System Installation Guide

D Class and R Class

HP 9000 Enterprise Servers

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NOTE

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- Your name.
- Your company's name.

SERIOUS ERRORS, such as technical inaccuracies that may render a program or a hardware device inoperative, should be reported to your HP Response Center or directly to a Support Engineer.

Who Should Use this Guide

The procedures in this guide are intended to be performed by a person who is qualified in the installation and servicing of computer equipment, and is trained to recognize the hazards involved. Internal add-on options cards are installed in an area of the product where energy levels which are considered hazardous may be produced.

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1 D Class System Installation

How to install the basic HP 9000 D Class Enterprise server and its associated components, such as the console and keyboard.

Overview of System Installation

Installation of a basic system consists of the following procedures:

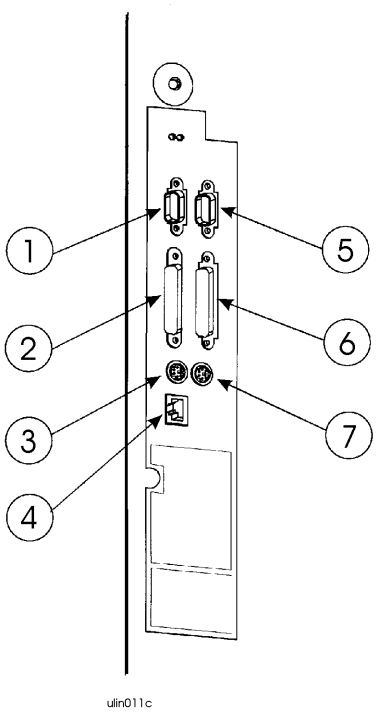
1. Install internal add-on options.
2. Connect the console or graphics monitor.
3. Connect the SCSI, network, and parallel cables.
4. Connect Remote Management (Access Port) card and the serial data cable for the optional UPS.
5. Set the input voltage selector.
6. Connect system power cords.
7. Turn on power to the system.
8. Prepare for network connections.
9. Prepare for terminal connections.

The installation procedures start with “1. Install Internal Add-on Options”. Refer to the picture on the next page when connecting cables to rear panel connectors.

WARNING **The HP 9000 D Class Enterprise Server weighs about 49.5 kg (110 lbs). You must use two people to lift the D Class server cabinet.**

CAUTION

To avoid damage to the front panel of the server, DO NOT use any part of the front panel as a handle to lift or move the D Class server cabinet. When moving or lifting the server cabinet, be sure that the front panel peripheral door is locked.



REAR PANEL CONNECTORS

1. Serial (D3xx servers) or Serial 2/UPS (D2xx servers)
2. SCSI (Single-Ended)
3. Graphics Mouse
4. LAN 10 Base-T
5. Serial 1/Console
6. Parallel
7. Graphics Keyboard

1. Install Internal Add-on Options

D Class servers are configured at the factory to include most I/O cards and internal peripherals.

If you have any internal add-on options, install them now according to the instructions shipped with the option.

WARNING

DO NOT CONNECT SYSTEM POWER CORD AT THIS TIME. If you open the system cabinet when power is connected, you will be exposed to high-energy (high-amperage) circuits and possible ejection of molten metal. Be sure to remove all rings, watches, and other jewelry from fingers, wrists, and arms before opening the system cabinet.

Electrostatic Discharge Precautions

If you are installing additional cards or peripherals, you must ensure that they are not damaged due to electrostatic discharge (ESD). To prevent such damage from occurring, observe the following ESD precautions when handling and installing boards:

1. Use a grounding mat and an anti-static wrist strap. These items are included in the ESD Field Service Kit (HP P/N A3024-80004).
2. Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.
3. Keep uninstalled printed-circuit boards in their protective anti-static bags until you are ready to install them.
4. Handle printed-circuit boards by their edges after you have removed them from their protective anti-static bags.

2. Connect the Console or Graphics Monitor

1. Console/ Keyboard

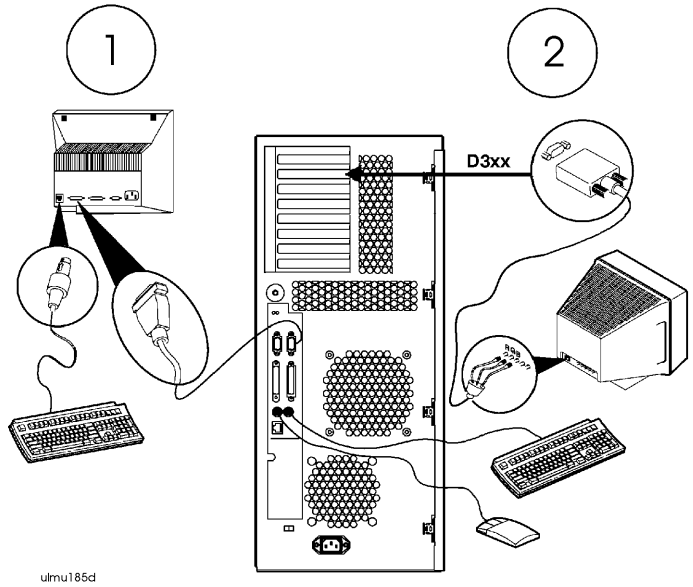
If you have an ASCII console (such as the HP 700/96) connect it to the server rear panel connector labeled **Serial 1/ Console**. Connect the keyboard to the keyboard connector at the rear of the console.

2. D3xx Graphics Monitor, Keyboard, Mouse

If you have a D3xx server with a graphics monitor, connect it to the graphics I/O card at the rear of the system cabinet. Connect the keyboard and mouse to the connectors labeled with keyboard and mouse symbols at the rear of the cabinet.

NOTE

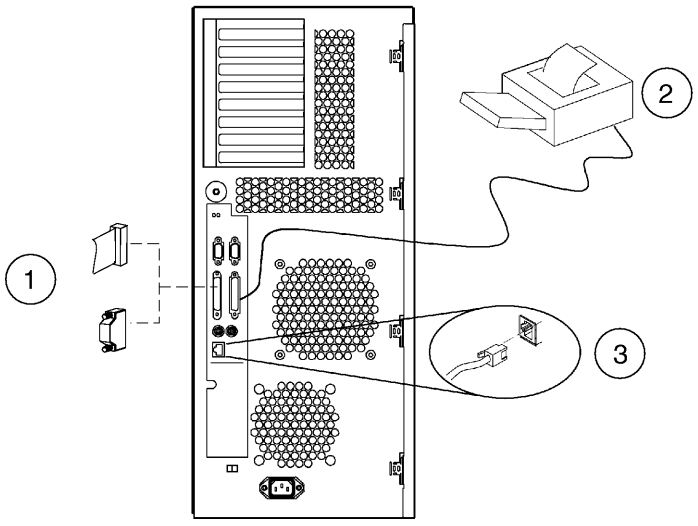
The interface card for the graphics monitor can be installed only in the slot marked **TURBO** in the D3xx server (as shown in **2**, below). The TURBO slot is not available for model D310/320/330. Use any open HP-HSC slot..



3. Connect the SCSI, Network, and Parallel Cables

1. Connect your SCSI device cable to the connector labeled **SCSI (Single-Ended)** on the server rear panel. If no SCSI cable is to be attached to the server, place or leave the SCSI terminator (supplied with your server) on the **SCSI (Single-Ended)** connector.
2. Connect your parallel device, such as a printer, to the rear panel connector labeled **Parallel**.
3. Read and remove the sticker that covers the connector, then connect your LAN cable to the **LAN 10 Base-T** connector at the rear of the D Class server.

NOTE An optional AUI adapter for the **LAN 10 Base-T** connector is available (if special ordered).



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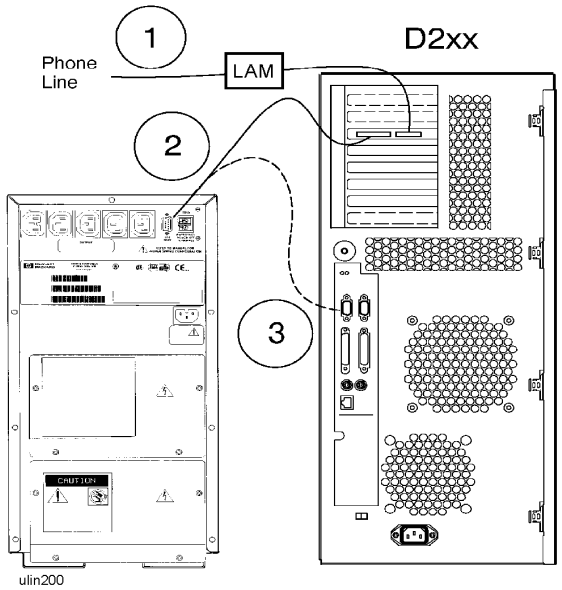
4. Connect Remote Management Card and Serial Data Cable for the Optional UPS

The Remote Management card (also called the Access Port or AP card) is optional on Model D2xx servers, and standard on Model D3xx servers. The Remote Management card is located in different slots depending on which model of D Class server you have. Also, on Model D2xx servers, the UPS data cable connection will vary depending on whether the optional Remote Management card is present.

Model D2xx

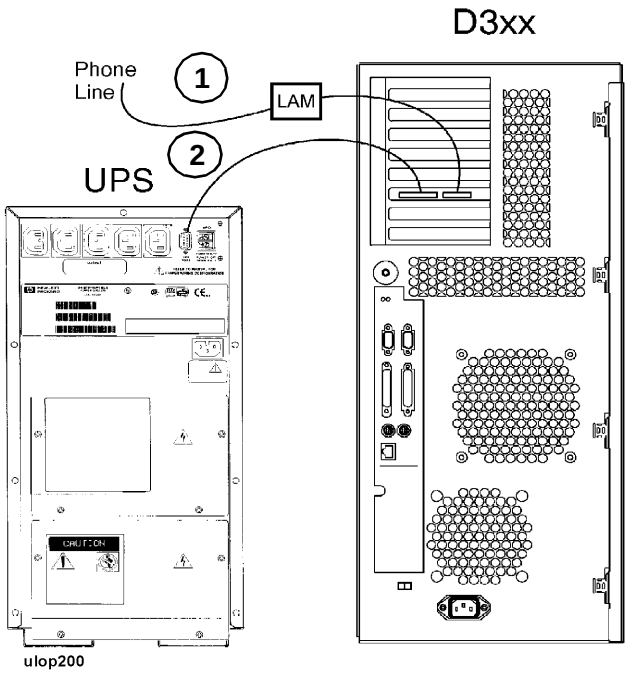
1. If you have a Remote Management card, connect your Line Access Module (LAM) for connecting to the phone line, to the **Modem/LAM** connector on the Remote Management card.
2. If you also have a UPS, connect the data cable from the **UPS Port** on the UPS to the UPS connector on the Remote Management card.
3. If you do not have a Remote Management card, connect the UPS data cable from the **UPS Port** on the UPS to the connector on the server labeled **Serial 2/UPS**.



4. Connect Remote Management Card and Serial Data Cable for the Optional UPS

Model D3xx

1. Connect your Line Access Module (LAM), for connecting to the phone line, to the **Modem/LAM** connector on the Remote Management (Access Port) card.
2. If you have a UPS, connect the UPS data cable from the **UPS Port** on the UPS to the UPS connector on the Remote Management card.

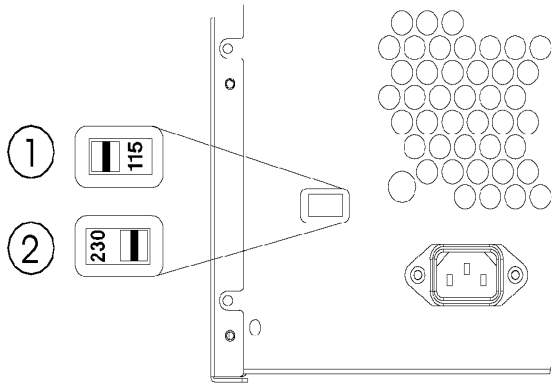


5. Set the Input Voltage Selector

CAUTION

To avoid damage to your server, be sure to set the input voltage selector switch to a setting within the voltage range of the power source you intend to use. Always check the switch setting before connecting the power cord.

1. If your input voltage is in the range of 100 V to 127 V, set the voltage selector to the **115** setting.
2. If your input voltage is in the range of 200 V to 240 V, set the voltage selector to the **230** setting.



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NOTE

System models Dx70, Dx80, and D390 have a power supply that automatically switches to match the input voltage level. There is no voltage selector switch on these models.

6. Connect the System Power Cords

How you connect the system power cords depends on whether your server configuration includes the optional Uninterruptible Power System (UPS). Be sure to connect power correctly for your system, as shown below.

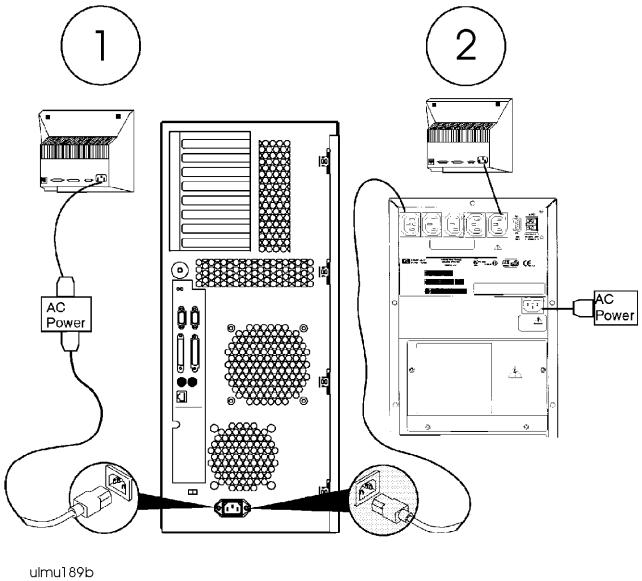
WARNING **Be sure the server cabinet is closed and secured before connecting power cord. Refer to the *WARNING* on page 4.**

The D Class servers can be connected to any UPS in the PowerTrust UPS family, except as noted below.

NOTE The A2941A PowerTrust UPS (600VA) can only be used on the HP D200 and HP D210 Deskside Enterprise Servers. All other D Class Enterprise Servers require an A2994A PowerTrust UPS (1300VA), or larger. Contact your nearest HP Sales Representative for more information.

The UPS shown in the following diagram is only representative. Contact your nearest HP Sales Representative for more information.

1. If you do not have a UPS, connect both the D Class server and the console (or optional graphics monitor) directly to your AC power source.
2. If you have a UPS, connect the D Class server to the upper-left socket at the top-rear of the UPS (using the cord supplied with the UPS), then connect the system console (or optional graphics monitor) to one of the other AC Outlet sockets along the top of the UPS rear panel. Finally, connect your AC power source to the input socket of the UPS.


1
2
AC
Power
AC
Power
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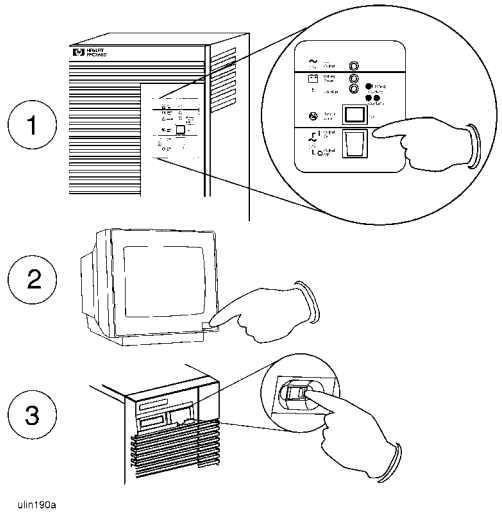
7. Turn On Power to the System

1. If you have the optional UPS, set the Power switch on the front panel of the UPS to the **ON** position. The green AC Output light should be on. If any of the other UPS front panel lights are on, refer to the UPS manual for appropriate action.
2. Turn on the system console (or graphics monitor).
3. Set the Power switch on the front panel of the D Class server to the **ON** position. The green light inside the switch should come on.



8. Prepare for Network Connections

To use your D Class server on a network, you will need the following information:

- LAN station address (see system label)
- System name (or hostname)
- Internet Protocol (IP) address.

The LAN station address is provided on the server's system label located on the inside of the front panel peripheral door. Write the number down and give it to your system administrator.

The hostname and IP address must be obtained from your system administrator.

9. Prepare for Terminal Connections

Configure your D Class server for terminal connections using the System Administration Manager (SAM) program. To use SAM, refer to the following manuals that were shipped with your system:

- System Administration Tasks
- Configuring HP-UX for Peripherals.

For EISA MUX card installation, refer to the manuals that came with the EISA MUX card:

- HP EISA MUX Quick Installation Card
- HP EISA MUX Cabling, Diagnostics and Troubleshooting Guide.

Also refer to the I/O Card Installation guide that came with the system.

10. Contacting Hewlett-Packard

If you need to contact Hewlett-Packard for assistance or additional information, you may be asked for the system model number and serial number. That information is located on the system label, on the back of the removable media access door.

Reference Documents

Refer to the following documents for additional information on using your HP 9000 D Class server:

1. **Installation guide that shipped with your console or graphics monitor** - Explains how to connect cables, operate, and place your console or monitor.
2. **Operator's Guide** - Introduces your server's features, and explains how to use and maintain storage and input/output devices, and solve simple problems.
3. **System Administration Tasks manual** - Describes how to configure and maintain your system software.
4. **Configuring HP-UX for Peripherals** - Explains how to configure your server to recognize add-on peripherals.
5. **I/O Card Upgrade Guide** - Explains how to install add-on I/O cards.
6. **Internal Peripheral Upgrade Guide** - Explains how to install add-on internal peripherals, such as disks, tape drives, and CD-ROM drives.
7. **System Memory Upgrade Guide** - Explains how to install add-on memory modules.
8. **System Upgrade Guide** - Explains how to add additional processors, or replace the existing processor with an upgraded processor.
9. **System I/O Expansion Guide** - Explains how to expand the I/O capabilities of the D Class server.
10. **HP EISA MUX Cabling, Diagnostics and Troubleshooting Guide** - Explains how to connect and troubleshoot the EISA MUX card.

10. Contacting Hewlett-Packard

2 R Class System Installation

How to install the basic HP 9000 R Class Enterprise server and its associated components, such as the console and keyboard.

Overview of System Installation

Installation of a basic system consists of the following procedures:

1. If the server is not already integrated in a cabinet:
    a. Install the rack kit into a cabinet
    b. Mount the system on the cabinet rack
2. Install internal add-on options.
3. Connect the console, web console, or graphics monitor.
4. Connect the SCSI, network, and parallel cables.
5. Connect Remote Management (Access Port) card and the serial data cable for the optional UPS.
6. Connect system power cords.
7. Turn on power to the system.
8. Prepare for network connections.
9. Prepare for terminal connections.

1. Install the Rack Kit and Server Into the Cabinet

If your R Class server has been factory integrated into a cabinet, or if you are going to operate the R Class server as a stand-alone unit, proceed to "2. Install Internal Add-on Options" on page 2-9. Otherwise, follow these instructions to install the rack kit onto your cabinet and mount the server onto the rack in the cabinet.

WARNING

The HP 9000 R Class Enterprise Server weighs about 38 kg (82 lbs). You must use two people to lift the R Class server into the cabinet. R Class servers are provided with a handle, located behind the removeable front bezel, to assist with lifting.

Electrostatic Discharge Precautions

If you are installing additional cards or peripherals, you must ensure that they are not damaged due to electrostatic discharge (ESD). To prevent such damage from occurring, observe the following ESD precautions when handling and installing boards:

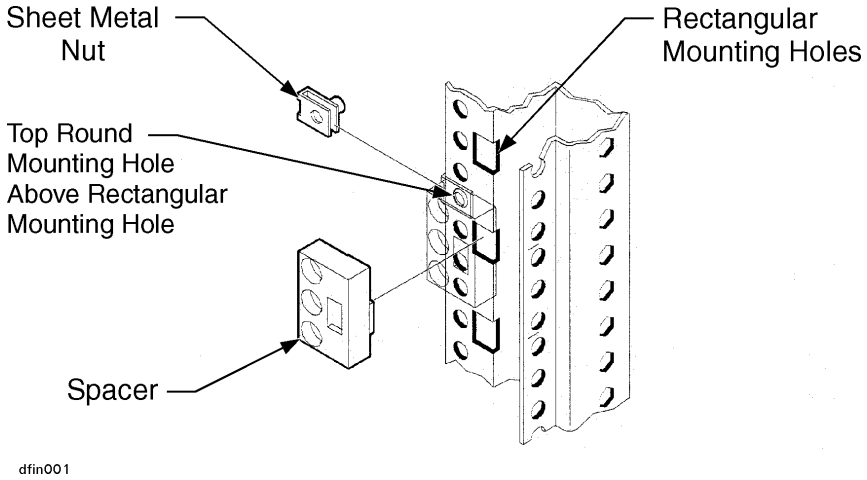
1. Use a grounding mat and an anti-static wrist strap. These items are included in the ESD Field Service Kit (HP P/N A3024-80004).
2. Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.
3. Keep uninstalled printed-circuit boards in their protective anti-static bags until you are ready to install them.
4. Handle printed-circuit boards by their edges after you have removed them from their protective anti-static bags.

1A. Install the Rack Kit

1. Decide where in the cabinet the new computer equipment is to be installed. R Class servers should be installed in the cabinet's topmost available 6 EIA units On C2785A, C2786A, and C2787A cabinets, each EIA unit is marked by a triangular hole. On the J1501A, J1502A, and J1503A cabinets, these units are numbered.

2. Locate the rectangular mounting holes on the rack columns for the support rail (every fifth mounting hole is notched).

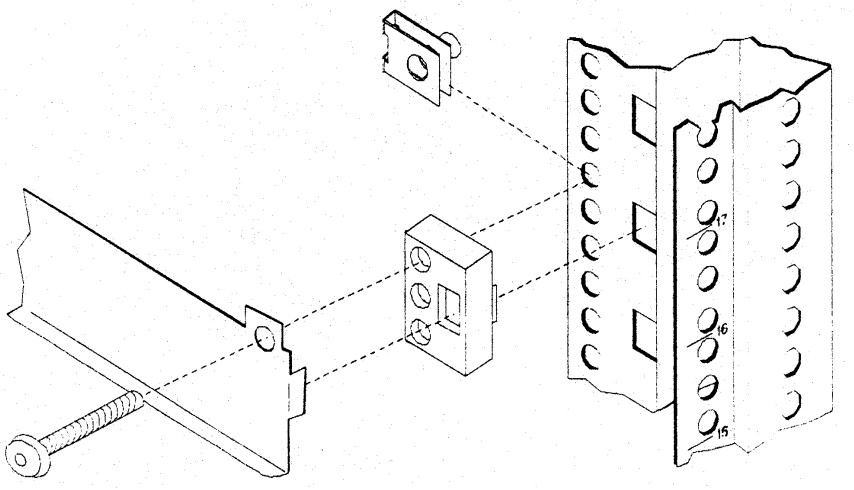
3. Position the four M5 sheet metal nuts over the top round holes adjacent to the rectangular mounting holes.



4. If you have an A4900A, A4901A, or A4902A cabinet, install one spacer into each column, so the sheet metal nut is directly behind the top hole in the spacer. See the included spacer installation guide (J1516-90001) for detailed instructions.

5. Slip the rail flanges into the rectangular mounting holes of the column (or spacer). The rails should stay in place. The example below shows the rail flange inserted in the spacer.

6. Make sure the sheet metal nuts are aligned with the mounting holes in the rail.



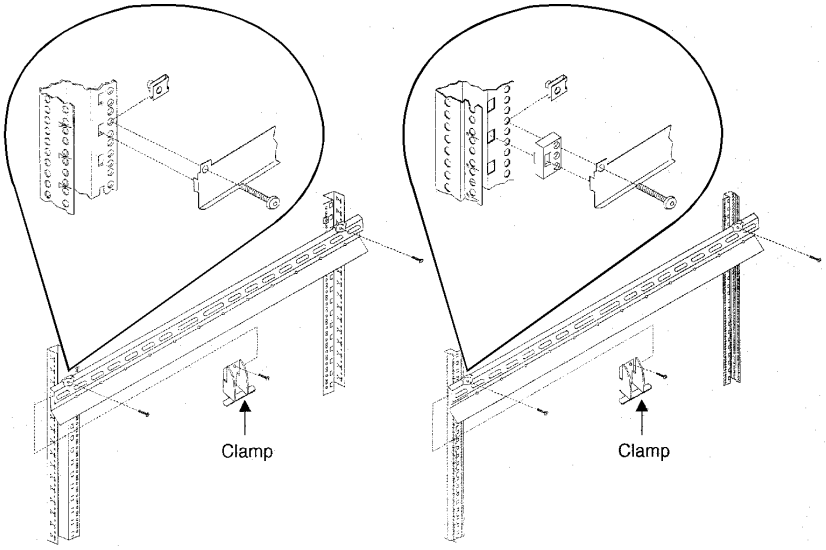
7. Insert the M5x30mm mounting screws through the mounting holes on each rail, (through the spacers, if used), into the sheet metal nuts, and tighten. See the figures below for an example. The figure on the left shows installation without spacers.

8. Install the new piece of computer equipment. Slide it all the way into the cabinet.

9. Slip the clamp into the rails from the rear of the cabinet or rack (one for each rail). The raised edge of the clip should cover the rear edge of the computer equipment.

1. Install the Rack Kit and Server Into the Cabinet

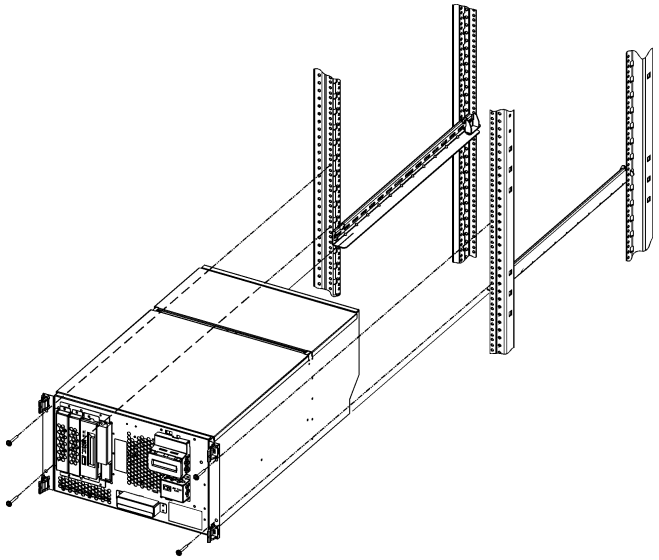
10. Install the retaining screws (one for each clamp) into the mounting holes using the TORX screwdriver.



dfin002

1B. Mount the System Into the Cabinet

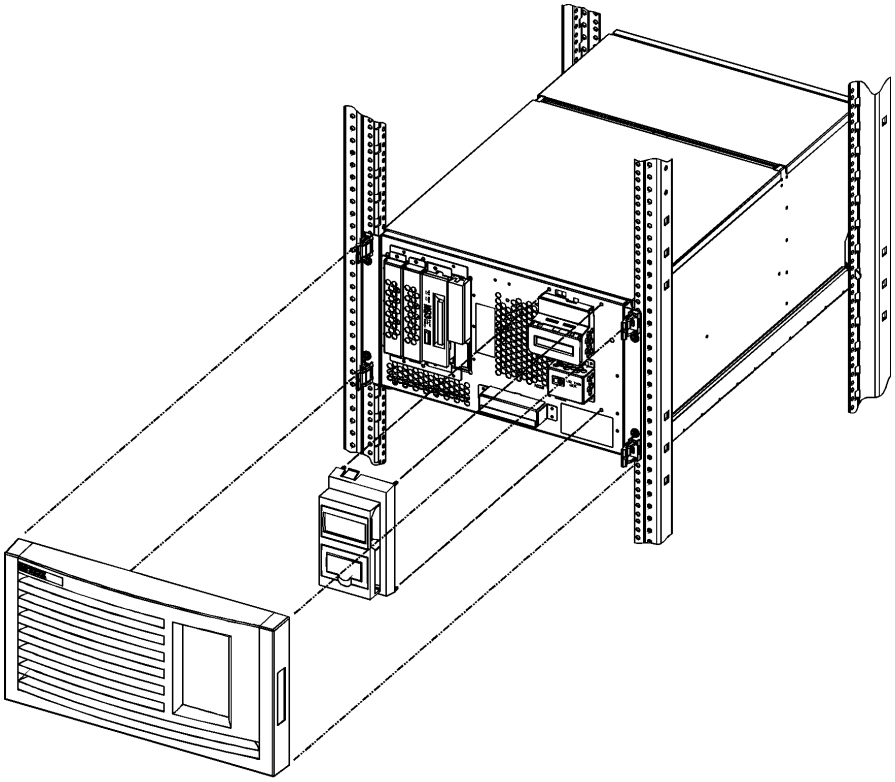
Using two people, lift the server up and onto the rails in the cabinet. Slide the server toward the rear of the cabinet until the sheet metal extensions on the face of the server rest flush against the columns of the cabinet. Secure the server to the cabinet columns with four screws as shown:



dfin003

1. Install the Rack Kit and Server Into the Cabinet

Attach the LCD and power switch bezel to the face of the server, then attach the front panel bezel.



dfin004

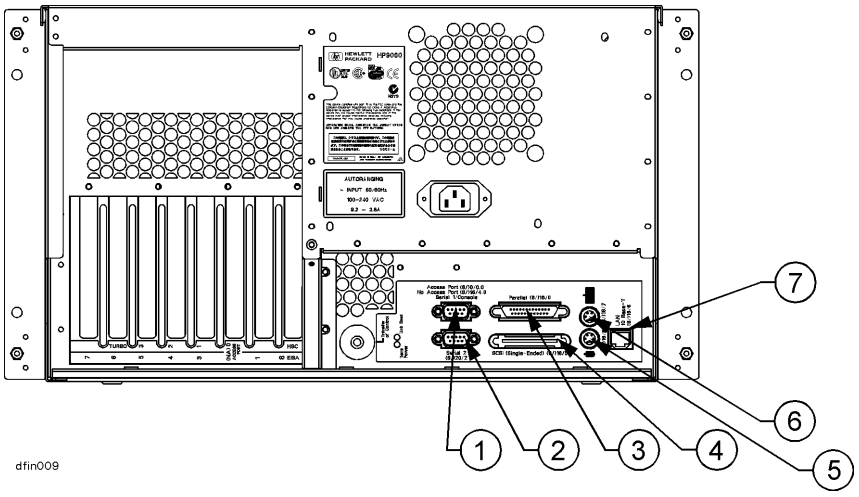
CAUTION

Until the LCD and power switch bezel is attached, the area surrounding the LCD is ESD sensitive. See “Electrostatic Discharge Precautions” on page 2-3.

In the rear of the cabinet, adjust the rail slide against the rear of server.

2. Install Internal Add-on Options

WARNING **The HP 9000 R Class Enterprise Server weighs about 38 kg (82 lbs). You must use two people to lift the R Class server cabinet.**



REAR PANEL CONNECTORS

1. Serial Connector
2. Serial 1/Console
3. Parallel
4. SCSI (Single-Ended)
LAN 10 Base-T
5.Graphics Keyboard
6. Graphics Mouse
7. LAN 10 Base-T

R Class servers are configured at the factory to include most I/O cards and internal peripherals.

If you have any internal add-on options, install them now according to the instructions shipped with the option.

WARNING

DO NOT CONNECT SYSTEM POWER CORD AT THIS TIME. If you open the system cabinet when power is connected, you will be exposed to high-energy (high-amperage) circuits and possible ejection of molten metal. Be sure to remove all rings, watches, and other jewelry from fingers, wrists, and arms before opening the system cabinet.

Electrostatic Discharge Precautions

If you are installing additional cards or peripherals, you must ensure that they are not damaged due to electrostatic discharge (ESD). To prevent such damage from occurring, observe the following ESD precautions when handling and installing boards:

1. Use a grounding mat and an anti-static wrist strap. These items are included in the ESD Field Service Kit (HP P/N A3024-80004).
2. Wear the anti-static wrist strap to ensure that any accumulated electrostatic charge is discharged from your body to ground.
3. Keep uninstalled printed-circuit boards in their protective anti-static bags until you are ready to install them.
4. Handle printed-circuit boards by their edges after you have removed them from their protective anti-static bags.

3. Connect the Console, Web Console, or Graphics Monitor

1. Console/ Keyboard

If you have an ASCII console (such as the HP 700/96) connect it to the server rear panel connector labeled **Serial 1/ Console**. Connect the keyboard to the keyboard connector at the rear of the console.

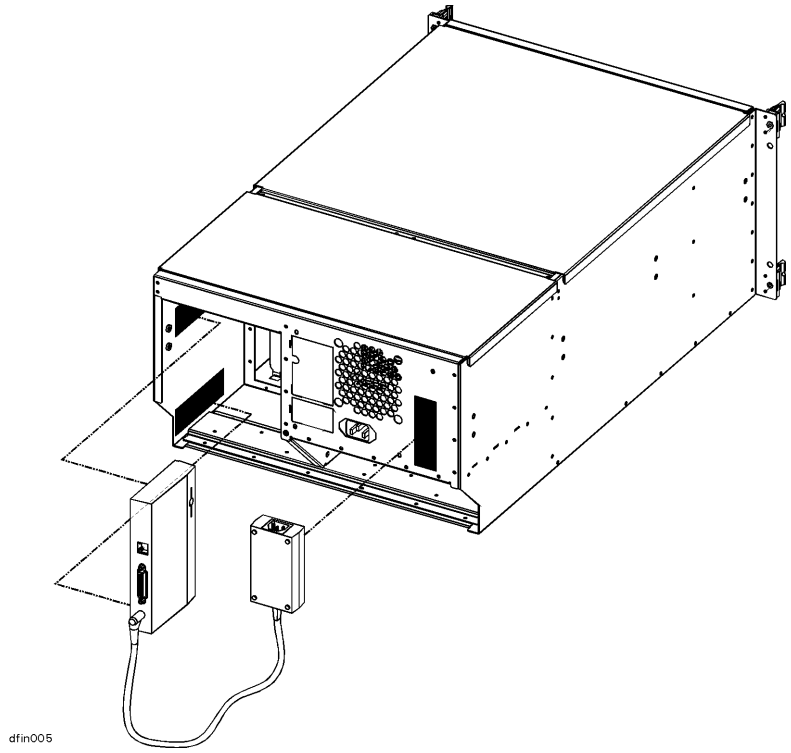
2. Web Console

A Remote Web Console is shipped with each R Class Server and can be attached to the inside rear of the server using the two Velcro™ strips located there.

To attach the Remote Web Console:

1. Separate the strips to be attached to the web console from the strip already attached to the side of the chassis.

2. Remove the adhesive backing and attach the Velcro to the Remote Web Console in the areas shown:



3. Align the Velcro strips on the Remote Web Console with the strips on the inside of the server chassis and press together.

Connect the web console to the RS-232 console port, using the cable (HP part number A5176-63002) provided.

IMPORTANT

POWER ADAPTORS FOR THE REMOTE WEB CONSOLE:

The Remote Web Console, used with an R-Class server in either a racked or stand-alone configuration, receives power from a special power adaptor included with your shipment.

The localized power adaptor included in the Remote Web Console box is qualified for use ONLY for stand-alone (non-racked) servers. **Do not use this power adaptor for racked server solutions**.

Racked servers, whether pre-integrated at the factory or rack-mounted at the customer site, must instead use the auto-ranging R Class Web Console Power Adaptor (HP Part No. 0950-3415) included in the server accessories box. This power adaptor can be secured to the rear of the server chassis using the Velcro strips attached there (refer to the figure on page 2-10).

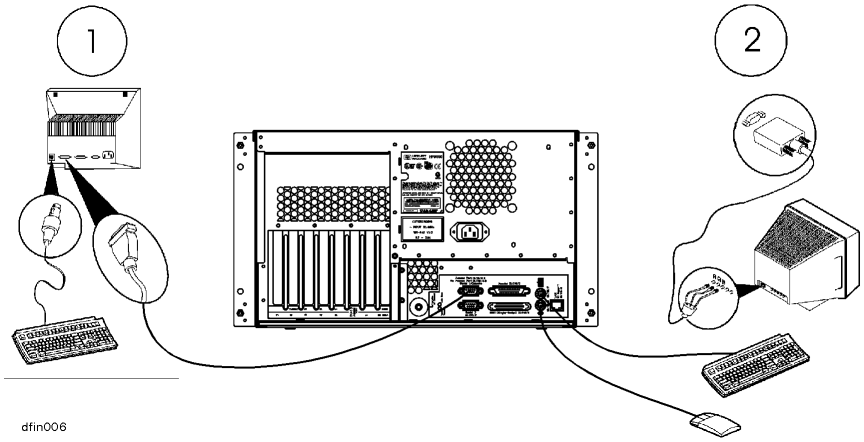
Do not discard the auto-ranging power adaptor even if the server is configured as a stand-alone unit. If the server is rack-mounted at a later date, the auto-ranging power adaptor will be needed to provide the proper power supply to the Remote Web Console.

Configure the Remote Web Console using the instructions provided in its shipping box.

3. Graphics Monitor, Keyboard, Mouse

If you have a graphics monitor, connect it to the graphics I/O card at the rear of the system cabinet. Connect the keyboard and mouse to the connectors labeled with keyboard and mouse symbols at the rear of the cabinet.

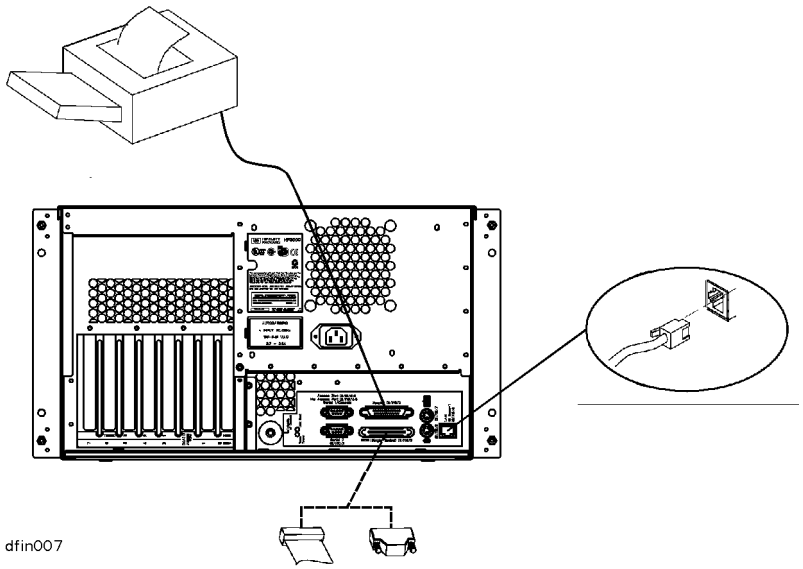
The interface card for the graphics monitor can be installed in any open HP-HSC slot.



4. Connect the SCSI, Network, and Parallel Cables

1. Connect your SCSI device cable to the connector labeled **SCSI (Single-Ended)** on the server rear panel. If no SCSI cable is to be attached to the server, place or leave the SCSI terminator (supplied with your server) on the **SCSI (Single-Ended)** connector.
2. Connect your parallel device, such as a printer, to the rear panel connector labeled **Parallel**.
3. Read and remove the sticker that covers the connector, then connect your LAN cable to the **LAN 10 Base-T** connector at the rear of the R Class server.

NOTE An optional AUI adapter for the **LAN 10 Base-T** connector is available (if special ordered).

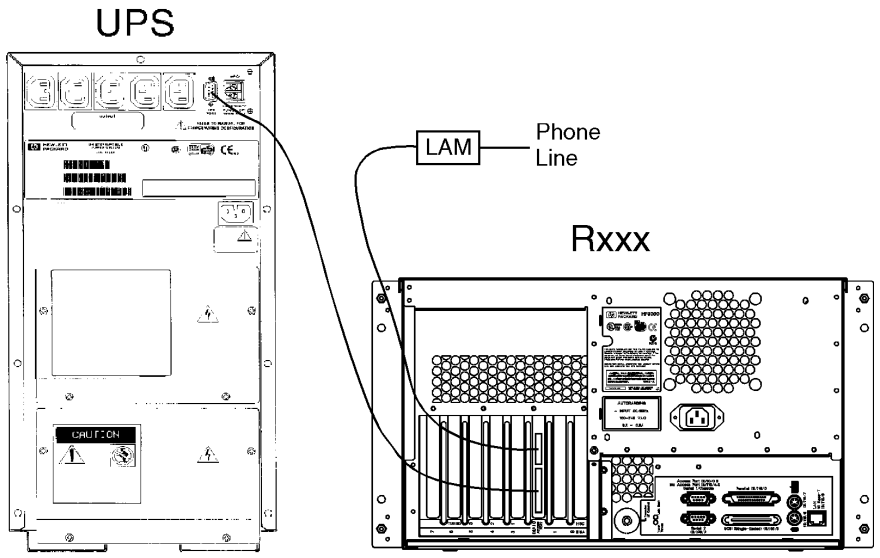


5. Connect Remote Management Card and Serial Data Cable for the Optional UPS

R Class Servers

The Remote Management card (also called the Access Port or AP card) is optional on R Class servers. When present, the AP card is always installed in slot 0.

1. Connect your Line Access Module (LAM), for connecting to the phone line, to the **Modem/LAM** connector on the Remote Management (Access Port) card.
2. If you have a UPS, connect the UPS data cable from the **UPS Port** on the UPS to the UPS connector on the Remote Management card.



dfop004

6. Connect the System Power Cords

How you connect the system power cords depends on whether your server configuration includes the optional Uninterruptible Power System (UPS). Be sure to connect power correctly for your system, as shown below.

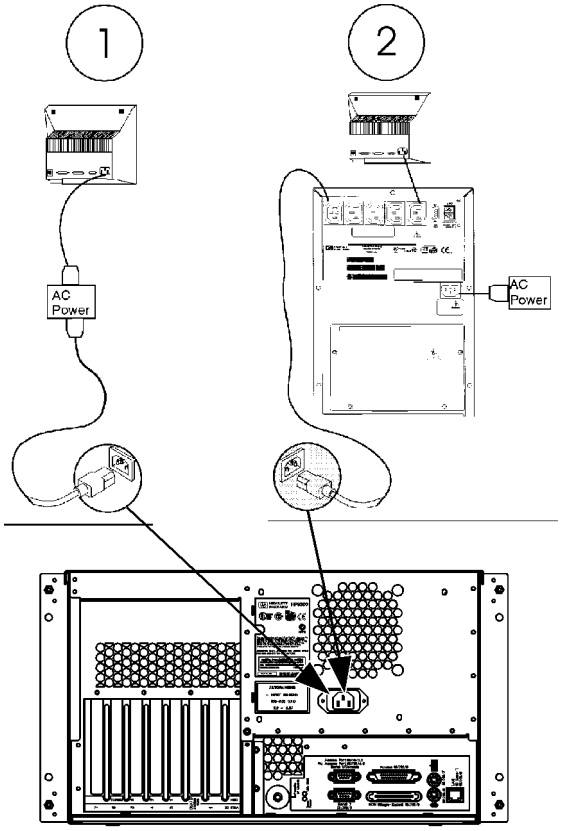
WARNING **Be sure the server cabinet is closed and secured before connecting power cord. Refer to the *WARNING* on page 2-10.**

NOTE All R Class Enterprise Servers require an A2994A PowerTrust UPS (1300VA), or larger. Contact your nearest HP Sales Representative for more information.

The UPS shown in the following diagram is only representative. Contact your nearest HP Sales Representative for more information.

1. If you do not have a UPS, connect both the R Class server and the console (or web console, or optional graphics monitor) directly to your AC power source.
2. If you have a UPS, connect the R Class server to the upper-left socket at the top-rear of the UPS (using the cord supplied with the UPS), then connect the system console, web console, or optional graphics monitor to one of the other AC Outlet

sockets along the top of the UPS rear panel. Finally, connect your AC power source to the input socket of the UPS.



dfin008

7. Turn On Power to the System

1. If you have the optional UPS, set the Power switch on the front panel of the UPS to the **ON** position. The green AC Output light should be on. If any of the other UPS front panel lights are on, refer to the UPS manual for appropriate action.
2. Turn on the system console or graphics monitor.
3. Set the Power switch on the front panel of the R Class server to the **ON** position. The green light inside the switch should come on.

8. Prepare for Network Connections

To use your R Class server on a network, you will need the following information:

- LAN station address (see system label)
- System name (or hostname)
- Internet Protocol (IP) address.

The LAN station address is provided on the server's system label located on the inside of the front panel peripheral door. Write the number down and give it to your system administrator.

The hostname and IP address must be obtained from your system administrator.

9. Prepare for Terminal Connections

Configure your R Class server for terminal connections using the System Administration Manager (SAM) program. To use SAM, refer to the following manuals that were shipped with your system:

- System Administration Tasks
- Configuring HP-UX for Peripherals.

For EISA MUX card installation, refer to the manuals that came with the EISA MUX card:

- HP EISA MUX Quick Installation Card
- HP EISA MUX Cabling, Diagnostics and Troubleshooting Guide.

Also refer to the I/O Card Installation guide that came with the system.

Contacting Hewlett-Packard

If you need to contact Hewlett-Packard for assistance or additional information, you may be asked for the system model number and serial number. That information is located on the system label, on the back of the removable media access door.

Reference Documents

Refer to the following documents for additional information on using your HP 9000 R Class server:

1. **Installation guide that shipped with your console or graphics monitor** - Explains how to connect cables, operate, and place your console or monitor.
2. **Operator's Guide** - Introduces your server's features, and explains how to use and maintain storage and input/output devices, and solve simple problems.
3. **System Administration Tasks manual** - Describes how to configure and maintain your system software.
4. **Configuring HP-UX for Peripherals** - Explains how to configure your server to recognize add-on peripherals.
5. **I/O Card Upgrade Guide** - Explains how to install add-on I/O cards.
6. **Internal Peripheral Upgrade Guide** - Explains how to install add-on internal peripherals, such as disks, tape drives, and CD-ROM drives.
7. **System Memory Upgrade Guide** - Explains how to install add-on memory modules.
8. **System Upgrade Guide** - Explains how to add additional processors, or replace the existing processor with an upgraded processor.
9. **System I/O Expansion Guide** - Explains how to expand the I/O capabilities of the R Class server.
10. **HP EISA MUX Cabling, Diagnostics and Troubleshooting Guide** - Explains how to connect and troubleshoot the EISA MUX card.