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About This Guide

This document provides instructions for setting up your new Compaq CD Storage System system, whether you have a tower or a rack-mountable model. The procedure for initializing the SCSI Express software is also included.

Section Summaries

- **Chapter 1 - Product Overview**
Describes your new Compaq CD Storage System and outlines the main features of both the tower and rack-mountable models.
- **Chapter 2 - Setting Up Your Tower Model**
Outlines the basic steps for setting up your Compaq CD Storage System tower model.
- **Chapter 3 - Installing Your Rack-Mountable Model**
Outlines the basic steps for installing your Compaq CD Storage System in a Compaq rack cabinet.
- **Chapter 4 - Operating the CD-ROM Drives**
Describes how to load a compact disc and lists some considerations for care of your CD-ROM drives and media.
- **Chapter 5 - Operating Your Compaq CD Storage System**
Outlines requirements for using the Compaq CD Storage System with various operating environments and guides you through initial loading of the SCSI Express software for Microsoft Windows NT and Novell NetWare.
- **Chapter 6 - Troubleshooting**
Provides some basic troubleshooting tips.
- **Appendix A - Regulatory Compliance Notices**
Displays statements of compliance for FCC and other regulatory agencies, worldwide.
- **Appendix B - Electrostatic Discharge**
Details precautions to observe when you are working with static-sensitive devices or microcircuitry.

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- **Appendix C - Power Cord Set Requirements**
Discusses power requirements worldwide and lists specific cord set details for several countries.
- **Appendix D - Specifications**
Lists physical and performance specifications for both models of the Compaq CD Storage System, as well as the CD-ROM drives.
- **Appendix E - Getting Help**
Provides phone numbers and online addresses for customer support and technical services.

Symbols in Text

The following words and symbols indicate messages occurring throughout this guide that deal with safety issues.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning can result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions can result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions can exist.



WARNING: Any surface or area of the equipment marked with these symbols indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists. To reduce the risk of injury from a hot component, allow the surface to cool before touching.



WARNING: Any surface or area of the equipment marked with these symbols indicates the presence of electrical shock hazards. The enclosed area contains no operator serviceable parts. To reduce the risk of injury from electrical shock hazards, do not open this enclosure.



WARNING: Any RJ-45 receptacle marked with these symbols indicates a Network Interface Connection. To reduce the risk of electrical shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



WARNING: Power Supplies or Systems marked with these symbols indicate the equipment is supplied by multiple sources of power. To reduce the risk of injury from electrical shock, remove all power cords to completely disconnect power from the system.

Safety Warnings

Be aware of the following warnings when dealing with the equipment described in this document:



WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
 - Plug the [power cord](#) into a grounded (earthed) electrical outlet that is easily accessible at all times.
 - Disconnect power from the [system](#) by unplugging the power cord from either the electrical outlet or the [unit](#).
-



WARNING: To reduce the risk of fire, bodily injury, and damage to the equipment, observe the following precaution. Installation of accessories and options in safety interlocked areas should be performed only by individuals who are qualified in servicing computer equipment and trained to deal with products capable of producing hazardous energy levels.



WARNING: To reduce the risk of fire, bodily injury, and damage to the equipment, observe the following precautions:

- Do not operate controls, make adjustments, or perform procedures to a laser device other than those specified herein or in the CD-ROM drive installation guide.
 - Allow only Compaq Authorized Service technicians to repair the laser equipment.
-

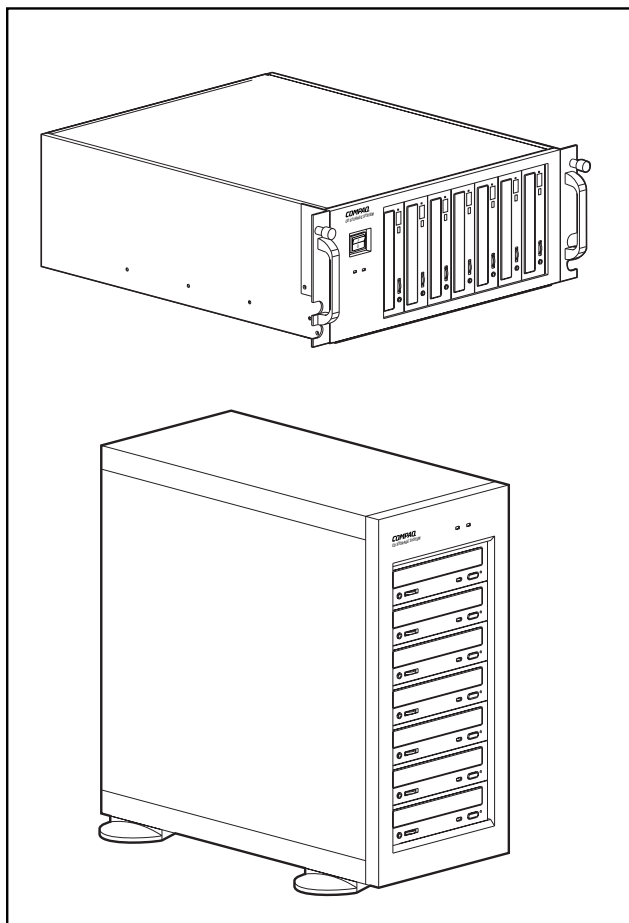


WARNING: To reduce the risk of personal injury from hot surfaces, allow the internal system components to cool before touching them.

Chapter 1

Product Overview

The Compaq CD Storage System is a dedicated storage device designed to provide network users access to multiple compact discs at the same time. This storage system is available in a tower model and a rack-mountable model. Both models of the Compaq CD Storage System come fully configured with seven CD-ROM drives.



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1-2 *Product Overview*

Figure 1-1. The Compaq CD Storage System - Tower and Rack-Mountable Models

Features

Providing centralized, secure, read-only CD-ROM access, the Compaq CD Storage System is designed to accommodate all types of user needs. Up to seven units can be connected to a single SCSI host adapter to provide access to as many as 49 CD-ROM drives.

In addition to expandability, both the tower and the rack-mountable models incorporate the following features:

- All CD-ROM drives are available at power-up.
- A 256-KB data buffer enhances performance.
- The Compaq CD Storage System readily connects to any Compaq SCSI controller (on-board or card).
- SCSI-2 compliance ensures full compatibility with industry-standard SCSI devices.
- The SCSI Express software provides support for Microsoft Windows NT and Novell NetWare.
- SCSI Express supports “load distribution” across like CDs. For example, if you have 7 of the same CD installed in one unit, SCSI Express will see it as a single volume and distribute the demand load appropriately.
- You can easily upgrade to higher-speed CD-ROM drives and new technologies as they become available.

Tower Model

The tower model is free-standing. It can be used as a single unit or can be connected to other Compaq CD Storage Systems to expand capacity.

Front Panel

The front panel of the tower model contains the following controls:

Ref	Component	Function
❶	Power LED	Green LED is on continuously when power is supplied to the unit
❷	Fault light	Amber LED indicates a fault condition with the unit; see Chapter 6 for more information
❸	CD-ROM drives	Seven drives are installed in each unit

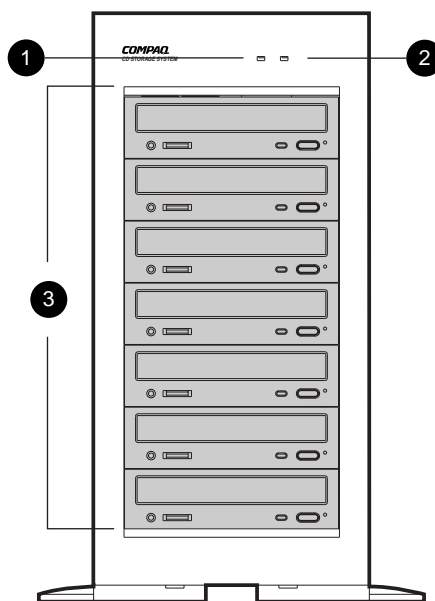


Figure 1-2. Front Panel Controls on a Tower Model

Rear Panel

The rear panel on the tower model has the following components:

Ref	Component	Function
❶	Power switch	Turns power to the unit on (position 1) and off (position 0)
❷	SCSI ID selector switch	The unit can be assigned as SCSI ID 0-6; default is 2
❸	Power supply cooling fan	Cools the unit; do not block the opening
❹	AC Power Outlet (male)	Provides receptacle for an AC power cord; switchable for 115/230V
❺	AC Power Inlet (female)	Allows power connection to another device
❻	50-pin SCSI Connectors	Attach SCSI cables and/or terminator for connecting the unit to a server or other SCSI devices

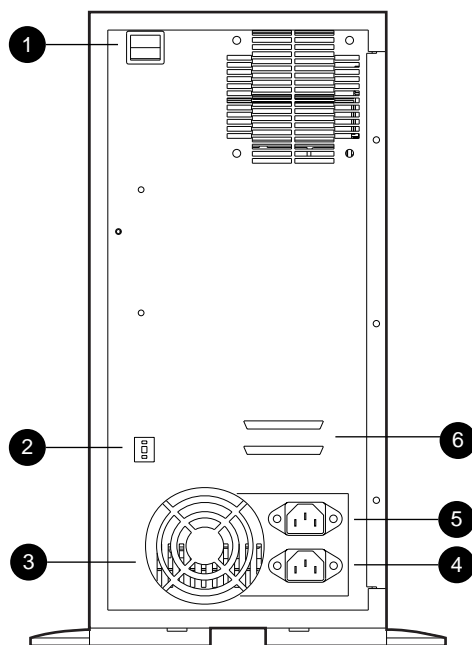


Figure 1-3. Rear Panel Controls on a Tower Model

Rack-Mountable Model

The rack-mountable model is designed to be installed in a Compaq rack cabinet. It can be used as a single unit or can be connected to other Compaq CD Storage Systems to expand capacity.

Front Panel

The front panel on the rack-mountable model has the following components:

Table 1-3
Front Panel Components on a Rack-Mountable Model

Ref	Component	Function
❶	Power switch	Turns power to the unit on (position 1) and off (position 0)
❷	Power LED	Indicates that power is being supplied to the unit
❸	Fault LED	Indicates an error condition within the unit
❹	CD-ROM drives	Seven drives are installed in each unit

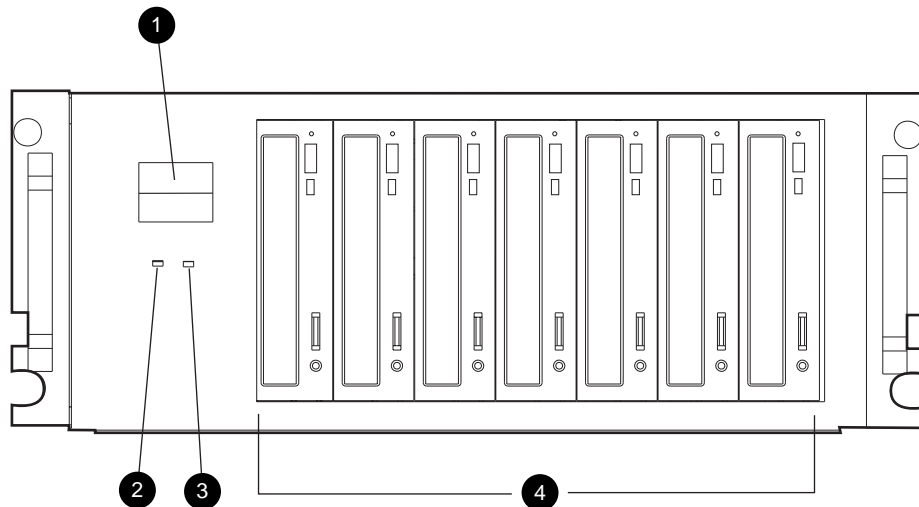


Figure 1-4. Front Panel Components on a Rack-Mountable Model

Rear Panel

The rear panel on the rack-mountable model has the following controls:

Ref	Component	Function
❶	50-pin SCSI Connectors	Attach SCSI cables and/or terminator for connecting the unit to a server or other SCSI devices
❷	AC Power Inlet (female)	Allows power connection to another device
❸	AC Power Outlet (male)	Provides receptacle for an AC power cord; switchable for 115/230V
❹	SCSI ID selector switch	The unit can be assigned as SCSI ID 0-6; default is 2
❺	Power supply cooling fan	Cools the unit; do not block the opening

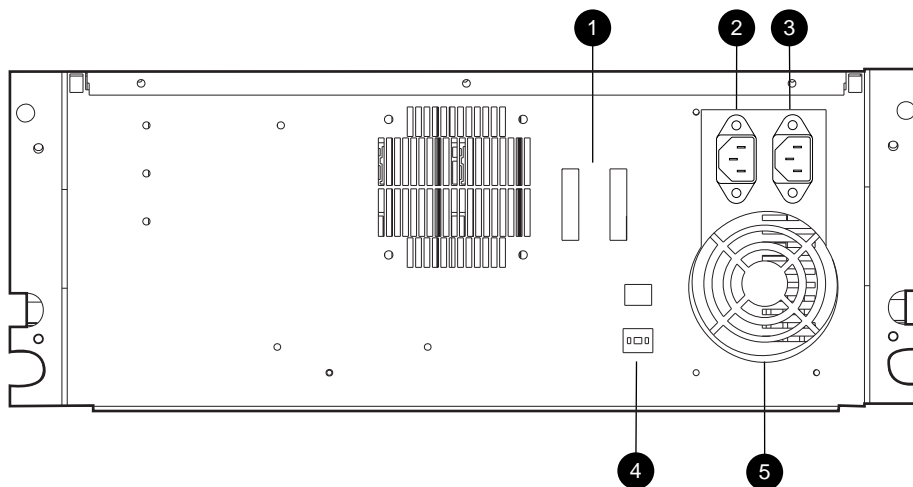


Figure 1-5. Rear Panel Controls on a Rack-Mountable Model

Chapter 2

Setting Up Your Tower Model

This chapter provides instructions for setting up your Compaq CD Storage System tower model. If you have a rack-mountable model, see [Chapter 3, “Installing Your Rack-Mountable Model.”](#)

Tools Needed

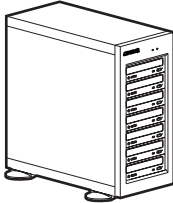






No tools are required to set up the tower model.

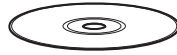
2-2 *Setting Up Your Tower Model*

Kit Contents

The hardware components listed below are included with this unit. If you are missing any of these items, contact an authorized Compaq dealer, reseller, or service provider. See [Appendix E, "Getting Help,"](#) for more information on locating a Compaq provider.

Table 2-1
Kit Contents for the Tower Model

Illustration	Name
	Compaq CD Storage System - Tower Model
	6-ft standard to wide SCSI cable
	3-ft standard to standard SCSI cable
	Standard SCSI terminator
	AC power cord (the configuration of the cord may differ from that shown)
	Compaq CD Storage System Hardware Installation and User Guide (this book)
	SCSI Express Software CD (included with User Guide)



SmartStart and Support
Software CD
(included with User Guide)

Set-Up Sequence

The server to which you are connecting this Compaq CD Storage System should already be configured before you attach the storage system and install SCSI Express.

Step 1: Attach the SCSI Devices

Attach the following SCSI devices:

- If you are connecting to a server, attach the wide end of the 6-ft standard to wide SCSI cable to the server and the standard end of the cable to one of the SCSI connectors on the rear panel of the unit.
 - If you are connecting the unit to other SCSI devices (such as one or more Compaq CD Storage Systems), attach one end of the 3-ft standard to standard SCSI cable to one of the SCSI connectors on the rear panel of the unit and the other end of the cable to the connecting SCSI device.
 - If this is the last device in group of connected SCSI devices, attach the standard SCSI terminator to the remaining SCSI connector on the rear panel of the unit.
-

The following illustration shows four typical examples for connecting your Compaq CD Storage System:

- ❶ Connected to a server as a stand-alone unit
- ❷ Connected to a server as the first unit in a chain of standard SCSI devices
- ❸ Connected to a chain with standard SCSI devices on both sides
- ❹ Connected to a chain of standard SCSI devices as the last unit

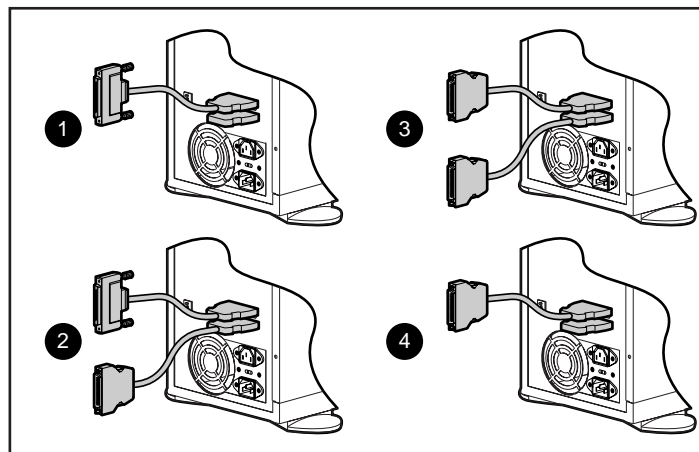


Figure 2-1. Attaching the SCSI Cables

If this unit is part of a connected group of SCSI devices, make sure the Compaq CD Storage System has a unique SCSI ID number. You can select 0-6 on the rear panel of the unit. The unit is shipped with the SCSI ID set to 2.

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2-6 *Setting Up Your Tower Model*

Step 2: Plug in the Power Cord



WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
 - Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
-



CAUTION: Make sure that the voltage selection switch is in the proper position (115 VAC or 230 VAC). Failure to do so will result in damage to the equipment

To connect the AC power cord:

- Remove the label covering the AC power outlet.
 - Set the input voltage selection switch to the appropriate position.
 - Attach the AC power cord to the unit, as illustrated.
 - Plug the AC power cord into a grounded AC outlet.
-

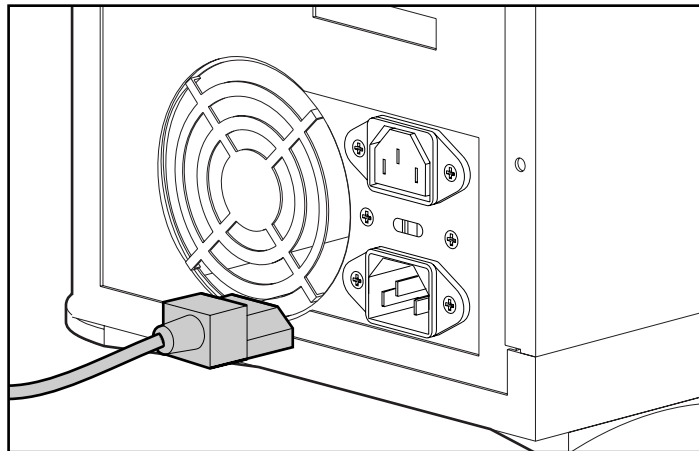


Figure 2-2. Attaching the AC Power Cord

When using power strips for electrical distribution, make sure that ground integrity is maintained for each connection by plugging each component into a reliably grounded outlet.

Completing the Installation

Before you can use your new Compaq CD Storage System with Microsoft Windows NT or Novell NetWare, you need to install the SCSI Express software that shipped with your unit.

The server to which you are connecting this Compaq CD Storage System should already be configured before you attach the storage system and install SCSI Express.

Make sure that the Compaq CD Storage System has a unique SCSI ID, and see [Chapter 5, "Operating Your Compaq CD Storage System,"](#) for instructions on how to install SCSI Express.

Chapter 3

Installing Your Rack-Mountable Model

This chapter provides instructions for installing your Compaq CD Storage System in a Compaq rack cabinet. If you have a tower model, see [Chapter 2, “Setting Up Your Tower Model.”](#)

Items Needed

Tools

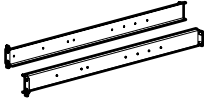



To install your new rack-mountable unit, you will need the following tools:

- #2 Phillips screwdriver
- #3 Phillips screwdriver

3-2 *Installing Your Rack-Mountable Model*

Rack Components

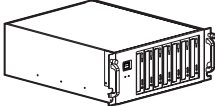







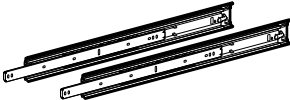
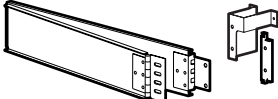

You will also need the following rack components. An initial quantity of these parts were shipped with the rack cabinet. If you have used all of the components that originally came with your rack cabinet, contact an authorized Compaq provider to order additional ones. See [Appendix E, “Getting Help,”](#) for more information on locating a Compaq provider.

Illustration	Name
	Rack mounting brackets (2)
	Cage nut insertion tool
	Cage nuts (6)
	Rack cabinet mounting screws (6)

Kit Contents

The hardware components listed on the following page are included with this unit. If you are missing any of these items, contact an authorized Compaq dealer, reseller, or service provider. See [Appendix E, “Getting Help,”](#) for more information on locating a Compaq provider.

Table 3-2
Kit Contents for the Rack-Mountable Model

Illustration	Name
	Compaq CD Storage System - Rack-Mountable Model
	12-ft standard to wide SCSI cable
	6-ft standard to standard SCSI cable
	Standard SCSI terminator
	AC power cord (the configuration of the cord may differ from that shown)
	Compaq CD Storage System Hardware Installation and User Guide (this book)
	SCSI Express Software CD (included with User Guide)
	SmartStart and Support Software CD (included with User Guide)
	Sliding bracket rails (2)
	Cable management arm and brackets
	Screws

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3-4 *Installing Your Rack-Mountable Model*



Rack Considerations

Before installing the unit in a Compaq rack cabinet, make sure you read and understand the following warnings, cautions, and environmental requirements for Compaq rack cabinets and rack-mountable components.



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The rack's leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizers are attached to the rack if it is a single rack installation.
 - The racks are coupled together in multiple rack installations.
-



WARNING: To reduce the risk of personal injury, always make sure that the rack is adequately stabilized before extending a component outside the rack. A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.

Space Requirements

The following spatial needs should be considered:

- Clearance in the front of the rack should be a minimum of 25 inches for the front door to open all the way and for adequate airflow.
- Clearance in the back of the rack should be a minimum of 30 inches to allow for servicing and for adequate airflow.
- To service the power supply, allow 15 inches of side clearance.

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3-6 *Installing Your Rack-Mountable Model*

Power Requirements



WARNING: To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over your facility wiring and installation requirements.

- The power load needs to be balanced between available AC supply branch circuits.
- The overall system AC current load must not exceed 80 percent of the branch circuit AC current rating.
- If power strips are used, the load should not exceed 80 percent of the power strip's marked electrical current rating.

The installation of this equipment shall be in accordance with Local/Regional electrical regulations governing the installation of Information Technology Equipment by licensed electricians. This equipment is designed to operate in installations covered by the National Electric Code (ANSI/NFPA 70, 1993) and the code for Protection of Electronic Computer/Data Processing Equipment (NFPA-75, 1992).

For specific electrical power ratings, refer to the product's rating label or user documentation.

Grounding Requirements

For proper operation and safety, this equipment is required to be properly grounded in accordance with NFPA 70-1993, Article 250. All power distribution devices, branch wiring, and receptacles must be "Listed" grounding type devices.

When using power strips for electrical distribution, make sure that ground integrity is maintained for each connection made. Plug each component into a reliably grounded outlet.

Temperature Requirements

For safe and reliable operation of the equipment, locate the system in a well-ventilated, climate-controlled environment.

The Compaq Maximum Recommended Ambient Operating Temperature (T_{mra}) for most server products is 35°C (95°F). Therefore, the temperature in the room where the rack is located should not exceed 35°C (95°F).

The operating temperature inside the rack will always be higher than the room temperature, and is dependent on the configuration of equipment in your rack. The T_{mra} for each piece of equipment should be checked before installation.

The maximum internal rack temperature for your configuration should not exceed the values in the following table:

Equipment Included	Maximum Internal Rack Temperature
Rack-Mountable ProLiant Servers	50°C/122°F
Compaq Rack-Mountable options	40°C/104°F
Other manufacturers' options	See other manufacturers' specifications



CAUTION: To reduce the risk of damage to the equipment when installing third-party options:

- Make sure that the option equipment does not impede airflow to the rack-mountable products already installed in the rack cabinet nor increase the internal rack temperature beyond the Compaq specified maximum rating.
- Make sure that the Manufacturer's Maximum Recommended Ambient Operating Temperature for the option equipment will not be exceeded if the option equipment is installed in a Compaq rack.

Airflow Requirements

Compaq rack-mountable products typically draw in cool air through the front and exhaust warm air out the rear. The front door of the rack cabinet, therefore, must be adequately ventilated to allow ambient room air to enter the cabinet, and the rear door must be adequately ventilated to allow the warm air to escape the cabinet. Do not block the ventilation apertures.



CAUTION: If a third-party rack is used, the following minimum requirements should be observed to ensure adequate airflow and to prevent damage to the equipment:

- Front: The front must have a minimum of 25 inches of unrestricted ventilation.
 - Side: The clearance between the installed module and the side panels of the rack should be a minimum of 2.75 inches.
 - Rear: The clearance between the back of the rack and the wall should be a minimum of 30 inches,
 - The equipment should be operating without a rear door.
-

Blanking Panels

Compaq rack cabinets are designed to cause an internal airflow that moves across installed components and helps maintain a consistent temperature range. If all of the vertical space in the rack is not filled with components, any space that is left open will cause a change in this airflow scheme. Any gaps at the front of the rack cabinet, therefore, need to be covered with blanking panels to maintain consistent airflow.

Installation Overview

The server to which you are connecting this Compaq CD Storage System should already be configured before you attach the storage system and install SCSI Express.

The steps for installing the rack-mountable model of the Compaq CD Storage System are:

1. Prepare the rails for mounting.
2. Use the template to measure and mark the rack for correct placement of the installation hardware.
3. Install the cage nuts and the rails in the rack cabinet.
4. Prepare the chassis for mounting in the rack cabinet.
5. Insert the unit into the rack cabinet.
6. Attach the cable management arm to the unit.
7. Attach the SCSI cables and the AC power cord.
8. Attach the cable management arm to the rack cabinet.
9. Route the cables down the side channel of the rack cabinet.

Installation Sequence

Step 1: Prepare the Rails

Remove the Component Rails

Remove the component rail from each sliding bracket rail assembly:

- ➊ Extend the component rail until the component rail release latch clicks.
- ➋ Hold down the latch and completely remove the component rail from the sliding bracket rail assembly.

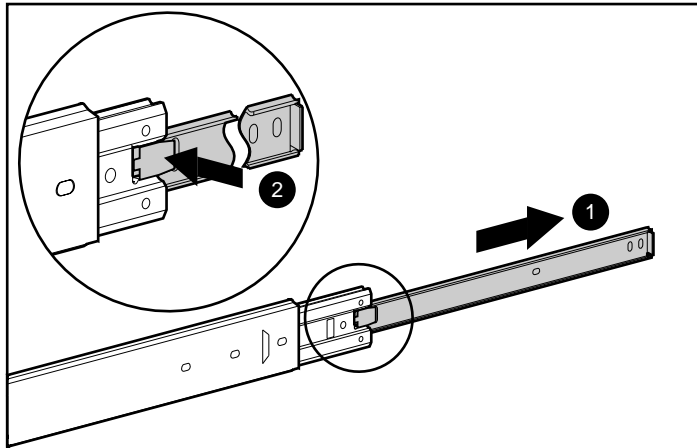


Figure 3-1. Removing the Component Rail

Set the component rails aside. You will attach them to the system chassis before inserting the unit into the rack.

Align the Sliding Bracket Rails

After removing the component rails, attach the sliding bracket rails to the rack mounting brackets.

Note the orientation of the rack mounting brackets:

- A** The front flange has alignment tabs.
- B** The rear flange is designed to install flush against the rack.

There are a total of eight screw holes in the standard rack mounting brackets. To install this product, you will use five of them, as indicated (1-5).

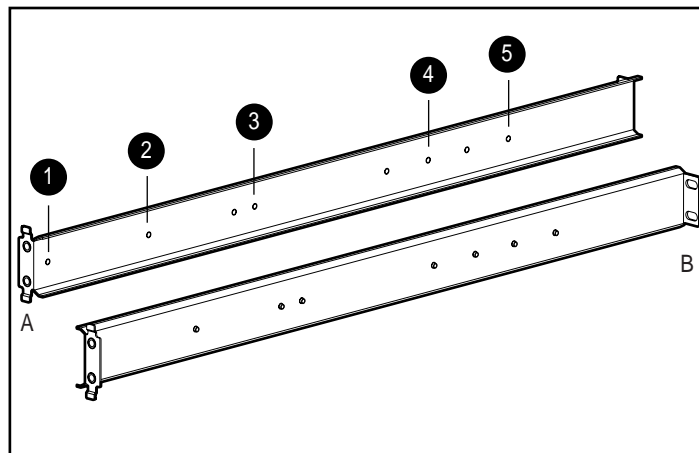


Figure 3-2. Orienting the Rack Mounting Brackets

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3-12 *Installing Your Rack-Mountable Model*

Note the orientation of the sliding bracket rails:

- A** The front of the sliding bracket rail allows the inner slide to move forward on ball bearings.
- B** The rear end has a stop for the inner slide.

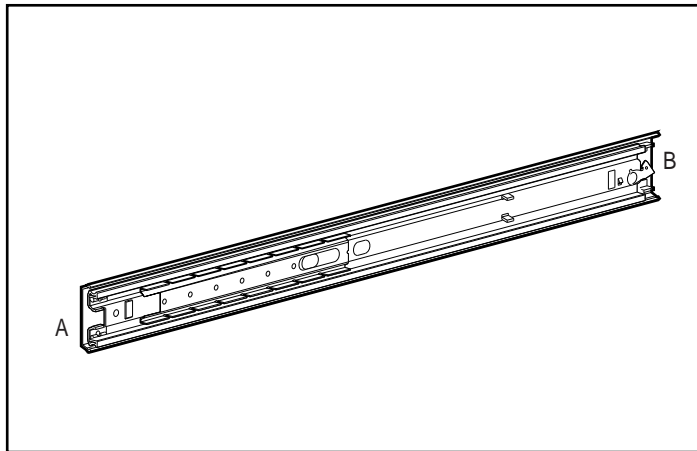


Figure 3-3. Orienting the Sliding Bracket Rails

While matching fronts, lay one of the rack mounting brackets and one of the sliding bracket rails together so that the screw holes are aligned.

Attach the Sliding Bracket Rails

Use five 8-32 x 3/8 Phillips screws to attach each sliding bracket rail to a rack mounting bracket.

- A** Extend the inner slide until the three screw holes in the rack mounting bracket and the sliding bracket rail are aligned. There are two exposed holes near the back of the sliding bracket rail and one that is accessible through a slot in the inner slide. Use three 8-32 x 3/8 Phillips screws to attach the sliding bracket rail to the rack mounting bracket through these holes (1, 4, 5).
- B** Adjust the inner slide until you can access another screw hole through the slotted opening. Insert another 8-32 x 3/8 Phillips screw (2).
- C** Adjust the inner slide until you can access the fifth screw hole. Insert the last screw (3).

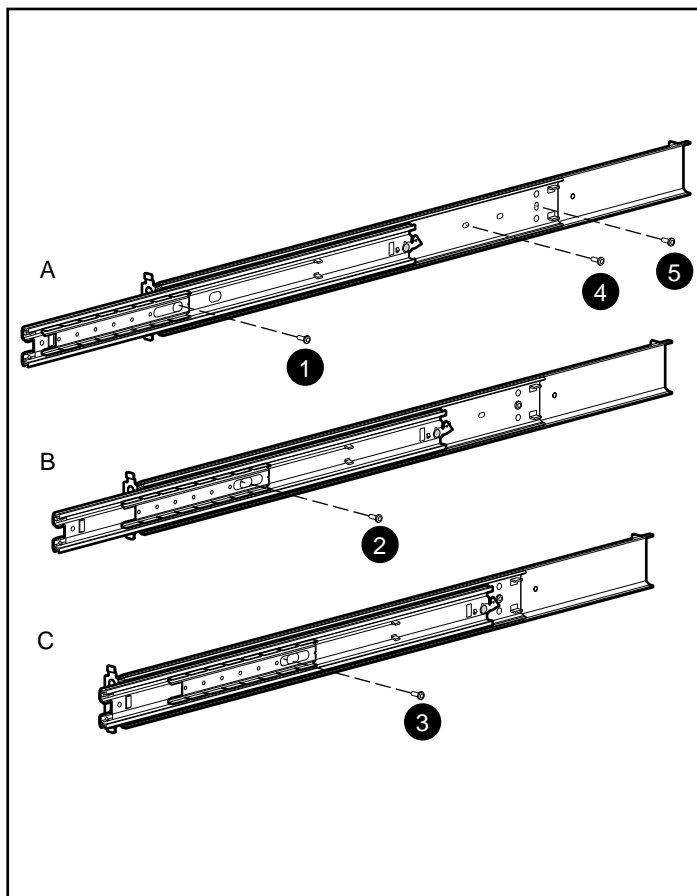


Figure 3-4. Attaching the Sliding Bracket Rails to the Rack Mounting Brackets

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3-14 *Installing Your Rack-Mountable Model*

Step 2: Use the Template

Use the template shipped with your unit to mark the location of the mounting hardware on the mounting rails of the rack cabinet.

Push back the tabs in the top of the template (marked ★) and place them in the correct holes in the mounting rails. The hole pattern indicated on the sides of the template should match up with the hole pattern in the mounting rails.

Make sure you begin measuring in the correct place. If a rack component is already installed immediately below the planned position of the storage system, place the template against the front mounting rails and rest it on top of the previously installed component.

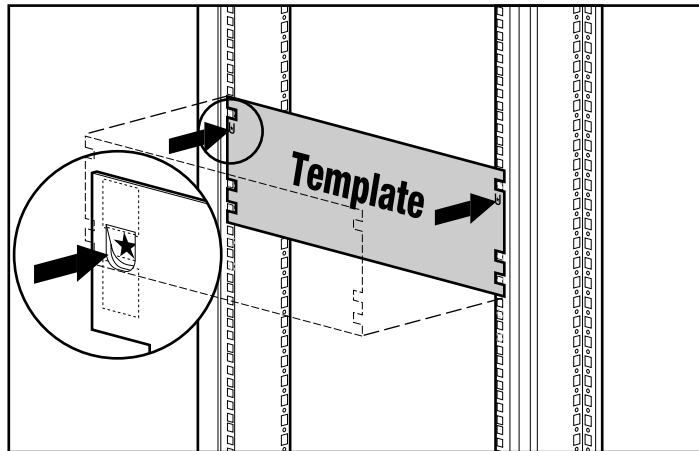


Figure 3-5. Measuring with the Template

Using the Front template, mark the placement for the front end of the rack mounting brackets (M notches) and the cage nuts (C notches). The cage nuts will be used with the thumbscrews on the front of the unit to secure the chassis to the rack cabinet.

Use the Back template to mark the placement for the cage nuts on the rear mounting rails of the rack cabinet. These will be used to attach the rear ends of the rack mounting brackets to the cabinet.

Step 3: Install the Rails in the Rack Cabinet

Use the cage nut insertion tool to install the cage nuts on the inside of the mounting rails:

- Hook the bottom lip of the cage nut in the square rail perforation.
- Insert the tip of the insertion tool through the perforation and hook the top lip of the cage nut. Pull the cage nut until the top lip snaps into position.

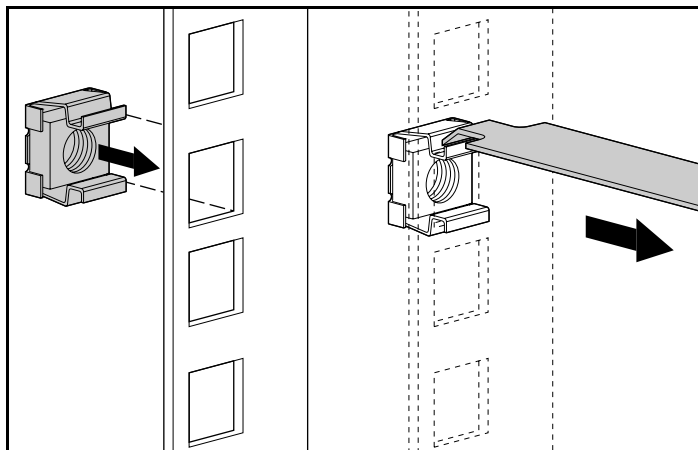


Figure 3-6. Inserting the Cage Nuts

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3-16 *Installing Your Rack-Mountable Model*

Attach the front of the rack mounting bracket assembly to the inside of the front mounting rail of the rack cabinet using two M6 x 16 Phillips screws. The tabs on the front of the rack mounting bracket help to align it correctly with the mounting rail.

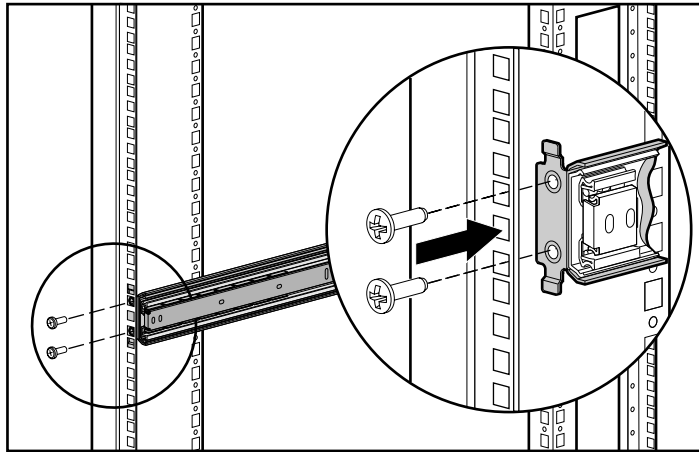


Figure 3-7. Attaching the Front of the Rack Mounting Bracket Assembly

Align the rack mounting bracket assembly with the rear mounting rail of the rack cabinet. Secure the back of the rack mounting bracket to the rear mounting rail with two M6 x 16 Phillips screws. Insert the screws through the cage nuts, as illustrated below.

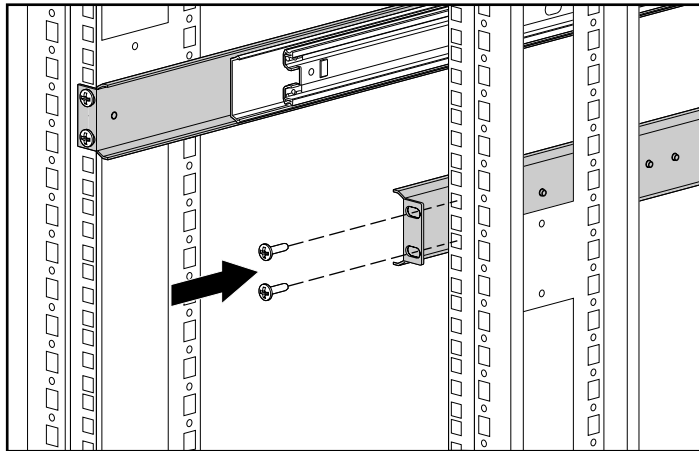


Figure 3-8. Attaching the Rear of the Rack Mounting Bracket Assembly

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3-18 *Installing Your Rack-Mountable Model*

Step 4: Prepare the Chassis

Locate the component rails that you set aside after removing them from the sliding bracket rails earlier.

Use three 8-32 x 3/8 Phillips screws to install each component rail on the side of the chassis.

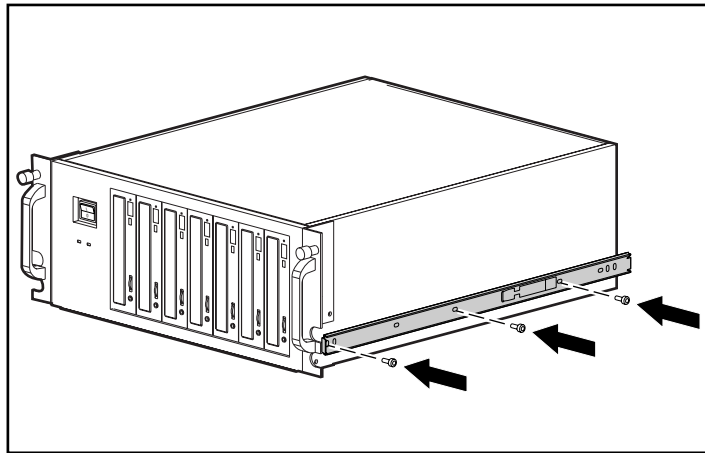


Figure 3-9. Attaching the Component Rails to the Chassis

Attach the bracket that will support the cable management arm to the chassis with two 6-32 x 1/4 Phillips screws.

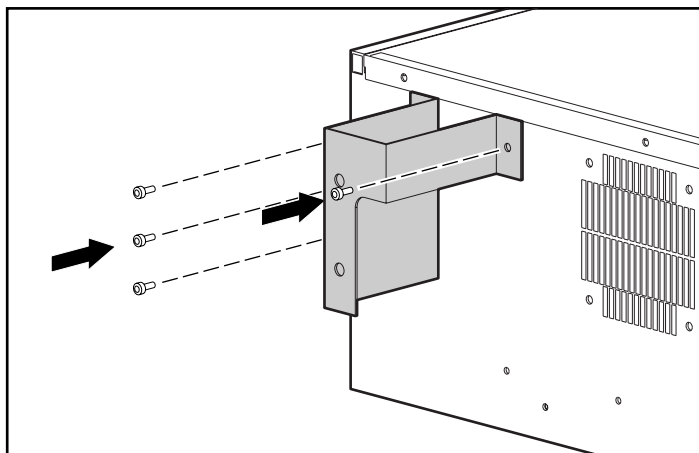


Figure 3-10. Attaching the Cable Management Arm Bracket to the Unit

3-20 *Installing Your Rack-Mountable Model*

Step 5: Insert the Unit into the Rack Cabinet

Fully extend the sliding bracket rails.

With the unit well supported, lift it up and align the component rails on the chassis with the sliding bracket rails mounted on the rack. Slide the unit into the rack until it clicks into the latches on the component rails.

Press in the component rail release latches on either side of the chassis and slide the unit all the way back into the rack.

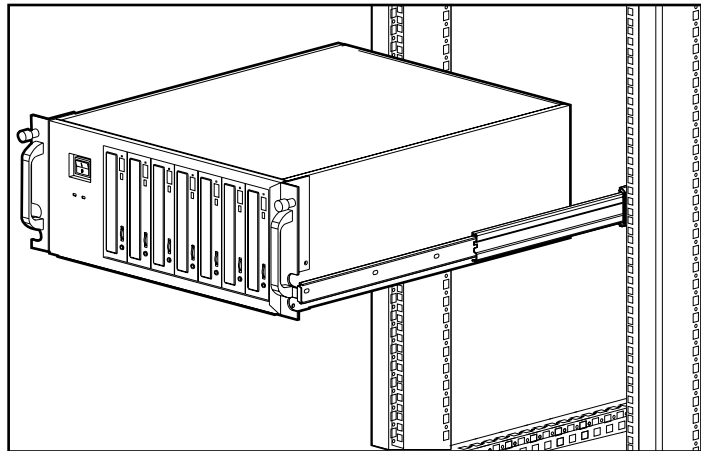


Figure 3-11. Inserting the Unit in a Compaq Rack Cabinet

The first time you slide the unit into the rack, you may have to apply some pressure to loosen the ball bearings. After that, they should slide easily.

Using the cage nuts, tighten the thumbscrews on the front of the unit to secure it to the rack cabinet.

Step 6: Attach the Cable Management Arm to the Unit

Extend the cable management arm and bend the hinged bracket to the right.

Use two M6 x 12 Phillips screws to attach the cable management arm to the bracket you installed on the chassis earlier.

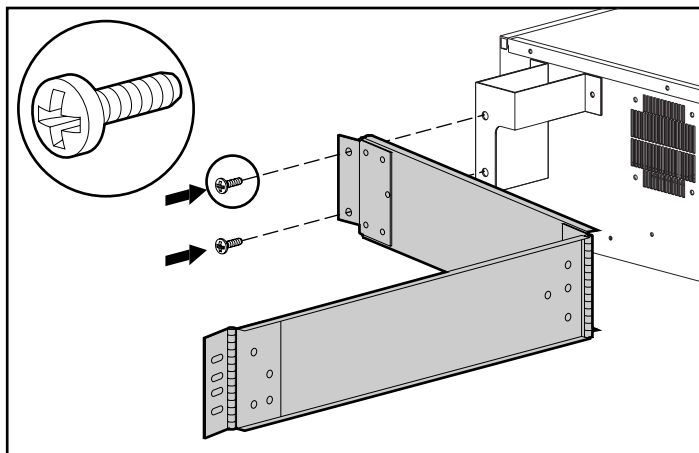


Figure 3-12. Attaching the Cable Management Arm to the Bracket

Step 7: Attach the Cables

The server to which you are connecting this Compaq CD Storage System should already be configured before you attach the storage system and install SCSI Express.

Attach the SCSI Devices

- If you are connecting to a server, attach the wide end of the 6-ft standard to wide SCSI cable to the server and the standard end of the cable to one of the SCSI connectors on the rear panel of the unit.
 - If you are connecting the unit to other SCSI devices (such as one or more Compaq CD Storage Systems), attach one end of the 3-ft standard to standard SCSI cable to one of the SCSI connectors on the rear panel of the unit and the other end of the cable to the connecting SCSI device.
 - If this is the last device in group of connected SCSI devices, attach the standard SCSI terminator to the remaining SCSI connector on the rear panel of the unit.
-

The following illustration shows four typical examples for connecting your Compaq CD Storage System:

- ❶ Connected to a server as a stand-alone unit
- ❷ Connected to a server as the first unit in a chain of standard SCSI devices
- ❸ Connected to a chain with standard SCSI devices on both sides
- ❹ Connected to a chain of standard SCSI devices as the last unit

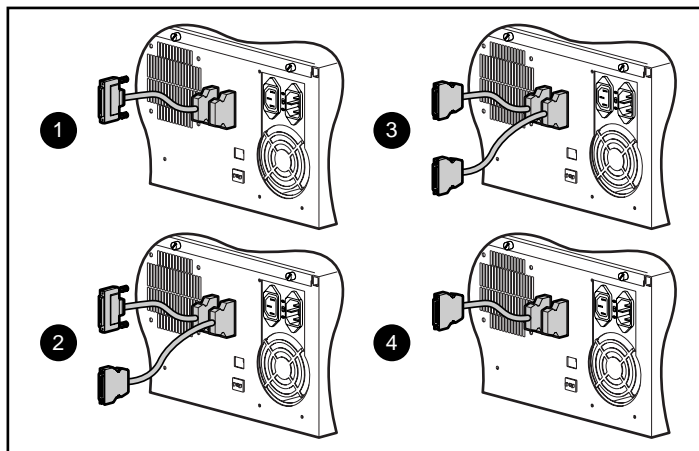


Figure 3-13. Attaching the SCSI Cables

If this unit is part of a connected group of SCSI devices, make sure the Compaq CD Storage System has a unique SCSI ID number. You can select 0-6 on the rear panel of the unit. The unit is shipped with the SCSI ID set to 2.

Attach the Power Cord

- Remove the label covering the AC power outlet.
- Set the input voltage selection switch to the appropriate position.
- Attach the AC power cord to the unit, as illustrated.
- Plug the AC power cord to a grounded AC outlet.

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3-24 *Installing Your Rack-Mountable Model*



WARNING: To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
 - Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
-



CAUTION: Make sure that the voltage selection switch is in the proper position (115 VAC or 230 VAC). Failure to do so will result in damage to the equipment.

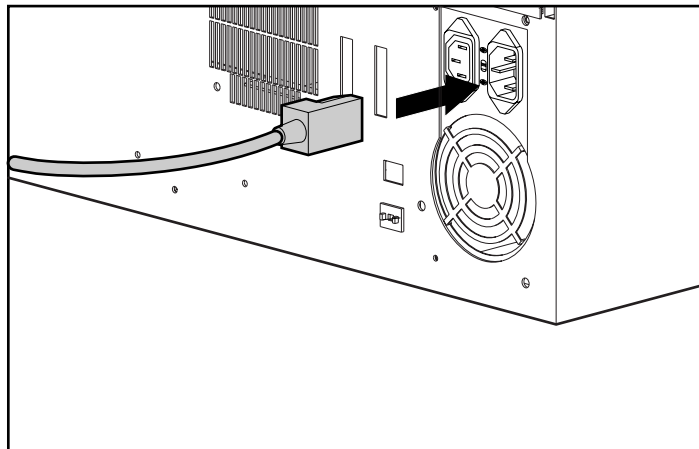


Figure 3-14. Attaching the AC Power Cord

When using power strips for electrical distribution, make sure that ground integrity is maintained for each connection by plugging each component into a reliably grounded outlet.

Step 8: Attach the Cable Management Arm to the Rack Cabinet

Align the screw retaining plate behind the rear mounting rail of the rack cabinet and attach the cable management arm to the rail with two 10-32 x 5/8 Phillips screws.

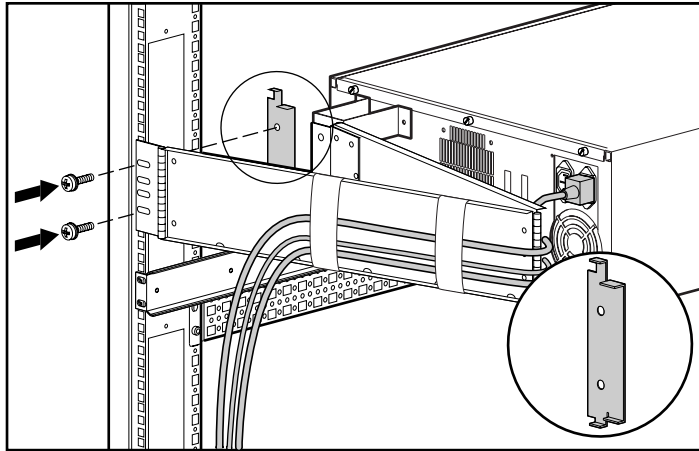


Figure 3-15. Attaching the Cable Management Arm to the Rack Cabinet

As you slide the unit in and out of the front of the rack, the cable management arm collapses and extends so that the cables remain connected to the unit and stay untangled. Any cables that you attach to the Compaq CD Storage System should be secured to this arm.

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3-26 *Installing Your Rack-Mountable Model*

Step 9: Route the Cables

With the cable arm extended, bundle all of the cables, including the power cable, and secure them to the cable management arm with the attached hook-and-loop straps. Leave enough slack in the cables so that you can bend the cable management arm easily.

Route the bundled cables over the top of the cable management arm and down the cable channel on the side of the rack, as illustrated.

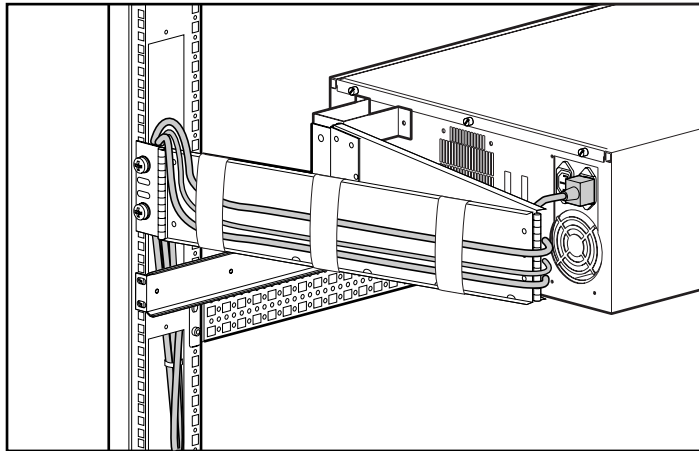


Figure 3-16. Routing the Cables

Completing the Installation

Before you can use your new Compaq CD Storage System with Microsoft Windows NT or Novell NetWare, you need to install the SCSI Express software that shipped with your unit.

The server to which you are connecting this Compaq CD Storage System should already be configured before you attach the storage system and install SCSI Express.

Make sure that the Compaq CD Storage System has a unique SCSI ID, and see [Chapter 5, "Operating Your Compaq CD Storage System,"](#) for instructions on how to install SCSI Express.

Chapter 4

Operating the CD-ROM Drives

This chapter outlines the basic operation of the CD-ROM drives in your new Compaq CD Storage System.

The controls function the same, whether you have a tower or a rack-mountable model. For some functions, both the tower and rack-mountable models are illustrated.

4-2 Operating the CD-ROM Drives

Front Controls

The following controls are located on the front of each CD-ROM drive.

Ref	Component	Function
❶	Headphone Jack	Connects the headphone (not supported by SCSI Express)
❷	Headphone Volume Control	Increases or decreases the headphone volume (not supported by SCSI Express)
❸	Disc Tray	Slides in and out. Holds the CD in place
❹	Busy Indicator	Indicates when data is being read from the CD. Blinks during data seeks; can indicate error conditions (see Chapter 6 for more information).
❺	Load/Unload Button	Opens and closes the disc tray
❻	Manual Eject Hole	Allows you to manually eject a CD if the load/unload button is inoperable

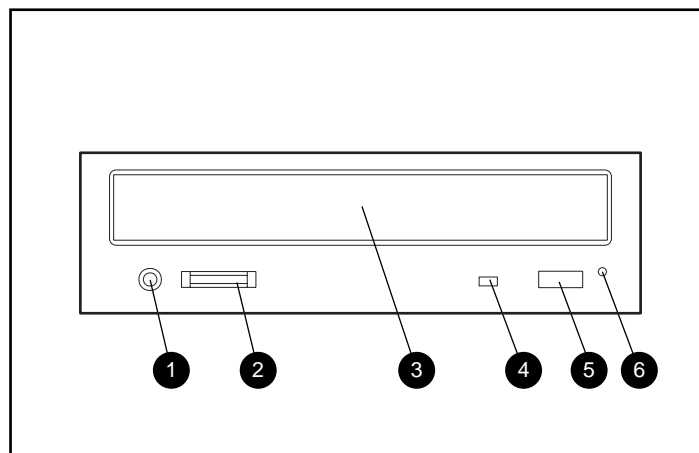


Figure 4-1. Front Controls on a CD-ROM Drive

Loading a Disc

Depending on the model you have, use the following steps to load a compact disc in one of the CD-ROM drives.

Tower Model

Make sure the power is on, and load a compact disc as follows:

- Open the disc tray by pressing the load/unload button on the front panel of the drive.
- Place the compact disc into the tray. Handle the disc by its edges, not by its flat surfaces.

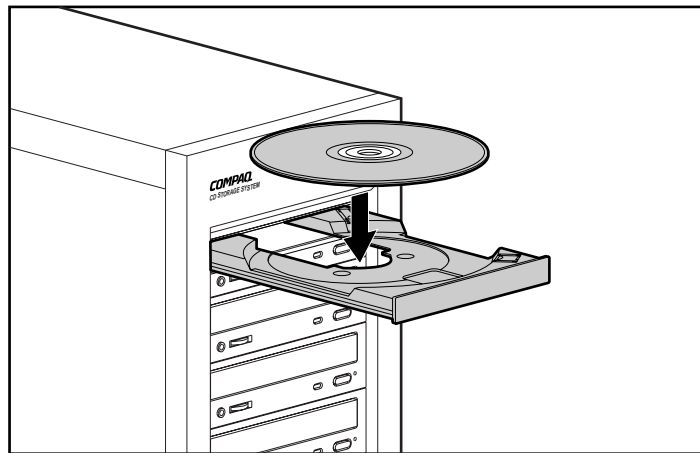


Figure 4-2. Loading a Compact Disc in a Tower Model

- Push the load/unload button again to retract the drive tray.

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4-4 Operating the CD-ROM Drives

Rack-Mountable Model

Make sure the power is on, and load a compact disc as follows:

- Open the disc tray by pressing the load/unload button on the front panel of the drive.
- Before loading a compact disc in a rack-mountable unit, you need to make sure the retaining tabs on the drive tray are set to hold the compact disc in place.
- Insert the compact disc in the tray so that it is held in place by the retaining tabs. Handle the disc by its edges, not by its flat surfaces.

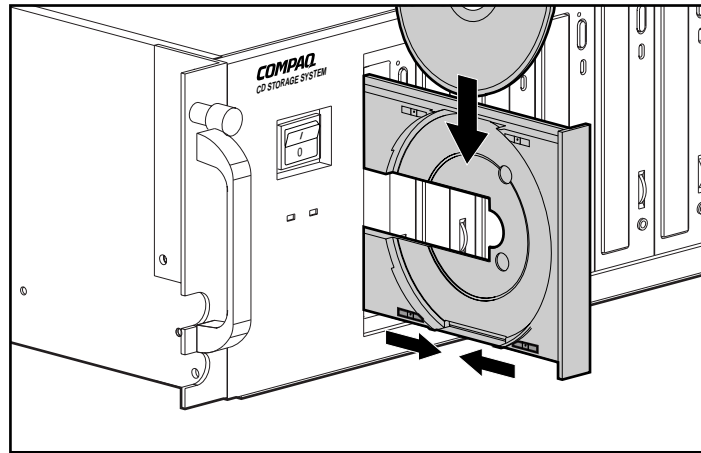


Figure 4-3. Loading a Compact Disc in a Rack-Mountable Model

- Push the load/unload button again to retract the drive tray.

Completing the Process

In either model, after you load a compact disc, the drive performs a diagnostic check and begins reading the CD automatically. The busy indicator is illuminated while the drive is reading the CD.

Opening the Tray Manually

If you are unable to eject the drive tray with the load/unload button, you can eject it manually. The power must be off to eject a drive manually.

To manually eject the tray, follow these steps:

1. Insert a straightened paper clip or a metal rod approximately 1/16 inches (1.0 mm) in diameter and at least 2 inches (45 mm) in length into the manual eject hole and push firmly until the tray releases.

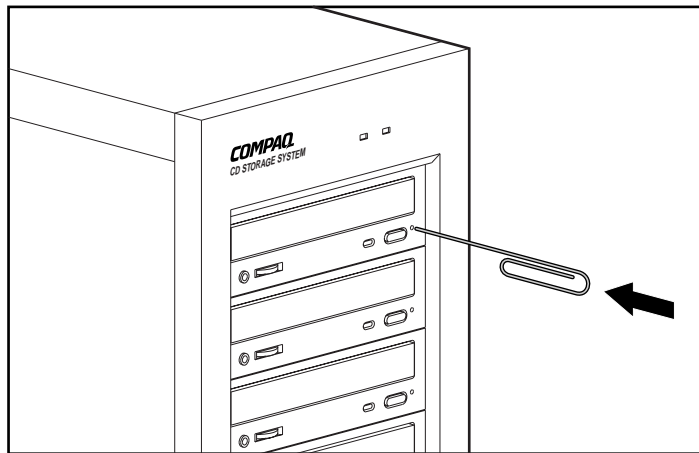


Figure 4-4. Manually Opening a CD-ROM Drive Tray

2. Slowly pull the tray out of the drive until the tray is fully extended.
3. Remove the compact disc.
4. Gently push the tray back into the drive until it latches.

Precautions

Follow these precautions for the best care of your CD-ROM drives and compact discs.

For CD-ROM Drives

- Keep the original packing materials for future transportation of the drive.
 - Avoid exposing the drive to sudden changes in temperature, as condensation may form inside the unit. If the temperature suddenly changes while the drive is on, wait at least one hour before you turn off the power. If you operate the unit immediately, it may malfunction while reading.
 - Avoid placing the drive in a location that is subject to high humidity, extreme temperatures, mechanical vibration, or direct sunlight.
 - Ensure sufficient clearance for tray to open and close.
 - Do not move the drive during operation. Doing so may cause it to malfunction during reading.
 - Remove the disc before moving the drive.
 - Clean the cabinet, panel, and controls with a soft, dry cloth, or a soft cloth lightly moistened with a mild detergent solution. Never spray cleaning fluids directly on the unit.
 - Any type of solvent, such as alcohol or benzene, may damage the finish.
 - If any object or liquid falls into the cabinet, immediately unplug the computer and have it checked by a Compaq authorized service provider.
-

For Compact Discs

- Remove any compact discs from the drive before moving the unit.
- Do not drop the compact disc or subject it to physical shock.
- Do not put the compact disc in a location subject to dust, direct sunlight, extreme temperatures, or high humidity.
- Handle the compact disc by its edges, not by its flat surfaces.
- Do not use solvents on the compact disc, such as benzene or antistatic spray.
- Store the compact disc in its case when it is not loaded in a CD-ROM drive.

Chapter 5

Operating Your Compaq CD Storage System

Using SCSI Express Software CD, you can install software to support your Compaq CD Storage System with several common operating environments.

The server to which you are connecting this Compaq CD Storage System should already be configured before you attach the storage system and install SCSI Express.

- Microsoft Windows NT see page 5-2
- Novell Netware see page 5-6
- Other operating systems..... see page 5-14
- Additional references see page 5-21

Turn to the section you need for your specific installation instructions.

Before you begin the installation procedure, you may need to upgrade your system ROM using the Compaq Systems ROMPaq utility. See the SmartStart and Support Software CD insert for further instructions on how to access ROMPaq.

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5-2 *Operating Your Compaq CD Storage System*

Microsoft Windows NT

This section covers installation of SCSI Express for Microsoft Windows NT.

System Requirements

- Microsoft Windows NT Server Version 3.51 or 4.0
- Compaq server with a minimum of 32 MB of memory
- 15 MB total available hard disk space
 - 3 MB of free disk space on the drive where Windows is installed
 - 7 MB of free disk space on the drive you select for your SCSI Express installation
 - 5 MB of temporary file space

Installation Procedure

1. Start Microsoft Windows NT.
 2. Insert the SCSI Express Software CD in the CD-ROM drive.
-

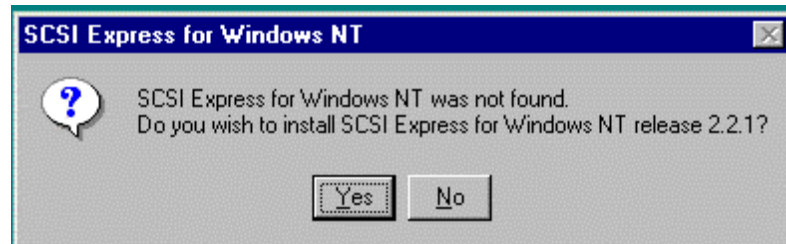
3. If you are using Microsoft Windows NT 3.51, from the File menu choose **Run**. In the Command Line box, type:

<drive>:\SE_NT\SETUP.EXE

For **<drive>**, use the drive letter of your CD-ROM drive. If you do not know the drive letter for your CD-ROM drive, select *Browse*, and determine which drive contains the SCSI Express Software CD.

If you are using Microsoft Windows NT 4.0, an installation utility will be displayed within a few seconds.

4. If this is the first time SCSI Express has been installed on your system, this message displays:



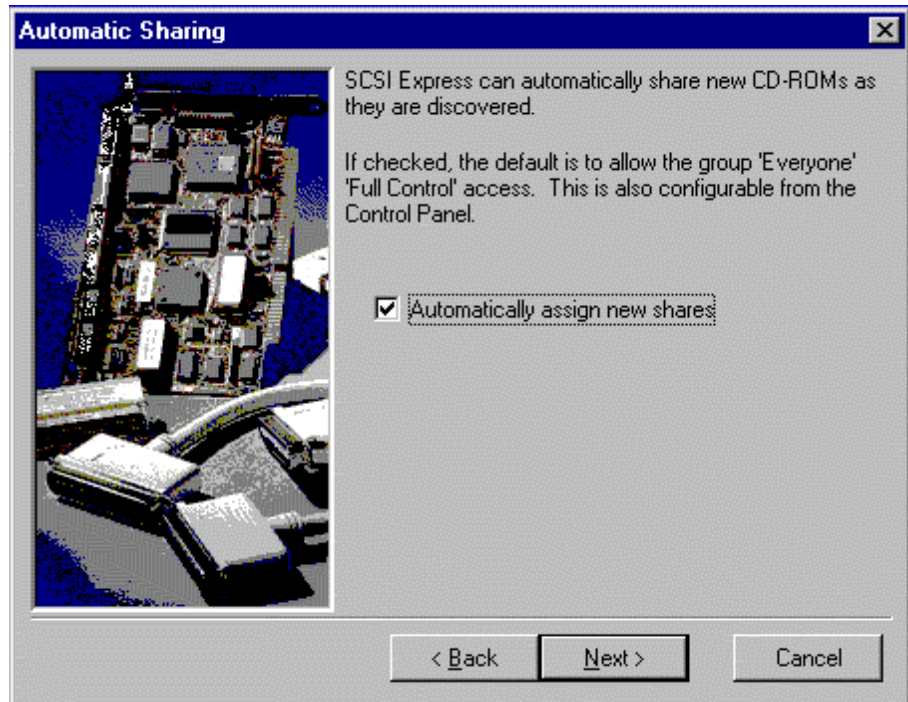
Select *Yes* to continue with the installation.

5. When the **Welcome** screen displays, select *Next*.

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5-4 *Operating Your Compaq CD Storage System*

6. The **Automatic Sharing** dialog box displays. The default is set to automatically assign new shares.

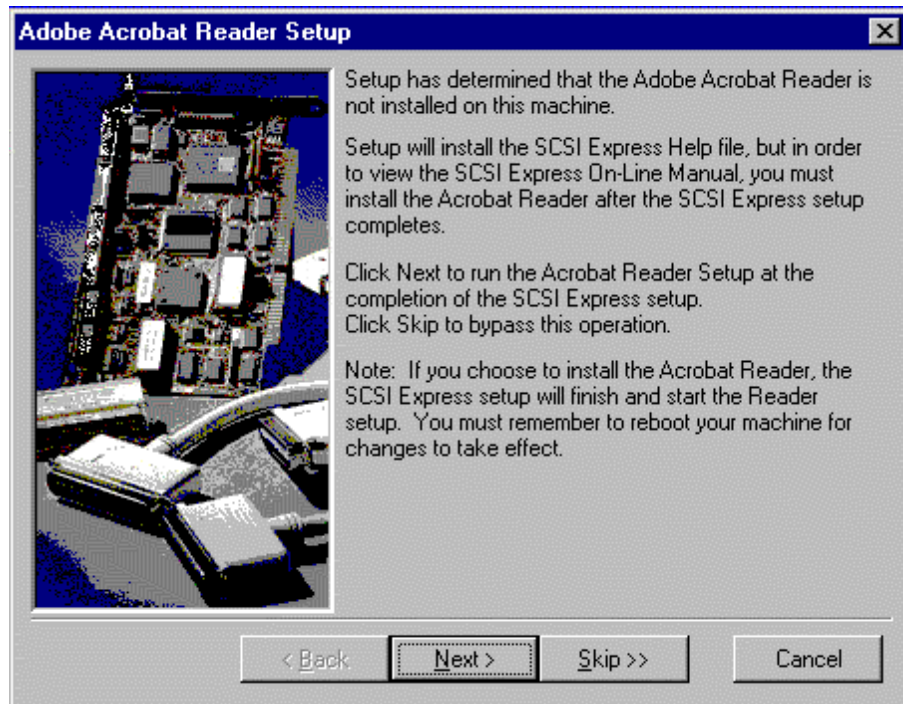


If you do not want to share new compact discs as they are detected, click the checkbox to disable automatic sharing.

Select *Next* and follow the remaining prompts.

7. If you want to change the path where SCSI Express will install, select *Browse*. Enter a new path or select one from the list provided.
 8. Select *Next*. The SCSI Express files begin loading. Continue following the prompts as the installation progresses.
-

9. When the Group Selection dialog box displays, enter the program folder name you want to use or select *OK* to use the default folder.
10. After the SCSI Express installation completes, if the Adobe Acrobat Reader is not installed on your system, the following message is displayed:



If you select *Next*, the Adobe Acrobat Reader begins installing.

11. When the installation has finished, the **Setup Complete** dialog box is displayed.
12. Select *Restart Now* to reboot your computer and activate the changes.

Novell NetWare

This section covers installation of SCSI Express for Novell NetWare.

If you are installing SCSI Express for the first time, you may need to upgrade your drivers. See page 5-21 in this chapter for information on how to obtain the drivers.

System Requirements

- Novell NetWare 3.12 or IntranetWare/NetWare 4.11
- SYS volume up and running on the server
- SCSI host adapter board or embedded SCSI
- Appropriate Novell patch set(s)
- 4 MB of temporary file space available on your hard drive
- Enough file server memory to obtain reasonable performance with NetWare directories, the FAT (file allocation table), and file caching (see “Determining Server Memory Requirements” on page 5-7)

Patch Sets

Before installing SCSI Express, make sure the appropriate Novell patch sets have been installed on your system. The SCSI Express Software CD contains the necessary files to install the patches.

Depending on the version of NetWare you have, load the following patch sets:

- NetWare 3.12 - 311PTG & LIBUPC or greater
 - IntranetWare/NetWare 4.11 - IWSP3A
-

Determining Server Memory Requirements

NetWare must be able to cache the entire FAT of a volume in order to mount it. If you want to mount several volumes at the same time, the amount of memory required will vary based on the total volume size and the size of the stored data block.

The following steps illustrate how to calculate the amount of server memory your system requires.

1. Determine the size of each NetWare volume that you want to load, including SYS, as in the following examples:

<u>Volume Name</u>	<u>Block Size (KB)</u>	<u>Volume Size (MB)</u>
SYS	4	80
DEVICE A	4	100
DOS	16	300
DEVICE B	16	20000

2. Calculate the amount of file server memory required per volume based on the volume name space type (either DOS or an added name space such as DEVICE A indicates).

For each DOS volume, use this calculation:

$$.023 * \text{volume size (MB)} \div \text{block size} * 2$$

For each volume with added name spaces, use this calculation:

$$.032 * \text{volume size (MB)} \div \text{block size} * 2$$

Examples:

<u>Volume Name</u>	<u>Calculation</u>
SYS	$.023 * 80 \div 4 * 2 = .92 \text{ MB}$
DEVICE A	$.032 * 100 \div 4 * 2 = 1.6 \text{ MB}$
DOS	$.023 * 300 \div 16 * 2 = .8625 \text{ MB}$
DEVICE B	$.023 * 20000 \div 16 * 2 = 57.5 \text{ MB}$

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5-8 *Operating Your Compaq CD Storage System*

3. Total all volume memory requirements.

<u>Volume Name</u>	<u>Totals</u>
SYS	0.92
DEVICE A	1.6
DOS	0.8625
DEVICE B	57.5
<u>TOTAL MEMORY</u>	<u>60.8825</u>

4. Add 2 MB for the operating system and round up the total to the nearest even MB.

Always allow at least 4 MB for server memory requirements.

System Total	60.8825
Operating System	<u>2.0000</u>
TOTAL	<u>62.8825</u>

Rounds up to 64 MB

Installation Notes

Before beginning the installation, make sure all of the devices you want SCSI Express to control, including host adapter boards, are connected and that any applicable drivers have been loaded.

Check the Novell NetWare documentation for instructions on creating adequate system conditions (conditions refer to power lines, power supplies, power conditioning devices, and static precautions). This manual does not discuss installation for Novell NetWare, nor the fundamentals for using NetWare or DOS.

You can use the following standard keys throughout the installation procedure:

- **<Enter>** select or edit the highlighted option
- **<F10>** save your changes and continue
- **<Esc>** exit the SCSI Express Installation

Perform all installation steps at the file server console, unless specifically instructed otherwise.

Installation Procedure for the Server

To load SCSI Express from the file server:

1. Mount the SCSI Express Software CD.
2. If you have NetWare 3.12, type:

```
LOAD SCSI_EXPRESS:\SE_NWSEINST3X
```

If you have IntranetWare/NetWare 4.11, type:

```
LOAD SCSI_EXPRESS:\SE_NWSEINST4X
```

3. From the Full Installation window, you can select one of three options: Express Install, Custom Install, or Exit Install. Use the right and left arrow keys to make your selection.

- Express Install** - Select this option if you want the installation to determine all appropriate changes.
- Custom Install** - Select this option if you want to view system changes and make edits at the end of installation.
- Exit Install** - Select this option to quit the installation program.

If you already have SCSI Express installed on your system, the choices will be listed as **Upgrade** instead of **Install**.

4. Press <Enter> to continue.

If you selected **Express Install**, a dialog box appears displaying the Installation Progress box and Copy Files window.

If you selected **Custom Install**, the Custom Installation Options box appears first, prompting you to enter the appropriate information.

5. Before continuing with the installation, you must enter a name for the installer.
-

6. The Installation Progress box lists each task that SCSI Express will complete during installation. As SCSI Express installs, the Installation Progress box highlights the currently running task.

If SCSI Express cannot load one of the host adapters, a message displays indicating that SCSI Express was unable to configure the host adapter. Load the maintenance utility INST4X or 3X (as appropriate for your operating system). See the Novell NetWare Software Reference Guides located on the SCSI Express Software CD for more information. These .PDF files can be viewed only in a Windows environment. Attach to a client workstation that has Windows loaded to view the files.

7. If you performed a Custom Install, the Config File Modification menu is displayed, allowing you to make changes to your AUTOEXEC.NCF file.
- View/edit Changes to AUTOEXEC.NCF** - Preview or edit modifications the utility will make to AUTOEXEC.NCF when the **Save Configuration Files** option is selected. To edit the AUTOEXEC.NCF, press <F2>, make your modifications, and then press <Esc> to save the changes.
 - Save Configuration Files** - Saves the configuration selections and make the necessary modifications to the AUTOEXEC.NCF files.
 - Save to Alternate Files** - Saves the configuration selections and writes the modifications it would normally make to your AUTOEXEC.NCF to alternate files. You will have to make the modifications shown in the AUTOEXEC.NCF file manually.
 - Abandon Changes to Configuration Files** - Cancels saving the configuration selections and exits the utility.
8. After you have made any desired changes, the **Create Expdsagent account** screen appears, displaying your ADMIN username.

Press <Enter>.

9. Type in your password and press <Enter>.

You should receive a message indicating that the installation was successful.

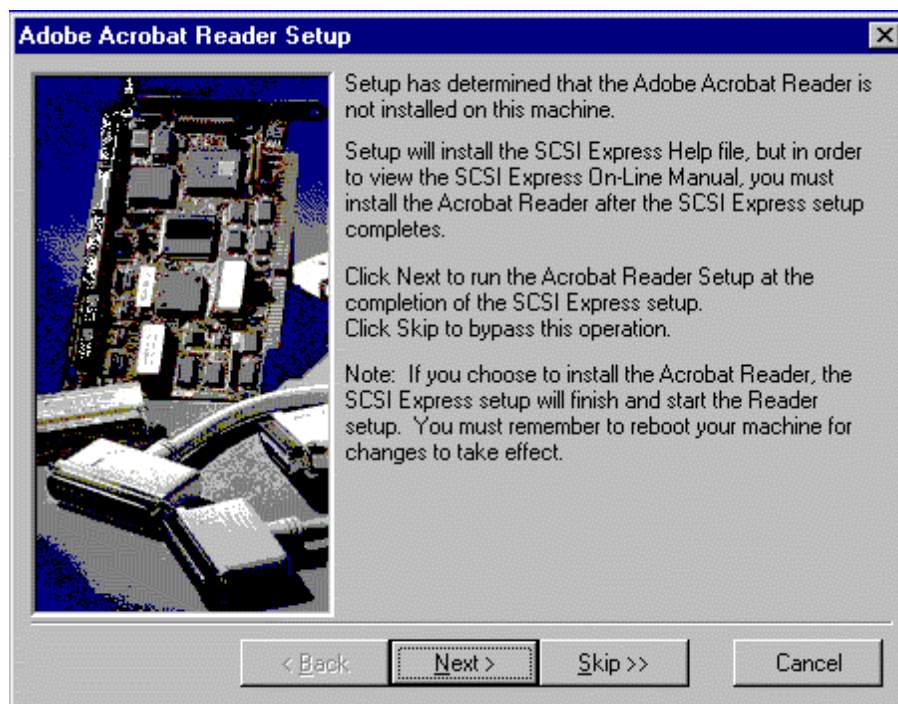
Installation Procedure for the Client

Microsoft Windows NT or Windows 95 must be installed on the client workstation for the installation to run correctly.

To load SCSI Express from a client workstation:

1. Start Windows. Close any other applications that may be open.
 2. From **Network Neighborhood**, access the NetWare Server containing the SCSI Express software.
 3. Open the SYS volume and go to **Public**.
 4. From the **Express** directory, open the **Inspect** subdirectory
 5. Install *SENO35.EXE*, which is the NetWare Inspector.
 6. When the **Welcome** screen displays, select *Next*.
 7. If you want to change the path where SCSI Express will install, select *Browse*. Enter a new path or select one from the list provided.
 8. Select *Next*. The SCSI Express files will begin loading. Continue following the prompts as the installation progresses.
-

9. After the SCSI Express installation completes, if the Adobe Acrobat Reader is not installed on your system, the following message is displayed:



When you select *Next*, the Adobe Acrobat Reader begins installing.

10. When the installation has finished, the **Setup Complete** dialog box is displayed.
11. Select *Restart Now* to reboot your computer and activate the changes.

Other Operating Systems

UNIX

The installation of SCSI Express is not required for a UNIX-based system.

SCO UnixWare 2.1X

UnixWare detects each CD-ROM drive in the unit and automatically adds the appropriate device nodes to `/dev/cdrom` at boot time. You do not need to configure the drives manually. Once the device node for each CD-ROM drive has been added, the CD in the drive can be mounted and used like any other read-only file system.

Example:

```
mount -F cdfs -r /dev/cdrom/cCbBtTIL /mnt
```

`-F cdfs` tells the operating system that it is mounting a CD file system

`-r` tells the operating system that the file system is read-only

`/dev/cdrom/cCbBtTIL` is the device node of the CD-ROM drive where:

C is the controller number

B is the bus number

T is SCSI Target ID of the unit

L is the LUN of an individual CD-ROM drive

The values the operating system assigned to your CD-ROM drives can be seen by listing the contents of `/dev/cdrom`, using this command:

```
ls -l /dev/cdrom
```

`/mnt` is a generic mount point in UNIX. Use `/bin/mkdir` to create other mount points.

On some high-speed systems with heavy loads, inode and file table overflows may be experienced. If these problems occur, use the following command:

```
/etc/conf/bin/idtune -f CDFSINODE 4096
```

This increases the number of possible inode table entries. For more information, refer to the man page on idtune.

It also may be necessary to increase `SEGKMEM_PERCENT` and `SEGKMEM_BYTES` in the System Tuner under the Virtual Memory Parameters. These values must be adjusted for each individual system configuration.

SCO OpenServer 5.0.X

The Compaq CD Storage System must be configured using the `mkdev cdrom` command in SCO OpenServer 5.0.x.

After running the program, relink the kernel and reboot the system. The device nodes are created in this process. The device nodes can be seen by typing `"ls -l /dev/cd*"`. These device nodes can be mounted as read-only file systems.

Example:

```
/etc/mount /dev/cdN /mnt
```

N is the number of the CD-ROM drive to be mounted

/mnt is a generic mount point. Use `/bin/mkdir` to create other mount points.

SCO OpenServer 5.0.4 requires installation of the SCO OpenServer 5.0.4c Release Supplement before you can use the Compaq CD Storage System. Contact your local SCO support representative for this supplement.

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5-16 *Operating Your Compaq CD Storage*

SCO Open Server 3.0

The Compaq CD Storage System must be configured using the `/usr/lib/mkdev cdrom` command in SCO Open Server 3.0.

The individual CD-ROM drives must be configured by using "mkdev cdrom" and answering the questions appropriately. After running this program for each CD-ROM drive to be configured, relink the kernel and reboot the system. The device nodes will be created in this process. The device nodes can be seen by typing "ls -l /dev/cd*". These device nodes can be mounted as read-only file systems.

Example:

```
mount /dev/cdN /mnt
```

N is the number of the CD-ROM drive to be mounted

/mnt is a generic mount point. Use `mkdir` to create other mount points.

By default, SCO Open Server 3.0 only allows four CDs to be mounted at one time. If you wish to mount more than that, increase the value of `HSNMOUNT` to the number you wish to mount. It may also be necessary to increase the value of `HSNINODE`. Use the `/etc/conf/cf.d/configure` utility to change the value of these parameters by selecting **File, inodes**, and **File Systems** from the menu.

SunSoft Solaris

This section covers configuration information for the Compaq CD Storage System on the Solaris for Intel Edition operating system. Additional configuration of some system files are necessary to access all of the devices in the Compaq CD Storage System.

System Requirements

- Solaris for Intel Edition , Version 2.5, 2.5.1 or 2.6
- For Solaris 2.5 or 2.5.1 - Solaris 2.5/2.5.1 x86 Driver Update 10 or Solaris 2.5/2.5.1 x86 -or- Driver Update for Compaq Systems Version 1.1.

Either Driver Update is available from:

<http://access1.sun.com/drivers/#DRIVEUP>

- For Solaris 2.6 – No Driver Update is necessary.

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5-18 *Operating Your Compaq CD Storage*

Configuration

To configure the unit:

1. Install the Solaris for Intel operating system.
2. Make a note of the SCSI ID that is allocated to this Compaq CD Storage System.
3. From the */kernel/drv* file, use EDIT to modify the *cmdk.conf* file. Add the following lines:

```
name="cmdk" class="scsi" target=<SCSI ID> lun=1
scsi_audio="sccd_sony","sccd_std";
name="cmdk" class="scsi" target=<SCSI ID> lun=2
scsi_audio="sccd_sony","sccd_std";
name="cmdk" class="scsi" target=<SCSI ID> lun=3
scsi_audio="sccd_sony","sccd_std";
name="cmdk" class="scsi" target=<SCSI ID> lun=4
scsi_audio="sccd_sony","sccd_std";
name="cmdk" class="scsi" target=<SCSI ID> lun=5
scsi_audio="sccd_sony","sccd_std";
name="cmdk" class="scsi" target=<SCSI ID> lun=6
scsi_audio="sccd_sony","sccd_std";
name="cmdk" class="scsi" target=<SCSI ID> lun=7
scsi_audio="sccd_sony","sccd_std";
```

In these statements, SCSI ID refers to the SCSI ID that has been assigned to this Compaq CD Storage System.

4. Save the *cmdk.conf* file, and then perform a reconfiguration reboot of the system.
 5. After the system reboots, new nodes are created for all the CD-ROM drives in the unit.
 6. All of the CD-ROM drives in a Compaq CD Storage System should now be accessible through normal methods.
-

OS/2

The installation of SCSI Express is not required for a system running OS/2 Version 2.x or later.

OS/2 will detect each CD-ROM drive in the unit and automatically assign drive letters at boot time. You do not need to manually configure the drives. You can then access the CD in the drive like any other CD-ROM file system.

OS/2 uses the following criteria to assign drive letters to the CD-ROM drives connected to the system.

Table 5-1
CD-ROM Drive Letter Assignments

Sequence	Identifier	Explanation
1	Device Type	The drive letters for CD-ROM drives are assigned after all the hard disk drives (including removable drives) have been assigned drive letters.
2	Driver Order	The order in which individual base drivers (.ADD) are loaded governs the order in which drive letters are assigned to the CD-ROM drives controlled by them. OS/2 loads the base drivers in the order they appear in CONFIG.SYS.
3	Controller Order	Within the group of drives controlled by a single base driver, the order of drive letter assignment is controlled by the controller order configured via SysConfig.
4	SCSI ID	The SCSI ID is used to further determine the order of drive letter assignment for drives connected to the same SCSI controller.
5	LUN	Within a Compaq CD Storage System, the drive letter assignment is in the order of the Logical Unit Number (LUN)

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5-20 *Operating Your Compaq CD Storage*

Banyan

The Compaq CD Storage System does not currently support operation with Banyan VINES.

References

Compaq Storage Systems require drivers to fully support Microsoft Windows NT and Novell NetWare. The following table lists the drivers that are currently available, and where to obtain them.

Product	Driver
Novell NetWare/ IntranetWare	Drivers: CPQSASPI.NLM NWASPI.CDM Location: ftp://compaq.com/public/softpaqs/drivers Filename: SP26292
	Driver: NWPA Location: Compaq web site or SmartStart and Support Software CD
Microsoft Windows NT 3.51	Driver: CPQ32FS2.SYS Location: ftp://compaq.com/public/softpaqs/drivers Filename: SP2748
Microsoft Windows NT 4.0	No additional drivers needed

You can also access these files by accessing the Compaq web site. See [Appendix E, "Getting Help,"](#) for more information on accessing Compaq services.

For additional information and support for this product, view or print out the SCSI Express documents on the SCSI Express Software CD or the SmartStart and Support Software CD.

Chapter 6

Troubleshooting

This chapter provides some basic troubleshooting tips for your Compaq CD Storage System. You can also refer to the Novell NetWare Software Reference Guides located on the SCSI Express Software CD for more information. These .PDF files can be viewed from a Windows environment with Adobe Acrobat Reader.

If the tips in this chapter do not address the problem, check the SCSI Express Software CD and the SmartStart and Support Software CD that were shipped with your unit for any additional patches, fixes, or read-me files that may help to alleviate the problem.

If you cannot solve the problem using the preceding methods, see [Appendix E, “Getting Help,”](#) for more information on how to contact Compaq support facilities.

IMPORTANT: There are no user-serviceable parts inside the unit. If you need to repair, replace, or upgrade a hardware component, contact your local Compaq Service representative for assistance.

General Checklist

If your Compaq CD Storage System is not operating, verify the following items before proceeding:

- The AC power cord is plugged into the unit and a grounded AC outlet.
- The power switch is in the ON position (position 1), and the power LED is illuminated.
- You may need to upgrade your system ROM using the ROMpaq utility on the SmartStart and Support Software CD that was shipped with your unit.

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6-2 Troubleshooting

- The correct cables are attached.
 - If you are connected to a server, make sure the SCSI cable is attached to the server and one of the SCSI connectors on the rear panel of the unit.
 - If you are connecting the unit to other SCSI devices (such as one or more Compaq CD Storage Systems), make sure one end of the SCSI cable is attached to one of the SCSI connectors on the rear panel of the unit and that the other end of the cable is attached to the connecting SCSI device.
 - If this is the last device in group of connected SCSI devices, make sure the standard SCSI terminator is attached to the remaining SCSI connector on the rear panel of the unit.
 - You can chain only standard (narrow) SCSI devices from your Compaq CD Storage System. If you have attached a wide/ultra SCSI device to the Compaq CD Storage System as the next device in the chain, the wide/ultra SCSI device will not function correctly.
 - The total cable length of the SCSI bus (internal and external) does not exceed 18 feet. Adding a repeater into the chain may alleviate the problem.
 - The compact discs in the drives are loaded and are the type of media that can be read by a Compaq CD Storage System.
 - Each compact disc that is loaded in the unit must be assigned its own properties. If you load a new compact disc in a CD-ROM drive that is identical to a disc already loaded in a drive in that same unit, the properties will not carry over--you still need to assign specific properties for the new disc.
 - The unit must have a unique SCSI ID number. If the unit is part of a connected group of SCSI devices, it needs a SCSI ID number different from any other device in that chain. The unit is shipped with the SCSI ID set to 2. You can select 0-6 on the rear panel.
 - If you changed the SCSI ID for the unit, you need to cycle power to the unit for the change to be recognized.
-

Internal Drive Reassignment

If you did not load an operating system and configure your system before attaching the Compaq CD Storage System, the drive letter of your internal CD-ROM drive may have been reassigned during the SmartStart configuration process. This prevents the SmartStart utility from being able to read the internal CD-ROM drive.

To correct this:

- Disconnect the Compaq CD Storage System from your server.
- Load an operating system.
- Install all additional hardware and options.
- Reattach the Compaq CD Storage System.
- Cycle the power on your server.

The drive assignments should now be correct.

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6-4 Troubleshooting

CD-ROM Drive Busy Indicator

Two error conditions will cause the busy indicator on the CD-ROM drive to be illuminated:

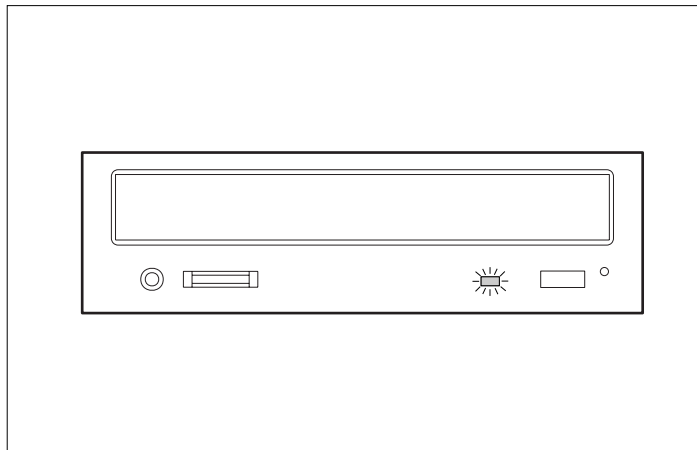


Figure 6-1. The Busy Indicator on a CD-ROM Drive

- If the busy indicator is blinking at 3-second intervals, there is a problem with the optics. Usually this can be alleviated by cleaning the compact disc and/or the optics in the drive.
 - If the busy indicator illuminates and stays on continuously, there is a problem with the media. Make sure the compact disc is of the correct format to be read by the drive, and that it has been loaded correctly.
-

Fault LED

If an error condition occurs within the Compaq CD Storage System, the amber fault LED on the unit illuminates.

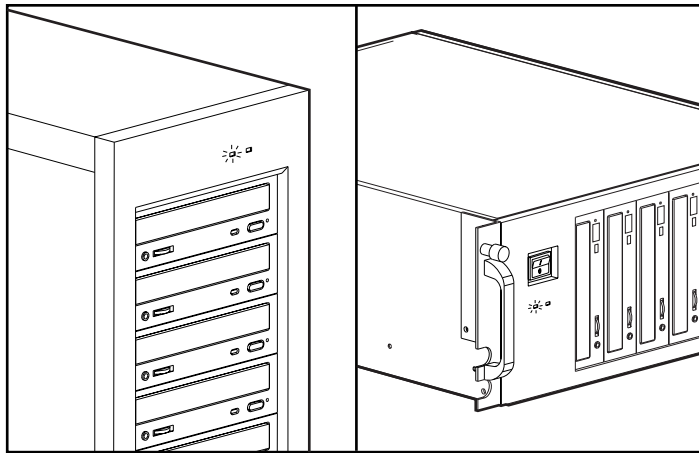


Figure 6-2. The Fault LEDs

Check to see if one of the CD-ROM drives is indicating a problem. If so, correct the problem with the drive and cycle power to the unit. The LED should turn off.

If none of the drives are indicating a problem, cycle the power and see if the LED turns off. Occasionally an error signal is sent to the fault LED for a condition that is temporary or intermittent.

If the fault LED continues to be illuminated after a power cycle, contact Compaq service facilities for assistance. See [Appendix E, "Getting Help,"](#) for more information.

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6-6 Troubleshooting

Internal Connections

If the system is not recognizing one or more of the CD-ROM drives, check to make sure that any internal cables or connectors did not come loose during shipping.

Tower Model



WARNING: To reduce the risk of electric shock or damage to the equipment, unplug all AC power cords from the unit before removing the access cover.

To remove the access cover on a tower model:

- Loosen the three thumbscrews on the access cover.
- Slide the access cover toward the back of the unit and off.

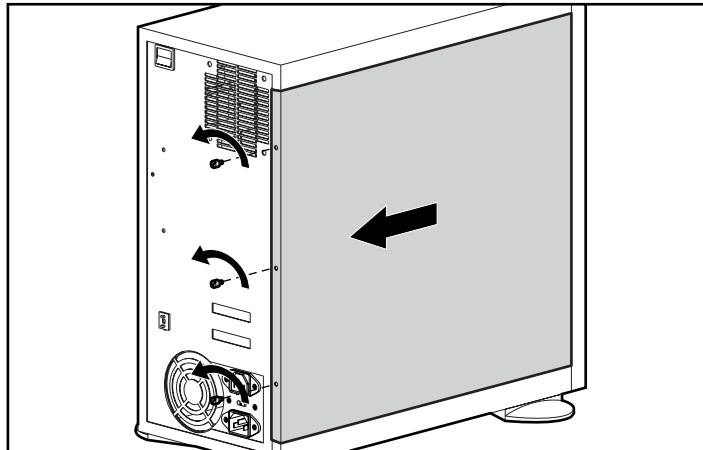


Figure 6-3. Removing the Access Cover on a Tower Model

Using a flashlight, visually inspect all cables and connectors to make sure they are still seated.

To replace the access cover, align it with the chassis, slide the cover toward the front of the unit until it is in place, and tighten the three thumbscrews.

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6-8 Troubleshooting

Rack-Mountable Model



WARNING: To reduce the risk of electric shock or damage to the equipment, unplug all AC power cords from the unit before removing the access cover.

To remove the access cover on a rack-mountable model:

- Loosen the three thumbscrews on the access cover.
- Slide the access cover toward the back of the unit and off.

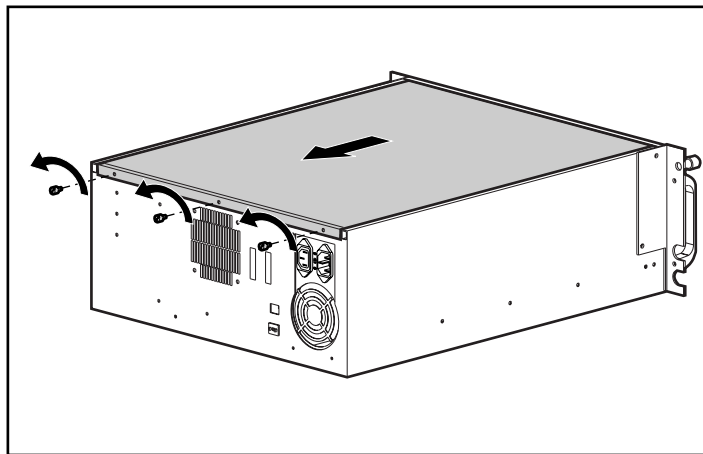


Figure 6-4. Removing the Access Cover on a Rack-Mountable Model

Using a flashlight, visually inspect all cables and connectors to make sure they are still seated.

To replace the access cover, align it with the chassis, slide the cover toward the front of the unit until it is in place, and tighten the three thumbscrews.

Appendix A

Regulatory Compliance Notices

The following regulatory compliance notices and statements are provided in this section:

- Federal Communications Commission Notice
- Declaration of Conformity for Products Marked with FCC Logo, United States Only
- European Union Notice
- Canadian Notice (Avis Canadien)
- Japanese Notice
- Laser Devices

Federal Communications Commission Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

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A-2 *Regulatory Compliance Notices*

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Cables

Connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Declaration of Conformity for Products Marked with FCC Logo, United States Only

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For questions regarding this declaration, contact:

Compaq Computer Corporation
P. O. Box 692000, Mail Stop 510101
Houston, Texas 77269-2000

Or call (281) 514-3333

To identify this product, refer to the Series number found on the product.

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A-4 *Regulatory Compliance Notices*

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN55022 (CISPR 22) - Electromagnetic Interference
- EN50082-1 (IEC801-2, IEC801-3, IEC801-4) - Electromagnetic Immunity
- EN60950 (IEC950) - Product Safety

Canadian Notice (Avis Canadien)

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Japanese Notice

お使いになっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、商工業地域で使用されるべき第一種情報装置です。住宅地域又はその隣接した地域で使用するとラジオ、テレビジョン受信機等に受信障害を与えることがあります。

Laser Devices

This product contains a laser device. All Compaq systems equipped with a laser device comply with safety standards, including International Electrotechnical Commission (IEC) 825. With specific regard to the laser, the equipment complies with laser product performance standards set by government agencies as a Class 1 laser product. The product does not emit hazardous light; the beam is totally enclosed during all modes of customer operation and maintenance.

Laser Safety Warnings



WARNING: To reduce the risk of exposure to hazardous radiation:

- Do not try to open the unit enclosure. There are no user-serviceable components inside.
 - Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
 - Allow only Compaq Authorized Service technicians to repair the unit.
-

Compliance with CDRH Regulations

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. This device is classified as a Class 1 laser product as defined by IEC 825.

Compliance with International Regulations

All Compaq systems equipped with this laser device comply with appropriate safety standards including IEC 825 and IEC 950. This device is classified as a Class 1 laser product as defined by IEC 825.

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A-8 *Regulatory Compliance Notices*

Laser Product Label

The following label or equivalent is located on the surface of your laser device.



This label indicates that the product is classified as a CLASS 1 LASER PRODUCT.

Laser Information

Laser Type	Semiconductor GaAlAs
Wave Length	780 nm +/- 35 nm
Divergence Angle	53.5 degrees +/- 0.5 degrees
Output Power	Less than 0.2 mW / $10,869 \text{ W} \cdot \text{m}^{-2} \text{ sr}^{-1}$
Polarization	Circular 0.25
Numerical Aperture	0.45 inches +/- 0.04 inches

Appendix B

Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage or reduce the life expectancy of system boards and other static-sensitive devices. This type of damage may reduce the life expectancy of the device or render the product inoperable.

Precautions

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at a static-free workstation.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.
- Ensure the chassis is properly grounded.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megaohm \pm 10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats. Ensure there is contact between the straps and the legs.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, contact an Authorized Compaq Reseller for the grounding equipment.

For more information on static electricity or assistance with product installation, contact your Authorized Compaq Reseller or Service Provider.

Appendix C

Power Cord Set Requirements

The power cord set meets the requirements for use in the country where you purchased your equipment. The voltage selection switch allows you to select the appropriate line voltage for your server.

Power cord sets for use in other countries must meet the requirements of the country where you use the server. For more information on power cord set requirements, contact your Authorized Compaq Dealer.

General Requirements

The requirements listed below are applicable to all countries:

- The length of the power cord must be at least 6.0 feet (1.8 m) and a maximum of 12 feet (3.7 m).
- The power cord set must be approved by an acceptable accredited agency responsible for evaluation in the country where the power cord will be used.
- The power cord set must have a minimum current capacity and nominal voltage rating of 10 A/125 volts AC, or 10A/250 volts AC, as required by each country's power system.
- The appliance coupler must meet the mechanical configuration of an EN60320/IEC 320 Standard Sheet C13 Connector, for mating with the appliance outlet on the computer.

C-2 Power Cord Set Requirements

Country-Specific Requirements

Use the following table to identify the appropriate accredited agency in your country.

Country	Accredited Agency	Applicable Note Numbers
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	SETI	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	JIS	3
Norway	NEMKO	1
Sweden	SEMKO	1
Switzerland	SEV	1
United Kingdom	BSI	1
United States	UL	2

Notes:

1. Flexible cord must be <HAR> Type HO5VV-F, 3-conductor, 1.0 mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country where it will be used.
2. Flexible cord must be Type SVT or equivalent, No. 18 AWG, 3-conductor. Wall plug must be a two-pole grounding type with a NEMA 5-15P (15A, 125V).
3. Appliance coupler, flexible cord, and wall plug must bear a "T" mark and registration number in accordance with the Japanese Dentori Law. Flexible cord must be Type VCT or VCTF, 3-conductor, 1.0 mm² conductor size. Wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7A, 125V) configuration.

Appendix D **Specifications**

Specific dimensions and characteristics for both models of the Compaq CD Storage System and the CD-ROM drives are listed in this section.

D-2 Specifications

Tower Model

Table D-1
Specifications - Tower Model

Physical Characteristics		
Feature	U.S.	Metric
Width	7.5 in	19.05 cm
Height	16 in	40.64 cm
Depth	16 in	40.64 cm
Weight	36.45 lb	16.53 kg

Input Requirements		
Rated Input	Low Range	High Range
Voltage	115 V	230 V
Frequency	50 to 60 Hz	50 to 60 Hz
Current	5 A	3 A

Temperature Range		
Environment	Fahrenheit	Celsius
Operating	50° to 95° F	10° to 35° F
Shipping	-22° to 122° F	-30° to 60° F

Relative Humidity (noncondensing)		
State	Low Range	High Range
Operating	20% to 80%	20% to 80%
Non-operating	5% to 90%	5% to 90%

Rack-Mountable Model

Table D-2
Specifications - Rack-Mountable Model

Physical Characteristics		
Feature	U.S.	Metric
Width	16.63 in	42.24 cm
Height	7 in	17.78 cm
Depth	20.75 in	52.71 cm
Weight	40.56q lb	18.4 kg
Input Requirements		
Rated Input	Low Range	High Range
Voltage	115 V	230 V
Frequency	50 to 60 Hz	50 to 60 Hz
Current	5 A	3 A
Temperature Range		
Environment	Fahrenheit	Celsius
Operating	50° to 95° F	10° to 35° F
Shipping	-22° to 122° F	-30° to 60° F
Relative Humidity (noncondensing)		
State	Low Range	High Range
Operating	20% to 80%	20% to 80%
Non-operating	5% to 90%	5% to 90%

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D-4 Specifications

CD-ROM Drives

Table D-3
Specifications - CD-ROM Drives

Physical Characteristics		
Feature	U.S.	Metric
Width	5.75 in	14.6 cm
Height	1.63 in	4.15 cm
Depth	7.6 in	19.3 cm
Weight	2.14 lb	970 g

Performance		
Category	Feature	Value
Media type	Internal	12 cm/8 cm
Access Time	Random average	120 ms typical
	Full stroke average	290 ms typical
Data Transfer Rate	Sustained	1800 Kb/s
	Burst	10 MB/s synchronous 5 MB/s asynchronous
Error Rates (with 5 retries)	Hard read	10^{-12}
	Seek	10^{-6}
Rotational speed		2400-6360 rpm
Cache/Buffer		256 Kb
MTBF		100,000 hrs

Appendix E

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information with the following help facilities.

Self-Help Tools

Compaq offers comprehensive self-help information tools that link you with a wide variety of Compaq support programs.

Online Support

Compaq technical support areas are accessible on the Internet and the three leading commercial online networks. These electronic communities allow you direct access to Compaq technical information on products and services, 7 days a week 24 hours a day. As a subscriber to any one of these networks, you can exchange technical information and questions with other Compaq users, as well as download software solutions, drivers, and utilities.

Internet Access

- E-Mail address: support@compaq.com
- Anonymous FTP site: [ftp.compaq.com](ftp://ftp.compaq.com)
- WorldWide Web Server: <http://www.compaq.com>

Online Networks

- America Online: 1-800-827-6364
Extension 0948 COMPAQ
- CompuServe: 1-800-524-3388
Operator #371 GO COMPAQ
- Prodigy: 1-800-776-3449
Extension 68 JUMP COMPAQ

PaqFax

Dial 1-800-345-1518 to access Compaq's fax retrieval service. Via your touch-tone phone, product features, configurations and specifications, service program information, press releases, and the latest Compaq news are available directly to your fax, 365 days a year, 24 hours a day.

Compaq Download Facility

Dial 1-281-378-1418 to access the Compaq Download Facility. This PC-based dial-in service allows you to download drivers, utilities, and software solutions from Compaq via modem. To expedite the download of a file, you should already know the name of the file you need (from a Compaq Technical Support Engineer, another Compaq user, or a Service Advisory).

QuickFind

QuickFind is a subscription service offered by Compaq that provides access to a comprehensive CD-ROM library, including Maintenance and Service Guides, Service Advisories and Bulletins, technical reference guides and more. To order a subscription to QuickFind, dial 1-800-952-7689.

Telephone Support

You can contact Compaq directly for personal assistance, 7 days a week, 24 hours a day, using the following phone numbers.

Customer Support

For pre-sales product specifications, service program updates, and Compaq Authorized Reseller information:

- In the United States, call 1-800-345-1518
- In Canada, call 1-800-263-5868

Technical Support

For expert technical diagnosis and troubleshooting:

- In the United States and Canada, call 1-800-386-2172
- Elsewhere, call one of the numbers listed following:

Compaq Worldwide Technical Support Telephone Numbers		
Location	Voice	FAX
APD	65-7503030	65-7504909
Argentina	54-1 313 3100	54-1 313 3100 Ext 21
Australia	61-2-9911-1955	61-2-9911-1900
Austria	0222-87816-16	0222-87816-82
Bahrain	973-210-214	
Belgium	(02) 716-96-96	(02) 725-22-13
Brazil	55 11 5505-3600	55 11 5505-3922 Ext 4336
Canada	1-800-386-2172	
Caribbean	1-800-345-1518	
Central America	281-378-2206	
Chile	562-274-3007	
China	86-10-834-6721	86-10-834-6713
Colombia	571-345-0266	571-312-0157

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E-4 Getting Help

Compaq Worldwide Technical Support Telephone Numbers		
Location	Voice	FAX
Czech Republic	42-2-232-8772	42-2-232-8773
Denmark	45-90-4545	45-90-4595
Equador	593-2504540	
Europe/Middle East/Africa	(49) 089-9933-2891	
Finland	9800-206-720 (+358-800-1-206720)	90-6155-9899 (+358-0-61559899)
France	(33 1) 41-33-4455	(33 1) 41-33-4263
Germany	0180-5-212111	089-9933-3399
Hong Kong	852-90116633	852-28671734
Hungary	36-1-201-8776	36-1-201-9696
India	(91-80) 559-6023	
Italy	392-57-90300	392-575-00686
Japan	0120-101589	+81 3-5402-5959
Korea	82-2-523-3575	82-2-3471-0321
Malaysia	(603) 718-1636	
Mexico	(525) 229-7910	(525) 229-7988
Netherlands	06-91681616	06-8991116
New Zealand	649-307-3969	
Norway	22-072-020	22-072-021
Poland	48-2-630-3535	48-2-630-3553
Portugal	351-1-4120132	351-1-4120654
Singapore	65-7503030	65-7504909
South Africa	+27-11-728-6999	+27-11-728-3335
Spain	341-640-1302	341-640-0124
Sweden	(46) 8 703 5240	(46) 8 703 5222
Switzerland	411 838 410/2222	01-837-0969
Taiwan	(886) 2-3761170	(886) 2-7322660
Thailand	62-2-679-6222	62-2-679-6220
United Kingdom	44-81-332-3888	44-81-332-3409
United States	1-800-386-2172	1-800-345-1518
Venezuela	(582) 953.69.44	(582) 952.86.70

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