

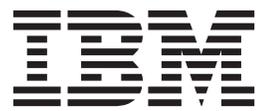
Power Systems

*Installing the IBM Power System S822
(8284-22A)*



Power Systems

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(8284-22A)*



Note

Before using this information and the product it supports, read the information in “Safety notices” on page v, “Notices” on page 41, the *IBM Systems Safety Notices* manual, G229-9054, and the *IBM Environmental Notices and User Guide*, Z125-5823.

This edition applies to IBM Power Systems™ servers that contain the POWER8 processor and to all associated models.

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Safety notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, safety information documentation is included in the publications package (such as in printed documentation, on DVD, or as part of the product) shipped with the product. The documentation contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information documentation. You should also refer to the safety information documentation any time you do not clearly understand any safety information in the U.S. English publications.

Replacement or additional copies of safety information documentation can be obtained by calling the IBM Hotline at 1-800-300-8751.

German safety information

Das Produkt ist nicht für den Einsatz an Bildschirmarbeitsplätzen im Sinne § 2 der Bildschirmarbeitsverordnung geeignet.

Laser safety information

IBM® servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

IBM servers may be installed inside or outside of an IT equipment rack.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices.

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

CAUTION:

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

(L001)

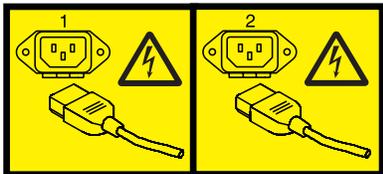


DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

(L002)



(L003)



or



or



DANGER: Multiple power cords. The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords. (L003)

(L008)



CAUTION: Hazardous moving parts nearby. (L008)

All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:

This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

(C026)

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:

This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

CAUTION:

The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

Do Not:

- ___ Throw or immerse into water
- ___ Heat to more than 100°C (212°F)
- ___ Repair or disassemble

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the IBM servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

Installing the IBM Power System S822 (8284-22A)

These instructions will help you install, cable, and set up your IBM Power[®] System S822 (8284-22A) server.

Determining your server type

Determine whether you are installing a rack-mounted server or a server that arrived preinstalled in a rack.

Determine which type of server you are installing. For more information, see the following table.

Table 1.

Server type	Description	Where to find related information
Rack-mounted	Your system arrived without a rack, and you need to install the system into an existing rack.	"Installing a rack-based server"
Preinstalled	Your system arrived preinstalled in a rack.	"Setting up a preinstalled server" on page 22

Installing a rack-based server

Use this information to learn about installing a rack-based 8284-22A server.

Preparing to install your server

Use the information to understand the prerequisites that are required for installing the server.

You might need to read the following documents before you begin to install the server:

- The latest version of this document is maintained online. See *Installing the IBM Power System S822 (8284-22A)* (http://www.ibm.com/support/knowledgecenter/POWER8/p8egh/p8egh_roadmap.htm).
- Plan your server installation. For instructions, see *Planning for the system* (http://www.ibm.com/support/knowledgecenter/POWER8/p8had/p8had_8xx_kickoff.htm).
- If you are using a Hardware Management Console (HMC), see *Obtaining and applying machine code updates for the HMC with an Internet connection* (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/area3fixeshmc.htm>).

Prepare to install your server by completing the following steps:

1. Ensure that you have the following items before you start your installation:
 - Phillips screwdriver
 - Flat-head screwdriver
 - Rack with two units of space

Note: If you do not have a rack that is installed, install the rack. For instructions, see *Installing the rack* (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hbf/installrack.htm>).

2. Ensure that you have one of the following consoles:
 - Hardware Management Console (HMC): Ensure that your HMC is at version 8 release 8.1.0, or later.
 - Graphic monitor with keyboard and mouse.
 - Teletype (tty) monitor with keyboard.

Completing inventory for your server

Use this information to complete inventory for your server.

Complete inventory by following these steps:

1. Verify that you received all the boxes you ordered.
2. Unpack the server components as needed.
3. Complete a parts inventory before you install each server component by following these steps:
 - a. Locate the inventory list for your server.
 - b. Ensure that you received all the parts that you ordered.

Note: Your order information is included with your product. You can also obtain order information from your marketing representative or the IBM Business Partner.

If you have incorrect, missing, or damaged parts, consult any of the following resources:

- Your IBM reseller.
- IBM Rochester manufacturing automated information line at 1-800-300-8751 (United States only).
- Directory of worldwide contacts website <http://www.ibm.com/planetwide>. Select your location to view the service and support contact information.

Determining and marking the location in the rack

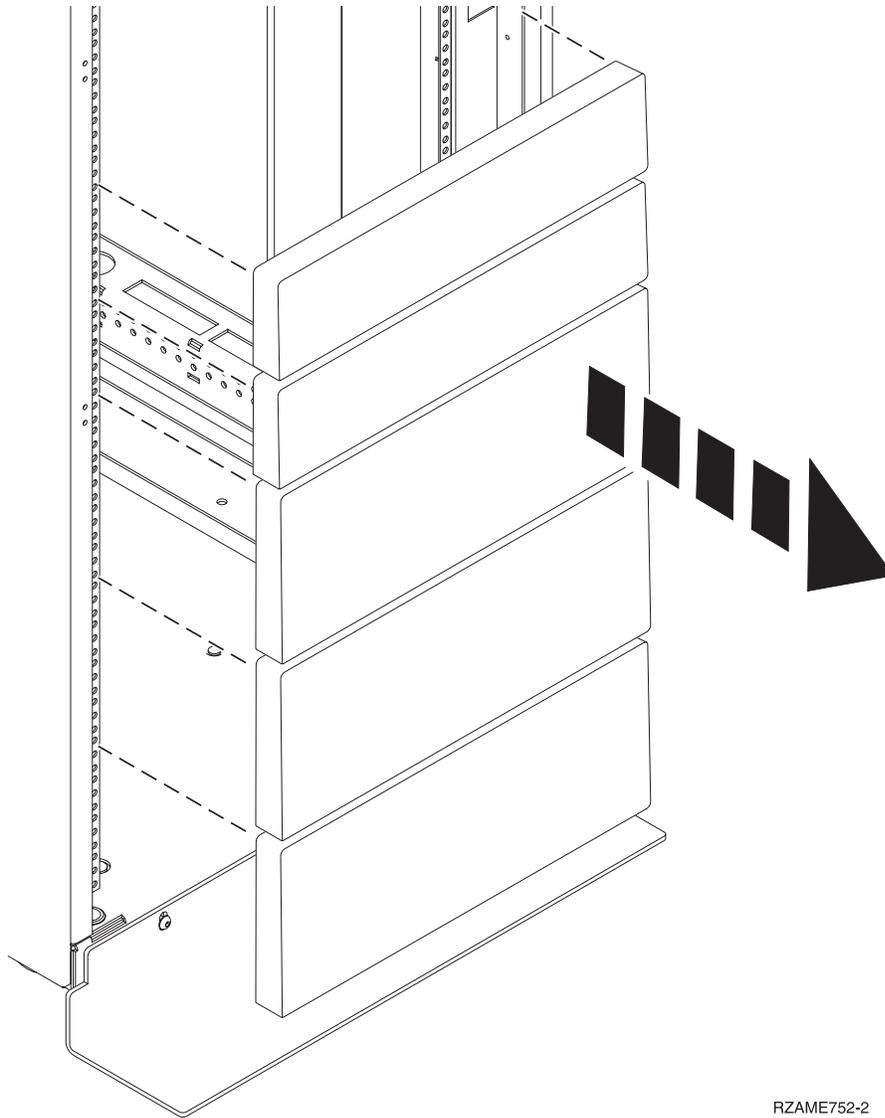
Use this procedure to determine where to install the system unit into the rack.

To determine where to install the system unit into a rack, complete the following steps:

1. Read the Rack safety notices (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hbf/racksafety.htm>).
2. Determine where in the rack to place the system units. As you plan for installing the system unit in a rack, keep in mind the following information:
 - Organize larger and heavier units into the lower part of the rack.
 - Plan to install units into the lower part of the rack first.
 - Record the EIA locations in your plan.

Note: The server is two EIA units high. An EIA unit is 44.55 mm (1.75 in.) in height. The rack contains three mounting holes for each EIA unit of height. This system unit, therefore, is 89 mm (3.5 in.) high and covers six mounting holes in the rack.

3. If necessary, remove the filler panels to allow access to the inside of the rack enclosure where you plan to place the unit. For details, see Figure 1 on page 3.



RZAME752-2

Figure 1. Removing the filler panels

4. Determine to place the system in the rack. Record the EIA location.

Note: An EIA unit on your rack consists of a grouping of three holes.
5. Facing the front of the rack and working from the right side, use tape, a marker, or pencil to mark the lower hole of each EIA unit.
6. Repeat step 5 for the corresponding holes located on the left side of the rack.
7. Go to the rear of the rack.
8. On the right side, find the EIA unit that corresponds to the bottom EIA unit marked on the front of the rack.
9. Place a self-adhesive dot at the bottom EIA unit.
10. Mark the corresponding holes on the left side of the rack.

Attaching the mounting hardware to the rack

You might need to attach the mounting hardware to the rack. Use the procedure to complete this task. The information is intended to promote safety and reliable operation, and includes illustrations of the related hardware components and shows how these components relate to each other.

Attention: To avoid rail failure and potential danger to yourself and to the unit, ensure that you have the correct rails and fittings for your rack. If your rack has square support flange holes or screw-thread support flange holes, ensure that the rails and fittings match the support flange holes that are used on your rack. Do not install mismatched hardware by using washers or spacers. If you do not have the correct rails and fittings for your rack, contact your IBM reseller.

To install the rack-mounting hardware into the rack, complete the following steps:

1. Each slide rail is marked with either an R (right) or an L (left), when you look from the front. Select the left slide rail, bring it to the rear of the rack, and locate the selected U that was previously marked.
2. Push up on the locking tab (1) on the front, and pull out the front latch (2) at the front of the rail. Then, remove the screw from the rear of the rail (3). For details, see Figure 2.

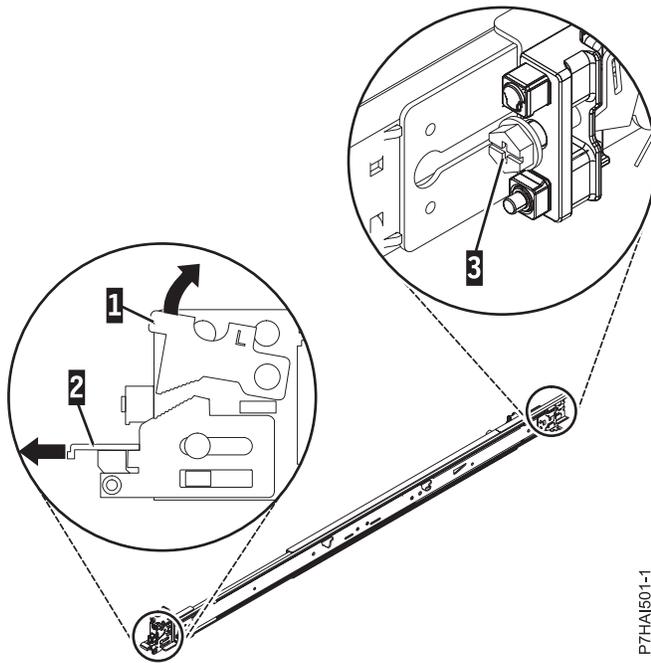


Figure 2. Opening the front latch and removing the rear screw

3. Align the two pins on the rear of the slide rail with the top and bottom holes within the selected U that were previously marked. Pull the slide rail toward you to insert the two pins into the rack holes (1), and lower the slide rail down (2) to engage the hook feature on the top pin. For details, see Figure 3 on page 5. Ensure that the two pins protrude through the rack holes before you proceed to the next step.

Note: The pin fixtures of the slide rails support either round-hole or square-hole rack models.

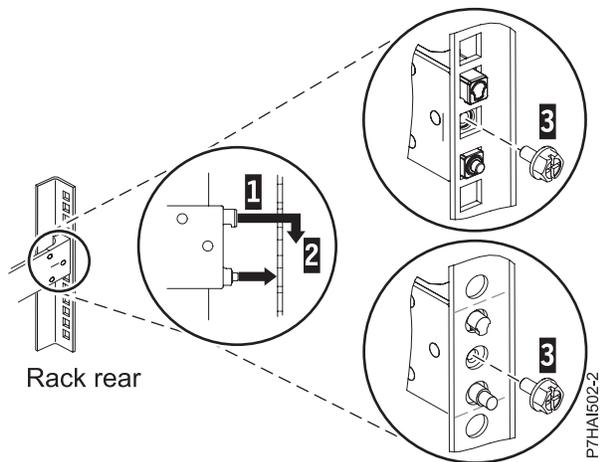


Figure 3. Aligning and engaging the pins into the holes in the rear of the rack

4. Reinstall the screw that was removed in step 2 on page 4, as shown in Figure 4.

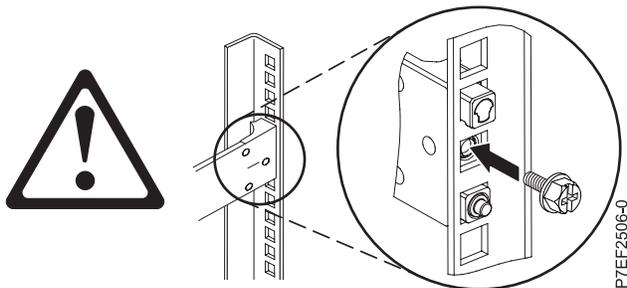


Figure 4. Reinstalling the screw

5. Return to the front of the rack. Ensure that the latch is still open on the front of the slide rail. Refer to step 2 on page 4.
6. Pull the slide rail forward and insert three pins on the front of the rail into the holes within the selected U that were previously marked. Lower the slide rail down (1) to engage the hook feature on the middle pin. For details, see Figure 5.

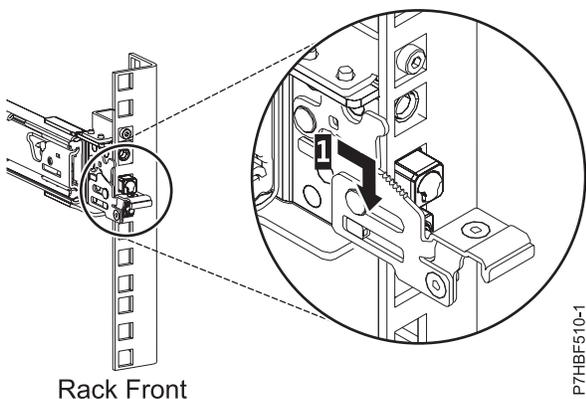


Figure 5. Pins that are seated on the front rail of the rack

7. While you pull the slide rail forward, ensure that all three pins protrude through the rack holes, then push the front latch (2) all the way in. For details, see Figure 6.

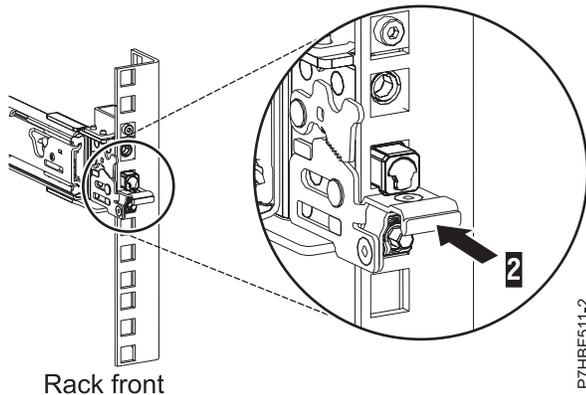


Figure 6. Latch seated on the front rail of the rack

Note: If you must reposition the rail, release the front latch (2), and while you press the blue pin at the bottom, push the rail up and toward the rear to release from the rack.

8. Repeat step 1 on page 4 through step 7 to install the right rail into the rack.

Installing the 8284-22A system into the rack

Use the procedure to install the 8284-22A system into the rack.

CAUTION:

This system requires three people to install the system into the rack.

To install the system into the rack, complete the following steps:

1. Remove the shipping cover on the rear and the front of the system, if present.
2. Extend the slide rails forward (1) until they click twice into place. Carefully lift the server and tilt it into position over the slide rails so that the rear nail heads (2) on the server line up with the rear slots (3) on the slide rails. Slide the server down until the rear nail heads slip into the two rear slots. Then, slowly lower the front of the server (4) until the other nail heads slip into the other slots on the slide rails. Ensure that the front latch (5) slides over the nail heads.

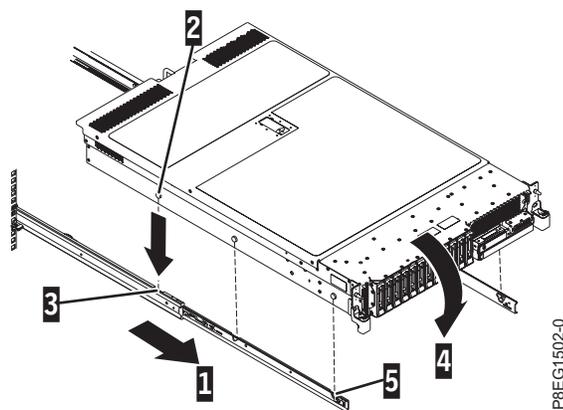


Figure 7. Extending slide rails and aligning server nail heads with the slots on the rail

3. Lift the blue release latches (1) on the slide rails and push the server (2) all the way into the rack until it clicks into place. For details, see Figure 8 on page 7.

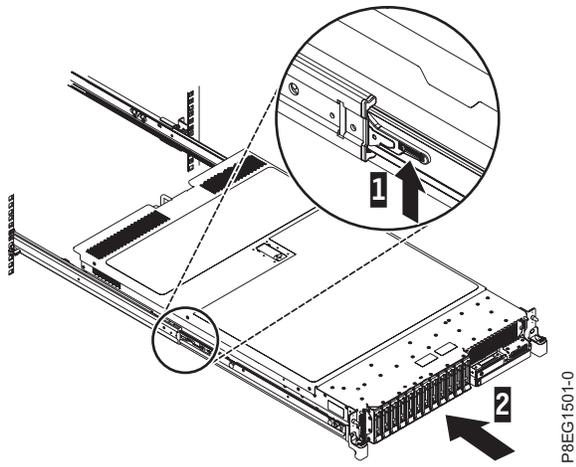


Figure 8. Lift the release latches and push the server into the rack

Installing the cable-management arm

The cable-management arm is used to efficiently route cables so that you have proper access to the rear of the system. Use the procedure to install the cable-management arm.

To install the cable-management arm, complete the following steps:

1. Ensure that you have the following parts.

- A** Support arm
- B** Cable-management stop bracket
- C** Mounting bracket
- D** Cable-management arm
- E** Extension bracket

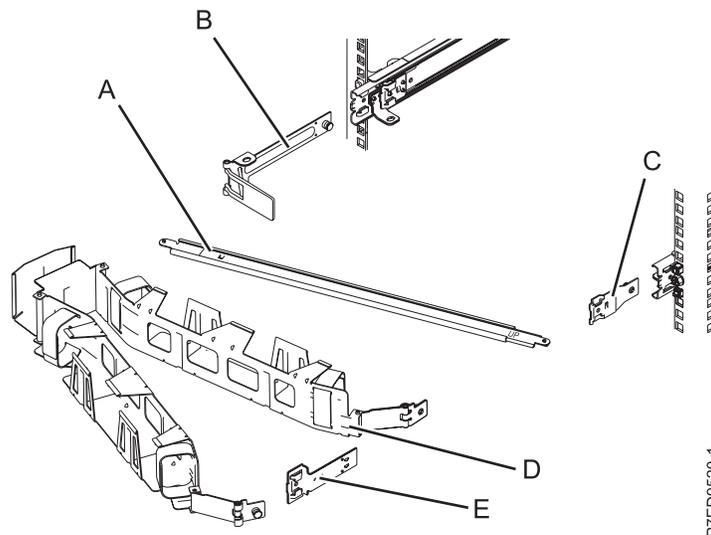


Figure 9. Relative positions of the cable-management arm parts before assembly

2. The cable-management arm can be installed on either side of the server. For this procedure, it is illustrated that you are installing it on the right side, while you are facing the server from the rear.

Connect one end of the support arm (A) to the right slide rail (1) so that you can swing the other end of the support arm toward the left side of the rack (2).

Note: The support arm (A) is labeled UP and DOWN. Ensure that the side labeled UP is facing upward.

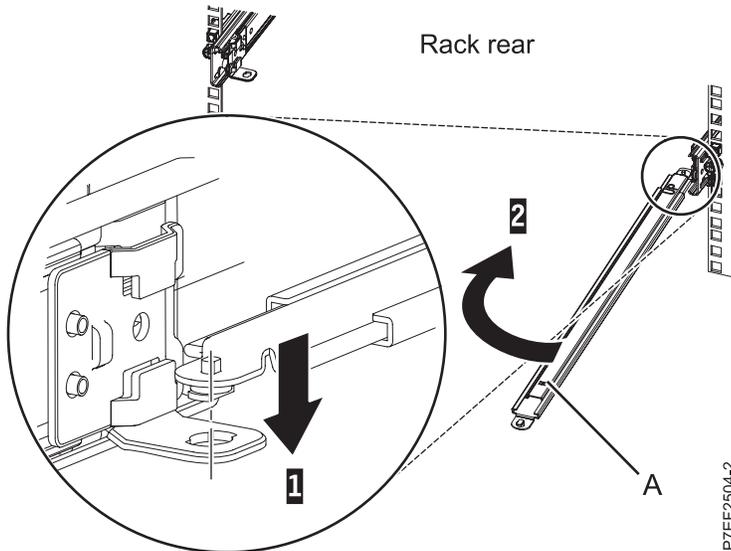


Figure 10. Connecting the support arm

3. Locate the hole at the bottom inside corner of the L-shaped cable-management stop bracket (B). Position the unattached end of the support arm so that the locking tab on the underside of its tip aligns with the bracket hole. Insert the tab into the hole (1) and turn the bracket (2) to secure it to the support arm. For details, see Figure 11.

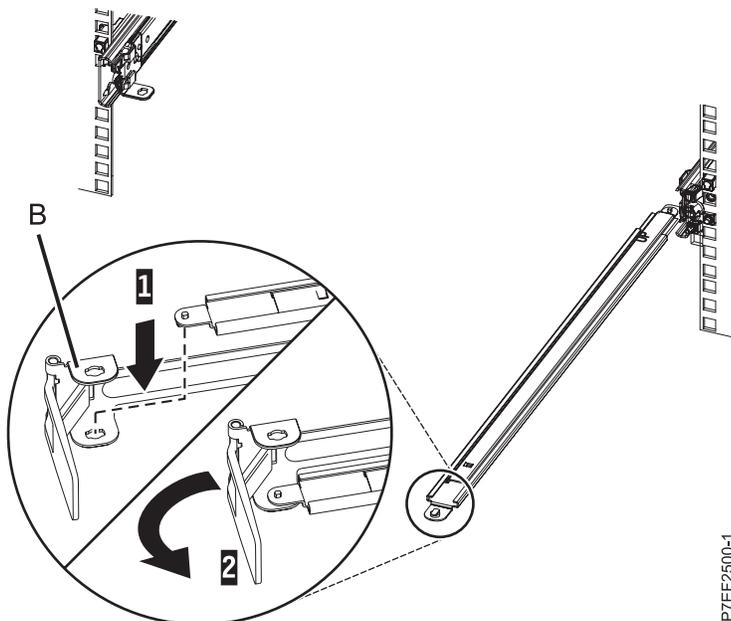
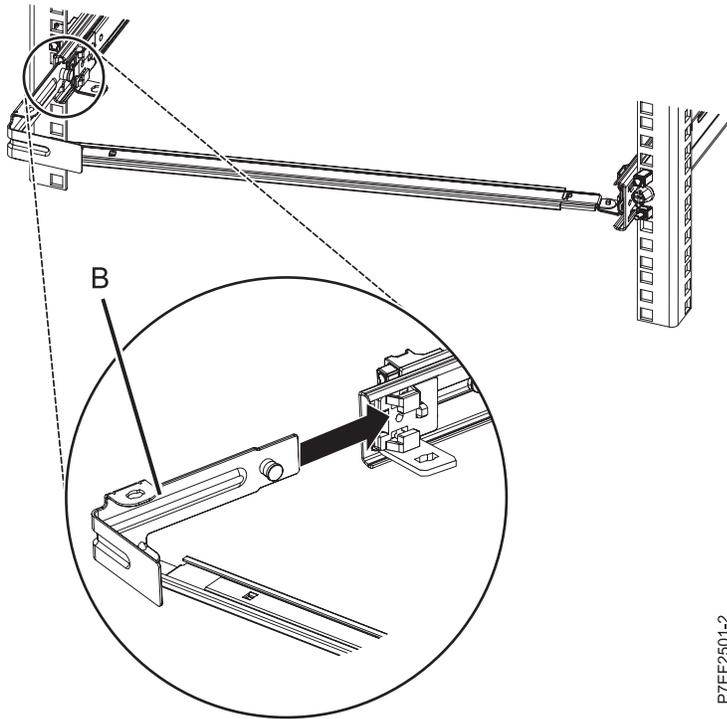


Figure 11. Securing the cable-management stop bracket to the support arm

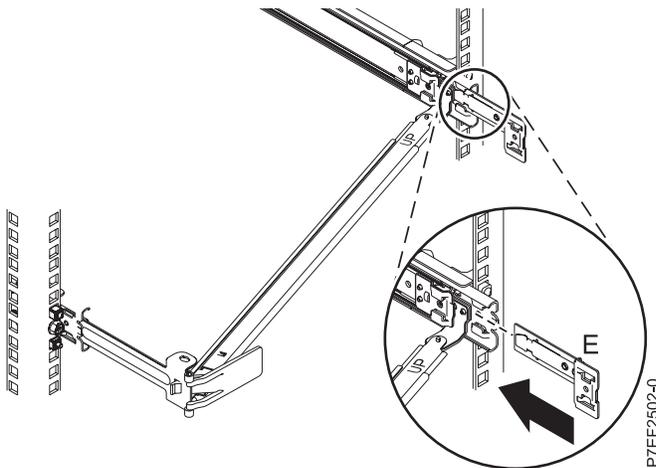
4. Attach the mounting bracket (C) to the slot on the inside of the right slide by sliding the mounting bracket (C) into the slide rail until the spring-loaded pin snaps into place. For details, see Figure 12 on page 9
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Figure 12. Extending the pin, and installing the bracket into the slide rail

5. Slide the mounting bracket (C) into the right slide rail until the spring-loaded pin snaps into place. For details, see Figure 13.



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Figure 13. Installing the extension bracket into the slide rail

6. Attach the mounting bracket (C) to the slot on the inside of the right slide by sliding the mounting bracket (C) into the slide rail until the spring-loaded pin snaps into place. For details, see Figure 14 on page 10.

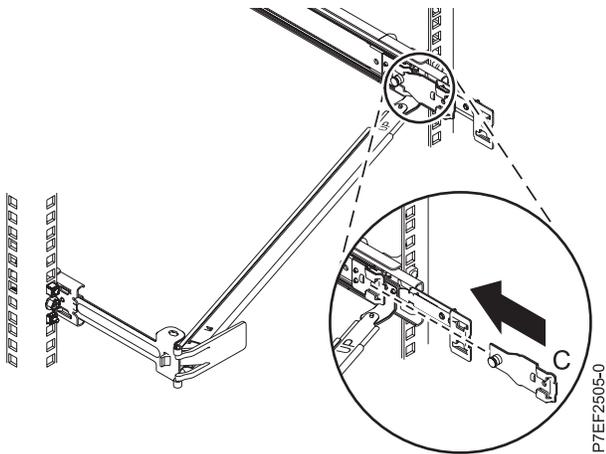


Figure 14. Installing the mounting bracket into the slide rail

7. Place the cable-management arm (D) on the support arm (A). Slide the first cable-management arm tab into the slot on the mounting bracket (C). Push the tab until the spring-loaded latch snaps into place. Slide the other cable-management arm tab into the extension bracket (E) on the outside of the right slide rail (2). Push the tab until the spring-loaded latch snaps into place. For details, see Figure 15.

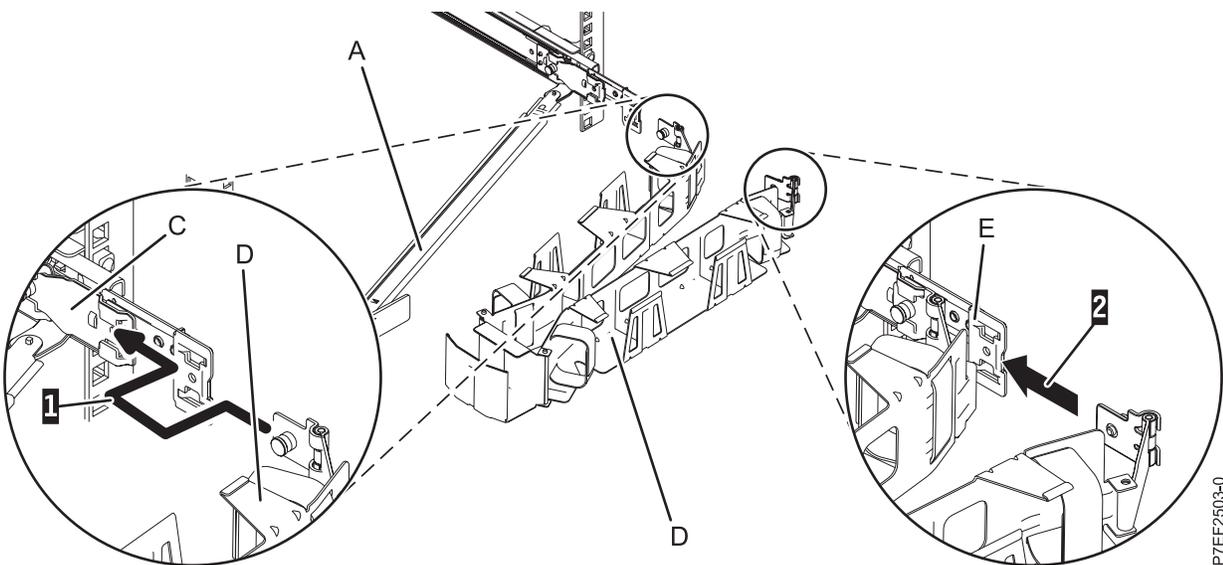


Figure 15. Connecting the cable-management arm

Cabling the server and setting up a console

Your console, monitor, or interface choices are guided by whether you create logical partitions, which operating system you install in your primary partition, and whether you install a Virtual I/O Server (VIOS) in one of your logical partitions.

Determining which console to use:

Your console, monitor, or interface choices are guided by whether you create logical partitions, which operating system you install in your primary partition, and whether you install a Virtual I/O Server (VIOS) in one of your logical partitions.

Choose one of the consoles, interfaces, or terminals in the following table.

Table 2. Available console types

Console type	Operating system	Logical partitions	Cable required	Cabling setup instructions
ASCII terminal	AIX®, Linux, or VIOS	Yes for VIOS, no for AIX and Linux	Serial cable equipped with a null modem	“Cabling the server with an ASCII terminal”
Hardware Management Console (HMC)	AIX, IBM i, Linux, or VIOS	Yes	Ethernet (or cross-over cable)	“Cabling the server to the HMC” on page 12
Integrated Virtualization Manager for VIOS	AIX, IBM i, or Linux	Yes	Serial cable	“Cabling the server and accessing the IVM” on page 17
Keyboard, video, and mouse (KVM)	Linux or VIOS	Yes	Monitor and USB cables equipped with KVM	“Cabling the server with keyboard, video, and mouse” on page 18

Cabling the server with an ASCII terminal:

If you are not creating logical partitions, you can use an ASCII terminal to manage a server that is running the AIX, Linux, or VIOS operating systems. From the ASCII terminal, you can access the Advanced System Management Interface (ASMI) to complete more installation tasks.

The ASCII terminal is connected to the server through a serial link. The ASCII interface to the ASMI provides a subset of the web interface functions. The ASCII terminal for the ASMI interface is available only when the system is in the standby state. It is not available during the initial program load (IPL) or run time.

Note: If you are using a serial connection to the ASMI terminal, you must use a conversion cable. This cable (part number 46K5108) is used to convert the ASCII terminal 9-pin Dshell connector to an RJ45 serial port connector on the system. For information about the locations of the connectors on the system, see Part locations and location codes (http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs_locations.htm).

To cable an ASCII terminal to the server, complete the following steps:

1. Using a serial cable that is equipped with a null modem, connect the ASCII terminal to the serial port on the rear of the server.
2. Cable the server.
 - a. Plug the power cord into the power supply.
 - b. Plug the system power cords and the power cords for any other attached devices into the alternating current (ac) power source.

Note: Confirm that the system is in standby mode. The green power status indicator on the front control panel is flashing, and the dc out indicator lights on the power supplies are flashing. If none of the indicators are flashing, check the power cord connections. For details, see “Common system attention LEDs and system reference codes” on page 33.

- c. If your system uses a power distribution unit (PDU), complete the following steps:
 - 1) Connect the system power cords from the server and I/O drawers to the PDU with an IEC 320 type receptacle.
 - 2) Attach the PDU input power cord and plug it into the alternating current (ac) power source.
3. Wait for the green light on the control panel to start flashing.
4. Ensure that your ASCII terminal is set to the following general attributes.

These attributes are the default settings for the diagnostic programs. Be sure that your terminal is set according to these attributes before proceeding to the next step.

Table 3. Default settings for the diagnostic programs

General setup attributes	3151 /11/31/41 settings	3151 /51/61 settings	3161 /64 settings	Description
Line speed	19,200	19,200	19,200	Uses the 19,200 (bits per second) line speed to communicate with the system unit.
Word length (bits)	8	8	8	Selects 8 bits as a data word length (byte).
Parity	No	No	No	Does not add a parity bit and is used together with the word length attribute to form the 8-bit data word (byte).
Stop bit	1	1	1	Places a bit after a data word (byte).

5. Press a key on the ASCII terminal to allow the service processor to confirm the presence of the ASCII terminal.
6. When the login display appears for the ASMI, enter admin for the user ID and password.
7. Change the default password when you are prompted.
8. Press Enter until the server information appears. You have completed the setup for an ASCII terminal, and have started the ASMI.
9. Continue with “Completing the server setup without using a management console” on page 21.

Cabling the server to the HMC:

The Hardware Management Console (HMC) controls managed systems, including the management of logical partitions, the creation of a virtual environment, and the use of capacity on demand. Using service applications, the HMC can also communicate with managed systems to detect, consolidate, and forward information to IBM service for analysis.

If you have not installed and configured your HMC, do so now. For instructions, see Installation and configuration scenarios (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/basichmcinstallationandconfigurationtaskflow.htm>).

To manage POWER8 processor-based servers, the HMC must be at version 8 release 8.1.0, or later. To view the HMC version and release, complete the following steps:

1. In the navigation area, click **Updates**.
2. In the work area, view and record the information that appears in the HMC Code Level section, including the HMC version, release, maintenance level, build level, and base versions.

To cable the server to the HMC, complete the following steps:

1. If you want to directly attach your HMC to the managed system, connect **Ethernet Connector 1** on the HMC to the **HMC1** port on the managed system. See Figure 16 on page 13.

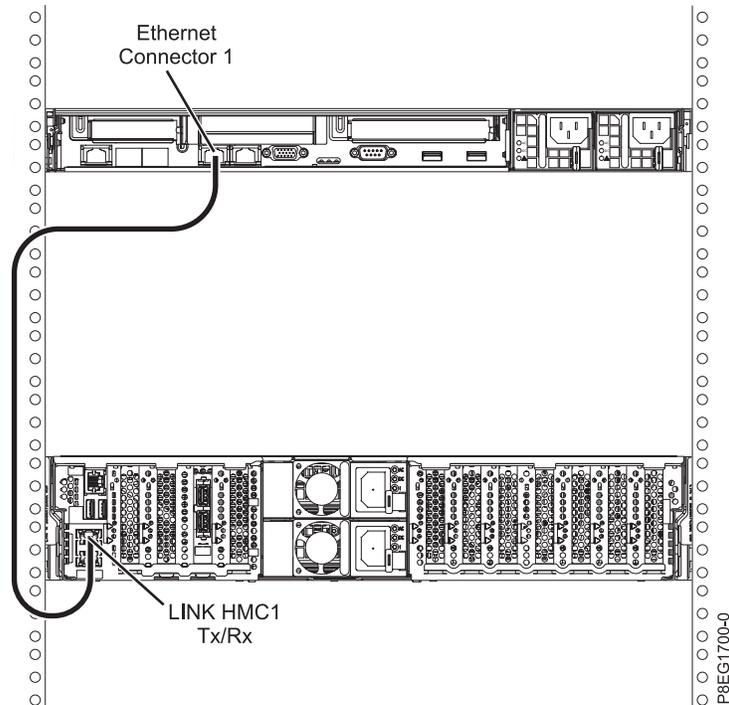


Figure 16. Attaching the HMC to the managed system

2. To learn how to connect an HMC to a private network so that it can manage more than one managed system, see HMC network connections (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/netconhmc.htm>).

Notes:

- You can also have multiple systems that are attached to a switch that is then connected to the HMC. For instructions, see HMC network connections (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/netconhmc.htm>).
 - If you are using a switch, ensure that the speed in the switch is set to **auto/auto**. If the server is directly attached to the HMC, ensure the Ethernet adapter speed on the HMC is set to **auto/auto**. For information about how to set media speeds, see Setting the media speed (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/lanmediaspeed.htm>).
3. If you are connecting a second HMC to your managed server, connect to the Ethernet port that is labeled **HMC2** on the managed server.
 4. Continue with “Cabling the server and connecting expansion units” on page 19.

Cabling the server and accessing the console by using IBM i Access Client Solutions:

IBM i Access Client Solutions provides support for connecting to the console of a new system by using a LAN connection. It also provides support for connecting to the console of systems that have been previously configured for a LAN or Hardware Management Console (HMC).

With every IBM i version 7.2, you receive a CD containing IBM i Access Client Solutions. For instructions, see the Establishing a Console Connection to IBM i topic in the Getting Started document that is provided with IBM i Access Client Solutions CD.

Continue with “Cabling the server and connecting expansion units” on page 19.

Cabling the server and accessing Operations Console:

You can use Operations Console to manage a server that is running the IBM i operating system whether you have logical partitions or not. However, you must first use an alternative tool to create the logical partitions.

Operations Console is a component of IBM i Access for Windows. You can install the complete product or select only the two console components, which are the Operations Console support and the 5250 emulator support.

To prepare to cable the server and access the Operations Console, complete the following steps:

1. Ensure that your server is powered off.
2. Obtain a static IP address that is assigned to the LAN console adapter on the server for use by the console, including information about the IP, subnet mask, and default gateway.
3. Select a unique host name and register the host name and the IP address in your site's Domain Name System (DNS).

Note: This IP address is for use by Operations Console and different from the IP address that is used to connect a normal Telnet session. The IP address must not be in use by another server. Ping the IP address to verify that no other device is using the IP address.

To learn more about setting up Operations Console, complete the following steps:

1. Install IBM i Access for Windows and the latest service pack.

Note: The list of Microsoft Windows operating systems that are supported for Operations Console LAN is documented at: IBM i Access (<http://www-03.ibm.com/systems/i/software/access/windows/supportedos.html>).

- a. Log on to the system as a local administrator.
- b. Ensure that you install the latest IBM i Access service pack. The website to download the latest service pack for IBM i Access can be found at IBM i Access (<http://www-03.ibm.com/systems/i/software/access/windows/casp.html>).
2. Cable the PC to server. Plug a Cat 5e or Cat 6 (recommended) Ethernet cable from the PC directly into a valid Ethernet adapter port. To determine the server adapter port that you must use, refer to the following table:

Table 4. Server Operations Console LAN ports

Server	Operations Console - LAN port	Note
8286-41A	C2, C3, C4, C5, C6, and C7	You must cable to the top port of a 5767/5768/5899 in a "base-slot".

Note: Make the initial connection with the PC directly cabled to the server. The PC and server can be recabled to the network after the initial connection is made. A cross-over cable is not needed. For information, see Adapter requirements (http://www.ibm.com/support/knowledgecenter/POWER8/p8hbx/hardwarereq_adapter.htm).

3. Configure the PC networking. To configure the PC networking, complete the following steps:
 - a. Disable any additional listed, except the local area connection.
 - b. Record current TCP/IP settings:
 - 1) Access the adapter properties. Select **Internet Protocol**, then click **Properties**.
 - 2) Record the current settings, including IP address, subnet mask, and gateway, if applicable.
 - c. Change the TCP/IP settings.

Note: Some versions of IBM i require that the gateway address respond to pings before the console LAN adapter activates. Configure the PC with the default gateway IP address by completing the following steps:

- 1) Set the IP address to the opcon LAN adapter gateway.
 - 2) Set the subnet mask to the opcon LAN adapter subnet.
 - 3) Set the default gateway to the opcon LAN adapter primary router, or gateway address. This address is the same address as the IP address.
4. Disable the PC firewall.

Note: All PC firewalls must be disabled for the initial connection.

To disable the PC firewall, complete the following steps:

- a. In the Windows control panel, click **Firewall settings** and disable the firewall.
 - b. In the Windows control panel, click **Security center**. Check for a firewall and, if present, disable it.
 - c. Scan all tasks that are running on the PC for any other software firewalls and disable the firewall.
5. Configure Operations Console on your system:
- a. Start Operations Console. To start the Operations Console, select **Start > All Programs > IBM iSeries > Access > Operations Console**.
 - b. Start the Configuration Wizard. If this is the first time Operations Console is started, the connection wizard starts automatically. If it does not start automatically, click **Connection > New Connection** to manually start the wizard. Read the notifications, and click **Next**.
 - c. Select the local console on a network. Click **Next**.
 - d. Specify a service host name and IP address by doing the following types:
 - 1) Give your session a name. The name must be one of the following names:
 - A valid host name that was registered in the site DNS for the console IP address
 - A unique name that you create that is not currently registered in the DNS for any other IP address.
 - 2) If you are using IBM i V6R1 and later, press the Tab key. The **Service TCP/IP Address** field is enabled.
 - 3) Specify the service TCP/IP address. Enter the LAN console adapter IP address.
 - 4) Click **Next**.
 - e. Specify the LAN console interface information.
 - 1) In the **Service TCP/IP Address** field, type the IP address that you recorded.
 - 2) In the **Service Subnet Mask** field, type the subnet mask that you recorded.
 - 3) In the **Service gateway address** field, type the default gateway that you recorded.
 - 4) The system serial number must match the tag on the server. It must be 7 characters long, without a dash.
 - 5) Set the **Target partition** to 1.
 - 6) Click **Next**.
 - f. Specify the device ID. If you are prompted to specify a service tools device ID, enter QCONSOLE. Click **Next**.
 - g. Click **Next > Finish**. Your session is now ready to connect. Double-click the session name to start the connection.
6. Power on the server by completing the following steps:
- a. Set the manual initial program load (IPL) by completing the following steps:
 - 1) Locate the server's control panel. Look for the blue tab on the front of the server. Push it to the side, and pull the control panel out slowly.
 - 2) Press the Up arrow key until you see **02**, and press Enter.
 - 3) Press Enter again. A < (less than symbol) appears next to the **N**.

- 4) Press the Up Arrow key. The N changes to an M.
 - 5) Press Enter.
 - 6) Press Enter twice. A 02 is displayed on the control panel.
- b. After you have the server set to a manual IPL, push the white power button to power on the server.

Note: You must watch the control panel while the system is trying to power on. During the IPL, the system displays C6004031 indicating that it is searching for console. The system might take 20 - 30 minutes to complete this action. If A6005008 is displayed, this means that no console is available. This might indicate that the system is not preinstalled with IBM i and you must set the console type to LAN.

7. Perform this step if the system is not preinstalled with IBM i. For setting the console type to LAN, complete the following steps:
- a. Set the control panel to manual mode. If the system is Normal mode (function 01 shows 01 B N), select function 02 on the control panel and press Enter.
 - b. Enable control panel functions by completing the following steps:
 - 1) Select function 25 on the control panel and press Enter. The return code must be 00.
 - 2) Select function 26 on the control panel and press Enter.

Note: If you see a FF return code, go back to function 25 and press Enter, then return to function 26 and press Enter.

- c. Check your current setting(s). Use console service functions (65+21+11) to check the current setting.
- A600 500A = No console defined
 - A601 500A = Twinax console
 - A602 500A = Direct cable console
 - A603 500A = LAN console
 - A604 500A = HMC console

If the system reference code (SRC) = A603500A, skip to step 6e. For all others SRCs, continue to the next step.

- d. Set console type to LAN.
- 1) Use the 65+21+11 sequences until it returns A603500B. This indicates that the console type will be changed to LAN.
 - 2) Use the 21+11 sequences, if it returns A603500C. This indicates that settings have been saved successfully. If not, repeat function 11 until it returns A603500C.
- e. Clear the adapter configuration from the profile by completing the following steps:
- 1) Use the 65+21+11 sequences until it returns A6C3500B. This indicates that the adapter configuration will be cleared.
 - 2) Use the 21+11 sequences, if it returns A603500C. This indicates that settings have been saved successfully. If not, repeat function 11 until it returns A603500C.
- f. Enable and set the console adapter location. Select the console adapter location - external PCI card.
- 1) Use the 65-21+11 sequences until it returns A6E2500B. Use the 21+11 sequence, if it returns A6E2500C. This indicates that the add-on adapter has been enabled and the settings have been saved successfully. If not, repeat function 11 until it returns A6E2500C.
 - 2) Use the 65-21+11 sequences until it returns A6D1500B. Use the 21+11 sequence, if it returns A6D1500C. This indicates that the internal embedded port has been disabled and the settings have been saved successfully. If not, repeat function 11 until it returns A6D1500C.

- 3) Use the 65-21+11 sequences until it returns A6Bn500B. This indicates that the LAN Adapter will be enabled in location Cn, where n= the location code of the "Console adapter location". Use the 21+11 sequence, if it returns A6Bn500C the settings have been saved successfully.

Table 5. Console settings and functions

Console Setting	Function
E2	Enable add-on adapter (OPSCONSOLE ENBEXTLAN)
D1	Disable embedded port (OPSCONSOLE DISINTLAN)
Bn	Enable LAN adapter in slot Cn (OPSCONSOLE ENBLSLOT n) Note: This requires that the embedded (internal) LAN flag be off and the external flag be on or you will not see this series.

Notes:

- 1) Use the earlier recorded slot number to determine which Bn function should be selected. For example, if you are using the I/O adapter in slot C2, you would select console setting B2 to configure the location of the adapter.
 - 2) The Bn may advance from search order rather than numerically. For example, if the search order is C4,C3,C1, the Bn numbers may show you the 4 before another lower number. This is determined by model, and not all models will be affected.
 - 3) If at any time A60x500D is displayed, function has timed out because the function has been entered too slow). You have a minute to complete a 65-21-11 sequence. Once you start, keep cycling through and selecting the required settings with no pauses.
8. Connect the console by completing the following steps:
- a. Monitor the console status. After the status changes to Pending Authorization, the Service Tools Sign-On window opens.
- Note:** The Service Tools Sign-On window might open behind the Operations Console window. Resize or move the Operations Console window to locate the Service Tools Sign-On window.
- b. Sign on to the Service Tools application. To sign on to the Service Tools application, enter 11111111 for the user ID and password.
 - c. IPL and configure the system.
 - d. If your session does not connect, wait for the power-on process to stop on an attention or IPL failure system reference code (SRC), such as A6005008 or B2xxxx. If the power-on stops at A6005008, leave the server in this state and call your IBM service provider for assistance.

Note: You must configure and start an IBM i TCP interface on a second port (T2, T3, T4) before moving the console. This action ensures that there is an alternative method to access the server. Use the information in step 3b to reset the PC to its original TCP/IP settings.

Note: The PC IP configuration must be reset before cabling the PC back to the network because the PC is configured with the gateway IP address.

The PC and server console port (T1) can now be recabled to the network.

Continue with "Completing the server setup" on page 19.

Cabling the server and accessing the IVM:

When you install the Virtual I/O Server (VIOS) in an environment where no Hardware Management Console (HMC) is present, the VIOS automatically creates a management partition whose interface is the Integrated Virtualization Manager (IVM).

To prepare for and install the VIOS and enable the IVM, complete the following steps:

1. Connect a serial cable from a PC or ASCII terminal to a system port on the server. For details, see “Cabling the server with an ASCII terminal” on page 11.
2. Complete the following steps:
 - a. Verify that you have access to the Advanced System Management Interface (ASMI) by using the web interface. For details, see Accessing the ASMI using a web browser.
 - b. Verify that you have administrator or authorized service provider authority in ASMI.
 - c. Using the Web-based ASMI, change the following settings as appropriate for the type of partition on which you are installing the Integrated Virtualization Manager:
For an AIX or Linux partition, complete the following steps to change the partition boot mode:
 - 1) In the navigation area, expand **Power/Restart Control**.
 - 2) Click **Power On/Off System**.
 - 3) Select **Boot to SMS menu** in the **AIX or Linux partition mode** by boot field.
 - 4) If you are installing the Integrated Virtualization Manager on an IBM System i[®] model, select **AIX or Linux** in the **Default partition environment** field.
 - 5) Click **Save settings and power on**.
 - d. Open a terminal session on the PC, using an application such as HyperTerminal, and wait for the SMS menu to appear. Be sure that the line speed is set to 19,200 bits per second to communicate with the system unit.
 - e. Using the Web-based ASMI, change the partition boot mode back so that the server loads the operating environment during startup:
 - 1) Expand **Power/Restart Control**.
 - 2) Click **Power On/Off System**.
 - 3) Select **Continue to operating system** in the **AIX or Linux partition mode** boot field.
 - 4) Click **Save settings**.
3. Insert the *Virtual I/O Server* CD or DVD into the optical drive.
4. In SMS, select the CD or DVD as the boot device:
 - a. Select **Select Boot Options**, and press Enter.
 - b. Select **Select Install/Boot Device**, and press Enter.
 - c. Select **CD/DVD**, and press Enter.
 - d. Select the media type that corresponds to the optical device, and press Enter.
 - e. Select the device number that corresponds to the optical device, and press Enter.
 - f. Select **Normal Boot**, and confirm that you want to exit SMS.
5. Install the Virtual I/O Server:
 - a. Select the console, and press Enter.
 - b. Select a language for the BOS menus, and press Enter.
 - c. Select **Start Install Now with Default Settings**.
 - d. Select **Continue with Install**. The managed system restarts after the installation is complete, and the login prompt is displayed on the ASCII terminal.
6. After you install the IVM, finish the installation by accepting the license agreement, checking for updates, and configuring the TCP/IP connection.
7. Continue with “Cabling the server and connecting expansion units” on page 19.

Cabling the server with keyboard, video, and mouse:

Before you start the system, you might need to connect the keyboard, video, and mouse (KVM) to the system, if a graphics card is present.

To connect the KVM, complete the following steps:

1. Locate the graphics card and USB ports at the rear of the system. You might need a connector converter.
2. Connect the monitor cable to the graphics card.
3. Connect a keyboard and mouse to the USB ports.
4. Power on the console.
5. Continue with “Cabling the server and connecting expansion units.”

Cabling the server and connecting expansion units

Use this procedure to cable the server and connect expansion units.

To cable the server, complete the following steps:

1. Cable the server.
 - a. Plug the power cord into the power supply.
 - b. Plug the system power cords and the power cords for any other attached devices into the alternating current (ac) power source.

Note: Confirm that the system is in standby mode. The green power status indicator on the front control panel is flashing, and the dc out indicator lights on the power supplies are flashing. If none of the indicators are flashing, check the power cord connections. For details, see “Common system attention LEDs and system reference codes” on page 33.

- c. If your system uses a power distribution unit (PDU), complete the following steps:
 - 1) Connect the system power cords from the server and I/O drawers to the PDU with an IEC 320 type receptacle.
 - 2) Attach the PDU input power cord and plug it into the alternating current (ac) power source.
2. For information about connecting enclosures and expansion units, see Enclosures and expansion units (http://www.ibm.com/support/knowledgecenter/POWER8/p8ham/p8ham_kickoff.htm).

Completing the server setup

Learn about the tasks you must complete to set up your managed system.

Select from the following options:

- “Completing the server setup by using an HMC”
- “Completing the server setup without using a management console” on page 21

Completing the server setup by using an HMC:

Perform these tasks to complete the server setup by using a Hardware Management Console (HMC). You can also begin to use virtualization to consolidate multiple workloads onto fewer systems to increase server use, and to reduce cost.

To manage POWER7[®] processor-based systems, the HMC must be at version 8 release 8.1.0, or later.

To complete the server setup by using an HMC, complete the following steps:

1. Attach the server to the rack using the shipping screws that were provided with your system.
2. Change the managed system passwords by completing the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. In the content area, select the managed system.
 - c. In the operations area, click **Update password**.

For more information about setting passwords for the managed system, see Setting passwords for the managed system (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/setpasswordsforthemanagedsystem.htm>).

3. Update the time of day on the managed system by using the Advanced System Management Interface (ASMI).

To set up and access the ASMI, complete the following steps:

- a. In the navigation area, expand **Systems Management > Servers**.
- b. In the contents area, select the managed system.
- c. In the task area, expand **Operations**.
- d. Click **Launch Advanced System Management (ASM)**.

To change the time of day by using the ASMI, complete the following steps:

- a. On the ASMI Welcome pane, enter admin for the user ID and password, and click **Log In**.
 - b. In the navigation area, expand **System Configuration**.
 - c. Click **Time of Day**. The right pane displays a form that shows the current date (month, day, and year) and time (hours, minutes, and seconds).
 - d. Change the date value, the time value, or both, and click **Save settings**.
 - e. Logout from ASMI and close the window.
4. Check the firmware level on the managed system. In the navigation area, click **Updates**. Firmware information is displayed in the contents area.
 5. Compare your installed firmware level with available firmware levels. If necessary, update your firmware levels.
 - a. Compare your installed firmware level with available firmware levels. For more information, see the Fix Central website Fix Central.
 - b. If necessary, update your managed system firmware levels. In the navigation area, select **Updates**.
 - c. In the contents area, select your managed system.
 - d. Click **Change Licensed Internal Code for the current release**.
 6. To power on your managed system by using the HMC, complete the following steps:
 - a. Verify that the logical partition start policy is set to **User-Initiated**, by completing the following steps:
 - 1) In the navigation area, expand **Systems Management > Servers**.
 - 2) In the contents area, select the managed system.
 - 3) In the tasks area, click **Properties**.
 - 4) Click the **Power-On Parameters** tab.
 - 5) Ensure that the **Partition start policy** field is set to **User-Initiated**.
 - b. Power on the managed system by completing the following steps
 - 1) In the navigation area, expand **Systems Management > Servers**.
 - 2) In the contents area, select the managed system.
 - 3) Click **Operations > Power on**.
 - 4) Select a power-on option and click **OK**.
 7. Deploy your virtualization environment.
 - You can use virtualization system and partition templates to set up your virtualization environment. A virtualization template is a collection of configuration preferences that can be quickly applied to multiple systems. Set up the virtualization environment. For instructions, see Setting up the virtualization environment (http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_kickoff.htm).
 - If you have existing, predefined system virtualization configurations, you can capture the configuration details of that running server and save the information as a custom system template.

Then, you can export that system template to the template library so that it is available to deploy on your new server. For information about virtualization system templates, see System templates (http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_system_templates_concept.htm).

- You can use partition templates to obtain details on partition resources, such as physical adapters, virtual networks, and storage configuration. You can create client partitions from the predefined templates that are available in the template library or from your own custom templates. For information about partition templates, see Partition templates (http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_partition_template_concept.htm).
8. Create partitions, deploy an imported system plan, or create and manage virtual resources.
 - For instructions about creating partitions, see Partitioning with the HMC (http://www.ibm.com/support/knowledgecenter/POWER8/p8hat/p8hat_lparwithhmcp6.htm).
 - For instructions about deploying system plans, see Deploying a system plan by using an HMC (http://www.ibm.com/support/knowledgecenter/POWER8/p8hc6/p8hc6_deploysysplanp6.htm).
 - Configure and manage virtual resources. For instructions, see Getting started with PowerVM[®] (http://www.ibm.com/support/knowledgecenter/POWER8/p8eew/p8eew_kickoff.htm).
 9. Install an operating system and update the operating system.
 - Install the AIX operating system. For instructions, see Installing AIX (http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installaix.htm).
 - Install the IBM i operating system. For instructions, see Installing IBM i (http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_ibmi.htm).
 - Install the Linux operating system. For instructions, see Installing Linux (http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installinux.htm).
 - Install the VIOS operating system. For instructions, see Installing VIOS (http://www.ibm.com/support/knowledgecenter/POWER8/p8hch/p8hch_installvios.htm).
 10. You have now completed the steps to install your server.

Completing the server setup without using a management console:

If you do not have an Hardware Management Console (HMC), use this procedure to complete the server setup.

To complete the server setup without using a management console, complete the following steps:

1. Attach the server to the rack using the shipping screws that were provided with your system.
2. To check the firmware level on the managed system and to update the time of day, complete the following steps:
 - a. Access the Advanced System Management Interface (ASMI). For instructions, see Accessing the ASMI without an HMC (http://www.ibm.com/support/knowledgecenter/POWER8/p8hby/connect_asmi.htm).
 - b. On the ASMI Welcome pane, note the existing level of server firmware in the upper-right corner under the copyright statement.
 - c. Update the time of day. In the navigation area, expand **System Configuration**.
 - d. Click **Time of Day**. The right pane displays a form that shows the current date (month, day, and year) and time (hours, minutes, and seconds).
 - e. Change the date value, the time value, or both, and click **Save settings**.
3. To start a system that is not managed by an HMC, complete the following steps:
 - a. Open the front door of the managed system.
 - b. Press the power button on the control panel. For instructions, see Starting a system that is not managed by an HMC (<http://www.ibm.com/support/knowledgecenter/POWER8/p8haj/startsysnohmc.htm>).
4. Install an operating system and update the operating system.

- Install the AIX operating system. For instructions, see [Installing AIX \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installaix.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installaix.htm).
 - Install the IBM i operating system. For instructions, see [Installing IBM i \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_ibmi.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_ibmi.htm).
 - Install the Linux operating system. For instructions, see [Installing Linux \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installlinux.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installlinux.htm).
 - Install the VIOS operating system. For instructions, see [Installing VIOS \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hch/p8hch_installvios.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hch/p8hch_installvios.htm).
5. Update the system firmware, if required.
- For instructions to get firmware fixes through the AIX or Linux operating system, see [Getting server firmware fixes through AIX or Linux without a management console \(http://www.ibm.com/support/knowledgecenter/POWER8/p8ha5/fix_firm_no_hmc_aix.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8ha5/fix_firm_no_hmc_aix.htm).
 - If you are using IBM i, use the IBM i PTF installation functions to install the server firmware fixes.
 - If you are using VIOS, see [Updating the Virtual I/O Server's firmware and device microcode with an Internet connection \(http://www.ibm.com/support/knowledgecenter/POWER8/p8ha5/fix_virtual_firm_ivm.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8ha5/fix_virtual_firm_ivm.htm).
6. You have now completed the steps to install your server.

Setting up a preinstalled server

Use this information to learn about setting up a IBM Power System S822 (8284-22A) that is preinstalled in the rack.

Note: The terracotta shipping brackets on the right and left of the rear of the server do not interfere with the installation or operation of the system. They can remain installed on the system.

Preparing to set up your preinstalled server

Use the information to understand the prerequisites that are required for setting up the server.

You might need to read the following documents before you begin to install the server:

- The latest version of this document is maintained online. See [Installing the IBM Power System S822 \(8284-22A\) \(http://www.ibm.com/support/knowledgecenter/POWER8/p8egh/p8egh_roadmap.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8egh/p8egh_roadmap.htm).
- Plan your server installation. For instructions, see [Planning for the system \(http://www.ibm.com/support/knowledgecenter/POWER8/p8had/p8had_8xx_kickoff.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8had/p8had_8xx_kickoff.htm).
- If you are using a Hardware Management Console (HMC), see [Obtaining and applying machine code updates for the HMC with an Internet connection \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/area3fixeshmc.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/area3fixeshmc.htm).

Prepare to install your server by completing the following steps:

1. Ensure that you have the following items before you start your installation:
 - Phillips screwdriver
 - Flat-head screwdriver
2. Ensure that you have one of the following consoles:
 - Hardware Management Console (HMC): Ensure that your HMC is at version 8 release 8.1.0, or later.
 - Graphic monitor with keyboard and mouse.
 - Teletype (tty) monitor with keyboard.

Completing inventory for your preinstalled server

Use this information to complete inventory for your server.

Complete inventory by following these steps:

1. Verify that you received all the boxes you ordered.
2. Unpack the server components as needed.
3. Complete a parts inventory before you install each server component by following these steps:
 - a. Locate the inventory list for your server.
 - b. Ensure that you received all the parts that you ordered.

Note: Your order information is included with your product. You can also obtain order information from your marketing representative or the IBM Business Partner.

If you have incorrect, missing, or damaged parts, consult any of the following resources:

- Your IBM reseller.
- IBM Rochester manufacturing automated information line at 1-800-300-8751 (United States only).
- Directory of worldwide contacts website <http://www.ibm.com/planetwide>. Select your location to view the service and support contact information.

Removing the shipping bracket and connecting power cords and power distribution unit (PDU) for your preinstalled server

Before you set up a console, you must remove the shipping brackets and connect power cords.

To remove the shipping bracket and connect power cords, do the following:

1. Remove the six screws that secure the shipping brackets to the chassis.

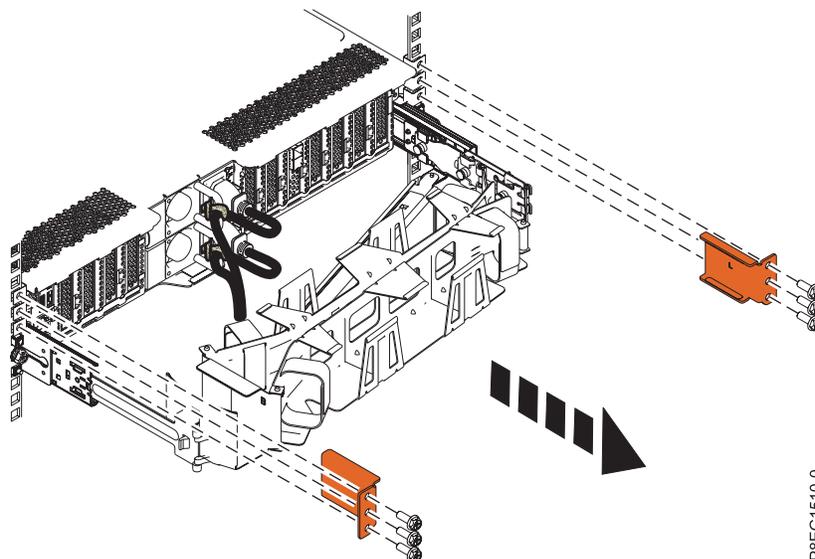


Figure 17. Removing the shipping bracket from the rear of the chassis

Store the shipping bracket if you want to move your system at a later date.

2. Cable the server.
 - a. Plug the two power cords into the power supplies (A) and attach the cables to the handles on the power supply using the Velcro straps (B).

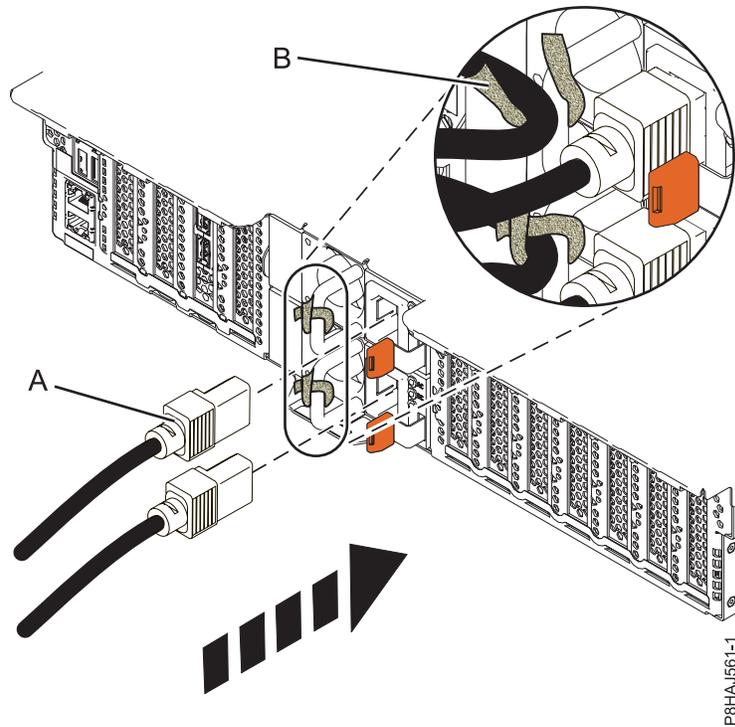


Figure 18. Plugging the power cords into the power supply and attaching cables to the power supply handles

- b. Connect the system power cords from the server and I/O drawers to the PDU with an IEC 320 type receptacle.
- c. Attach the PDU input power cord and plug it into the alternating current (ac) power source.

Cabling the server and setting up a console

Your console, monitor, or interface choices are guided by whether you create logical partitions, which operating system you install in your primary partition, and whether you install a Virtual I/O Server (VIOS) in one of your logical partitions.

Determining which console to use:

Your console, monitor, or interface choices are guided by whether you create logical partitions, which operating system you install in your primary partition, and whether you install a Virtual I/O Server (VIOS) in one of your logical partitions.

Choose one of the consoles, interfaces, or terminals in the following table.

Table 6. Available console types

Console type	Operating system	Logical partitions	Cable required	Cabling setup instructions
ASCII terminal	AIX, Linux, or VIOS	Yes for VIOS, no for AIX and Linux	Serial cable equipped with a null modem	"Cabling the server with an ASCII terminal" on page 25
Hardware Management Console (HMC)	AIX, IBM i, Linux, or VIOS	Yes	Ethernet (or cross-over cable)	"Cabling the server to the HMC" on page 26
Integrated Virtualization Manager for VIOS	AIX, IBM i, or Linux	Yes	Serial cable	"Cabling the server and accessing the IVM" on page 27

Table 6. Available console types (continued)

Console type	Operating system	Logical partitions	Cable required	Cabling setup instructions
Keyboard, video, and mouse (KVM)	Linux or VIOS	Yes	Monitor and USB cables equipped with KVM	"Cabling the server with keyboard, video, and mouse" on page 28

Cabling the server with an ASCII terminal:

If you are not creating logical partitions, you can use an ASCII terminal to manage a server that is running the AIX, Linux, or VIOS operating systems. From the ASCII terminal, you can access the Advanced System Management Interface (ASMI) to complete more installation tasks.

The ASCII terminal is connected to the server through a serial link. The ASCII interface to the ASMI provides a subset of the web interface functions. The ASCII terminal for the ASMI interface is available only when the system is in the standby state. It is not available during the initial program load (IPL) or run time.

Note: If you are using a serial connection to the ASMI terminal, you must use a conversion cable. This cable (part number 46K5108) is used to convert the ASCII terminal 9-pin Dshell connector to an RJ45 serial port connector on the system. For information about the locations of the connectors on the system, see Part locations and location codes (http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs_locations.htm).

To cable an ASCII terminal to the server, complete the following steps:

1. Using a serial cable that is equipped with a null modem, connect the ASCII terminal to the serial port on the rear of the server.
2. Ensure that your ASCII terminal is set to the following general attributes.
These attributes are the default settings for the diagnostic programs. Be sure that your terminal is set according to these attributes before proceeding to the next step.

Table 7. Default settings for the diagnostic programs

General setup attributes	3151 /11/31/41 settings	3151 /51/61 settings	3161 /64 settings	Description
Line speed	19,200	19,200	19,200	Uses the 19,200 (bits per second) line speed to communicate with the system unit.
Word length (bits)	8	8	8	Selects 8 bits as a data word length (byte).
Parity	No	No	No	Does not add a parity bit and is used together with the word length attribute to form the 8-bit data word (byte).
Stop bit	1	1	1	Places a bit after a data word (byte).

3. Press a key on the ASCII terminal to allow the service processor to confirm the presence of the ASCII terminal.
4. When the login display appears for the ASMI, enter `admin` for the user ID and password.
5. Change the default password when you are prompted.
6. Press Enter until the server information appears. You have completed the setup for an ASCII terminal, and have started the ASMI.
7. Continue with "Completing the server setup without using a management console" on page 30.

Cabling the server to the HMC:

The Hardware Management Console (HMC) controls managed systems, including the management of logical partitions, the creation of a virtual environment, and the use of capacity on demand. Using service applications, the HMC can also communicate with managed systems to detect, consolidate, and forward information to IBM service for analysis.

If you have not installed and configured your HMC, do so now. For instructions, see Installation and configuration scenarios (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/basichmcinstallationandconfigurationtaskflow.htm>).

To manage POWER8 processor-based servers, the HMC must be at version 8 release 8.1.0, or later. To view the HMC version and release, complete the following steps:

1. In the navigation area, click **Updates**.
2. In the work area, view and record the information that appears in the HMC Code Level section, including the HMC version, release, maintenance level, build level, and base versions.

To cable the server to the HMC, complete the following steps:

1. If you want to directly attach your HMC to the managed system, connect **Ethernet Connector 1** on the HMC to the **HMC1** port on the managed system. See Figure 19.

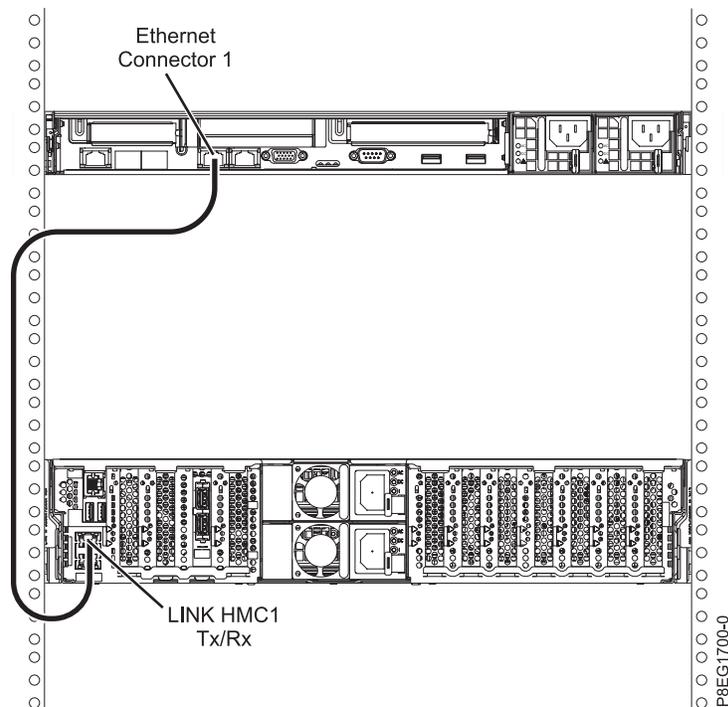


Figure 19. Attaching the HMC to the managed system

2. To learn how to connect an HMC to a private network so that it can manage more than one managed system, see HMC network connections (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/netconhmc.htm>).

Notes:

- You can also have multiple systems that are attached to a switch that is then connected to the HMC. For instructions, see HMC network connections (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/netconhmc.htm>).

- If you are using a switch, ensure that the speed in the switch is set to **auto/auto**. If the server is directly attached to the HMC, ensure the Ethernet adapter speed on the HMC is set to **auto/auto**. For information about how to set media speeds, see *Setting the media speed* (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/lanmediaspeed.htm>).
3. If you are connecting a second HMC to your managed server, connect to the Ethernet port that is labeled **HMC2** on the managed server.
 4. Continue with “Routing cables through the cable-management arm and connecting expansion units” on page 28.

Cabling the server and accessing the IVM:

When you install the Virtual I/O Server (VIOS) in an environment where no Hardware Management Console (HMC) is present, the VIOS automatically creates a management partition whose interface is the Integrated Virtualization Manager (IVM).

To prepare for and install the VIOS and enable the IVM, complete the following steps:

1. Connect a serial cable from a PC or ASCII terminal to a system port on the server. For details, see “Cabling the server with an ASCII terminal” on page 25.
2. Complete the following steps:
 - a. Verify that you have access to the Advanced System Management Interface (ASMI) by using the web interface. For details, see *Accessing the ASMI using a web browser*.
 - b. Verify that you have administrator or authorized service provider authority in ASMI.
 - c. Using the Web-based ASMI, change the following settings as appropriate for the type of partition on which you are installing the Integrated Virtualization Manager:
For an AIX or Linux partition, complete the following steps to change the partition boot mode:
 - 1) In the navigation area, expand **Power/Restart Control**.
 - 2) Click **Power On/Off System**.
 - 3) Select **Boot to SMS menu** in the **AIX or Linux partition mode** by boot field.
 - 4) If you are installing the Integrated Virtualization Manager on an IBM System i model, select **AIX or Linux** in the **Default partition environment** field.
 - 5) Click **Save settings and power on**.
 - d. Open a terminal session on the PC, using an application such as HyperTerminal, and wait for the SMS menu to appear. Be sure that the line speed is set to 19,200 bits per second to communicate with the system unit.
 - e. Using the Web-based ASMI, change the partition boot mode back so that the server loads the operating environment during startup:
 - 1) Expand **Power/Restart Control**.
 - 2) Click **Power On/Off System**.
 - 3) Select **Continue to operating system** in the **AIX or Linux partition mode** boot field.
 - 4) Click **Save settings**.
3. Insert the *Virtual I/O Server* CD or DVD into the optical drive.
4. In SMS, select the CD or DVD as the boot device:
 - a. Select **Select Boot Options**, and press Enter.
 - b. Select **Select Install/Boot Device**, and press Enter.
 - c. Select **CD/DVD**, and press Enter.
 - d. Select the media type that corresponds to the optical device, and press Enter.
 - e. Select the device number that corresponds to the optical device, and press Enter.
 - f. Select **Normal Boot**, and confirm that you want to exit SMS.
5. Install the Virtual I/O Server:

- a. Select the console, and press Enter.
 - b. Select a language for the BOS menus, and press Enter.
 - c. Select **Start Install Now with Default Settings**.
 - d. Select **Continue with Install**. The managed system restarts after the installation is complete, and the login prompt is displayed on the ASCII terminal.
6. After you install the IVM, finish the installation by accepting the license agreement, checking for updates, and configuring the TCP/IP connection.
 7. Continue with “Routing cables through the cable-management arm and connecting expansion units.”

Cabling the server with keyboard, video, and mouse:

Before you start the system, you might need to connect the keyboard, video, and mouse (KVM) to the system, if a graphics card is present.

To connect the KVM, complete the following steps:

1. Locate the graphics card and USB ports at the rear of the system. You might need a connector converter.
2. Connect the monitor cable to the graphics card.
3. Connect a keyboard and mouse to the USB ports.
4. Power on the console.
5. Continue with “Cabling the server and connecting expansion units” on page 19.

Routing cables through the cable-management arm and connecting expansion units

Use this procedure to route cables through the cable-management arm and to connect expansion units.

To route cables through the cable-management arm and to connect expansion units, complete the following steps:

1. Route the console cable through the cable management arm.
2. Connect expansion units that were shipped with the system. For more information, see the expansion unit installation book that was shipped with the system. Complete the tasks associated with connecting a preinstalled expansion unit or disk drive enclosure, then return to this document to complete your server setup.
3. Continue with “Completing the server setup.”

Completing the server setup

Learn about the tasks you must complete to set up your managed system.

Select from the following options:

- “Completing the server setup by using an HMC”
- “Completing the server setup without using a management console” on page 30

Completing the server setup by using an HMC:

Perform these tasks to complete the server setup by using a Hardware Management Console (HMC). You can also begin to use virtualization to consolidate multiple workloads onto fewer systems to increase server use, and to reduce cost.

To manage POWER8 processor-based systems, the HMC must be at version 8 release 8.1.0, or later.

To complete the server setup by using an HMC, complete the following steps:

1. Change the managed system passwords by completing the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. In the content area, select the managed system.
 - c. In the operations area, click **Update password**.

For more information about setting passwords for the managed system, see Setting passwords for the managed system (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hai/setpasswordsforthemanagedsystem.htm>).

2. Update the time of day on the managed system by using the Advanced System Management Interface (ASMI).

To set up and access the ASMI, complete the following steps:

- a. In the navigation area, expand **Systems Management > Servers**.
- b. In the contents area, select the managed system.
- c. In the task area, expand **Operations**.
- d. Click **Launch Advanced System Management (ASM)**.

To change the time of day by using the ASMI, complete the following steps:

- a. On the ASMI Welcome pane, enter admin for the user ID and password, and click **Log In**.
 - b. In the navigation area, expand **System Configuration**.
 - c. Click **Time of Day**. The right pane displays a form that shows the current date (month, day, and year) and time (hours, minutes, and seconds).
 - d. Change the date value, the time value, or both, and click **Save settings**.
 - e. Logout from ASMI and close the window.
3. Check the firmware level on the managed system. In the navigation area, click **Updates**. Firmware information is displayed in the contents area.
 4. Compare your installed firmware level with available firmware levels. If necessary, update your firmware levels.
 - a. Compare your installed firmware level with available firmware levels. For more information, see the Fix Central website Fix Central.
 - b. If necessary, update your managed system firmware levels. In the navigation area, select **Updates**.
 - c. In the contents area, select your managed system.
 - d. Click **Change Licensed Internal Code for the current release**.
 5. To power on your managed system by using the HMC, complete the following steps:
 - a. Verify that the logical partition start policy is set to **User-Initiated**, by completing the following steps:
 - 1) In the navigation area, expand **Systems Management > Servers**.
 - 2) In the contents area, select the managed system.
 - 3) In the tasks area, click **Properties**.
 - 4) Click the **Power-On Parameters** tab.
 - 5) Ensure that the **Partition start policy** field is set to **User-Initiated**.
 - b. Power on the managed system by completing the following steps
 - 1) In the navigation area, expand **Systems Management > Servers**.
 - 2) In the contents area, select the managed system.
 - 3) Click **Operations > Power on**.
 - 4) Select a power-on option and click **OK**.
 6. Deploy your virtualization environment.
 - You can use virtualization system and partition templates to set up your virtualization environment. A virtualization template is a collection of configuration preferences that can be

quickly applied to multiple systems. Set up the virtualization environment. For instructions, see [Setting up the virtualization environment \(http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_kickoff.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_kickoff.htm).

- If you have existing, predefined system virtualization configurations, you can capture the configuration details of that running server and save the information as a custom system template. Then, you can export that system template to the template library so that it is available to deploy on your new server. For information about virtualization system templates, see [System templates \(http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_system_templates_concept.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_system_templates_concept.htm).
 - You can use partition templates to obtain details on partition resources, such as physical adapters, virtual networks, and storage configuration. You can create client partitions from the predefined templates that are available in the template library or from your own custom templates. For information about partition templates, see [Partition templates \(http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_partition_template_concept.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8efc/p8efc_partition_template_concept.htm).
7. Create partitions, deploy an imported system plan, or create and manage virtual resources.
 - For instructions about creating partitions, see [Partitioning with the HMC \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hat/p8hat_lparwithhmcp6.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hat/p8hat_lparwithhmcp6.htm).
 - For instructions about deploying system plans, see [Deploying a system plan by using an HMC \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hc6/p8hc6_deploysysplanp6.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hc6/p8hc6_deploysysplanp6.htm).
 - Configure and manage virtual resources. For instructions, see [Getting started with PowerVM \(http://www.ibm.com/support/knowledgecenter/POWER8/p8eew/p8eew_kickoff.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8eew/p8eew_kickoff.htm).
 8. Install an operating system and update the operating system.
 - Install the AIX operating system. For instructions, see [Installing AIX \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installaix.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installaix.htm).
 - Install the IBM i operating system. For instructions, see [Installing IBM i \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_ibmi.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_ibmi.htm).
 - Install the Linux operating system. For instructions, see [Installing Linux \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installlinux.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installlinux.htm).
 - Install the VIOS operating system. For instructions, see [Installing VIOS \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hch/p8hch_installvios.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hch/p8hch_installvios.htm).
 9. You have now completed the steps to install your server.

Completing the server setup without using a management console:

If you do not have an Hardware Management Console (HMC), use this procedure to complete the server setup.

To complete the server setup without using a management console, complete the following steps:

1. Attach the server to the rack using the shipping screws that were provided with your system.
2. To check the firmware level on the managed system and to update the time of day, complete the following steps:
 - a. Access the Advanced System Management Interface (ASMI). For instructions, see [Accessing the ASMI without an HMC \(http://www.ibm.com/support/knowledgecenter/POWER8/p8hby/connect_asmi.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8hby/connect_asmi.htm).
 - b. On the ASMI Welcome pane, note the existing level of server firmware in the upper-right corner under the copyright statement.
 - c. Update the time of day. In the navigation area, expand **System Configuration**.
 - d. Click **Time of Day**. The right pane displays a form that shows the current date (month, day, and year) and time (hours, minutes, and seconds).
 - e. Change the date value, the time value, or both, and click **Save settings**.
3. To start a system that is not managed by an HMC, complete the following steps:

- a. Open the front door of the managed system.
 - b. Press the power button on the control panel. For instructions, see Starting a system that is not managed by an HMC (<http://www.ibm.com/support/knowledgecenter/POWER8/p8haj/startsysnohmc.htm>).
4. Install an operating system and update the operating system.
 - Install the AIX operating system. For instructions, see Installing AIX (http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installaix.htm).
 - Install the IBM i operating system. For instructions, see Installing IBM i (http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_ibmi.htm).
 - Install the Linux operating system. For instructions, see Installing Linux (http://www.ibm.com/support/knowledgecenter/POWER8/p8hdx/p8hdx_installlinux.htm).
 - Install the VIOS operating system. For instructions, see Installing VIOS (http://www.ibm.com/support/knowledgecenter/POWER8/p8hch/p8hch_installvios.htm).
 5. Update the system firmware, if required.
 - For instructions to get firmware fixes through the AIX or Linux operating system, see Getting server firmware fixes through AIX or Linux without a management console (http://www.ibm.com/support/knowledgecenter/POWER8/p8ha5/fix_firm_no_hmc_aix.htm).
 - If you are using IBM i, use the IBM i PTF installation functions to install the server firmware fixes.
 - If you are using VIOS, see Updating the Virtual I/O Server's firmware and device microcode with an Internet connection (http://www.ibm.com/support/knowledgecenter/POWER8/p8ha5/fix_virtual_firm_ivm.htm).
 6. You have now completed the steps to install your server.

Common information for installing servers

Use this information to learn more about the tasks associated with a system installation.

Common system attention LEDs and system reference codes

Find LED and system reference code (SRC) information for recovering recover from common installation problems.

The following table describes LED status behaviors and describes the meaning of each behavior.

Table 8. Common installation system attention LEDs

Front power status LED (green)	ac in (green)	dc out (green)	Fault (yellow)	Description
On	On	On	Off	Power is being supplied to the system and the system is powered on.
Flashing	On	Flashing	Off	Power is being supplied to the system.
Flashing	Off	Flashing	Off	Power is not being supplied to one of the power supplies, but power is being supplied to the second power supply, and the system is in standby mode.
On	Off	Flashing	Off	Power is not being supplied to one of the power supplies, but power is being supplied to the second power supply, and the system is powered on.
Off	Off	Off	Off	Power is not being supplied to either power supply.
Flashing	On	Off or flashing	On	Power is being applied, but the power supply is not functioning properly and the system is in standby mode.
On	On	Off or flashing	On	Power is being applied, but the power supply is not functioning properly and the system is powered on.
Flashing	On	On	On	110 volts are being applied. This system requires 220 volts.

The following table describes SRCs that you might encounter during installation.

Table 9. Common installation SRCs

SRC	Error description	Recovery steps
1000xxx 1100xxx 509Axxx 509Dxxx 50A4xxx 50ADxxx 50B1xxx	ac input and power supply connections	<ol style="list-style-type: none"> Verify that power cords are plugged in correctly in the following locations: <ul style="list-style-type: none"> Drawer Power distribution unit (PDU), if applicable Battery backup unit (BBU), if applicable Input source power receptacle Verify that the power supplies are seated and latched into position.
11002613	Your power voltages do not match	Ensure that you are using the correct power voltage. Refer to your server's specifications to learn more about the power voltage that your server requires.
Starts with 27xxx, 28xx, 57xxx and ends with xxx3120, xxx3121	Fibre Channel port failure	These errors are often caused by ports that are not used. Every port must have a cable or wrap plug installed. Whenever a cable is not installed, ensure that a wrap plug is installed for each unused port. Wrap plugs are shipped automatically when a Fibre Channel feature code is ordered.
B1A38B24	Network configuration	Ensure that you have entered the correct IP address.

Best practices for integrating cable and system placement

These guidelines ensure that your system and its cables have optimal clearance for maintenance and other operations. The guidelines also provide guidance in correctly cabling your system and using the appropriate cables.

The following guidelines provide cabling information for installing, migrating, relocating, or upgrading your system:

- Position drawers in racks to allow enough space, where possible, for routing cables on the bottom and top of the rack, and between drawers.
- Shorter drawers are not placed between longer drawers in the rack (for example, do not place a 19-inch drawer between two 24-inch drawers).
- When a specific cable plugging sequence is required, for example, for concurrent maintenance (symmetric multiprocessing cables), label the cables appropriately and note the sequence order.
- To facilitate cable routing, install cables in the following order:
 1. System power control network (SPCN) cables
 2. Power cables
 3. Communications (serial-attached SCSI, InfiniBand, remote input/output, and peripheral component interconnect express) cables

Note: Install and route the communications cables, starting with the smallest diameter first and then progressing to the largest diameter. This applies to installing them into the cable management arm and retaining them to the rack, brackets, and other features that may be provided for cable management.

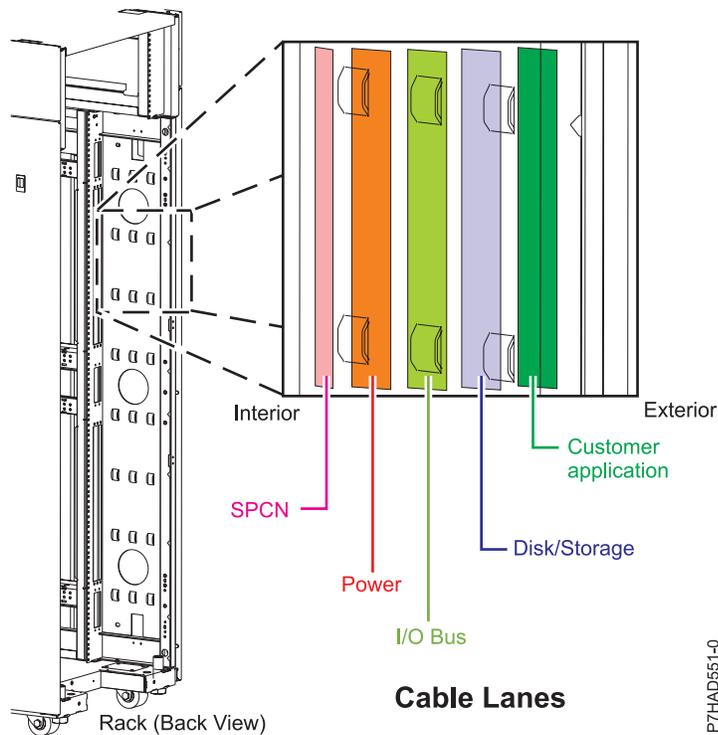


Figure 20. Cable management cable lanes

- Use the innermost cable-management bridge lanes for SPCN cables.
- Use the middle cable-management bridge lanes for power and communications cables.
- The outermost row of cable-management bridge lanes are available for use when routing cables.
- Use the cable lanes on the sides of the rack to manage excess SPCN and power cables.
- Four cable-management bridge lanes on the top of the rack. Use these bridge lanes to route the cables from one side of the rack to the other, by routing to the top of the rack, where possible. This routing helps to avoid having a cable bundle that blocks the cable exit opening at the bottom of the rack.
- Use the cable-management brackets that are provided with the system to maintain concurrent maintenance routing.
-

Cable bend radius

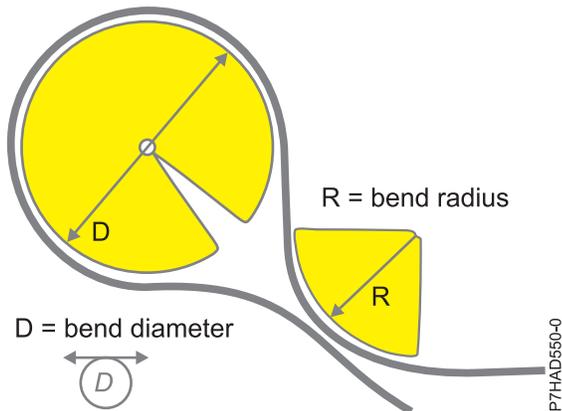


Figure 21. Cable bend radius

- Maintain a minimum bend diameter of 101.6 mm (4 in.) for communications (SAS, IB, RIO, and PCIe) cables.
- Maintain a minimum bend diameter of 50.8 mm (2 in.) for power cables.
- Maintain a minimum bend diameter of 25.4 mm (1 in.) for SPCN cables.
- Use the shortest-length cable available for each point-to-point connection.
- If cables must be routed across the rear of a drawer, leave enough slack to reduce the tension on the cables for maintenance of the drawer.
- When routing cables, leave enough slack around the power connection on the power distribution unit (PDU) so that the wall-to-PDU line cord can be attached to the PDU.
- Use hook-and-loop fasteners where necessary.

Related information:



POWER 8 Cabling guide

Supporting information for setting up consoles

Use this information if you need to access the Advanced System Management Interface by using a web browser if you need to set IP addresses on your notebook, or if you need to troubleshoot a connection.

Accessing the ASMI by using a web browser

If your system is not managed by a Hardware Management Console (HMC), you can connect a PC or notebook to the server to access the Advanced System Management Interface (ASMI). You need to configure the Web browser address on the PC or notebook to match the manufacturing default address on the server.

To set up the Web browser for direct or remote access to the ASMI, complete the following steps:

1. If the server is not powered on, perform the following steps:
 - a. Connect your power cord or cords to the server.
 - b. Plug the power cord or cords into the power source.
 - c. Wait for the control panel to display 01. A series of progress codes are shown before 01 appears.

Notes:

- The system is powered on if the light on the control panel is green.

- To view the control panel, press the blue switch to the left, then pull out the control panel all the way, and then pull it down.

Important: Do not connect an Ethernet cable to either the HMC1 port or the HMC2 port until you are directed to do so later in this procedure.

2. Select a PC or notebook that has Netscape 9.0.0.4, Microsoft Internet Explorer 7.0, Opera 9.24, or Mozilla Firefox 2.0.0.11 to connect to your server.

Note: If the PC or notebook on which you are viewing this document does not have two Ethernet connections, another PC or notebook needs to be connected to your server to access the ASMI.

If you do not plan to connect your server to your network, this PC or notebook is your ASMI console.

If you plan to connect your server to your network, this PC or notebook temporarily connects directly to the server for setup purposes only. After setup, you can use any PC or notebook on your network that is running Netscape 9.0.0.4, Microsoft Internet Explorer 7.0, Opera 9.24, or Mozilla Firefox 2.0.0.11 as your ASMI console.

Note: Complete the following steps to disable the TLS 1.0 option in Microsoft Internet Explorer to access the ASMI using Microsoft Internet Explorer 7.0 running on Windows XP:

- a. From the **Tools** menu in Microsoft Internet Explorer, select **Internet Options**.
 - b. From the Internet Options window, click the **Advanced** tab.
 - c. Clear the **Use TLS 1.0** check box (in the Security category) and click **OK**.
3. Connect an Ethernet cable from the PC or notebook to the Ethernet port labeled HMC1 on the back of the managed system. If HMC1 is occupied, connect an Ethernet cable from the PC or notebook to the Ethernet port labeled HMC2 on the rear of the managed system.

Important: If you attach an Ethernet cable to the service processor before the system reaches power off standby, the IP address shown in Table 10 might not be valid. For details, see “Correcting an IP address” on page 39.

4. Use Table 10 to help you determine and record the information needed to set the IP address of the service processor on the PC or notebook. The Ethernet interface on the PC or notebook needs to be configured within the same subnet mask as the service processor so that they can communicate with each other. For example, if you connected your PC or notebook to HMC1, the IP address for your PC or notebook could be 169.254.2.140 and the subnet mask would be 255.255.255.0. Set the gateway IP address to the same IP address as the PC or notebook

Table 10. Network configuration information for the service processor in a POWER8 processor-based system

POWER8™ processor-based systems	Server connector	Subnet mask	IP address of the service processor	Example of an IP address for your PC or notebook
Service processor A	HMC1	255.255.255.0	169.254.2.147	169.254.2.140
	HMC2	255.255.255.0	169.254.3.147	169.254.3.140

5. Set the IP address on your PC or notebook by using the values from the table. For details, see “Setting the IP address on your PC or notebook” on page 38.
6. To access the ASMI by using a web browser, complete the following steps:
 - a. Use Table 10 to determine the IP address of the service processor Ethernet port that your PC or notebook is connected to.
 - b. Type the IP address in the **Address** field on the Web browser of your PC or notebook and press Enter. For example, if you connected your PC or notebook to HMC1, type `https://169.254.2.147` in the Web browser on your PC or notebook.

Note: It might take up to 2 minutes for the ASMI login display to be shown in the Web browser after the Ethernet cable is plugged into the service processor in step 3 on page 37. During this time, if you use control panel function 30 to view the IP addresses on the service processor, incomplete or inaccurate data is shown.

7. When the Login display appears, enter admin for the user ID and password.
8. Change the default password when prompted.
9. Choose from the following options:
 - If you do not plan to connect your PC or notebook to your network, this ends this procedure. You can now perform tasks such as changing the time of day or changing the altitude setting.
 - If you plan to connect your PC or notebook to your network, see Accessing the ASMI without an HMC (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p8hby/connect_asmi.htm).

Setting the IP address on your PC or notebook

To access the Advanced System Management Interface (ASMI) through a web browser, you first need to set the IP address on a PC or notebook. The following procedures describe setting the IP address on a PC or notebook that is running the Linux operating system and the Microsoft Windows XP, 2000, and Vista operating systems.

You need the information that you recorded in step 4 on page 37 in the “Accessing the ASMI by using a web browser” on page 36 topic to complete the following procedure.

Windows Vista

To set the IP address within Windows Vista, complete the following steps:

1. Click **Start > Control Panel**.
2. Ensure **Classic View** is selected.
3. Click **Network and Sharing Center**.
4. Click **View status** in the Public network area.
5. Click **Properties**.
6. If the Security window is shown, click **Continue**.
7. Highlight **Internet Protocol Version 4** and click **Properties**.
8. Select **Use the following IP address**.
9. Complete the **IP address**, **Subnet mask**, and **Default gateway** fields by using the values that you recorded in the “Accessing the ASMI by using a web browser” on page 36 topic.
10. Click **OK > Close > Close**.

Windows 7

To set the IP address within Windows 7, complete the following steps:

1. Click **Start > Control Panel > Network and Internet > Network and Sharing Center**.
2. Click **Change adapter settings** to choose your network adapter.
3. Right-click the adapter and choose **Properties** to open up the properties window.
4. Select **Internet Protocol Version 4(TCP/IPv4)**, and then click **Properties**.

Attention: Record the current settings before you make any changes. Use this information to restore these settings if you disconnect the PC or notebook after you set up the ASMI web interface.
5. Select **Use the Following IP Address**.
6. Complete the **IP address**, **Subnet mask**, and **Default gateway** fields by using the values that you recorded in the “Accessing the ASMI by using a web browser” on page 36 topic.
7. In the Local Area Connection Properties window, click **OK**. It is not necessary to restart your PC.

Correcting an IP address

If you attach an Ethernet cable to the service processor before the system reaches power off standby, the IP address shown in the service processor network configuration table might not be valid.

If a cable is attached and not connected to anything, nothing happens. The address could potentially change if an Ethernet cable that is attached to a network is connected to that port and if the system is turned on. If you are unable to access the Advanced System Management Interface (ASMI) by using a network connection, complete one of the following tasks:

- Using a serial cable that is equipped with a null modem, connect the ASCII terminal to the serial port on the rear of the server.
- Determine the current IP address. For details, see Function 30: Service processor IP address and port location(<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p8hb5/func30.htm>).
- Move the reset toggle switches on the service processor from their current position to the opposite position. To perform this task, you must remove and replace the service processor. For details, contact your next level of support.

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Federal Communications Commission (FCC) statement

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Technical Regulations, Department M372
IBM-Allee 1, 71139 Ehningen, Germany
Tele: +49 (0) 800 225 5423 or +49 (0) 180 331 3233
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台灣國際商業機器股份有限公司
台北市松仁路7號3樓
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Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
Tel: 914-499-1900

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IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 (0) 800 225 5423 or +49 (0) 180 331 3233
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- 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.
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Technical Regulations, Department M372
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Armonk, New York 10504
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Regulations, Abteilung M372
IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 (0) 800 225 5423 or +49 (0) 180 331 3233
email: halloibm@de.ibm.com

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