



CHAPTER 3

Installing the Content Delivery Engines

This chapter provides the necessary information to properly install the CDEs. This chapter contains the following sections:

- [Server Types, page 3-1](#)
- [Tools and Parts Required, page 3-2](#)
- [Unpacking the Box, page 3-2](#)
- [Verifying Contents, page 3-3](#)
- [Inspecting for Damage, page 3-3](#)
- [Installing the CDEs, page 3-3](#)



Note

This chapter only provides information on CDEs that were shipped after December 1, 2006 and contain the Lindenhurst chipset. For information on CDEs that were shipped before December 1, 2006 and contain the Serverworks chipset, see [Appendix C, “CDEs with Serverworks Chipset.”](#)

Server Types

There are two types of CDS: Internet Streamer (IS) and TV. Both types of CDS consists of servers that are connected through Ethernet switches. The Intel Xeon-based servers are populated with multiple high-capacity hard drives.

There are three distinct server types in the IS Content Delivery System:

- Content Delivery System Manager (CDSM)—CDE100 or CDE200
- Service Engine (SE)—CDE200
- Service Router (SR)—CDE200

Depending on your application, you may have multiple SEs and SRs. A network switch is employed to link multiple servers together within a larger network.

There are four distinct server types in the TV Content Delivery System:

- CDSM—CDE100 or CDE200
- Streamer—CDE300
- Vault—CDE200 or CDE400
- Integrated Streamer Vault (ISV)—CDE200

Depending on your application, you may have multiple streamers and vaults. A network switch is employed to link multiple servers together within a larger network.

Tools and Parts Required

You need the following tools to install the CDEs:

- CDE100, CDE200, CDE300 or CDE400
- Hard disk drives
- Antistatic mat
- Properly grounded ESD-preventive device
- 1/4-inch flat-blade screwdriver
- 3/16-inch flat-blade screwdriver
- Number 2 Phillips screwdriver

Unpacking the Box

Each Cisco CDE is securely packaged in a shipping box. The cards and power supplies ship installed in the CDEs.

**Caution**

Proper ESD protection is required whenever you handle Cisco equipment. Installation and maintenance personnel should be properly grounded through the use of grounding straps to eliminate the risk of ESD damage to the equipment. Modules are subject to ESD damage whenever they are removed from the chassis.

To unpack the shipping container, follow these steps:

Step 1 Inspect the packing containers.

If any damage or other signs of mishandling are evident, inform both the local freight carrier and Cisco before unpacking. Your freight carrier can provide you with the procedures necessary to file a claim for damages.

Step 2 Carefully open the box.

Step 3 Remove all packing material.

Step 4 Remove the chassis from the box.

Step 5 Carefully open the additional boxes, remove the packing material, and remove the drives and other contents.

Step 6 Open the accessory kits and boxes that contain the cables and so forth. Do not use a knife to open these boxes.

**Tip**

Save these boxes should you need to return any components to Cisco.

Verifying Contents

To verify that your shipment is complete, make sure that you received everything on your packing list, and then compare your packing list to your order.

If any items are missing or if you need additional information, contact Cisco Technical Support at the following URL:

<http://www.cisco.com/cisco/web/support/index.html>

Inspecting for Damage

After you verify that all of the equipment is included, carefully examine the CDEs, cards, power supplies, and cables for any damage resulting from shipping. If you suspect any damage from shipping, contact your local freight carrier for procedures on damage claims.

If you observe any physical defects in the items you ordered, obtain standard warranty service by delivering the defective part, accompanied by a copy of the dated proof-of-purchase, to the Cisco Systems Corporate Service Center or an authorized Cisco Systems service center during the applicable warranty period. Contact Cisco Technical Support for the location of your nearest service center.

**Note**

Before proceeding with the installation, verify that all of the ordered parts are present and in good condition. Keep a record of the parts and serial numbers. If any parts are missing or damaged, contact your sales representative.

Installing the CDEs

Installing the CDS consists of the following tasks:

- [Reviewing Rack Installation Safety Guidelines, page 3-3](#)
- [Preparing the CDEs for Rack Installation, page 3-4](#)
- [Installing CDEs in the Rack, page 3-5](#)
- [Making Physical Connections, page 3-5](#)
- [Installing or Removing Disk Drives, page 3-9](#)

Reviewing Rack Installation Safety Guidelines

Before installing your device in a rack, review the following guidelines:

- The equipment is to be installed by a trained service person.
- The equipment is to be installed in a Restricted Access Location.
- Handles on the equipment are provided for positioning purpose only, not for lifting the chassis.
- The customer should follow their own company guidelines and governing regulations for handling heavy equipment.
- Two or more people are required to install the device in a rack.
- Ensure that the room air temperature is below 95°F (35°C).

- Do not block any air vents; usually 6 inches (15 cm) of space provides proper airflow.
- Plan the device installation starting from the bottom of the rack.
- Install the heaviest device in the bottom of the rack.
- Do not extend more than one device out of the rack at the same time.
- Remove the rack doors and side panels to provide easier access during installation.
- Connect the device to a properly grounded outlet.
- Do not overload the power outlet when installing multiple devices in the rack.
- Do not place any object weighing more than 110 lb (50 kg) on top of rack-mounted devices.

Preparing the CDEs for Rack Installation

Verify correct hardware configuration by performing the following steps:

Step 1 Remove the top cover on the chassis by removing the screws and lifting the cover from the chassis.

Step 2 Configure the applicable chassis as follows:

CDE100

- Set all dip switches at the back of the disk array case to the OFF (down) position.
- Make sure the CD-ROM drive is connected to the primary IDE cable, and the compact flash drive is connected to the secondary IDE cable. There are two IDE connectors on the motherboard. The one parallel to the front panel of the chassis is the primary IDE connector. The one in the upright position is the secondary IDE connector. If necessary, swap the internal CD-ROM drive with the compact flash drive to ensure that the compact flash drive is connected to the secondary IDE cable.

CDE200

- Make sure the 80-GB hard drive is connected to the primary IDE cable, and the compact flash drive is connected to the secondary IDE cable. If necessary, swap the internal CD-ROM drive with the compact flash drive to ensure that the compact flash drive is connected to the secondary IDE cable.
- Disable the onboard SCSI controller by connect pins 2 and 3 (instead of 1 and 2) for the jumper labeled “JPA-1” (located about two inches below the center PCI-X slot—slot 3 of 5). Pin 1 is closest to the rear of the case and pin 3 is closest to the front.

CDE300

- Make sure the 80-GB hard drive is connected to the primary IDE cable.
- Disable the onboard SCSI controller by connect pins 2 and 3 (instead of 1 and 2) for the jumper labeled “JPA-1” (located about two inches below the center PCI-X slot—slot 3 of 5). Pin 1 is closest to the rear of the case and pin 3 is closest to the front.

CDE400

- Make sure the 160-GB hard drive is connected to primary IDE cable.

Step 3 Replace the top cover on the chassis.

Installing CDEs in the Rack

The CDEs are best rail-mounted in a standard 19-inch wide by 30-inch deep rack. A rack mounting kit and instructions ship with the CDEs. For information on installing a CDE in a rack, see the “Installing the Cisco CDE110 in a Rack” section in the *Cisco Content Delivery Engine 110 Hardware Installation Guide* at the following URL:

http://www.cisco.com/en/US/docs/video/cds/cde/cde110/installation/guide/ch3_inst.html#wp1051129

**Caution**

At least two people are required to lift the unit and place it at the desired position in the rack, holding it steady. A third person secures the unit into the rack.

**Caution**

Be sure that the chassis is securely attached to both sides of the rack to avoid the possibility of chassis flexing.

When installing the CDEs, consider the following:

- Elevated operating ambient temperature—In a closed or multi-unit rack assembly, this is the operating ambient temperature of the rack. Environmental temperature may be greater than the room ambient temperature. Do not exceed the ambient temperature of 32 to 122°F (0 to 50°C).
- Reduced airflow—Install equipment so that the amount of airflow for safe operation of the equipment is not compromised: the recommended amount is a minimum of 1 RU between all servers.
- Mechanical loading—Mount equipment so that a hazardous condition is not achieved because of uneven mechanical loading.

Making Physical Connections

After mounting the servers, continue the hardware setup by making the physical connections for power and network.

**Caution**

The unit is intended for indoor use. It is provided with numerous standard USB and Ethernet ports. This product is not intended to be directly connected to the Telecommunication Network System. Additional regulatory compliance and legal requirements may apply for direct connection to the Telecommunication Network System. This product may connect to the Telecommunication Network System only through a device that is approved for direct connection.

**Caution**

Once the product installation is complete, all I/O cables, except those installed in the Ethernet ports, must be disconnected from the CDE to maintain EMC compliance. Any other cable connections are temporary and are only used to initialize the system. All PS/2 keyboard, PS/2 mouse, USB interface, serial console interface, and VGA interface cables must be disconnected from the CDE's front and rear I/O ports.

Connecting Power Cords

Redundant power connectors are located at the rear of the chassis as shown in [Figure 3-2](#) through [Figure 3-5](#). Power connections have the following properties:

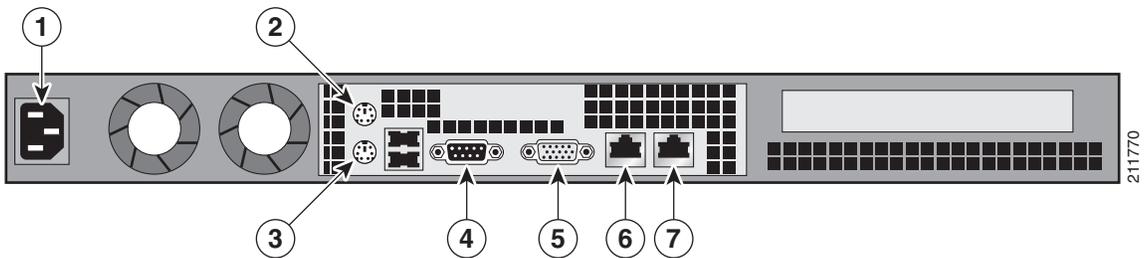
- Chassis power inlets accept AC (120V or 220V) or -48 VDC.
- The CDE100 chassis contains one VAC power port; the CDE200 chassis contains two VAC or VDC power ports; the CDE300 chassis contains three VAC or VDC power ports, and the CDE400 chassis contains four VAC or VDC power ports. See [Appendix D](#) for information connecting DC Power.



Note

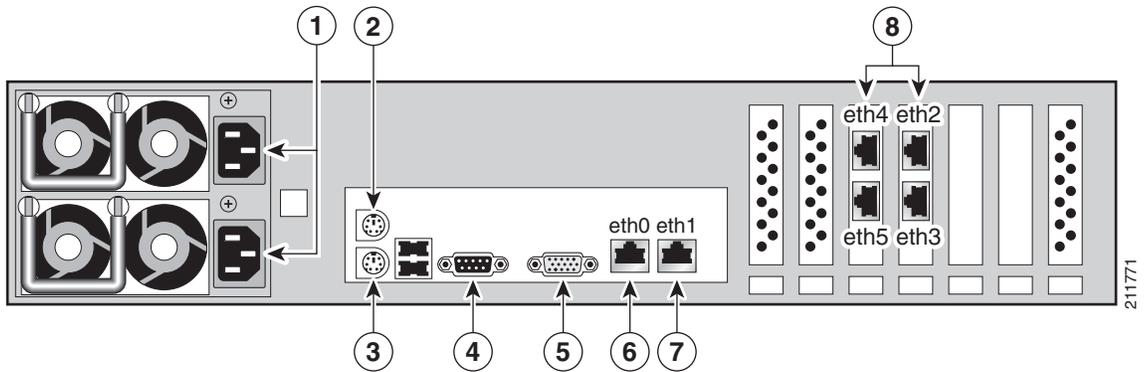
All unlabeled ports are unused ports. Do not install cables in any unused ports.

Figure 3-1 CDE100 Connector Locations



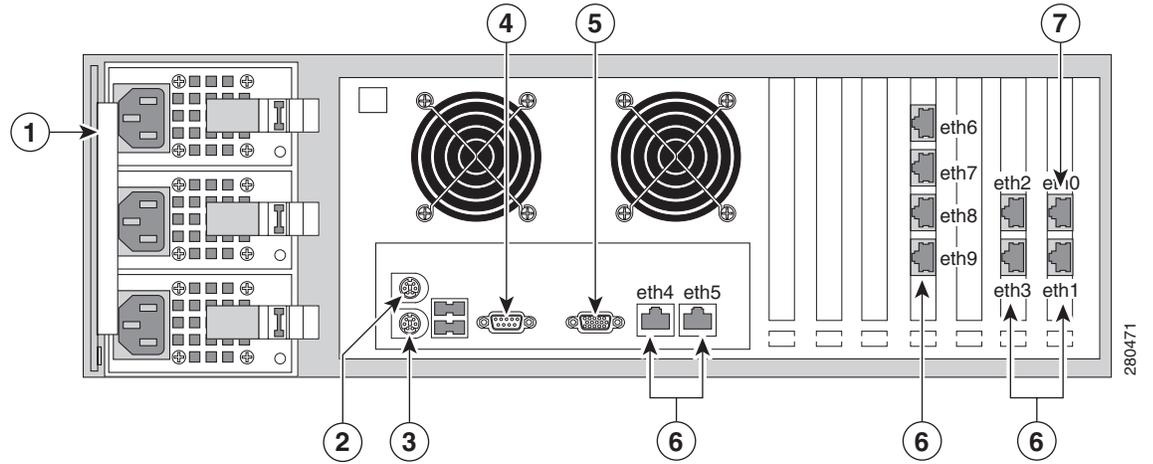
1	Power connector	5	VGA interface
2	Mouse connector	6	Management interface (eth0)
3	Keyboard connector	7	Ingest interface (eth1)
4	Serial console interface		

Figure 3-2 CDE200 or CDE200 ISV Connector Locations



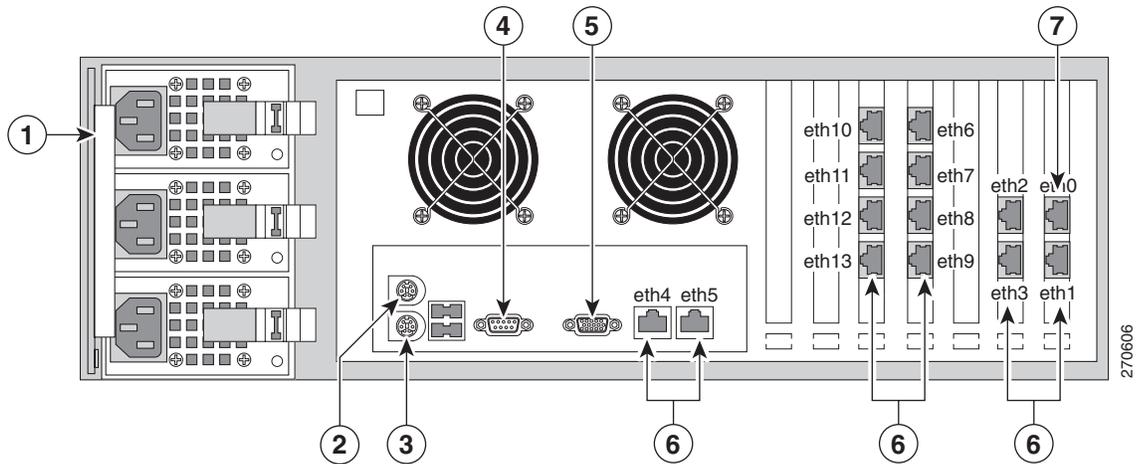
1	Power connectors	5	VGA interface
2	Mouse connector	6	Management interface (eth0)
3	Keyboard connector	7	Ingest interface (eth1)
4	Serial console interface	8	Stream interfaces (eth2 through eth5)

Figure 3-3 CDE300 (SX Version) Connector Locations



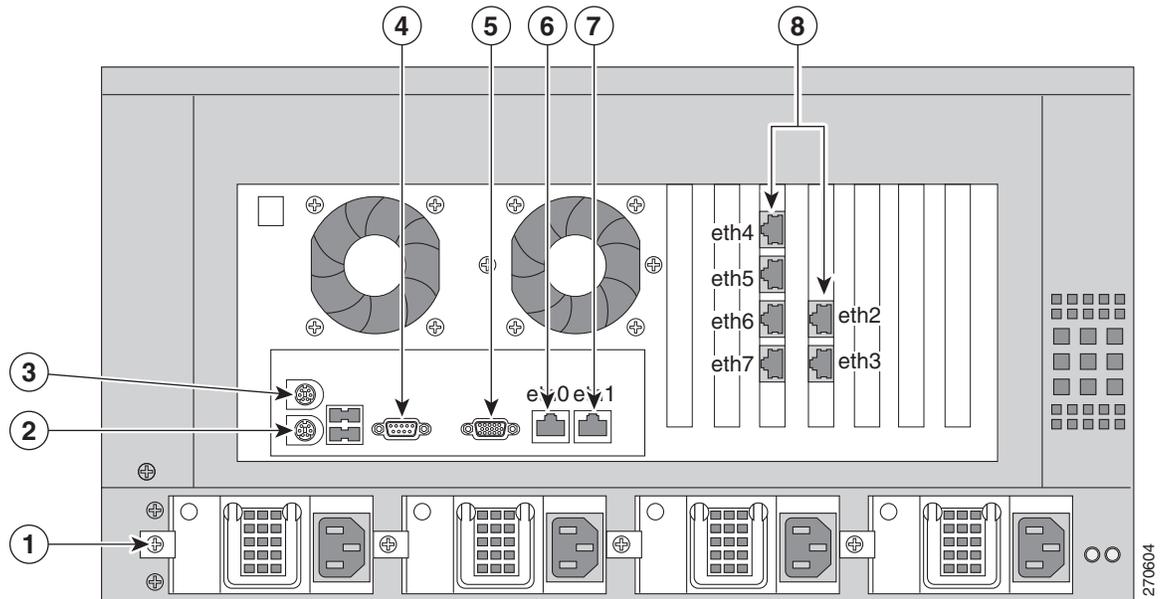
1	Power connectors	5	VGA interface
2	Mouse connector	6	Management interface (eth0)
3	Keyboard connector	7	Stream interfaces (eth2 through eth9)
4	Serial console interface		

Figure 3-4 CDE300 Connector Locations



1	Power connectors	5	Cache/stream interfaces
2	Serial console interface	6	Mouse connector
3	VGA interface	7	Keyboard connector
4	Management interface (eth0)		

Figure 3-5 CDE400 or CDE400 ISV Connector Locations



1	Power connectors	5	VGA interface
2	Mouse connector	6	Management Interface (eth0)
3	Keyboard connector	7	Ingest Interface (eth1)
4	Serial console interface	8	Cache/Stream interfaces (eth2 through eth7)

Connecting Network Cables

Using the topology prescribed for the application, attach Ethernet cables to the Ethernet interfaces on the CDEs (see [Figure 3-1](#) through [Figure 3-5](#)).

SE and SR System

In a system that uses SEs and SRs that are collocated, the Ethernet cables are used to make the following physical connections:

- SR to switch
- SE to switch
- CDSM to switch

Vault and Streamer System

In a system that uses Vaults and Streamers that are collocated, the Ethernet cables are used to make the following physical connections:

- Vault to switch
- Streamer to switch
- CDSM to switch

Specifically, the physical connections consist of the following:

Interface	Switch Port Mbps
Vault cache	Must be 1000
Vault ingest	Can be 100/1000, but 1000 is recommended
Vault management	Can be 100/1000
Streamer cache	Must be 1000
Streamer stream	Must be 1000
Streamer management	Can be 100/1000
CDSM management	Can be 100/1000

ISV System

In a system that uses ISVs that are collocated, the Ethernet cables are used to make the following physical connections:

- ISV to switch
- CDSM to switch

Specifically, the physical connections consist of the following:

Interface	Switch Port Mbps
ISV ingest	Can be 100/1000, but 1000 is recommended
ISV management	Can be 100/1000
ISV stream	Must be 1000
CDSM management	Can be 100/1000

Installing or Removing Disk Drives

The disk drives for the CDEs are shipped separately. You must install the disk drives before using the CDEs. A minimum of two disks are required for basic software installation (needed for the RAID-1 set). If the CDE is used to store content (configured as an SE), more than two disks are needed.

For maintenance or other reasons, it may become necessary to remove a disk drive from the chassis. The disk drives on the CDE100 are monitored using Self-Monitoring, Analysis, and Reporting Technology (S.M.A.R.T.) and statistics are displayed through the Administrative Interface, as well as sent to the CDSM. For more information about S.M.A.R.T., see the *Cisco Internet Streamer CDS 2.0-2.1 Software Configuration Guide*.

The CDE100 contains 4 disk drives (see [Figure 3-6](#)), the CDE200 contains 12 disk drives (see [Figure 3-7](#)), the CDE300 contains 16 disk drives (see [Figure 3-8](#)), and the CDE400 contains 24 disk drives (see [Figure 3-9](#)).

Figure 3-6 CDE100 Disk Drive Locations

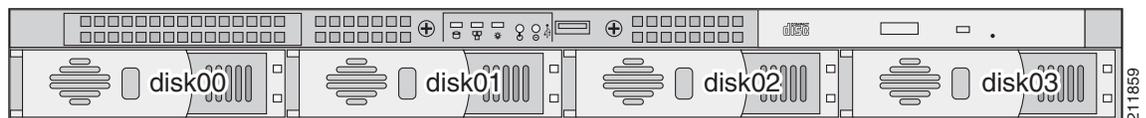
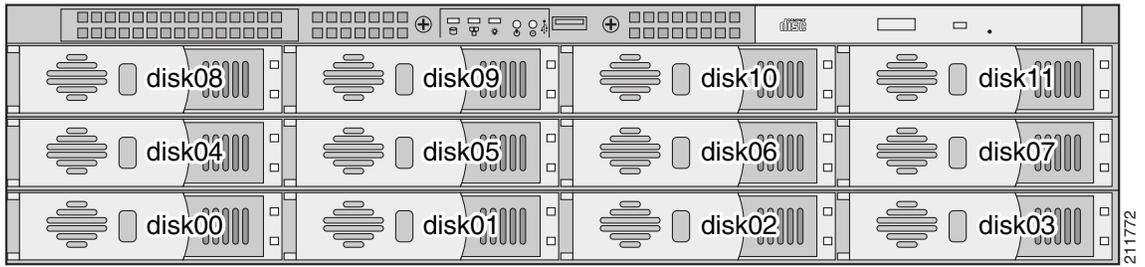


Figure 3-7 CDE200 Disk Drive Locations



The disk drive layout on a CDE300 changes depending on the bios settings. The code dynamically establishes the drive configuration at run time.

Figure 3-8 CDE300 Disk Drive Locations

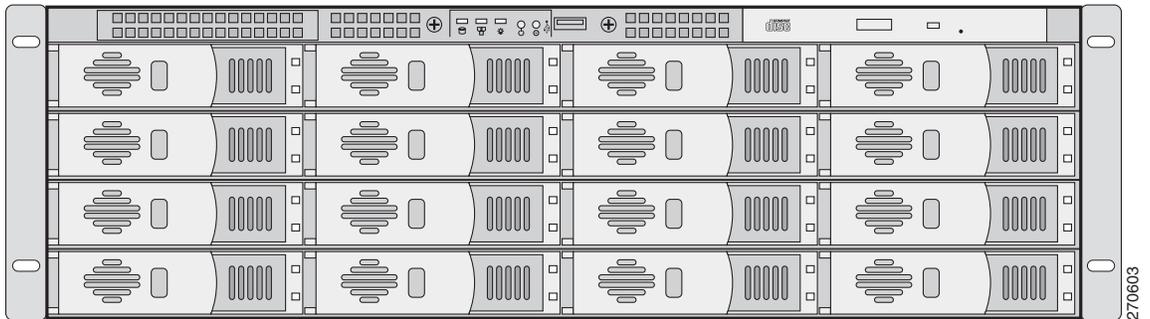
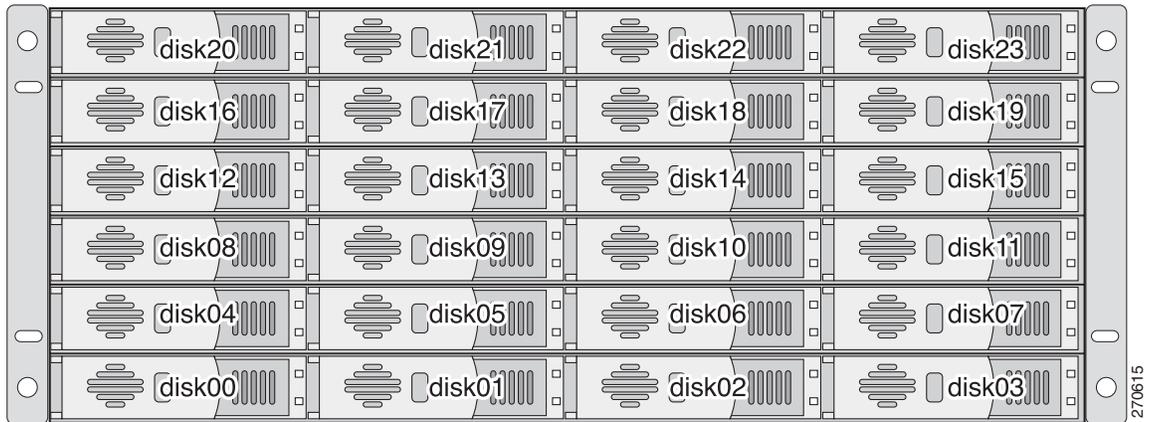


Figure 3-9 CDE400 Disk Drive Locations



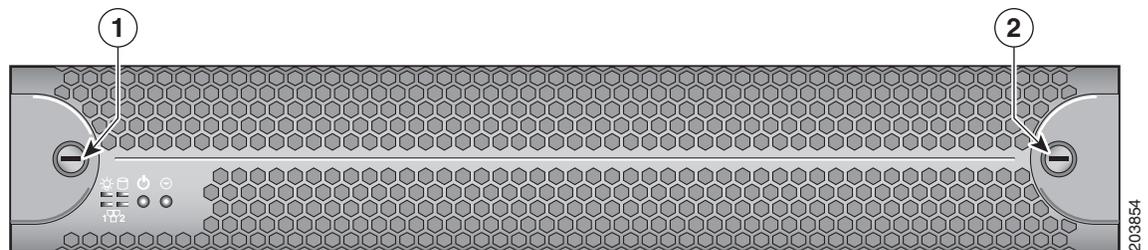
Install a disk drive by performing the following steps:



Warning During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.
Statement 94

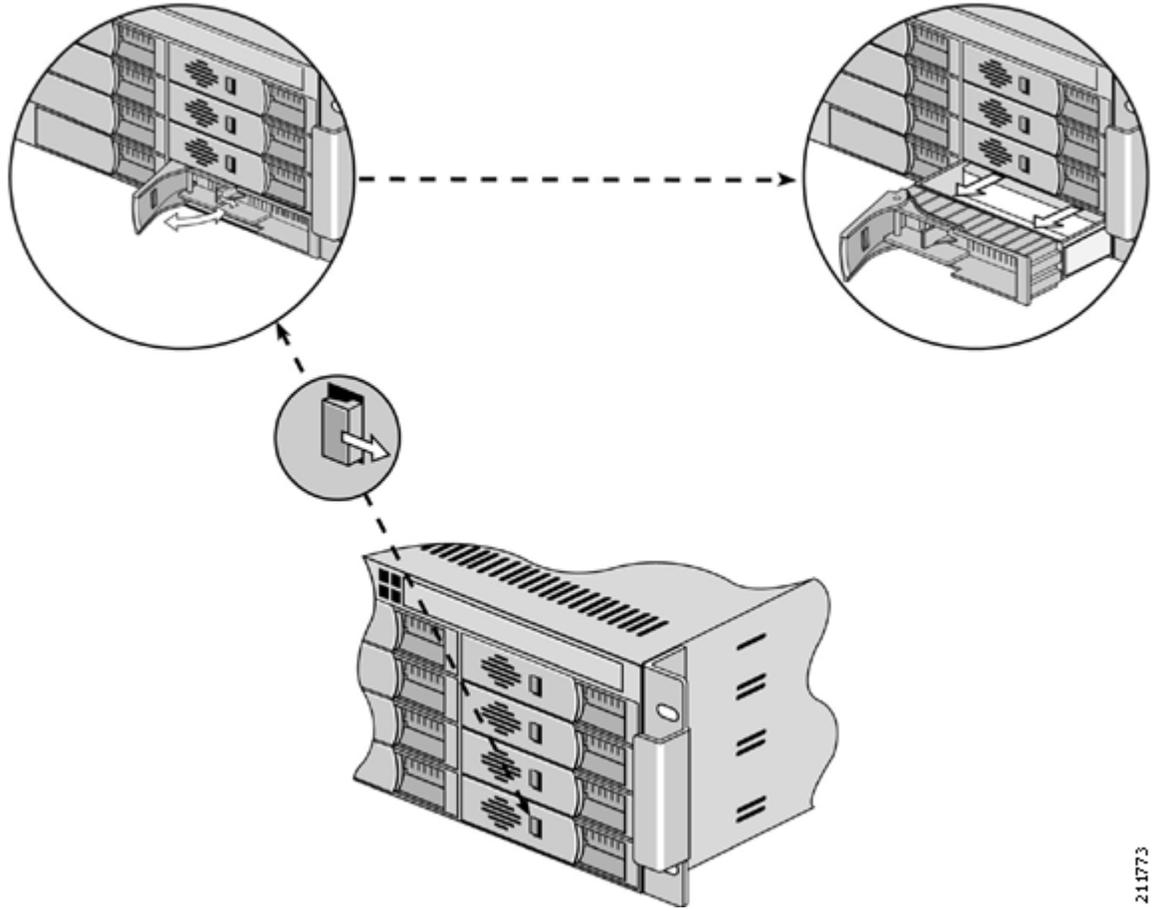
- Step 1** Power off the CDE before removing or installing a disk drive.
- Step 2** To access the disk drives on a CDE200, CDE300, and CDE400, you must first remove the front cover by turning the keys on the left and right sides of the cover and removing it from the CDE (see 1 and 2 in [Figure 3-10](#)).

Figure 3-10 CDE200 Front Cover



- Step 3** Unlock the latch by pressing the safety lock button on the front of the latch (see [Figure 3-11](#)).
- Step 4** Unlatch the disk drive tray from the locking clip and swing open the main latch (see [Figure 3-11](#)).
- Step 5** Carefully pull the disk drive out of its drive tray slot.
- Step 6** Insert a new disk drive into the drive tray slot and make sure it is properly seated.
- Step 7** Close the latch completely and lock it in place by pressing the safety lock button.

Figure 3-11 Disk Drive Tray Installation and Removal



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**Note**

Once the servers are powered up, a Cisco technician will initially configure the servers to be able to communicate properly. Further configuration is accomplished through the CDSM. See the *Cisco TV CDS Software Configuration Guide* for more information.