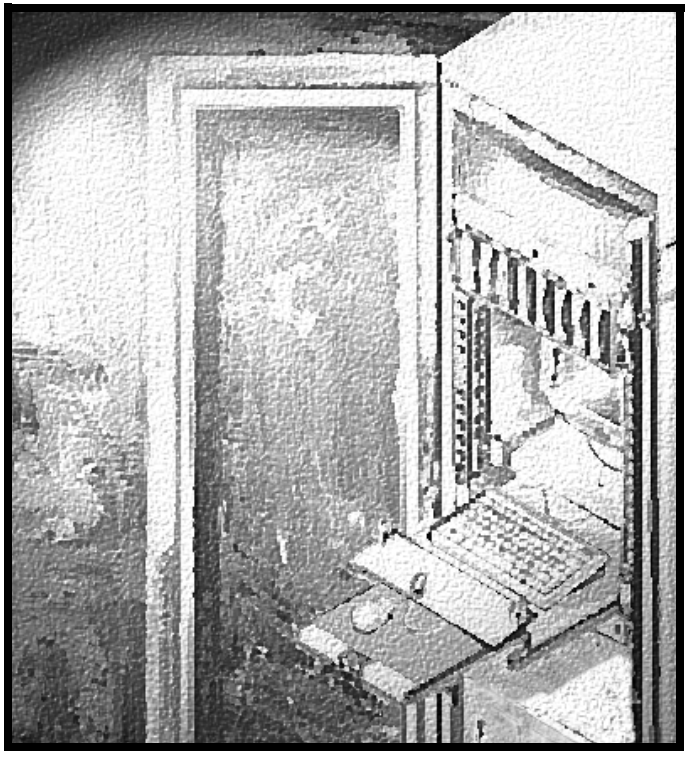
Dell® PowerEdge® 2300 Systems

RACK INSTALLATION GUIDE



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Warnings, Cautions, and Notes

Throughout this document, there may be blocks of text printed in bold type or in italic type. These blocks are warnings, cautions, and notes, and they are used as follows:

WARNING: A WARNING indicates the potential for bodily harm and tells you how to avoid the problem.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

NOTE: A NOTE indicates important information that helps you make better use of your computer system.

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Dell® PowerEdge® 2300 Systems Rack Installation Guide

This installation guide provides instructions for trained service technicians installing one or more Dell PowerEdge 2300 systems in a Dell rack. One rack kit is required for each PowerEdge system to be installed in the rack. The rack kit includes the following items (see Figure 1):

- One pair of slide assemblies with mounting brackets
- One computer top cover with attached rail and rack adapter
- One rail
- One rack adapter
- One cable-management arm
- Four curved nut plates
- One cage-nut installation tool
- Fourteen 10-32 pan-head Phillips-head screws
- Seven 8-32 pan-head Phillips-head screws
- Ten #10 flat metal washers
- Six 10-32 cage nuts

NOTES: The nonmetric screws called out in illustrations and procedural steps are identified first by size and then by the number of threads per inch. For example, a #10 Phillips-head screw with 32 threads per inch is identified as a 10-32 screw.

If you have purchased a Dell rack along with your PowerEdge 2300 system, the slide assemblies are preinstalled in the rack.

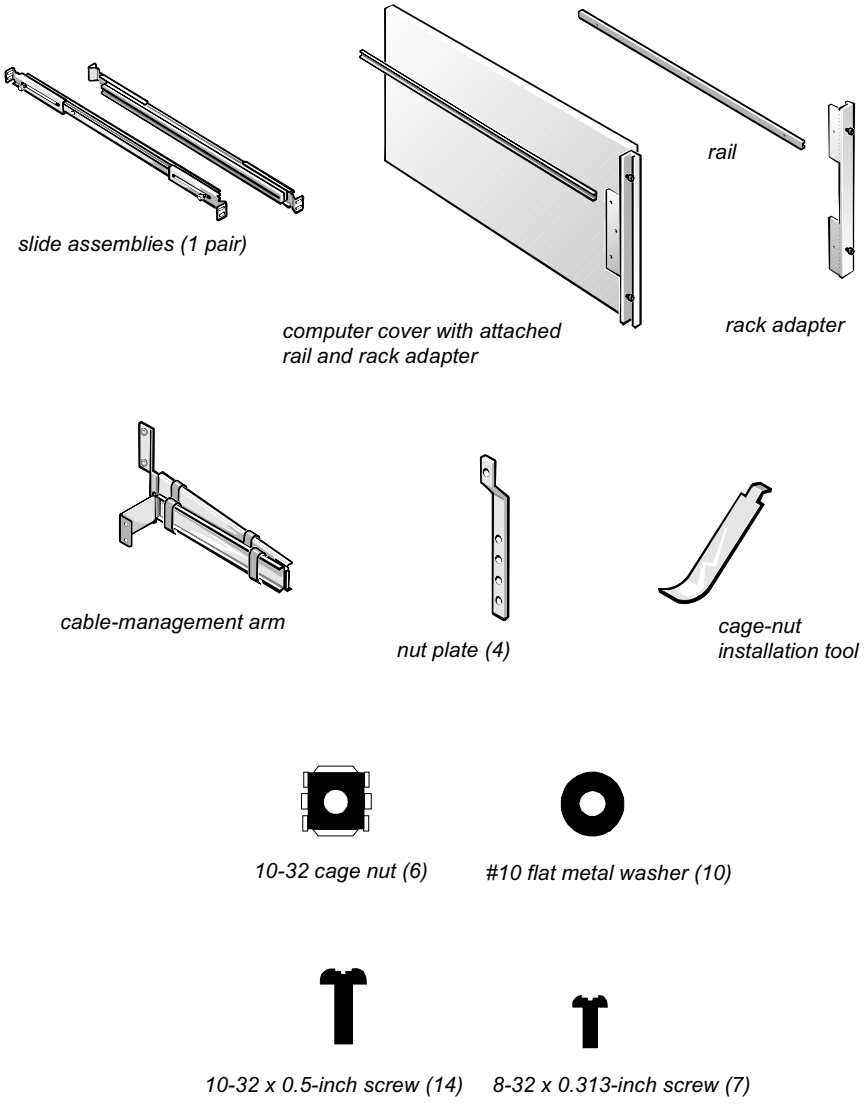

Figure 1. Rack Kit Contents

Before You Begin

Before you begin installing your PowerEdge 2300 system in the rack, carefully read the safety precautions and tool requirements in the following subsections.

Important Safety Information

Follow these safety precautions when installing your computer in the rack .

Kit Installation Restrictions

This rack kit is intended to be installed in a Dell rack by trained service technicians. If you install the kit in any other rack, be sure that the rack meets the specifications of the Dell rack.

WARNING: Dell's server systems are certified as components for use in Dell's rack cabinet using the Dell customer rack kit. The final installation of Dell servers and rack kits in any other brand of rack cabinet has not been approved by any safety agencies. It is the customer's responsibility to have the final combination of Dell servers and rack kits for use in other brands of rack cabinets evaluated for suitability by a certified safety agency.

Rack Stabilizer Feet

WARNING: Installing PowerEdge 2300 systems in a Dell rack without the front and side stabilizer feet installed could allow the rack to tip over, potentially resulting in bodily injury under certain circumstances. Therefore, always install the stabilizer feet *before* installing components in the rack.

The stabilizer feet help prevent the possibility of the rack tipping over when a PowerEdge 2300 system is pulled out of the rack so that the slide assemblies are fully extended. Refer to the *Dell PowerEdge Rack-Mountable Solutions Installation Guide* provided with the rack for instructions on installing the stabilizer feet.

WARNING: After installing computers in a rack, *never* pull more than one computer out of the rack on its slide assemblies at one time. The weight of more than one extended computer could cause the rack to tip over and injure someone.

Recommended Tools

To install the rack kit, you should have the following tools:

- A #2 Phillips screwdriver
- A flat-blade screwdriver
- A 3/8-inch nut driver
- The cage-nut installation tool included in the rack kit
- A steel measuring tape

Installing the Rack Kit

NOTES: If you purchased a Dell rack along with your PowerEdge 2300 system, the rack kit is preinstalled in the rack.

For instructions on installing the PowerEdge system itself, see "Installing the PowerEdge 2300 System in the Rack" found later in this guide.

Use the following procedure to install the rack kit in the rack:

1. **Remove the rack's front and back doors.**
2. **Install the slide assemblies in the rack.**

The subsections that follow include instructions for performing these tasks.

Removing the Doors From the Rack

You must remove the doors from the rack to provide access to the interior of the rack and to prevent damage to the doors while installing the kit. Use the following procedure to remove the doors.

WARNING: To prevent personal injury due to the size and weight of the doors, never attempt to remove the doors by yourself.

1. **Open the latch on the front door (see Figure 2).**

   Slide the latch's push button cover up as far as it will go, press the push button, rotate the handle clockwise until the latch releases, and then pull the door open.

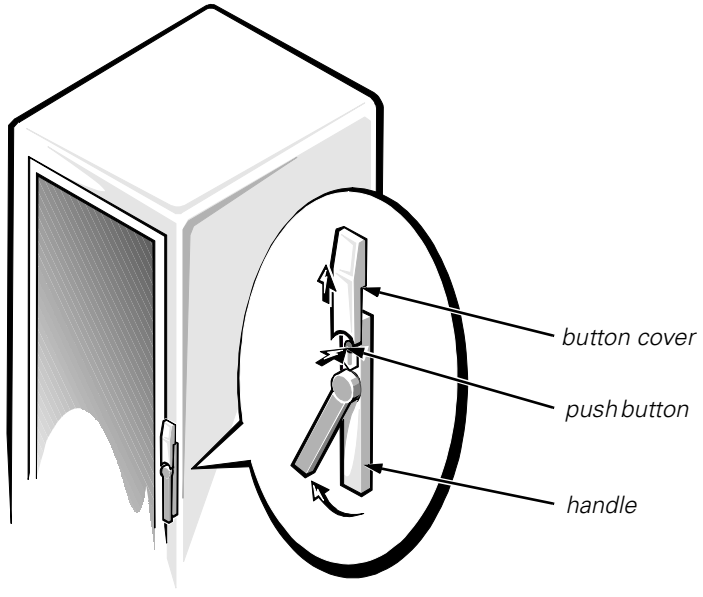

Figure 2. Opening the Latch on the Door

2. Remove the front door as shown in Figure 3:

a. One person should grasp the top of the door to stabilize it. The other person should grasp the bottom of the door.

b. The person holding the bottom of the door should press the release lever on the bottom hinge and then pull the bottom of the door away from the rack a few inches.

c. The person holding the top of the door should press the release lever on the top hinge and then pull the door away from the rack.

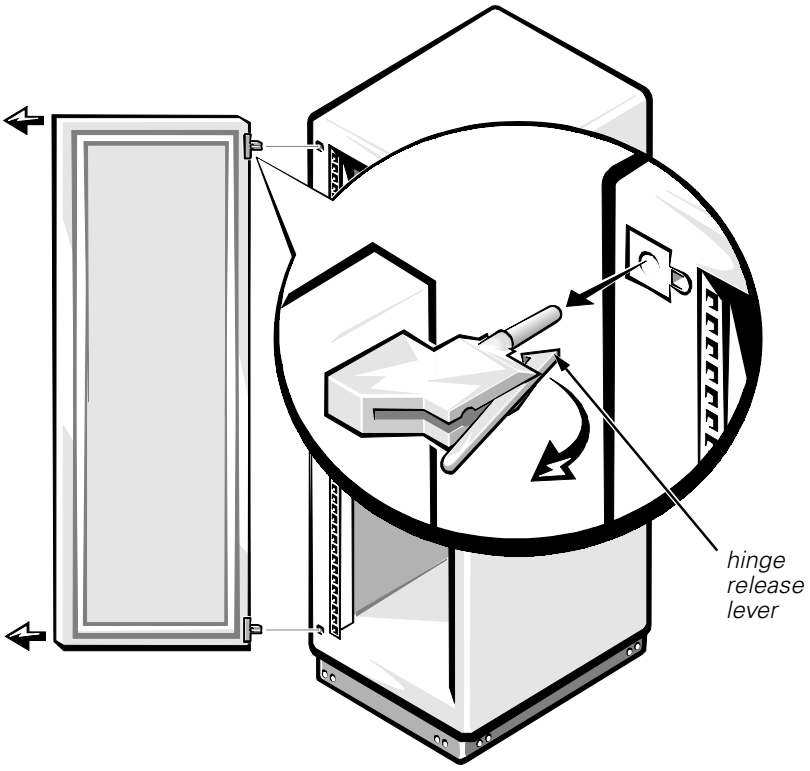

Figure 3. Removing the Rack Doors

3. Repeat steps 1 and 2 to remove the back door from the rack.

Store the two doors where they will not injure someone if they accidently fall over.

Installing the Slide Assemblies in the Rack

Use the following procedure to install the slide assemblies in the rack:

1. **Determine where you want to install the slide assemblies.**

WARNING: If you are installing more than one computer, install the slide assemblies so that the first computer is installed in the lowest position in the rack.

If you intend to install more than one PowerEdge 2300 system in the rack, you must install the slide assemblies so that there is 10.5 inches (6U) of vertical space between the top of one slide assembly and the top of the next (see Figure 4). In the Dell rack, the rails of the rack are marked by small indentations in 1U (1.75-inch) increments. To install the computer in the rack's lowest position, locate the cage nuts 6U (10.5 inches) f rom the bottom of each vertical rail . After determining where to install the slide assemblies, mark the locations of the cage nuts on the rack's vertical rails with a felt-tipped marker or masking tape.

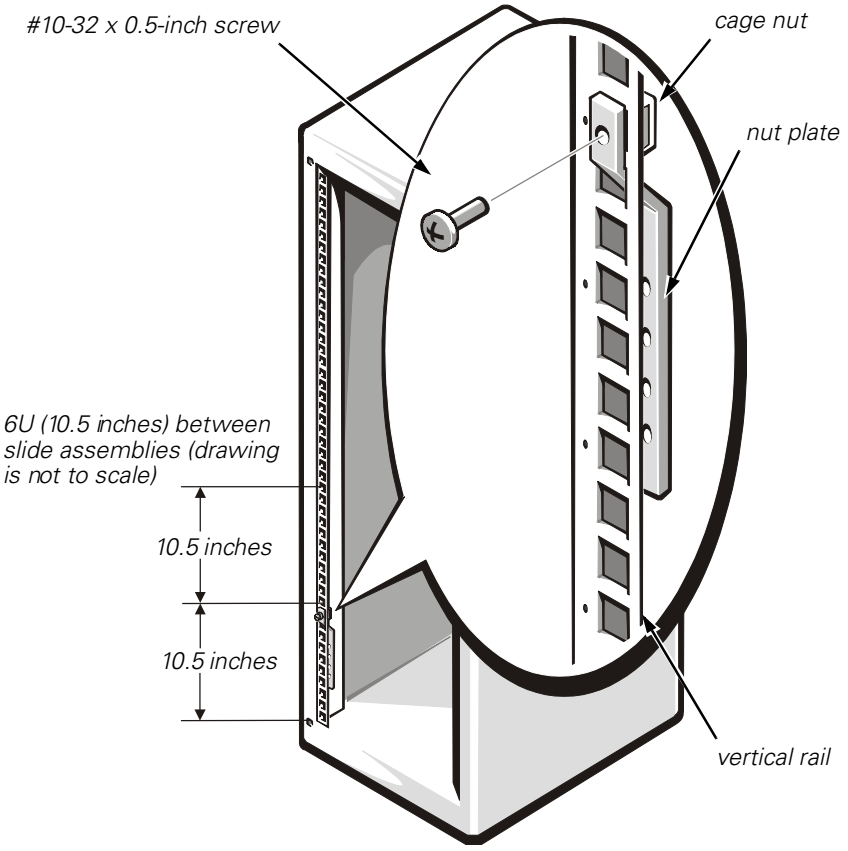

Figure 4. Determining Where to Install the Slide Assemblies

2. Install the cage nuts and nut plates.

Install the curved nut plates on the vertical rails where you want the ends of the slide assemblies to be located (see Figure 5). Each curved nut plate is held in place by one Phillips-head screw and one cage nut.

The following substeps explain how to install the cage nuts and the nut plates:

a. Insert the lower lip of the 10-32 cage nut over the bottom of the opening in the back of a rail as shown in step 1 in Figure 5. Then insert the small end of the cage-nut installation tool through the opening in the rail (from the front), and hook the tool over the top lip of the cage nut.

b. Push in on the cage nut while rotating the tool up and pulling the tool back toward you until the top lip of the cage nut snaps into position (see step 1 in Figure 5).

c. Repeat this process to install the remaining cage nuts.

d. To install one of the curved nut plates, insert it through the hole below the cage nut (from the back of the rail) as shown in step 2 in Figure 5. Then secure the nut plate in place with a 10-32 x 0.5-inch Phillips-head screw (see step 3 in Figure 5).

e. Repeat substeps a through d to install the remaining nut plates.

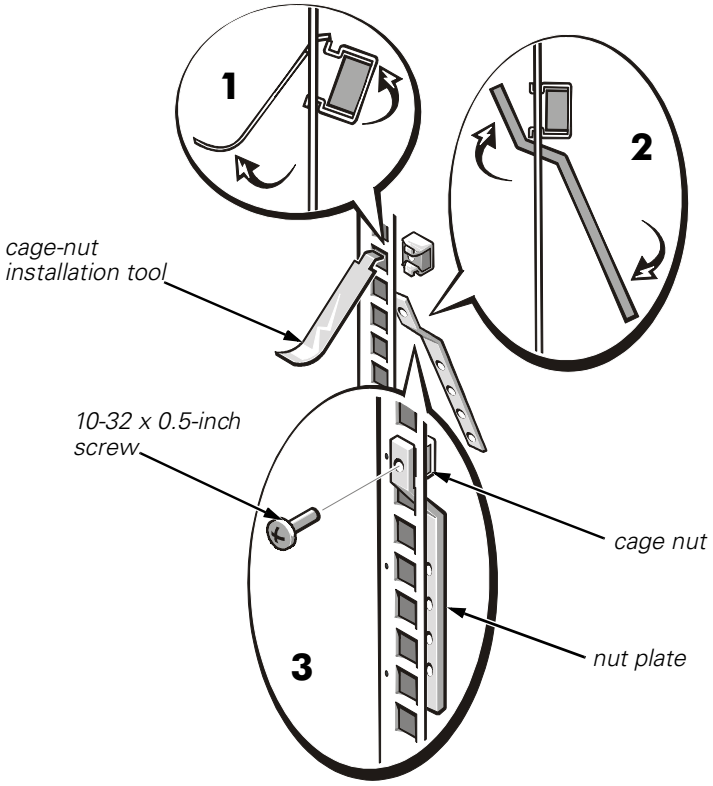

Figure 5. Installing a Cage Nut and Nut Plate

3. **Using a Phillips screwdriver, slightly loosen the slide alignment screw that holds the front slide-mounting bracket to the exterior slide (see Figure 6).**

*NOTE: Do **not** adjust the back slide-mounting brackets. Doing so will prevent the computer from aligning properly with the rack. Make adjustments only to the front slide-mounting brackets.*

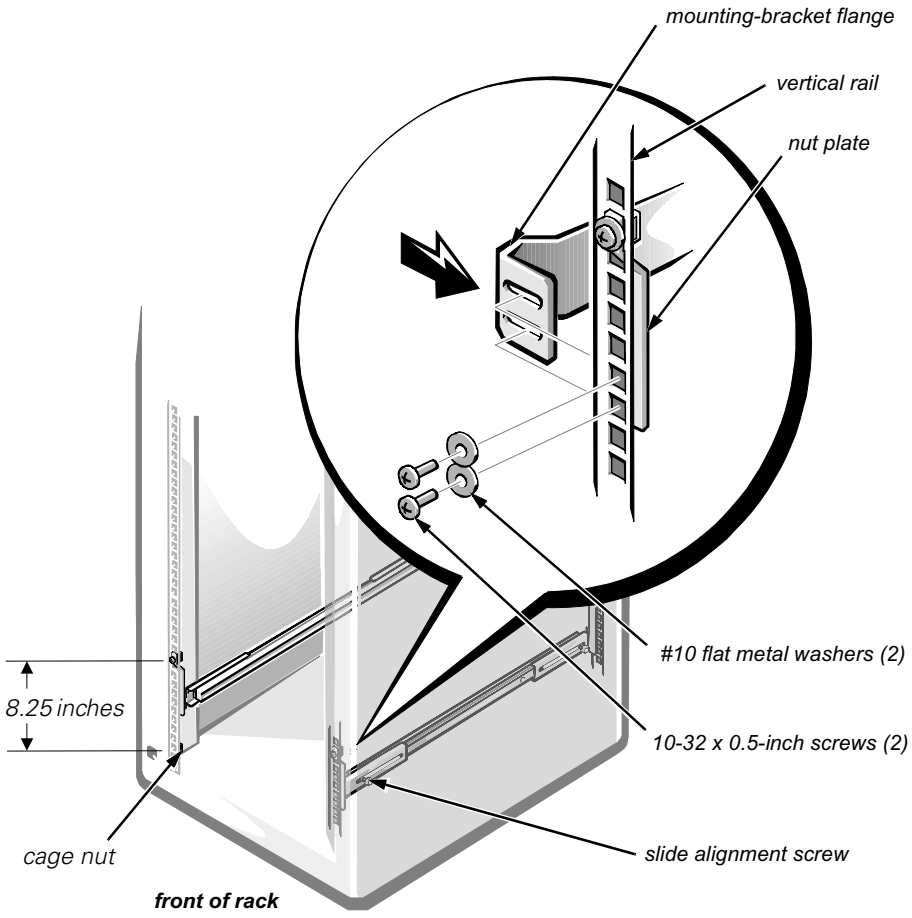

Figure 6. Installing the Slide Assemblies

4. Install the slide assemblies in the rack.

NOTES: When installing the slide assemblies, be sure that the green plastic stops at the ends of the channels are at the back of the rack and that the green push button (on the interior slide) is near the front of the rack (see Figure 11).

If the slide assembly is completely extended and locked in position, press the spring located on the inside of the interior slide (near the end with the green plastic stop) to release the slide so that it can be returned to the retracted position.

a. Insert the slide's mounting-bracket flange between the nut plate and the rack's vertical rail as shown in Figure 6.

b. Position the mounting bracket at the back of the slide assembly so that its two slots are aligned with the two lowest holes in the nut plate (see Figure 6). Secure the mounting bracket with two 10-32 x 0.5-inch Phillips-head screws and two #10 flat metal washers. Do *not* completely tighten the two mounting screws until you install the computer and verify that the width between the slide assemblies is correct.

c. Position the mounting bracket at the front of the slide assembly so that its two slots are aligned with the two lowest holes in the nut plate. Secure the mounting bracket using two 10-32 x 0.5-inch Phillips-head screws and two #10 flat metal washers.

d. If necessary, adjust the slide assembly's length until the mounting-bracket flange fits snugly against the back of the rails on both ends. (Dell racks require no adjustment to the slide assemblies; the slide assemblies are pre-configured to the correct length).

e. Tighten the slide alignment screw you loosened in step 3.

5. **Repeat steps 2 through 4 to install the second slide assembly.**

6. **Install one cage nut in each front vertical rail for the rack-adapter thumbscrews (see Figure 6).**

   Locate the cage nuts 8.25 inches below the cage nuts you installed in step 2.

Installing the PowerEdge 2300 System in the Rack

The subsections that follow include instructions for installing a PowerEdge 2300 system in the rack.

Installing the Rails and Rack Adapters

Use the following procedure to install the rails and rack adapters on the computer:

1. **Remove the left- and right-side computer covers.**

   See Chapter 7, "Checking Inside the Computer," in the computer's *Installation and Troubleshooting Guide* for instructions on removing the computer covers.

2. Remove the feet from the computer.

WARNING: The computer weighs approximately 25 kg (55 lb) when fully loaded. To prevent personal injury, do not attempt to move the computer by your self.

a. Lay the computer on its left side (see Figure 7) on a piece of foam or cardboard (to prevent damage to the computer) while you remove the feet.

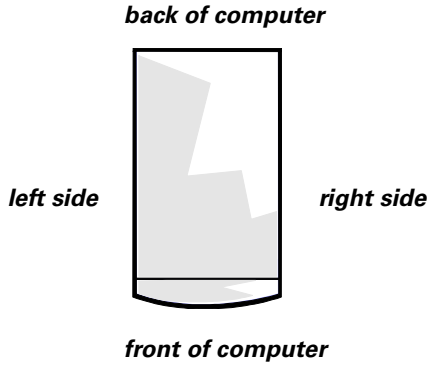

Figure 7. Computer Orientation

b. Using a small flat-blade screwdriver, unscrew the plastic rivet securing each foot.

c. From outside of the chassis, pull each foot from the chassis.

3. Remove the computer's top cover:

a. Remove the two screws at the front edge of the top cover (see Figure 8). (Retain the screws for later use.)

b. Slide the top cover about a half inch toward the front of the computer and lift it away.

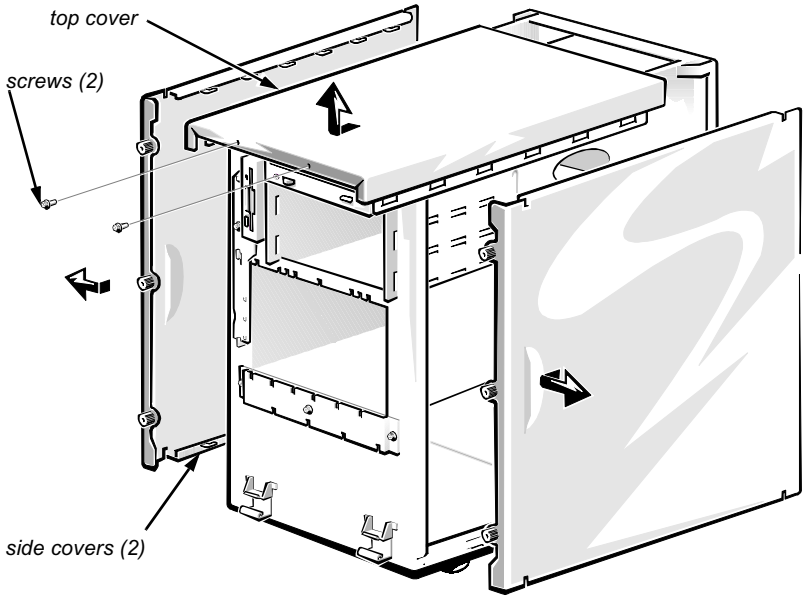

Figure 8. Removing the Computer's Top Cover

4. **Replace the top cover with the new top cover/rail assembly supplied in the rack kit.**

   Use the two screws that you removed in step 3 to secure the new top cover.

5. **Replace the computer's side covers and front bezel.**

   When replacing the side covers, install the cover with the system label on the right side of the computer

   See Chapter 7, "Checking Inside the Computer," in the *Installation and Trouble-shooting Guide* for instructions on replacing the computer cover s and front bezel.

6. **Install the rail on the computer (see Figure 9).**

   Orient the rail such that the three holes near the back of the rail are near the back of the computer. Attach the rail with three 8-32 x 0.313-inch Phillips-head screws.

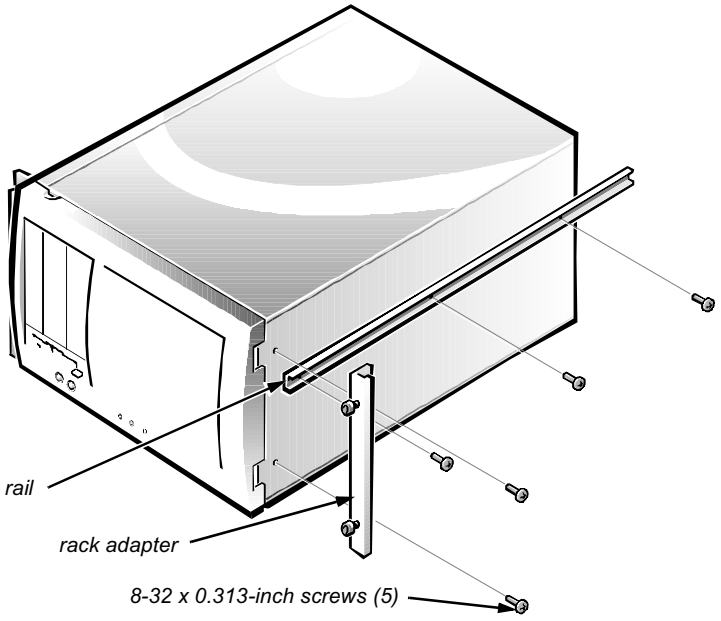

Figure 9. Installing the Rack Adapter and Rail

7. Install the rack adapter on the computer (see Figure 9).

Secure the adapter to the computer with two 8-32 x 0.313-inch Phillips-head screws.

Installing the Cable-Management Arm

To install the cable-management arm on the computer, align the bracket on the end of the arm with the corresponding holes on the computer 's back panel (see Figure 10). Secure the arm using two 8-32 x 0.313 Phillips-head screws.

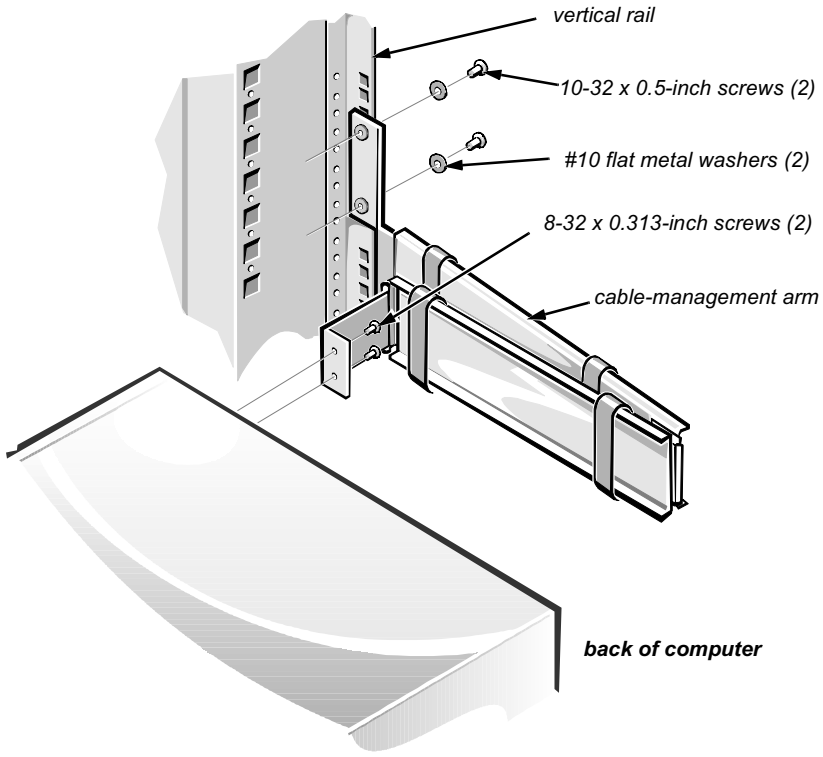

Figure 10. Installing the Cable-Management Arm

Installing the Computer

Use the following procedure to install the computer in the rack.

WARNING: If you are installing more than one computer, install the first computer in the lowest position in the rack. *Never* pull more than one computer out of the rack at a time.

1. **Pull the two interior slides out of the rack until they lock in the extended position.**
2. **Lift the computer into position, and insert the computer's rails into the channels of the interior slides (see Figure 11).**

WARNING: Due to the size and weight of the computer, never attempt to install the computer in the slide assemblies by yourself.

The slotted holes in the slide-mounting brackets allow for adjustment if the width between the slide assemblies is not correct. Adjust the width so that the computer slides easily into place.

NOTE: As you push the computer into the interior slides, the slide assemblies lock in the extended position. Press the green push button near the end of each interior slide to release the locks (see Figure 11), and then slide the computer completely into the rack.

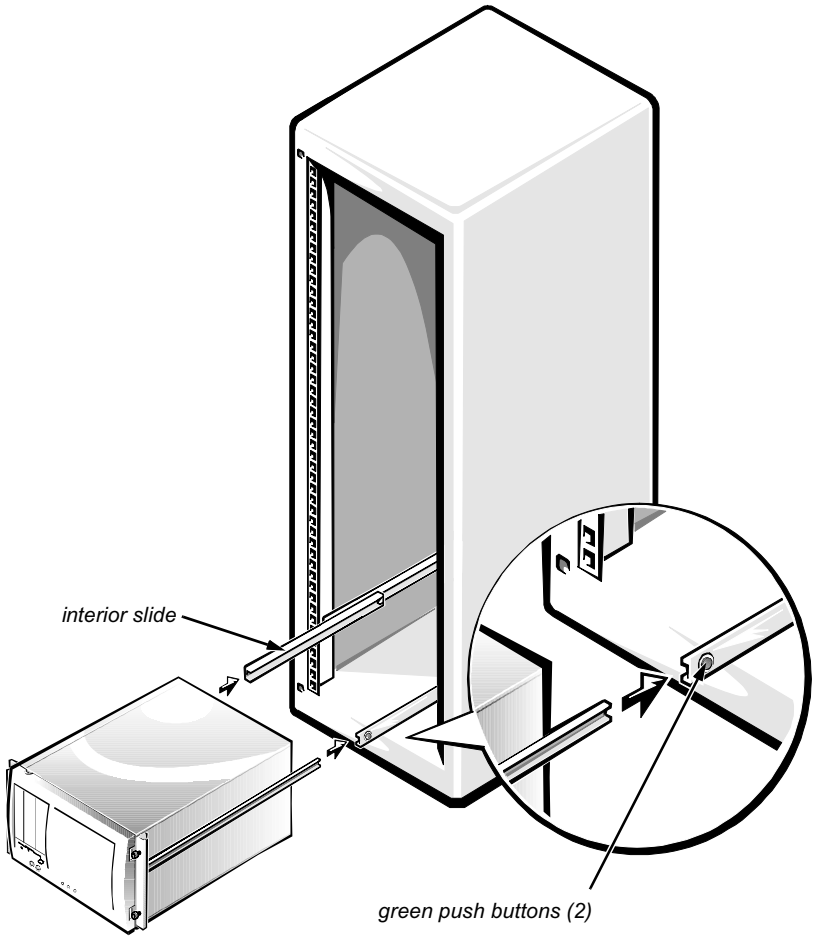

Figure 11. Installing the Computer in the Rack

3. Tighten all of the slide-assembly mounting screws securely.

After you tighten all of the mounting-bracket screws, slide the computer in and out a few times to ensure that none of the adjustments changed as you tightened the screws.

4. **Slide the computer completely into the rack and tighten the four thumbscrews to hold the computer in position.**

5. **Secure the loose end of the cable-management arm to the back vertical rail as shown in Figure 10.**

   Use two 10-32 x 0.5-inch Phillips-head screws and two #10 flat metal washers to secure the cable-management arm to the back vertical rail as shown in Figure 10. (This is the rail on the right as you face the back of the rack.) Make sure that the cable-management arm is straight in relation to the computer—that is, parallel to the ground.

6. **Install the cables.**

   Connect the cables to the computer. For details, see the computer system's *Installation and Troubleshooting Guide* and *User's Guide*.

7. **Secure the cables.**

   After connecting the cables to the computer, route the cables along the cable-management arm, and secure the cables to the cable-management arm with the Velcro strips attached to the cable-management arm.

8. **Slide the computer in and out of the rack to verify that the cables are routed correctly.**

   Make sure that the cables are not pinched in the cable-management arm joints.

NOTES: You will feel resistance as the rails thread themselves into the ball-bearing cages in the slide assemblies—this resistance is normal. Continue to push the computer inward until it slides completely into the rack and is fully seated. (You may have to pull the computer partially out and push it back into the rack to fully thread the ball-bearing cages.) When fully engaged, the back of the four captive thumbscrews should mate with the cage nuts on the rack's front vertical rails.

As you pull the computer out to its furthest extension, the slide assemblies will lock in the extended position. To push the computer back into the rack, press the green buttons near the front of both interior slides (see Figure 10) and simultaneously push in on the computer.

9. Replace the rack's front and back doors as follows.

WARNING: To prevent personal injury due to the size and weight of the doors, never attempt to replace the doors by yourself.

a. Lift the front door into position, and align the hinges with the holes in the rack as shown in Figure 3.

b. Slide the hinges into the holes in the rack until the hinge release levers lock the hinges into position.

c. Close the door latch by rotating the handle counterclockwise until it stops, push the handle in until it locks in position, and then slide the cover down over the push button (see Figure 2).

d. Repeat substeps a through c to install the back door.

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