checking Inventory for 4-Post Rackmounting

You need one 4-post rackmounting kit for each Sun Fire V490 server you intend to install into a cabinet. You also need this document and the Rack Alignment template from the ship kit.



The plastic bags of hardware contain screws shown below in actual size.



10-32 Screws (12)

M4 Screws (8)

M6 Screws (12) 8-32 Lock nuts (4)

Any screws not used for rackmounting are spares.

---

**Note** – Bar nuts are required (but not included) for non-threaded cabinets. See the instructions provided with your cabinet for more information.

---

## Tools Required

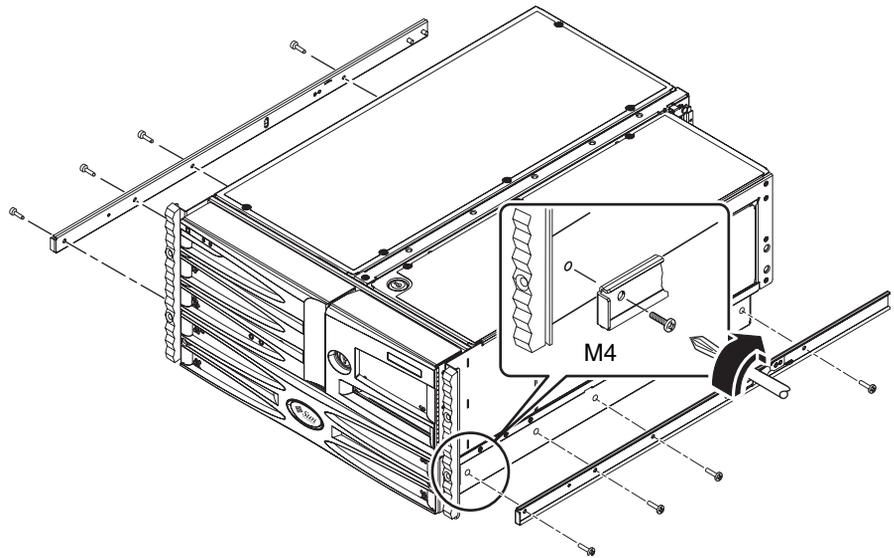
You will need the following tools when rackmounting the server:

- Phillips No. 2 screwdriver (Use to tighten 10-32 screws.)
- Phillips No. 3 screwdriver (Use to tighten M6 screws.)
- Set of appropriate Allen wrenches to remove the side panels on some cabinets
- Adjustable wrench to tighten the nuts on the mounting brackets
- 11/32 socket wrench or nut driver (Use to install hinged brackets.)

---

# How to Attach the Inner Glides to the Chassis

- **Attach the inner glides to the chassis using four M4 screws for each inner glide.**  
Position the straight end of the inner glide toward the front of the system. Align the first hole on the inner glide with the first hole on the chassis.



---

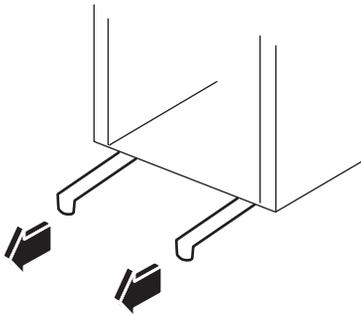
# How to Prepare the Cabinet

1. **Open, and remove if applicable, the front and back doors of the cabinet.**

See the instructions provided with your cabinet.

2. **Stabilize the cabinet by extending its anti-tip legs or bolting the cabinet securely to the floor.**

See the instructions provided with your cabinet and read [“4-Post Cabinet Requirements” on page 51.](#)



3. **Remove the side panels from the cabinet, if applicable.**

See the instructions provided with your cabinet. Removing the side panels can improve access to the nuts and screws that you install when securing the server in the cabinet.

---

# How to Locate the Mounting Holes

- **Locate and mark the rack rail holes that you will use to attach each slide assembly.**

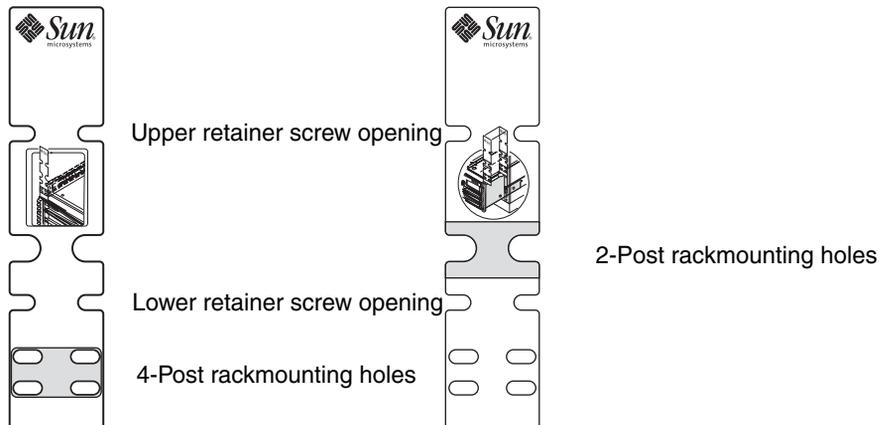
You can either count the holes on the vertical rack rails or use the Rack Alignment template included with your documentation set. Make sure that each slide assembly is installed at the same height front-to-back and side-to-side in the rack.

The Rack Alignment template is five rack units (8.75 in/22.22 cm) tall. Because the holes on a standard rack rail are arranged in sets of three holes spaced  $\frac{5}{8}$ ths,  $\frac{5}{8}$ ths, and  $\frac{1}{2}$  of an inch apart, which *two holes* you use for attaching a slide assembly varies depending on exactly where in the rack the server is located.

One side of the Rack Alignment template is for 2-post rackmounting, the other side is for 4-post rackmounting. For 2-post rackmounting instructions, see Chapter 2.

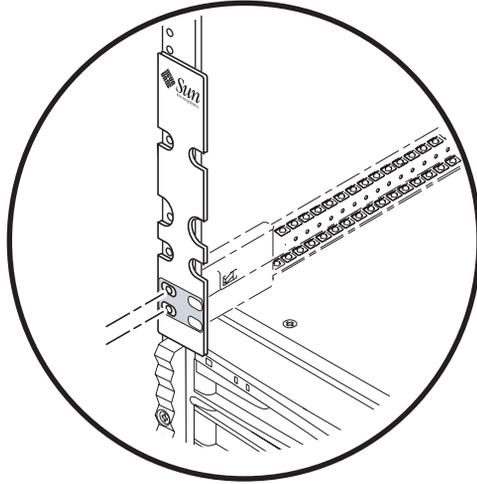
The 4-post mounting holes on the Rack Alignment template are for mounting the slide bracket to the vertical rack rail. The upper and lower retainer screw openings in the template locate the server retainer screws that hold the server in the rack after it is installed.

The following figure shows both sides of the Rack Alignment template.



To use the Rack Alignment template, complete these steps:

- a. Place the Rack Alignment template over the left front vertical rack rail, then move the bottom of the template to the location on the rack rail where the bottom of the server will be located.



- b. Adjust the Rack Alignment template until the lower retainer screw opening is centered on a hole in the rail.
- c. Looking through the two slide bracket mounting holes on the Rack Alignment template, locate and mark the *two* holes on the vertical rack rail that are most visible through the template.

Use these two mounting holes to attach the slide assembly to the front rail. Mark the corresponding holes on the right front vertical rack rail.

## Guidelines for Installing Slide Assemblies



---

**Caution** – Stabilize the cabinet by extending its anti-tip legs or bolting the cabinet securely to the floor.

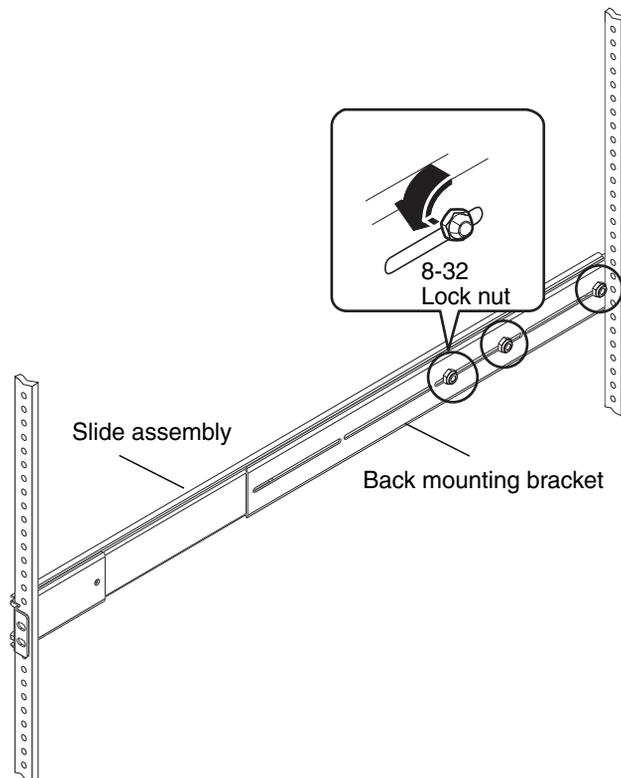
---

- If this is the first server you are installing into the cabinet, use holes 9 and 10 or 11 (this assumes that an AC power sequencer occupies holes 1 through 6 in the bottom of the cabinet).
- Install the slide assemblies into the lowest available position.
- Install additional servers from the base up in the cabinet.

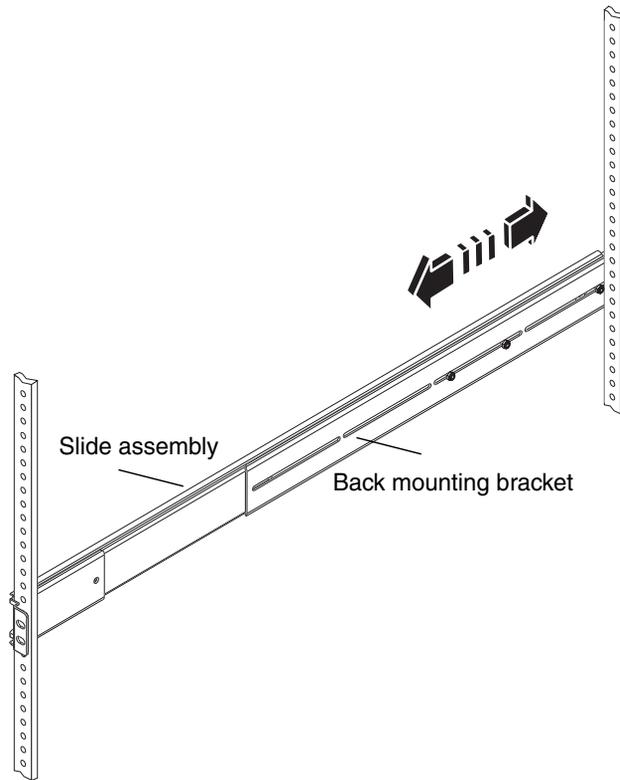
---

# How to Install the Slide Assemblies

1. Use the Rack Alignment template to locate and mark mounting holes on the vertical rack rails.  
See [“How to Locate the Mounting Holes”](#) on page 9.
2. Adjust the back mounting brackets to accommodate the depth of the rack.
  - a. Loosen the three 8-32 lock nuts that secure the back mounting bracket to the slide assembly.
  - b. Position a slide assembly in the cabinet where you marked the mounting holes.



- c. Move the bracket forward or backward on the slide assembly until you have the correct position to accommodate the depth of the rack.



---

**Note** – If necessary, fully remove the three lock nuts and the back mounting bracket from the slide assembly to adjust the back mounting bracket to the depth of the rack. Hold the back mounting bracket on the slide assembly and move it forward or backward until you have the correct position to accommodate the depth of the rack. Secure the back mounting bracket to the slide assembly with the three lock nuts.

---

- d. Loosely tighten the three lock nuts that secure the back mounting bracket to the slide assembly. Do not fully tighten the lock nuts.
- e. Repeat these steps to adjust the other back mounting bracket.

3. **With the help of an assistant, position the slide assembly on the right mounting rail as viewed from the front.**

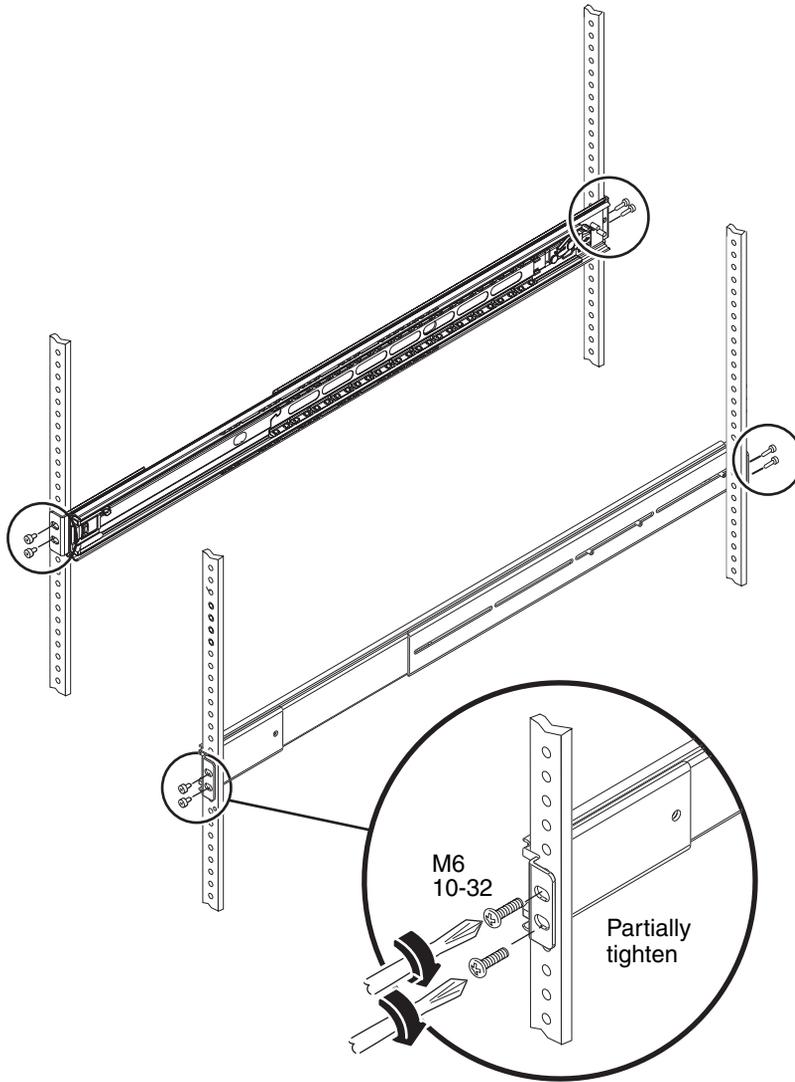
The front (short) mounting bracket should be at the front of the rack.

- a. **Use the holes you marked in Step 1.**
  - b. **Use the same slide assembly you adjusted in Step 2.**
  - c. **Make sure that the slide assembly is level front-to-back.**
4. **Using the appropriate screws for the rack, attach the front mounting bracket to the front rail of the rack and attach the back (long) mounting bracket of the same slide assembly to the back rail of the rack.**
    - a. **Count the rack rail holes to ensure that you are matching the holes used on the front rail.**
    - b. **Use the appropriate screws for your type of rack:**
      - Racks with mounting holes sized for U.S. dimensions require 10-32 screws.
      - Racks with mounting holes sized for metric dimensions require M6 screws.Partially tighten the front bracket screws and the back bracket screws.

---

**Note** – Do not fully tighten the screws that attach the brackets to the vertical mounting rails until after you use the slide assembly spacer to make sure that the rails are evenly spaced and aligned.

---



**5. Repeat Steps 3 and 4 for the other slide assembly.**

6. Use the slide assembly spacer to make sure that the slide assemblies are evenly spaced and aligned correctly.

The slide assembly spacer is included in the rack kit.

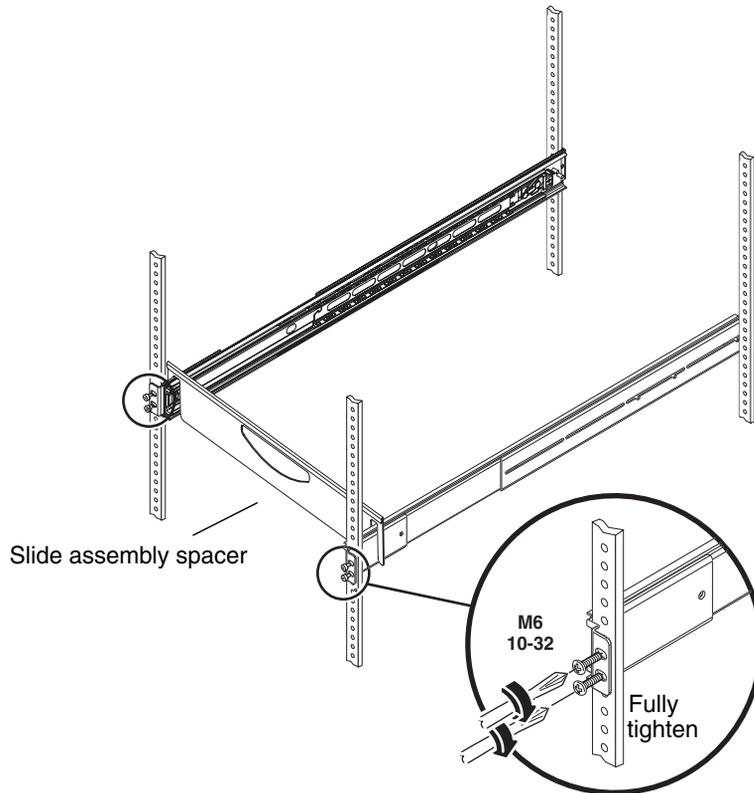
- a. Place the slide assembly spacer over the left and right slide assemblies at the front of the rack.

The slots on the slide assembly spacer should fit evenly over the rails.

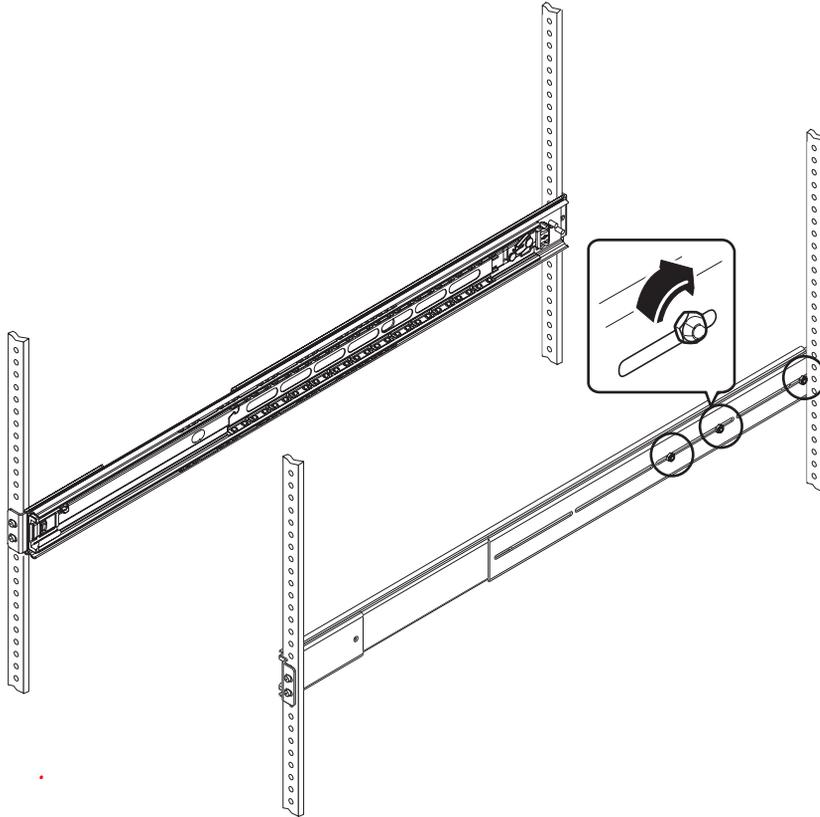
- b. With the slide assembly spacer in place, fully tighten the front bracket screws.

- c. Place the slide assembly spacer over the left and right slide assemblies at the back of the rack.

- d. With the slide assembly spacer in place, fully tighten the back bracket screws.



7. Make sure that each slide assembly is fully retracted into the cabinet as shown in the next figure.
8. Fully tighten the three 8-32 lock nuts on the back mounting bracket.



---

# How to Install the Server Into the Cabinet



---

**Caution** – Before you install or remove the server from the cabinet, ensure that the cabinet is stabilized so that it cannot move or tip forward. See the cabinet documentation for information about stabilizing the cabinet.

---



---

**Caution** – The server is heavy. Two persons are required to install or remove the server into the rack.

---

---

**Note** – Make sure that each slide assembly is fully retracted into the cabinet and check that the ball-bearing runner on each slide assembly is all the way forward.

---

1. **Lift the server (one person on each side of the server) and approach the cabinet with the back of the server facing the front of the cabinet.**
2. **Align the rounded ends of the inner glides on the server with the slide assemblies in the cabinet.**

---

**Note** – Make sure that the inner glides attached to the server are inserted within the ball-bearing runners, and the server is level when inserting it into the ball-bearing runners.

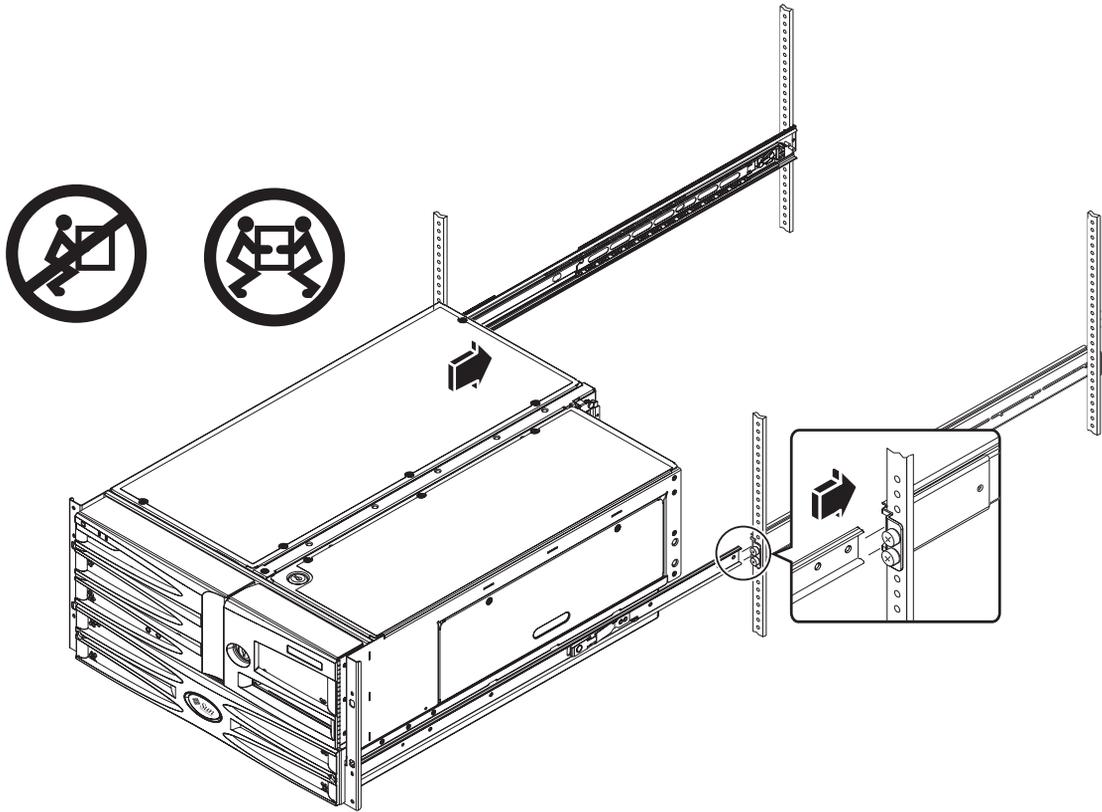
---

3. Holding the server level, slide it evenly all the way into the cabinet.

---

**Note** – Make sure that the server is level when inserting it into the ball-bearing runners.

---



---

**Tip** – Slide the server in and out of the cabinet slowly and carefully to ensure that the slide assemblies are working correctly and are free from obstructions.

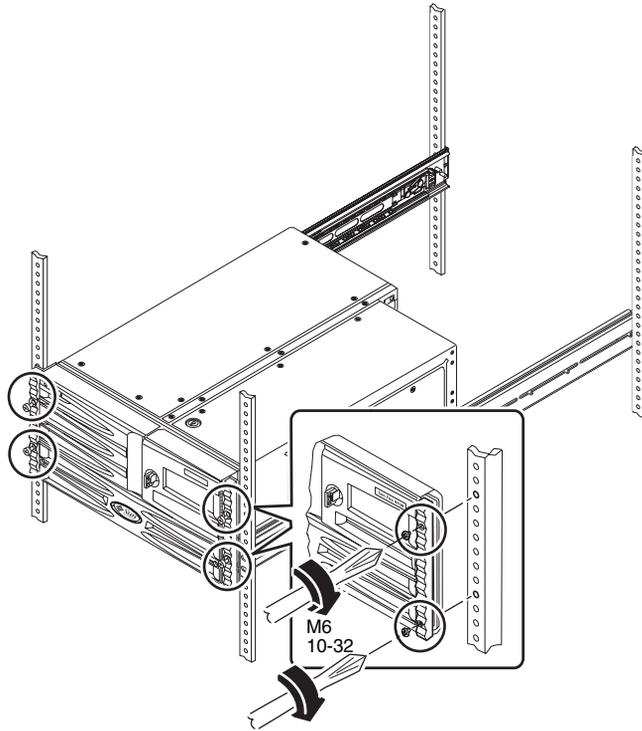
---

---

**Note** – If you fully extend the server out of the cabinet, press the catch on each inner glide to slide the server all the way back into the cabinet.

---

4. Secure the server to the front vertical mounting rails using either four M6 screws or four 10-32 screws included in the rack kit.





## Installing a Sun Fire V490 Server Into a 2-Post Rack

---

This chapter provides step-by-step instructions for installing a Sun Fire V490 server into a 2-post rack.

---

**Note** – When a Sun Fire V490 server is installed into a 2-post rack, only the disk drives and power supplies are serviceable in the rack. You need to remove the server from the rack to service any other component. See the *Sun Fire V490 Server Parts Installation and Removal Guide* for more information.

---

This chapter contains the following procedures and information:

- [“Checklist of 2-Post Rackmounting and Setup Tasks” on page 22](#)
- [“Checking Inventory for 2-Post Rackmounting” on page 23](#)
- [“How to Attach the Mounting Brackets to the Chassis” on page 24](#)
- [“How to Locate the Mounting Holes” on page 25](#)
- [“How to Install the Mounting Screws” on page 26](#)
- [“How to Install the Server Into the Rack” on page 27](#)
- [“How to Install the Server Into a Populated Rack” on page 29](#)

---

# Checklist of 2-Post Rackmounting and Setup Tasks

**TABLE 2-1** Overview of 2-Post Rackmounting and Setup Tasks

Step	Task	Refer to:
1	Unpack the rackmounting kit and verify the contents.	<a href="#">“Checking Inventory for 2-Post Rackmounting” on page 23</a>
2	Attach the brackets to the server.	<a href="#">“How to Attach the Mounting Brackets to the Chassis” on page 24</a>
3	Locate the mounting holes.	<a href="#">“How to Locate the Mounting Holes” on page 25</a>
4	Install the mounting screws.	<a href="#">“How to Install the Mounting Screws” on page 26</a>
5	Install the server into the rack.	<a href="#">“How to Install the Server Into the Rack” on page 27</a>
6	Connect the power and data cords.	<a href="#">“How to Attach System Cables” on page 30</a>

---

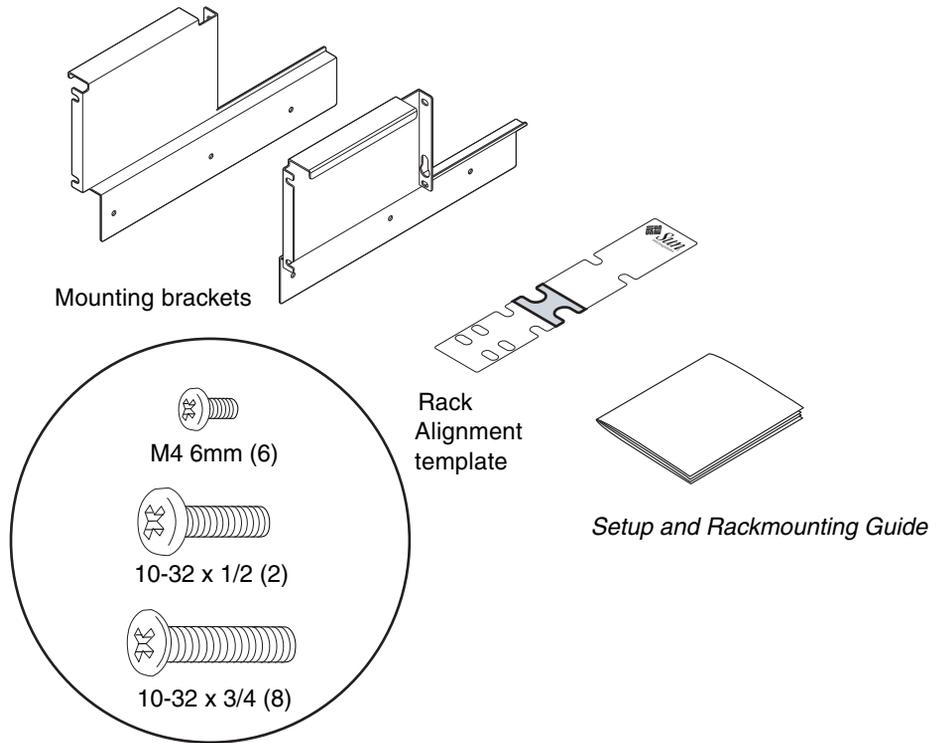
**Note** – The steps are different if you are installing the server into a populated rack. See [“How to Install the Server Into a Populated Rack” on page 29](#) for instructions.

---

---

# Checking Inventory for 2-Post Rackmounting

You need one 2-post rackmounting kit for each Sun Fire V490 server you intend to install into a rack. You also need this document and the Rack Alignment template from the ship kit.



## Tool Required

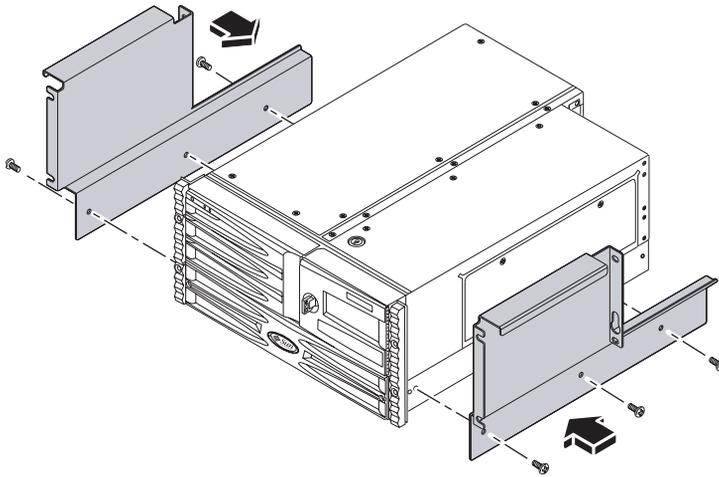
You will need the following tool when rackmounting the server:

- Phillips No. 2 long screwdriver

---

# How to Attach the Mounting Brackets to the Chassis

- Attach the mounting brackets to the chassis using three M4 screws for each bracket.



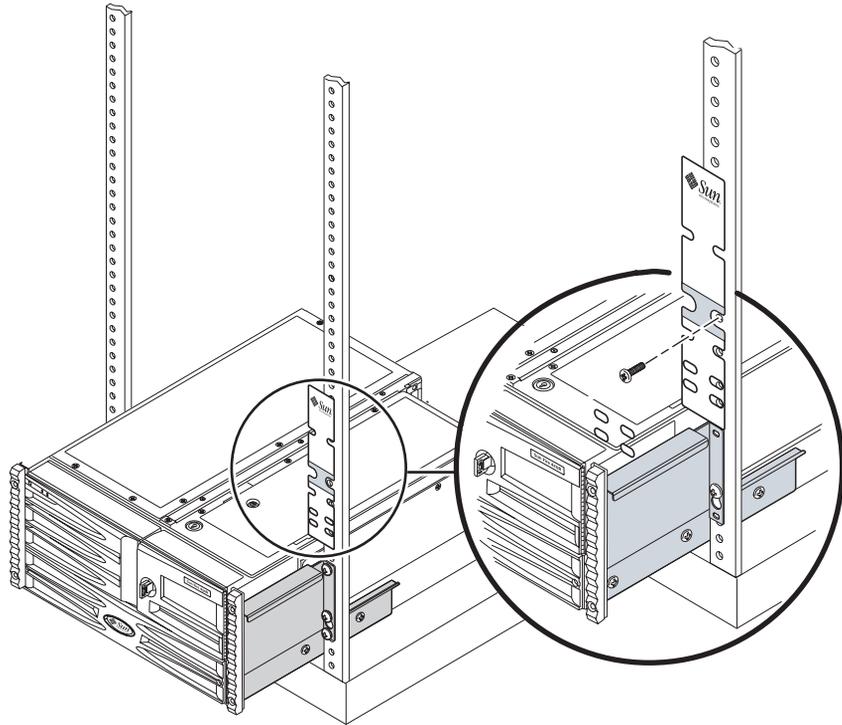
---

# How to Locate the Mounting Holes

- Use the Rack Alignment template to locate and mark the holes for the mounting screws on each vertical rack rail. Allow five rack unit spaces (8.75 in/22.22 cm) per server.

To use the Rack Alignment template, complete these steps:

- a. Place the Rack Alignment template over the vertical rack rail, with the side marked for 2-post rack installation facing out.
- b. Rest the Rack Alignment template in the space where the server will be installed, lining up the bottom of the Rack Alignment template with the top of the server below. See next figure.
- c. Adjust the Rack Alignment template so that the mounting hole is centered on a rack rail hole and mark that rail hole.



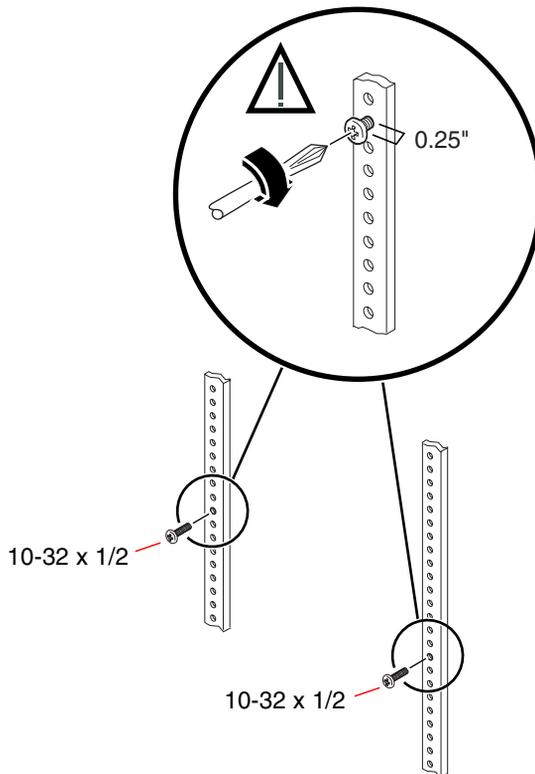
- d. If you are installing the server into a space with fewer than seven rack units, you do not need to locate mounting holes or install mounting screws. You are ready to install the server into the rack. See [“How to Install the Server Into a Populated Rack”](#) on page 29.

---

## How to Install the Mounting Screws

- Install one 10-32 x 1/2 screw on the left and one 10-32 x 1/2 screw on the right vertical mounting rails.

Use the holes you marked in the previous procedure. Do not fully tighten the screws until after you install the server. Leave a 0.25-inch (0.64-cm) gap between the head of each screw and the mounting rail.



---

# How to Install the Server Into the Rack



---

**Caution** – Before you install or remove the server from the rack, ensure that the rack is stabilized so that it cannot move or tip forward. See the rack documentation for information about stabilizing the rack.

---

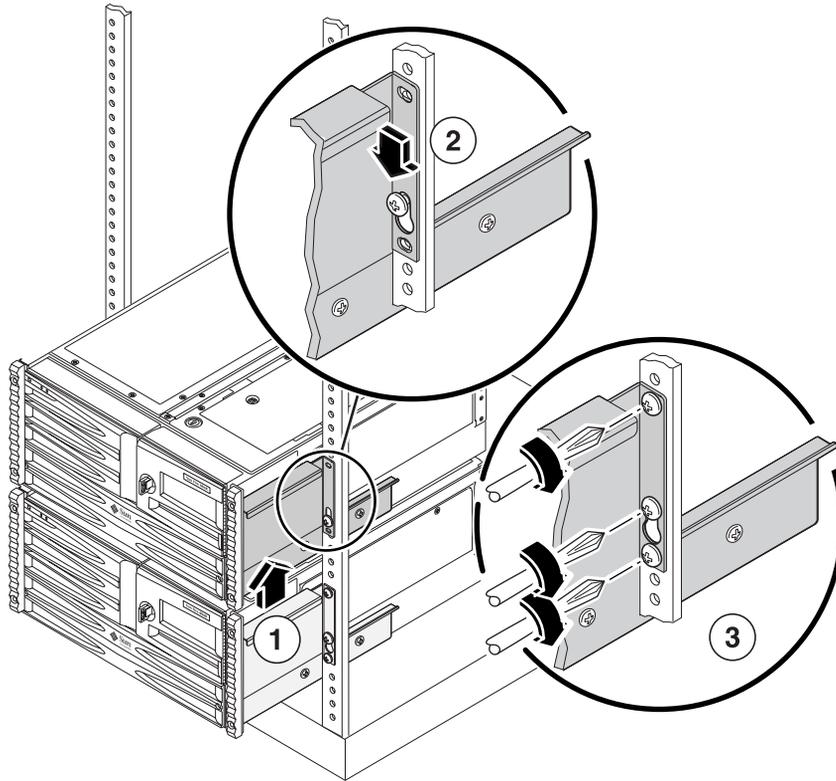


---

**Caution** – The server is heavy. Two persons are required to move the server.

---

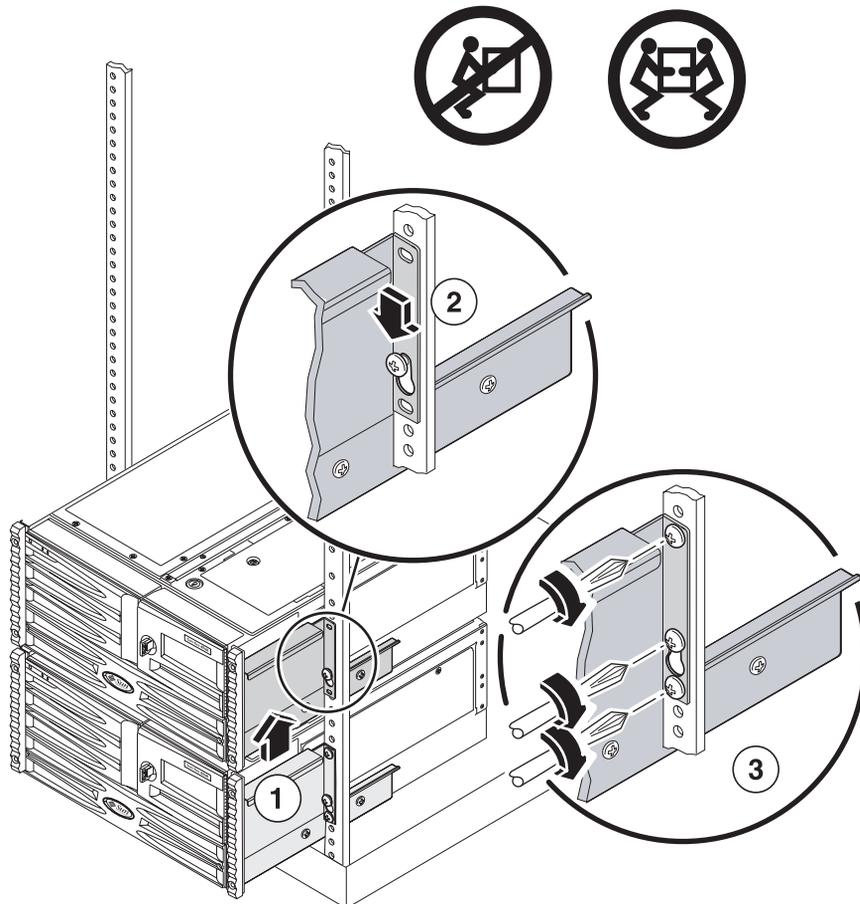
1. **Lift the server (one person on each side of the server) and approach the rack with the back of the server facing the front of the rack.**
2. **Lift the server up and over the mounting screw on each vertical mounting rail so that the large hole clears the head of the screw.**  
Slide the server down so that the server rests on the mounting screws.
3. **Use six 10-32 screws, two screws and the mounting screw on each side, to secure the server to the vertical mounting rails.**



---

# How to Install the Server Into a Populated Rack

1. Attach the mounting brackets to the chassis using three M4 screws for each bracket. See [“How to Attach the Mounting Brackets to the Chassis”](#) on page 24 for instructions.
2. Slide the server into the open position in the rack.  
Allow six rack unit spaces (10.5 in/26.67 cm) per server.
3. Using a Phillips No. 2 screwdriver, secure the top and bottom screws to the left and the right vertical mounting rails.





---

**Caution** – When installing or removing the server from a populated 2-post rack, be sure to support the weight of the server, so you do not damage the component installed below it in the rack.

---

---

## How to Attach System Cables

**1. Connect the power cords and data cables to the server ports.**

See the *Sun Fire V490 Server Administration Guide* for more information about external ports.

**2. Connect the outlet plug of each power cord to the power sequencer in the cabinet, or to a grounded AC power outlet.**



---

**Caution** – Each outlet must connect the server to a 15A circuit for North America and Japan, and to a 10A circuit for Europe. Consult your local electrical codes for any additional requirements. See the instructions provide with your cabinet for information about the power sequencer.

---

---

**Note** – For increased server redundancy, connect the power cords to separate circuits.

---

**3. Plug in the twisted-pair Ethernet (TPE) cable to the RJ-45 outlet to connect to your Ethernet network.**

See your network administrator if you need more information about how to connect to your network.

**4. Secure the server to the front vertical mounting rails using either four M6 screws or four 10-32 screws.**

---

## What Next

The next step is to connect the power cords and an Ethernet cable. See the *Sun Fire V490 Server Administration Guide* for information on back panel connector locations.



# Installing the Cable Management Arm and System Cables

---

This chapter tells you how to install the cable management arm, connect the power cords and an Ethernet cable, and secure the cords and cables to the cable management arm.

When you have completed the procedures in this chapter, you are ready to set up a system console, power on the server, install the Solaris Operating System, and install the electronic documentation. See the *Sun Fire V490 Server Quick Start Guide* or the *Sun Fire V490 Server Administration Guide* for information about these procedures.

Make sure that you have installed the Sun Fire V490 server into a 4-post cabinet or 2-post rack (see Chapters 1 and 2) before following the instructions in this chapter.

---

## About the Cable Management Arm

The system is shipped with one of two CMA designs. To install the CMA, you must do the following:

**1. Determine which CMA was shipped with your system.**

See [“Determining Which CMA is Included with Your System”](#) on page 34.

**2. Install the CMA.**

See one of the following:

- [“How to Install CMA Type A”](#) on page 35
- [“How to Install CMA Type B”](#) on page 45

**3. Attach the power and data cables to your system.**

See your system installation or setup guide for specific instructions.

#### 4. Secure the system cables to the CMA.

See one of the following:

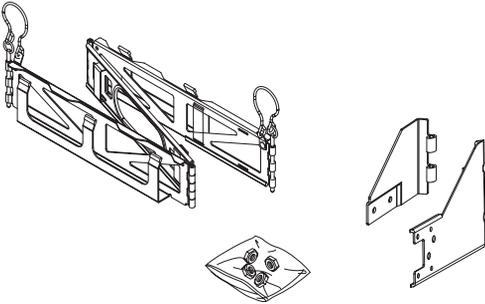
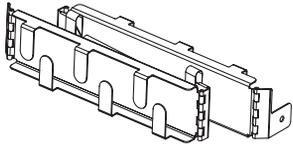
- [“How to Secure the Cables to CMA Type A” on page 40](#)
- [“How to Secure the Cables to CMA Type B” on page 47](#)

---

## Determining Which CMA is Included with Your System

Your system was shipped with one of two CMA designs. See [TABLE 3-1](#) to determine which CMA is included with your system.

**TABLE 3-1** Determining the CMA type

CMA Type A	CMA Type B
	
See <a href="#">“How to Install CMA Type A” on page 35</a>	See <a href="#">“How to Install CMA Type B” on page 45</a>

---

# Installing and Securing Cables to CMA Type A

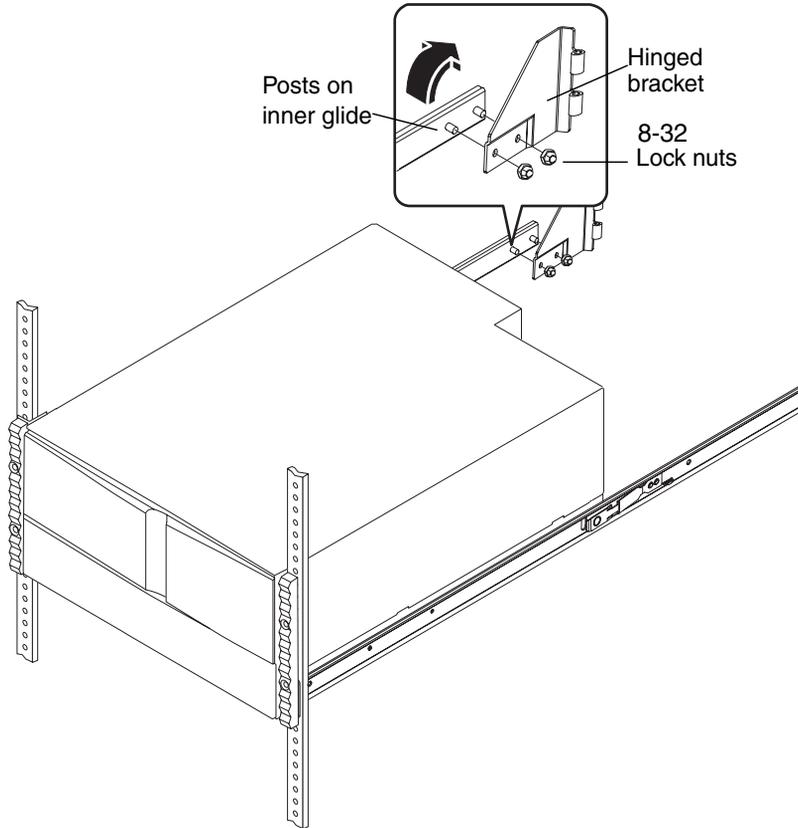
The following instructions apply to CMA Type A. If you have CMA Type B, see [“Installing and Securing Cables to CMA Type B” on page 44](#).

## ▼ How to Install CMA Type A

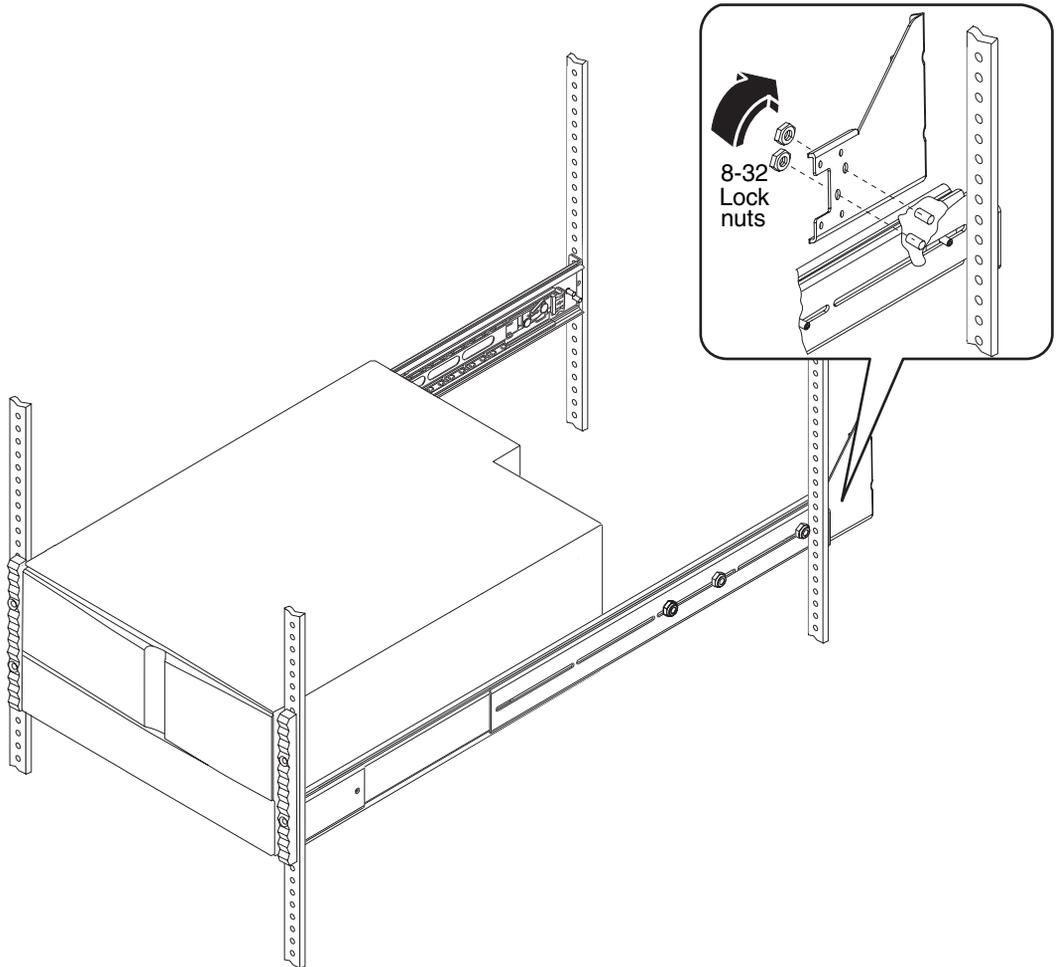
- 1. Remove the screws that secure the front of the system to the left and right vertical rails at the front of the cabinet.**
- 2. Slide the chassis smoothly out of the cabinet about 3 inches (76.2 mm).**

Sliding the server out of the cabinet provides easy access to the areas where you will attach the cable management arm.
- 3. Attach a hinged bracket to the posts on the inner glide, as shown in the next figure.**
  - a. Locate the two horizontal posts on the inner glide on the PCI side of the system.**
  - b. Remove the protective covers from the posts.**
  - c. Position the holes on the hinged bracket over the two posts on the inner glide.**

d. Secure the hinged bracket to the inner glide using two 8-32 lock nuts.



4. Attach the other hinged bracket to the diagonal posts on the opposite slide assembly.
  - a. Locate the two diagonal posts on the opposite-side slide assembly.
  - b. Remove the protective covers from the posts.
  - c. Position the diagonal holes on the hinged bracket over the two posts on the slide assembly.
  - d. Secure the hinged bracket to the slide assembly using two 8-32 lock nuts.



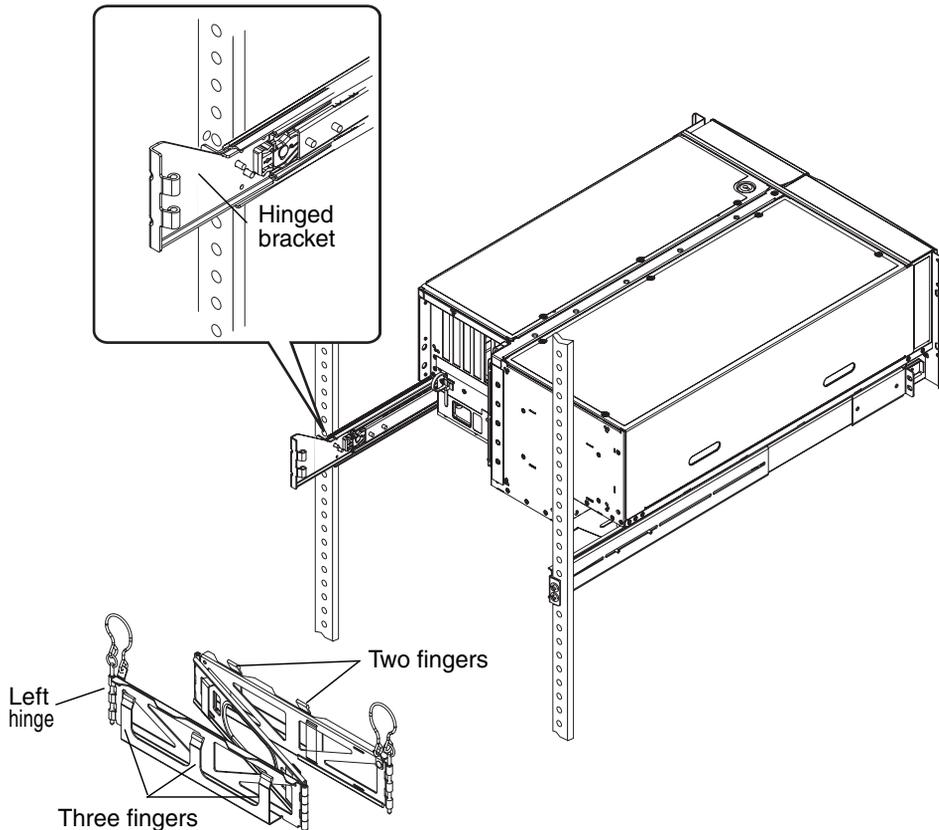
**5. Attach one end of the cable management arm to the hinged bracket on the slide assembly.**

The cable management arm is included in the rack kit.

**a. Position the cable management arm so that the two metal fingers in the first section are facing forward, toward the front of the server.**

The segment with three metal fingers should be facing away from the server, toward the rear of the cabinet.

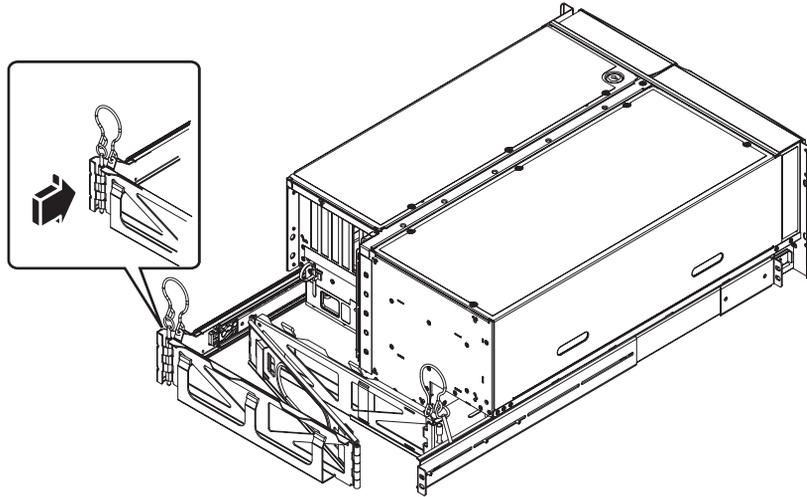
**b. Locate the hinged bracket on the slide assembly.**



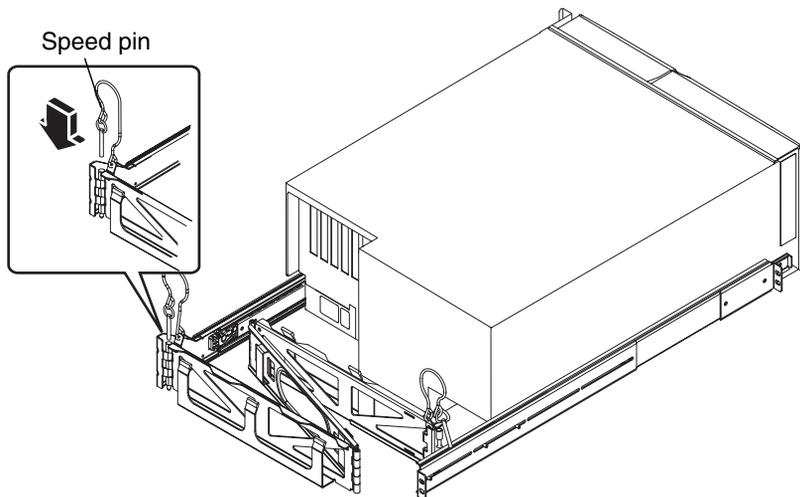
**c. Slide the hinge on the cable management arm into the hinge on the slide assembly bracket until the openings in both hinge sides are aligned.**

**d. Locate the speed pin on the end of the cable management arm.**

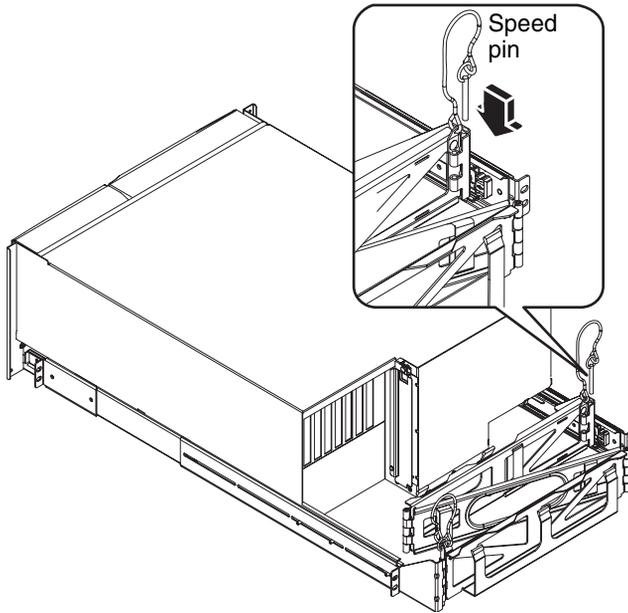
The speed pin secures the cable management arm to the slide assembly bracket.



**e. Insert the speed pin through the aligned openings of the hinges on the slide assembly and the cable management arm. Push the speed pin down firmly until it snaps into place.**



6. Attach the other end of the cable management arm to the hinged bracket on the inner glide.
  - a. Locate the hinged bracket on the end of the inner glide.
  - b. Slide the hinge on the cable management arm into the hinge on the bracket attached to the inner glide until the openings in both hinges are aligned.
  - c. Insert the speed pin through the aligned openings of the hinges on the bracket and the cable management arm and push the speed pin down firmly.



## ▼ How to Secure the Cables to CMA Type A

---

**Note** – This procedure illustrates how to route and secure the power cords and the Ethernet cable to the cable management arm. Your system may use additional cables.

---

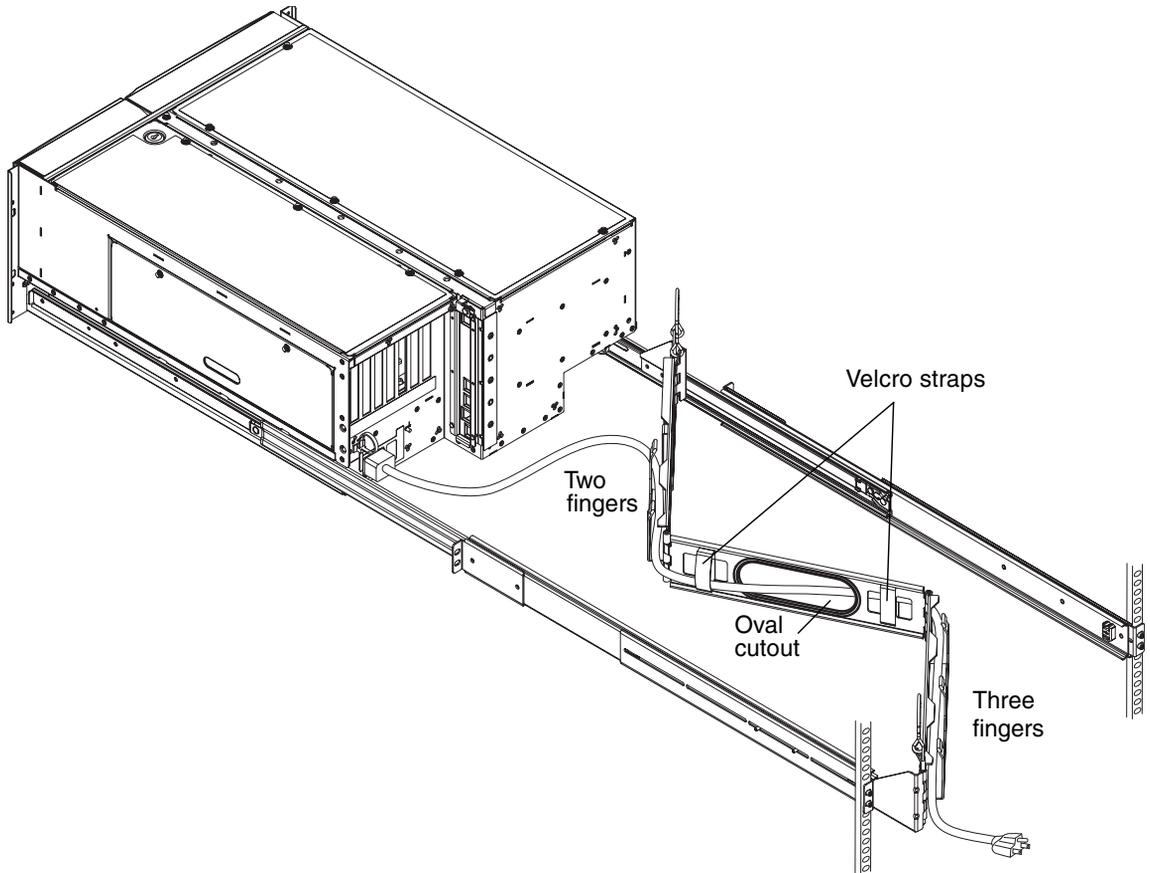
1. **If necessary, slide the chassis smoothly out of the cabinet about 3 inches (7.62 cm).**  
Sliding the server out of the cabinet provides easier access to the cable management arm.

2. **Locate the two metal fingers on the first section of the cable management arm and the three metal fingers on the third section of the cable management arm.**

Note the Velcro straps in the first and center sections.

3. **Locate the large oval cutout in the center section of the cable management arm.**

The fingers, oval cutout, and straps enable you to route the cables and cords and secure them to the cable management arm. A single power cord is shown in the figure below to indicate a routing path.



4. **Route the cables into the two fingers in the first section of the cable management arm.**

Be sure you leave enough slack to ensure an adequate bend radius for the cables.

5. **Group the cables and insert the group into the large oval cutout, as shown in the next figure.**

Use the oval cutout in the center section to route a group of cables through the cable management arm. Be sure you leave enough slack around the hinge to ensure an adequate bend radius for the cables.

---

**Note** – Do not insert the cables into the other metal cutouts. Use those cutouts to access and manipulate the cables.

---

6. **Route the cables into the three fingers in the third section of the cable management arm, as shown in the next figure.**

7. **Connect the power cords and data cables to the server ports.**

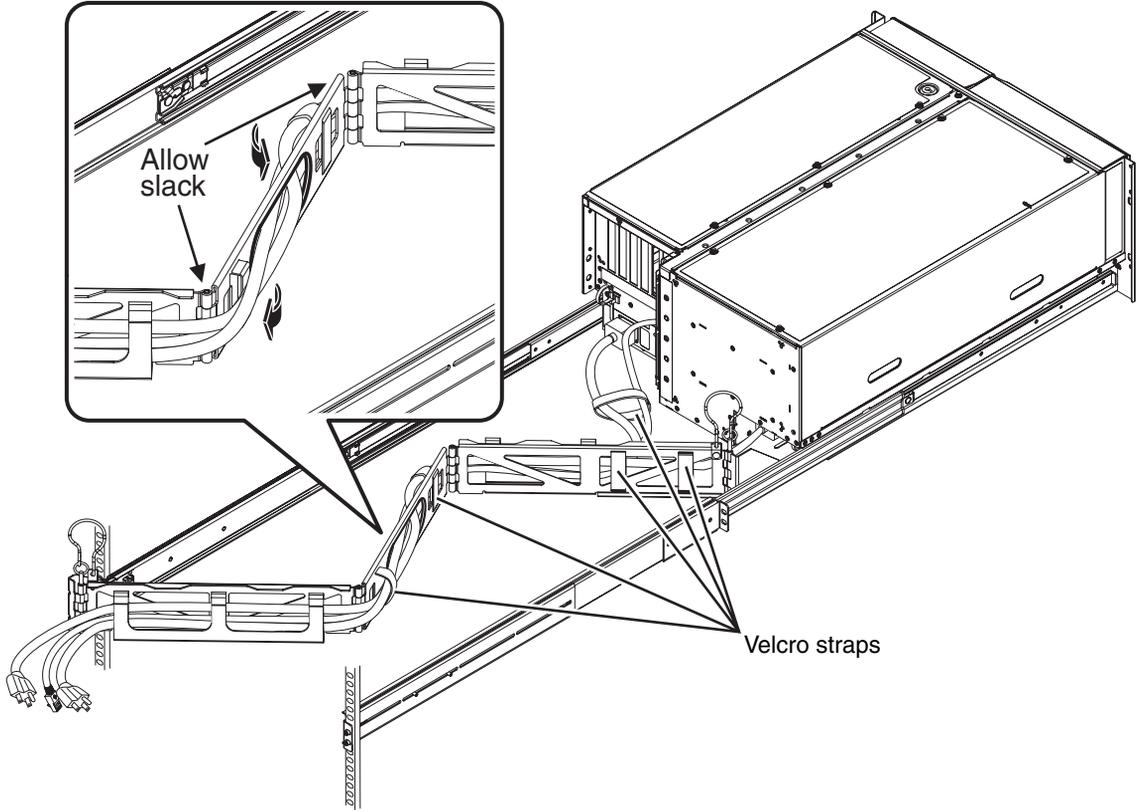
See the *Sun Fire V490 Server Administration Guide* for more information about external ports.

---

**Note** – Do not secure the server to the front mounting rails until after you connect the cables and route them onto the cable management arm. It is easier to route the cables onto the cable management arm when the server is extended out of the rack.

---

8. **Using the Velcro straps, secure the cords and cables to the first and center sections of the cable management arm.**



9. Connect the outlet plug of each power cord to the power sequencer in the cabinet, or to a grounded AC power outlet.



---

**Caution** – Each outlet must connect the server to a 15A circuit for North America and Japan, and to a 10A circuit for Europe. Consult your local electrical codes for any additional requirements. See the instructions provide with your cabinet for information about the power sequencer.

---

---

**Note** – For increased server redundancy, connect the power cords to separate circuits.

---

10. Plug in the twisted-pair Ethernet (TPE) cable to the RJ-45 outlet to connect to your Ethernet network.

See your network administrator if you need more information about how to connect to your network.

11. Secure the server to the front vertical mounting rails using either four M6 screws or four 10-32 screws.

---

## Installing and Securing Cables to CMA Type B

---

**Note** – The following instructions apply to CMA Type B. If you have CMA Type A, see [“Installing and Securing Cables to CMA Type A”](#) on page 35.

---

### Determining the Correct Mounting Location

Cable Management Arm Type B is reversible: it can be mounted on either side of the system. In order to ensure proper cable routing, Sun recommends you mount the end of the CMA closest to the back panel of the system on the same side of the system’s PCI cards.

Follow these guidelines:

- If your system has PCI cards on the left side of the back panel, mount one end of the CMA on the left inner glide, and the other end on the right slide assembly.

- If your system has PCI cards on the right side of the back panel, mount one end of the CMA on the right inner glide, and the other end on the left slide assembly.

See [TABLE 3-2](#) to determine the correct mounting location for the CMA.

**TABLE 3-2** Determining correct CMA mounting location

Location of PCI cards	Left	Right
Inner glide mounting location of CMA	Left	Right
Slide mounting location of the CMA	Right	Left

---

**Note** – In the case of the Sun Fire V490, install the CMA to the left-side inner glide, and to the right-side slide assembly.

---

## ▼ How to Install CMA Type B

---

**Note** – You must determine the correct mounting location for the CMA. See [“Determining the Correct Mounting Location” on page 44](#) before proceeding.

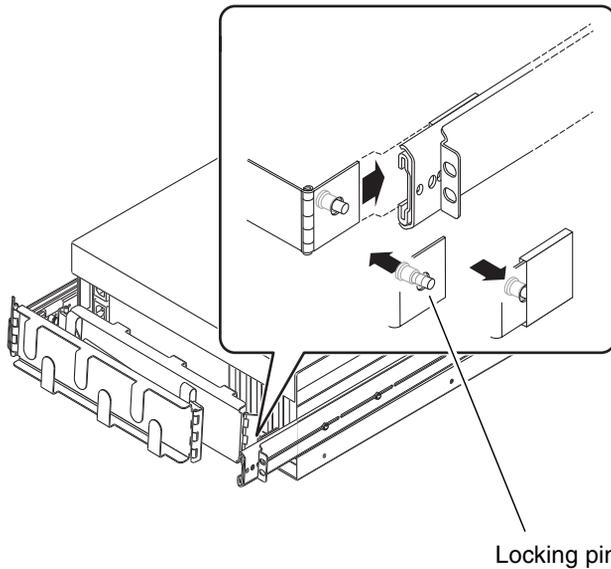
---

1. **Remove the screws that secure the front of the system to the left and right vertical rails at the front of the cabinet.**
2. **Slide the chassis smoothly out of the cabinet about 3 inches (8 cm).**  
Sliding the server out of the cabinet provides easy access to the areas where you will attach the cable management arm.

**3. Attach one end of the cable management arm to the inner glide.**

The cable management arm is included in the rack kit.

- a. Go to the back of the cabinet. Locate the inner glide on the PCI-side of the system.
- b. Position the cable management arm so that the hinged tab slides into the end of the inner glide.
- c. Slide the hinged tab in until its locking pin snaps into place.

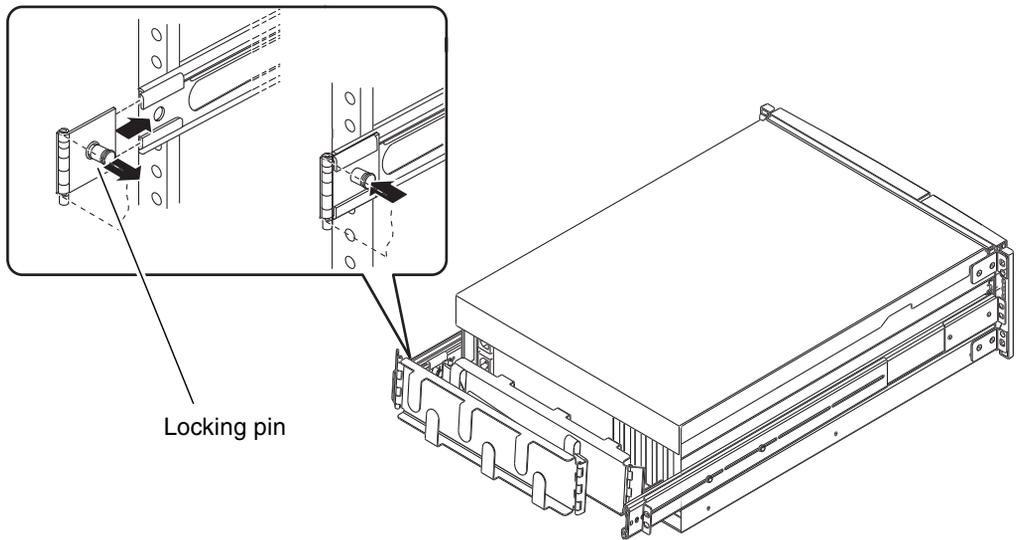


---

**Note** – These illustrations show CMA Type B installed on a different system. See [“Determining the Correct Mounting Location” on page 44](#) before installing the CMA on the Sun Fire V490 server.

---

4. Attach the other end end of the cable management arm to the slide assembly.
  - a. Locate the end of the slide assembly.
    - a. Position the cable management arm so that the hinged tab slides into the end of the slide assembly.
    - b. Slide the hinged tab in until its locking pin snaps into place.



## ▼ How to Secure the Cables to CMA Type B

---

**Note** – This procedure illustrates how to route and secure the power cords and the Ethernet cable to the cable management arm. Your system may use additional cables.

---

1. **If necessary, slide the chassis smoothly out of the cabinet about 3 inches (8 cm).**

Sliding the server out of the cabinet provides easier access to the cable management arm.
2. **Locate the metal fingers on the first and third sections of the cable management arm.**
3. **Locate the center section of the cable management arm.**

The Velcro straps enable you to route the cables and cords and secure them to the cable management arm.

**4. Connect the power cords and data cables to the server ports.**

See the *Sun Fire V490 Server Administration Guide* for more information about external ports.

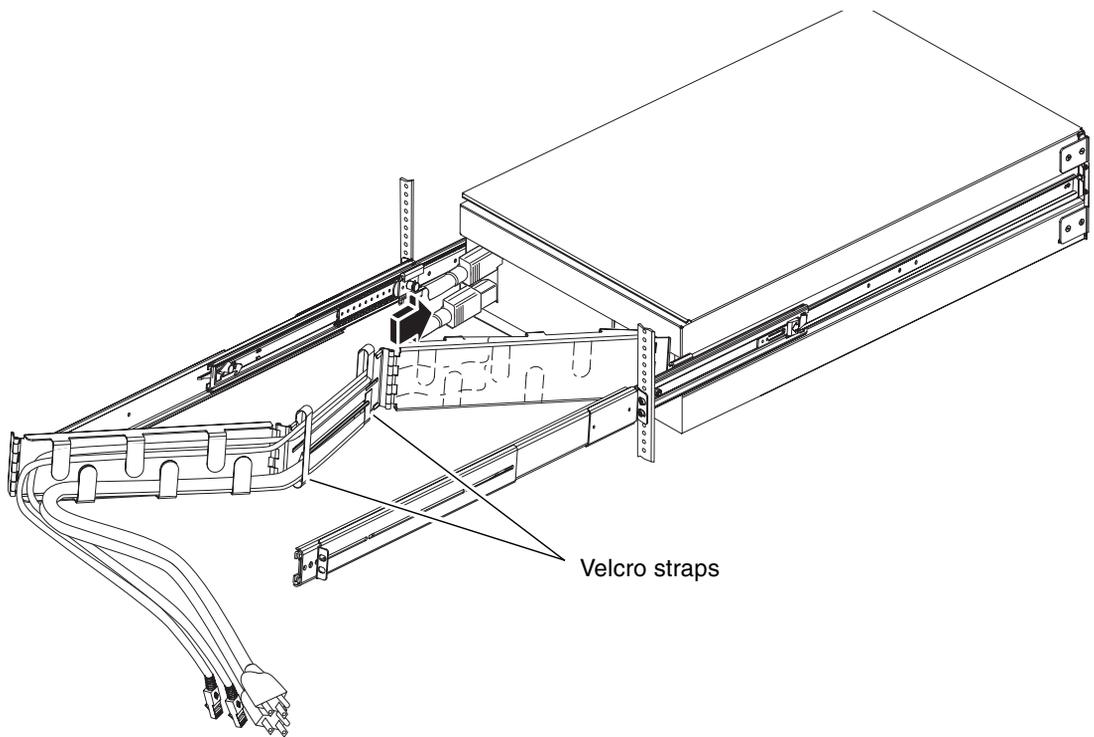
---

**Note** – Do not secure the server to the front mounting rails until after you connect the cables and route them onto the cable management arm. It is easier to route the cables onto the cable management arm when the server is extended out of the rack.

---

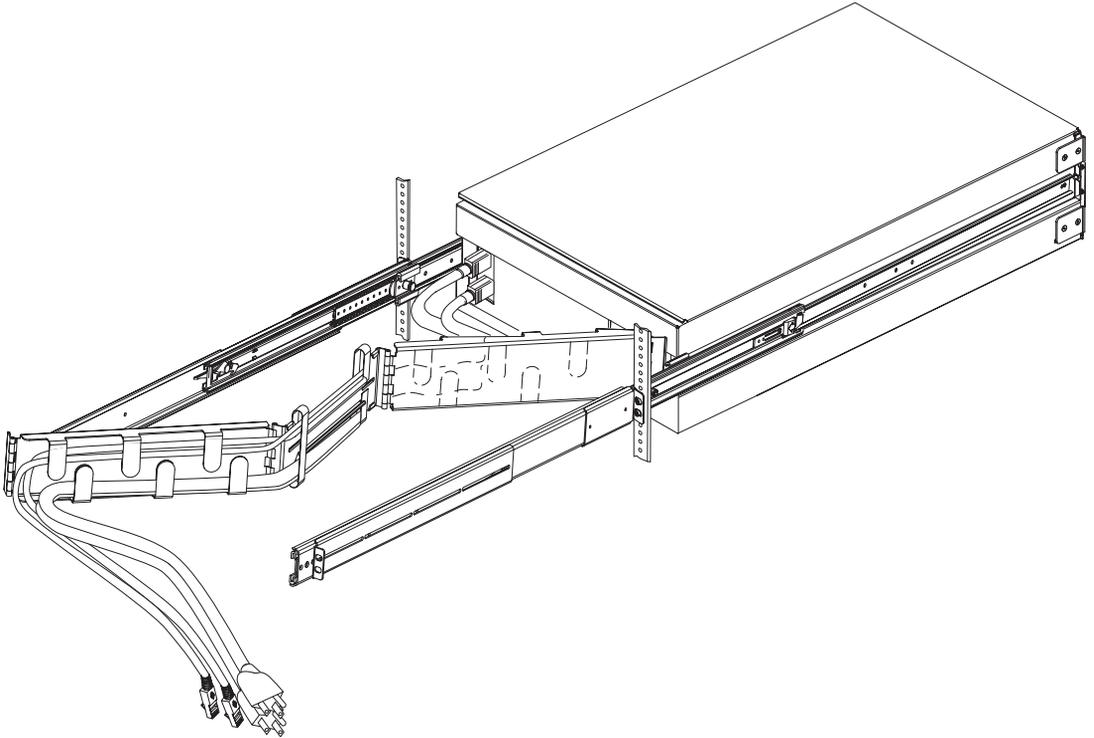
**5. Route the cables into the fingers in the first section of the cable management arm.**

Leave enough slack in the cables to ensure that the hinges operate freely without crimping or binding the cables.



**6. Arrange the cables along the center section of the cable management arm.**

Distribute the cables evenly above and below the center section of the cable management arm, securing them with the Velcro straps. Leave enough slack around the hinges to ensure that they operate freely without crimping or binding the cables.



**7. Route the cables into the fingers in the third section of the cable management arm.**

8. **Connect the outlet plug of each power cord to the power sequencer in the cabinet, or to a grounded AC power outlet.**



---

**Caution** – Each outlet must connect the server to a 15A circuit for North America and Japan, and to a 10A circuit for Europe. Consult your local electrical codes for any additional requirements. See the instructions provide with your cabinet for information about the power sequencer.

---

---

**Note** – For increased server redundancy, connect the power cords to separate circuits.

---

9. **Plug in the twisted-pair Ethernet (TPE) cable to the RJ-45 outlet to connect to your Ethernet network.**

See your network administrator if you need more information about how to connect to your network.

10. **Secure the server to the front vertical mounting rails using either four M6 screws or four 10-32 screws.**

---

## How to Restore the Cabinet

See the instructions provided with your cabinet to complete these steps.

1. **Retract the cabinet's anti-tip legs, if applicable.**
2. **Replace the side panels, if applicable.**
3. **Replace the front and back doors, if applicable.**

---

## What Next

The next step is to set up a system console, power on the server, and install the Solaris Operating System. See your server installation guide for specific instructions.

## 4-Post Cabinet Requirements

---

The server is designed so that you can install it into a 72-inch (184-cm) tall Sun expansion cabinet or other EIA-compliant industry-standard cabinet that meets the requirements listed in the table in this appendix. You need a Sun rack kit for each server that you rackmount.

For more detailed information about rack options and requirements, and site planning for cabinets and racks, see the *Site Planning Guide for Entry-Level Servers Version 1.5*. This guide is available at:

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

---

**Note** – The system is fully serviceable in a 4-post cabinet when it is extended on its slide assemblies.

---

**TABLE A-1** 4-Post Rack Requirements

Cabinet Feature	Requirement
Load-bearing capacity	The rack must firmly support the weight of as many Sun Fire V490 servers as you are installing into the cabinet (each server weighs up to 97 lb/44 kg), plus the weight of the rackmounting hardware, and the weight of any other installed devices.
Vertical space requirements	Each server requires five rack units (8.75 in/22.22 cm) of vertical space for rack installation. A 72-inch (184-cm) Sun cabinet ships with a power sequencer so that it can hold up to seven servers (with a power sequencer there are 36 rack units of usable space). <b>Note:</b> If the servers are fully populated, the cabinet and power sequencer will only support six servers. See the <i>Site Planning Guide for Entry- Level Servers Version 1.5</i> for more information.
Doors and panels	If you are using a Sun expansion cabinet, you can remove the front and back doors and the side panels to increase access to the system. Otherwise, see the instructions provided with the cabinet.
Anti-tip protection	The cabinet must be bolted securely to the floor or equipped with two sturdy and extendable anti-tip legs. You must prevent the cabinet from tilting forward when one or more systems or devices are fully extended out the front of the cabinet.

---

**TABLE A-1** 4-Post Rack Requirements (*Continued*)

Cabinet Feature	Requirement
Airflow	<p>The system operating airflow is 200 cfm, regardless of ambient air and altitude. This airflow is designed to provide appropriate cooling up to 95° F (35° C) and 10,000 feet (3,048 meters).</p> <p>For proper ventilation of the server, the front and back doors must comply with the following minimum open area requirements.</p> <ul style="list-style-type: none"><li>• 60 percent of the area of the front door that is directly in front of the server must be open.</li><li>• 63 percent of the area of the back door that is directly behind the server must be open.</li><li>• Maintain a minimum of 1.5-inch (3.8-cm) clearance between the system and any front or back doors.</li></ul> <p>If the doors of the cabinet do not meet the open area requirements, remove the door or doors that do not comply. For more information about cooling and airflow, see the <i>Site Planning Guide for Entry-Level Servers Version 1.5</i>.</p>
Vertical mounting rails	<p>The cabinet must have two pairs of vertical mounting rails (one pair in front, one pair in back) that conform to the EIA (RETMA) standard for mounting hole spacing.</p> <p>Left-side-to-right-side rail spacing (mounting hole center to mounting hole center) for front and back rails must be 18.3 inches (46.5 cm).</p> <p>Front-to-back rail spacing must be at least 23 inches (58.42 cm) and not more than 34.5 inches (87.63 cm) from the outside face of the front rail to the outside face of the back rail.</p> <p>Front and back vertical rail mounting faces must be parallel with each other and with the front plane of the rack.</p>
EMI shielding	<p>Electromagnetic interference (EMI) shielding requirements are met by the system chassis and metal side panels, which remain in place when the unit is rackmounted.</p>
Minimum service access	<p>An area not less than 3 feet (1 meter) deep and 6 feet (2 meters) wide must be available in front of the cabinet, for installation and service access.</p>
Fire containment	<p>The cabinet must meet Underwriters Laboratories, Inc. and TUV Rheinland of N.A. requirements for fire containment.</p>

