

Installing the Escala E2-700,
E2-700T, E4-700 and
E4-700T□□



ESCALA Power7

Installing the Escala E2-700, E2-700T, E4-700 and E4-700T□□

This publication concerns the following models:

- Bull Escala E5-700 (Power 750 / 8233-E8B)
- Bull Escala M6-700 (Power 770 / 9117-MMB)
- Bull Escala M7-700 (Power 780 / 9179-MHB)
- Bull Escala E1-700 (Power 710 / 8231-E2B)
- Bull Escala E2-700 / E2-700T (Power 720 / 8202-E4B)
- Bull Escala E3-700 (Power 730 / 8231-E2B)
- Bull Escala E4-700 / E4-700T (Power 740 / 8205-E6B)

References to Power 755 / 8236-E8C models are irrelevant.

Hardware

September 2010

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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, a safety information booklet is included in the publications package shipped with the product. The booklet 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 in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

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)

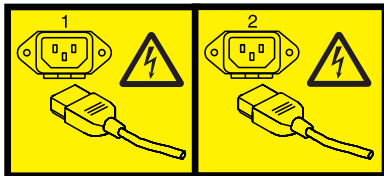
(L001)



(L002)



(L003)



or



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)

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 720 Express™ (8202-E4B) and the IBM Power 740 Express (8205-E6B)

Follow the steps outlined in this topic for installing your IBM Power 720 Express (8202-E4B) and IBM Power 740 Express (8205-E6B).

Before you install your server, read the following items:

The latest version of this document is maintained online. For the online version, see *Installing the IBM Power 720 Express (8202-E4B) and the IBM Power 740 Express (8205-E6B): Overview* (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7eda/p7edaroadmap.htm>).

- To plan your server installation, see *Planning for the system* (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7had/p7hadplankickoff.htm>).
- If you are using a Hardware Management Console (HMC) as your management console, complete the following steps:
 1. If you are using a previously existing HMC, ensure that your HMC is at the correct release (7.7.2 or later).
 2. To update your HMC release, see *Obtaining and applying machine code updates for the HMC with an Internet connection* (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hai/area3fixeshmc.htm>).

Install the server.

- If you are installing a desktide server, see Table 1.
- If you are installing a rack-mount server, see Table 2 on page 2.

To install the desktide 8202-E4B and 8205-E6B, perform the following high-level tasks:

Table 1. Tasks to install the desktide server

Task	Where to find associated information
Perform inventory. Ensure that you have the necessary parts.	Locate the inventory list for your server, and verify that you received all of the parts that you ordered. Your order information is located in the ship group next to your system box. You can also obtain order information from your marketing representative or IBM Business Partner. If you have incorrect, missing, or damaged parts, consult any of the following resources: <ul style="list-style-type: none">• Your IBM reseller.• IBM Rochester manufacturing automated information line at 1-800-300-8751 (United States only).• Directory of worldwide contacts at http://www.ibm.com/planetwide. (Select your location to view the service and support contact information.)

Table 1. Tasks to install the deskside server (continued)

Task	Where to find associated information
<p>Connect your expansion unit, disk drives, and PCI adapters, if applicable.</p> <p>Note: Do not power on your system until you return to this guide.</p>	<p>For more information, see Enclosures and expansion units (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7ham/expansionunit.htm), Disk drives (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hal/p7halkickoff.htm), and Model 8202-E4B or 8205-E6B PCI adapters (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hak/p8202pcianddiv.htm). When you are finished, continue with the next task.</p>
<p>Cable the system and set up a console, interface, or terminal.</p>	<p>To cable the system, see Cable the system and set up a console, interface, or terminal.</p>
<p>Connect power cables and apply power.</p>	

To install the rack-mounted 8202-E4B and 8205-E6B, perform the following high-level tasks:

Table 2. Tasks to install the server into a rack

Task	Where to find associated information
<p>Perform inventory.</p> <p>Ensure that you have the rails and the cable management arm.</p> <p>Ensure you have both a Philips-head and flat-head screwdriver.</p>	<p>Locate the inventory list for your server, and verify that you received all of the parts that you ordered. Your order information is located in the ship group next to your system box.</p> <p>Each order contains, at a minimum, the following:</p> <ul style="list-style-type: none"> • Left and right rack-mounting rails • Cable-management arm • Mounting screws • Power supply cables <p>You can also obtain order information from your marketing representative or IBM Business Partner.</p> <p>If you have incorrect, missing, or damaged parts, consult any of the following resources:</p> <ul style="list-style-type: none"> • Your IBM reseller. • IBM Rochester manufacturing automated information line at 1-800-300-8751 (United States only). • Directory of worldwide contacts at http://www.ibm.com/planetwide. (Select your location to view the service and support contact information.)
<p>Verify that you have a rack, if you need one.</p>	<p>You must first have a rack installed. If you do not have a rack installed, see Installing the rack (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hbf/installrack.htm).</p>
<p>Determine where you are going to install the rails and mark the location.</p>	<p>To determine and mark the location, see Determining the location and Marking the location.</p>
<p>Install the rail assembly into the rack, install the unit onto the rails, and install the cable management arm.</p>	<p>To install the rail assembly into a rack, see Attaching the mounting hardware to the rack and installing the system onto the rails.</p>

Table 2. Tasks to install the server into a rack (continued)

Task	Where to find associated information
<p>Connect your expansion unit, disk drives, and PCI adapters, if applicable.</p> <p>Note: Do not power on your system until you return to this guide.</p>	<p>For more information, see Enclosures and expansion units (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7ham/expansionunit.htm), Disk drives (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hal/p7halkickoff.htm), and Model 8202-E4B or 8205-E6B PCI adapters (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hak/p8202pcianddiv.htm). When you are finished, continue with the next task.</p>
<p>Cable the system and set up a console, interface, or terminal.</p>	<p>To cable the system, see Cable the system and set up a console, interface, or terminal.</p>
<p>Connect power cables and apply power.</p>	<p>For more information, see Completing server setup if you have an HMC, or Completing server setup if you do not have an HMC</p>

Installing the server into a rack

With the rack installed, you must install your server into the rack and set up the cable-management arm.

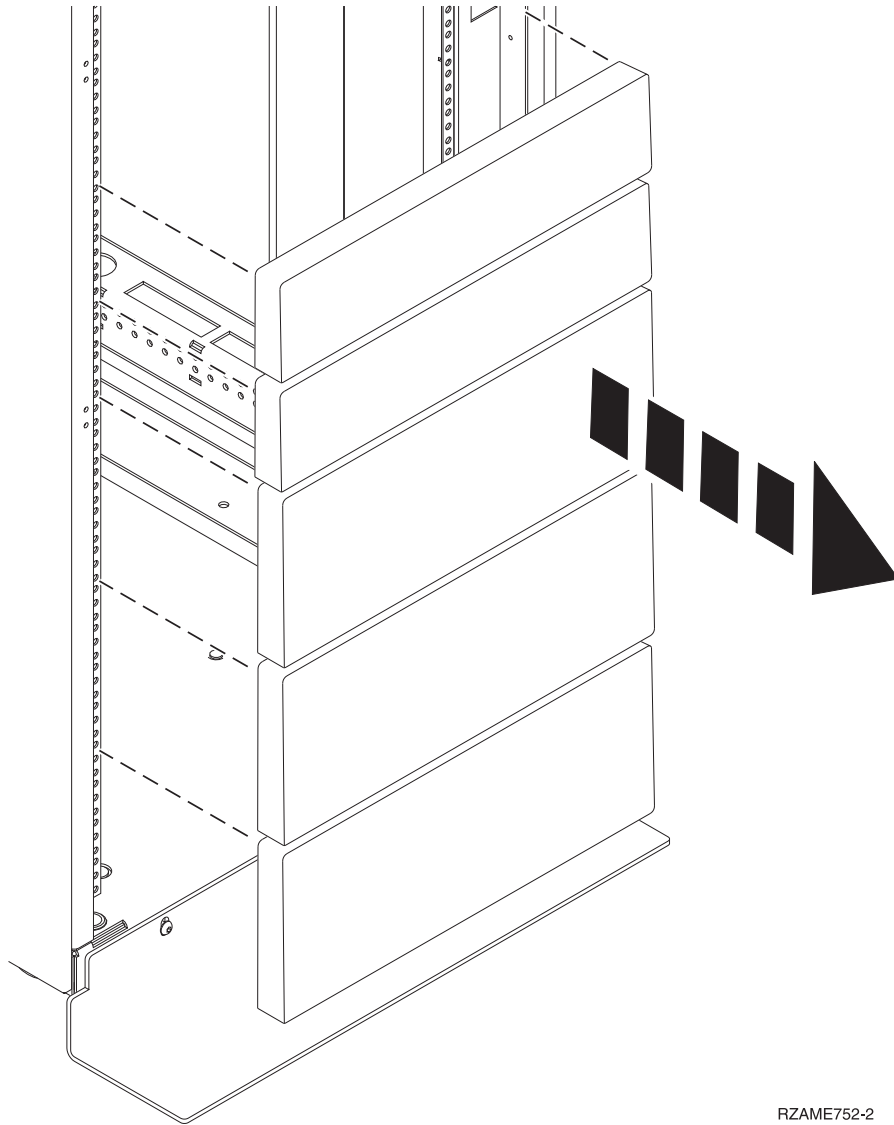
Note: If present, use the rack-mount template to perform these tasks.

Determining the location

You might need to determine where to install the system in the rack. Use this procedure to perform this task.

Before installing the system unit into a rack, complete the following steps:

1. Read the Rack safety notices.
2. Plan where to place the units. Place the larger and heavier units in the lower part of the rack.
This system unit is four Electronic Industries Alliance (EIA) units high. An EIA unit is 1.75 in. (44.45 mm) in height. The rack contains three mounting holes for each EIA unit of height. This system unit therefore is 7 in. (177.8 mm) high and covers 12 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.



RZAME752-2

Figure 1. Removing the filler panels

4. If necessary, remove the front and back rack doors.

Marking the location

You might need to mark the installation location. Use this procedure to perform this task.

To mark the installation location and install the nut clips into a rack, complete the following steps:

1. Determine where in the rack to place the system. Install units in the lower part of the rack first. Place larger and heavier units in the lower part of the rack. Record the EIA location. The system is four Electronic Industries Alliance (EIA) units high. An EIA unit is 1.75 in. (44.45 mm) in height. The rack contains three mounting holes for each EIA unit of height. This system therefore is 7 in (177.8 mm) high and covers 12 mounting holes in the rack.
2. Facing the front of the rack and working from the right side, locate the bottom EIA unit that your expansion unit uses. Make a note of the EIA location. Use tape, a marker, or a pencil to mark the bottom hole of this EIA unit **A**. Mark the rack so the mark can also be seen from the rear of the rack.

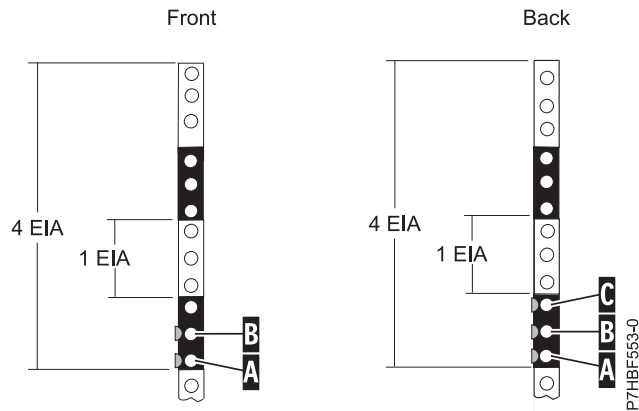


Figure 2. Marking holes on the front and back of the rack frame

3. Begin with the hole identified by the mark (A); count up one hole and place a second mark (B). Mark the rack so the mark can also be seen from the rear of the rack, as shown in Figure 2.
4. Repeat the last two steps on the left side of the rack.
5. Facing the back of the rack and working from the right side, locate the bottom EIA unit that your expansion unit uses. Make a mark next to the bottom hole of this EIA unit (A).
6. Begin with the hole identified by the mark (A); count up one hole and place a second mark (B), as shown in Figure 2.
7. Begin with the hole identified by the mark (B); count up one hole and place a third mark (C), as shown in Figure 2.
8. Repeat the last two steps on the left side of the rack.

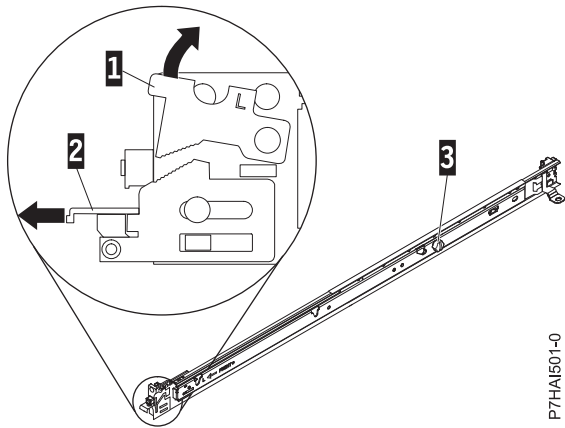
Attaching the 8202-E4B or 8205-E6B mounting hardware to the rack

You might need to attach the mounting hardware to the rack. Use the procedure in this section to perform this task. The information provided is intended to promote safety and reliable operation. This section also 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 used on your rack. Do not install mismatched hardware using washers or spacers. If you do not have the correct rails and fittings for your rack, contact your IBM reseller. Also, to install the rails correctly, perform each task in the following order.

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). Select one of the slide rails and push up on the front movable tab (1); then, pull out the front latch (2) to slide out the front side rail. If a thumbscrew is installed in the slide rail (3), remove it.

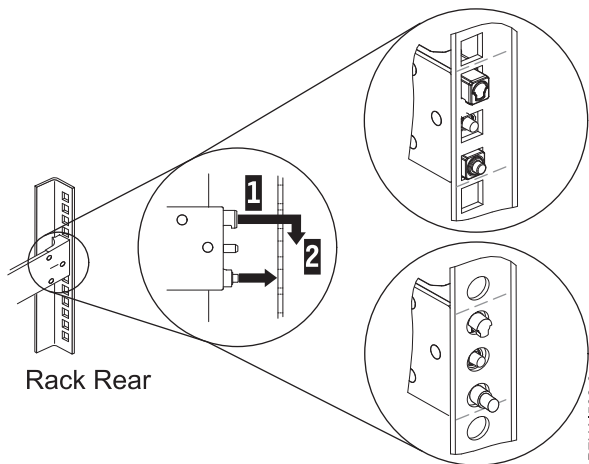


P7HA1501-0

Figure 3. Slide rail and movable tab

Note: Make sure that the movable tab remains extended and does not click back into place.

- Align the three pins on the rear of the slide rail with the three holes in the selected U on the rear of the rack. Push the rails so that the pins go into the holes (1), and drop the slide rail down (2) until it latches into place.

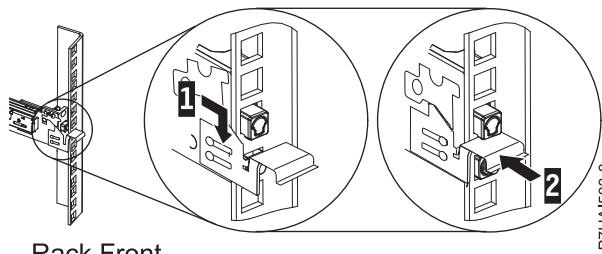


Rack Rear

P7HA1502-0

Figure 4. Align the pins with the holes in the rear of the rack

- Pull the slide rail forward and insert the two pins (1) on the front of the rail into the two lower holes in the U on the front of the rack. Drop the rail into place until it clicks into place. Push the front latch (2) in all the way. Repeat steps 1 through 3 to install the other rail into the rack. Make sure that each front latch is fully seated.



Rack Front

P7HA1503-0

Figure 5. Rack front rail and pins

4. Pull 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, and then slowly lower the front of the server (4) until the other nail heads slip into the other slots on the slide rails. Make sure that the front latch (5) slides over the nail heads.

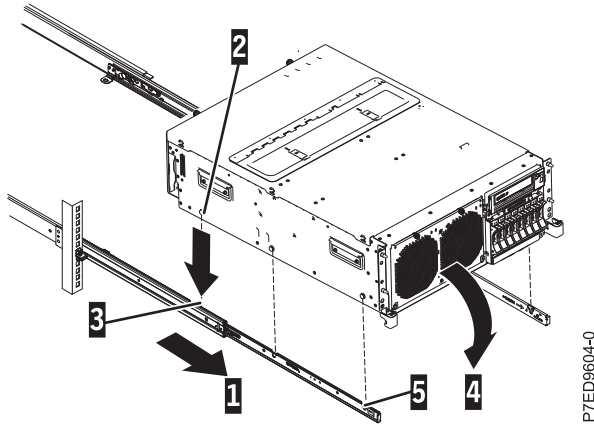


Figure 6. Slide rails extended, server nail heads aligned with slots in rail

5. 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.

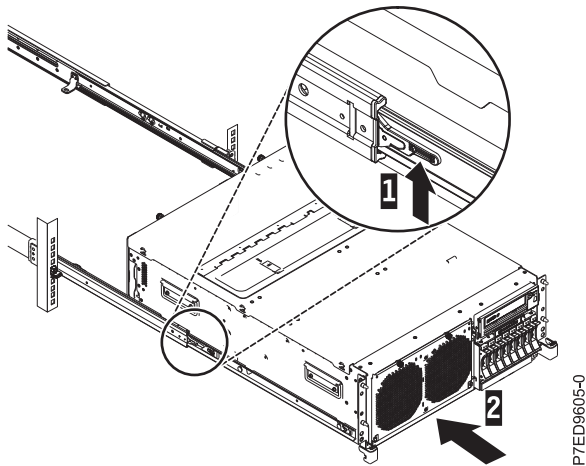


Figure 7. Release latches and server

6. Next, you must install the cable-management arm. For more information, see “Installing the cable-management arm.”

Installing the cable-management arm

You might need to install the cable-management arm. Use this procedure to perform this task.

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

1. The cable-management arm must be installed on the right side of the server, when you are facing it from the rear. The following figure shows it being installed on the right side. Connect one end of the support arm (1) to the same slide rail to which you plan to attach the cable-management arm so that you can swing the other end of the support arm (2) toward the rack.

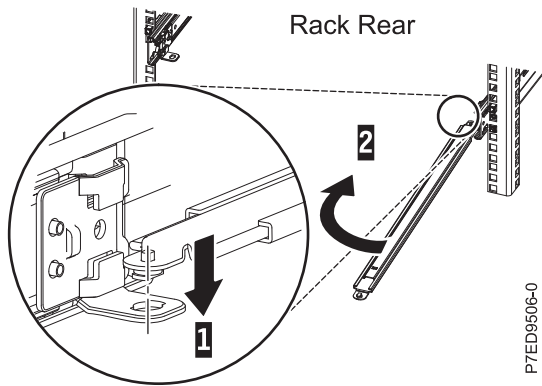


Figure 8. Support arm connection

2. Install the L-shaped cable-management stop bracket (1) on the unattached end of the support arm. Turn the bracket (2) to secure it to the support arm.

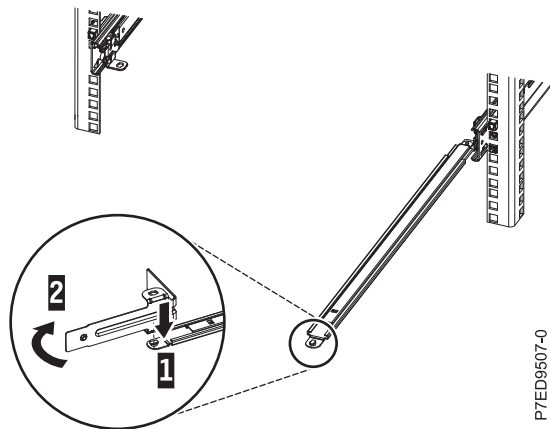


Figure 9. Cable-management stop bracket secured to the support arm

3. To attach the other side of the support arm to the backside of the slide rail, pull the pin out (1), and then slide the bracket (2) into the slide rail.

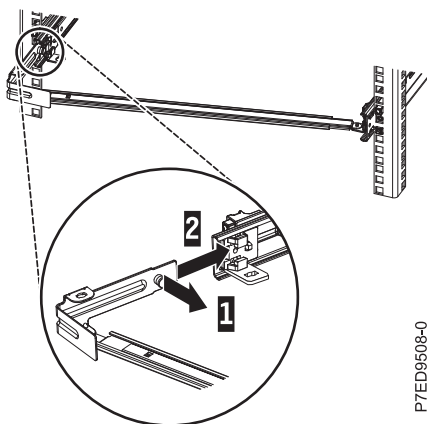


Figure 10. Pin extended, bracket installed into slide rail

4. Pull out the mounting bracket pin (1) and slide the mounting bracket (2) into the slide rail onto which you are installing the cable-management arm. Push the bracket into the slide rail until the

spring-loaded pin snaps into place.

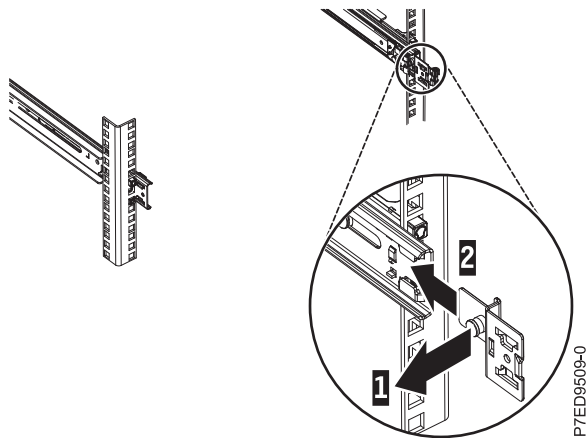


Figure 11. Mounting bracket pin extended and mounting bracket installed into slide rail

5. Place the cable-management arm on the support arm. Pull out the cable-management arm pin (1), and then slide the cable-management arm tab (2) into the slot on the inside of the slide rail. Push the tab until it snaps into place. Pull out the other cable-management arm pin (3), and then slide that cable management arm tab into the slot (4) on the outside of the slide rail. Push the tab until it snaps into place.

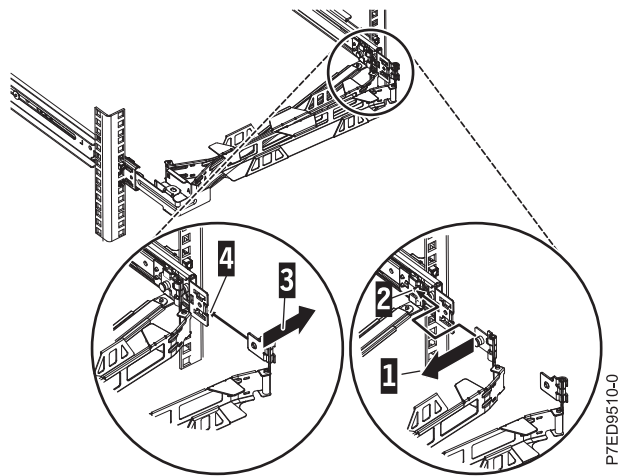


Figure 12. Cable-management arm connection

6. Attach the power cords and other cables to the rear of the server (including keyboard, monitor, and mouse cables, if required). Route the cables and power cords on the cable-management arm (1) and secure them with cable ties or hook-and-loop fasteners.

Note: Allow slack in all cables to avoid tension in the cables as the cable-management arm moves.

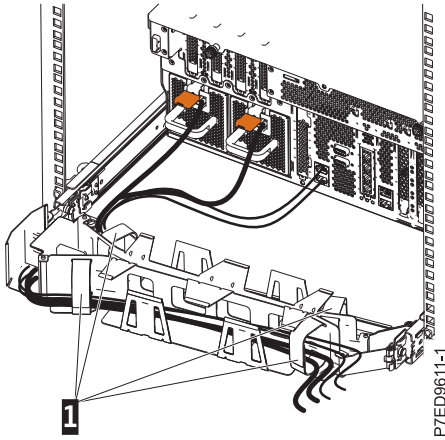


Figure 13. Power cord attachment and routing

7. Slide the server into the rack until it snaps into place.

Connecting the power cables to the system

You might need to connect power cables to the system. Use this procedure to perform this task.

To connect power cables to the system, follow these steps:

1. While facing the rear of the system unit, insert the system power cord up through the horizontal cable-restraint bracket.
2. Plug the power cord into the system unit.

Note: If the system is equipped with two power supplies, each must have its own power cord plugged in.

3. Plug the system power cord and the power cords for any other attached devices into the alternating current (AC) power source.
4. Power on the system unit and any devices connected to the system unit.

Cabling the server and setting up the 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 in one of your logical partitions.

Note: If you ordered your system or expansion unit preinstalled into a rack, you must remove the shipping bracket that is on the left side of the rear of the system or expansion unit before you cable it.

To remove the shipping bracket, do the following:

1. Remove the two screws (A).

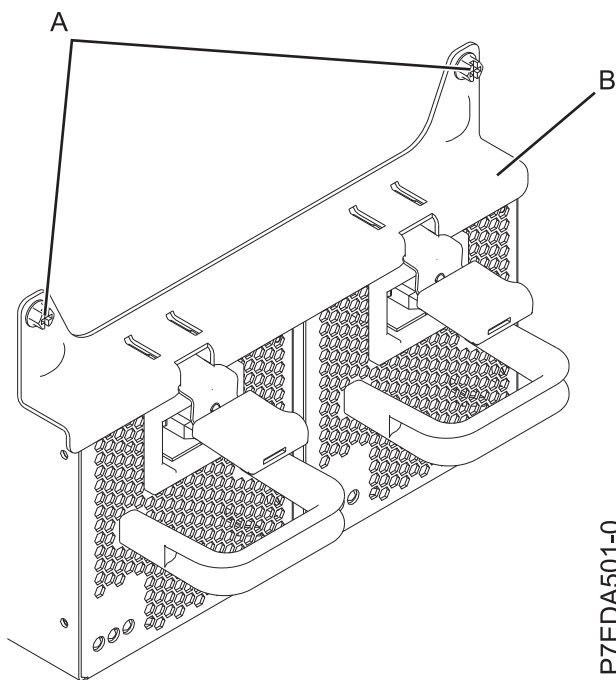


Figure 14. Shipping bracket removal

2. Pull the bracket off of the system (B), so that the power supplies unlatch from the bracket.
3. Push the power supplies back into the system, ensuring that they are fully seated and latched.

Choose one of the following consoles, interfaces, or terminals for installation.

Table 3. Available console types

Console type	Operating system	Logical partitions	Cable required	Cabling and 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 14
Hardware Management Console	AIX, IBM i, Linux, or VIOS	Yes	Ethernet (or crossover cable)	"Cabling the server to the Hardware Management Console" on page 15

Table 3. Available console types (continued)

Console type	Operating system	Logical partitions	Cable required	Cabling and setup instructions
Operations Console	IBM i	Yes Use your Operations Console to manage existing IBM i partitions.	Ethernet cable for LAN connection	“Cabling the server and accessing Operations Console” on page 15
Integrated Virtualization Manager for VIOS	AIX, Linux, and IBM i	Yes	Ethernet cable for network connection	“Cabling the server with an ASCII terminal”

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 perform additional 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 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 more information about the locations of the connectors on the system, see 8202-E4B or 8205-E6B Locations (http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7ecs/p7ecslcodes_72x_74x.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 system connector 1 (default) or 2 on the back of the server.
2. Connect the power cord from the server to a 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 4. 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.
You have completed the setup for an ASCII terminal, and have started the ASMI.
8. Continue with “Completing server setup if you do not have an HMC” on page 23.

Cabling the server to the Hardware Management Console

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

Before you begin, if you have not already done so, install and configure your HMC. For instructions about installing and configuring the HMC, see Installation and configuration scenarios (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hai/basichmcinstallationandconfigurationtaskflow.htm>).

To manage POWER7™ processor-based servers, the HMC must be at Version 7.7.2 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, Service pack, 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 **LINK HMC1** port on the managed system. To learn more about connecting an HMC to a private network so that it can manage more than one managed system, see HMC network connections (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hai/netconhmc.htm>).

Note:

- You can also have multiple systems attached to a switch that is then connected to the HMC. For more information, see HMC network connections.
 - 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 HMC's Ethernet adapter speed is set to **auto/auto**. For more information about setting media speeds, see Setting the media speed.
2. If you are connecting a second HMC to your managed server, connect to the Ethernet port that is labeled **LINK HMC2** on the managed server.
 3. Complete your server setup. For instructions, see “Completing server setup if you have an HMC” on page 21.

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 System 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 cable the server and access the Operations Console, do the following:

1. Connect the PC that will be the console to the system unit using an Ethernet cable. The connection should be from an Ethernet port on the PC directly to the Ethernet port on the system unit labeled **T1**.

2. Install the Setup and Operations CD on the PC. Follow the instructions to install the 5250 emulator and Operations Console.
3. Open the Operations Console window.
4. Power on the system unit.

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

1. Go to the IBM i Information Center website at <http://www.ibm.com/systems/i/infocenter>  and select from the following options:
 - If you select **V7R1**, expand **IBM i 7.1 Information Center**.
 - If you select **V6R1**, expand **IBM i 6.1 Information Center**.
2. Expand **Connecting to System i** → **System i Access for Windows** → **Operations Console** → **PC preparations for Operations Console**.

Next, you need to install an operating system and enable service and support functions for your server. For instructions, see “Completing server setup” on page 21. After you finish this task, you will be directed to finish configuring the Operations Console.

Cabling the server and accessing the Integrated Virtualization Manager

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

To prepare for and install the Virtual I/O Server and enable the Integrated Virtualization Manager, complete the following steps:

1. Connect a serial cable from a PC or ASCII terminal to a system port on the server.
2. Do the following steps:
 - Verify that you have access to the Advanced System Management Interface (ASMI) using the Web interface. For details, see *Accessing the ASMI using a Web browser*.
 - Verify that you have administrator or authorized service provider authority in ASMI.
 - 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:

 - a. In the navigation area, expand **Power/Restart Control**.
 - b. Click **Power On/Off System**.
 - c. Select **Boot to SMS menu** in the **AIX/Linux partition mode** by boot field.
 - d. If you are installing the Integrated Virtualization Manager on an IBM System i model, select **AIX/Linux** in the **Default partition environment** field.
 - e. Click **Save settings and power on**.
 - Open a terminal session on the PC, using an application such as HyperTerminal, and wait for the SMS menu to appear. Be sure the line speed is set to 19,200 bits per second to communicate with the system unit.
 - Using the Web-based ASMI, change the partition boot mode back so that the server loads the operating environment during startup:
 - a. Expand **Power/Restart Control**.
 - b. Click **Power On/Off System**.
 - c. Select **Continue to operating system** in the **AIX/Linux partition mode** boot field.
 - d. 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 Integrated Virtualization Manager, finish the installation by accepting the license agreement, checking for updates, configuring the TCP/IP connection.

Next, you need to install an operating system and enable service and support functions for your server. For instructions, see “Completing server setup” on page 21.

Supporting information for setting up consoles

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

Accessing the ASMI 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 back 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 the Service processor network configuration table might not be valid. For details, see “Correcting an IP address” on page 20.

4. Use Table 5 to help you determine and record the information needed in order to set the IP address on 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 5. Network configuration information for the service processor in a POWER7 processor-based system

POWER7 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
Service processor B (if installed)	HMC1	255.255.255.0	169.254.2.146	169.254.2.140
	HMC2	255.255.255.0	169.254.3.146	169.254.3.140

5. Set the IP address on your PC or notebook using the values from the table. For details, see “Setting the IP address on your PC or notebook” on page 19.
6. To access the ASMI using a Web browser, perform the following steps:
 - a. Use Table 5 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. 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/iphby/connect_asmi.htm).

Setting the IP address on your PC or notebook

To access the 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 running the Linux operating system and the Microsoft Windows XP, 2000, and Vista operating systems.

You will need the information you recorded in step 4 on page 18 in Accessing the ASMI using a Web browser to complete the following procedure.

Windows XP and Windows 2000

To set the IP address within Windows XP and Windows 2000, do the following steps:

1. Click **Start** → **Control Panel**.
2. On the control panel, double-click **Network Connections**.
3. Right-click **Local Area Connection**.
4. Click **Properties**.
5. Select **Internet Protocol (TCP/IP)**, and then click **Properties**.

Attention: Record the current settings before making any changes. Use this information to restore these settings if you disconnect the PC or notebook after setting up the ASMI Web interface.

Note: If Internet Protocol (TCP/IP) does not appear in the list, do the following steps:

- a. Click **Install**.
 - b. Select **Protocol**, and then click **Add**.
 - c. Select **Internet Protocol (TCP/IP)**.
 - d. Click **OK** to return to the Local Area Connection Properties window.
6. Select **Use the Following IP Address**.
 7. Complete the **IP address**, **Subnet mask**, and **Default gateway** fields by using the values you recorded in the Accessing the ASMI using a Web Browser task.
 8. Click **OK** on the Local Area Connection Properties window. It is not necessary to restart your PC.

Linux

To set the IP address within the Linux operating system, do the following steps.

1. Make sure that you are logged on as a root user.
2. Start a terminal session.
3. Type `ifconfig -a` at the command prompt.

Attention: Record or print the current settings and the eth1 or eth2 interfaces before making changes. This action allows you to restore these settings if you disconnect the PC or notebook after setting up the ASMI Web interface.
4. Type `ifconfig ethx xxx.xxx.xxx.xxx netmask xxx.xxx.xxx.xxx`, where the `xxx.xxx.xxx.xxx` values are the values you recorded in the Accessing the ASMI using a Web Browser task. Replace ethx with the interface shown in step 3.
5. Press Enter.

Windows Vista

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

1. Click **Start** → **Control Panel**.

2. Ensure **Classic View** is selected.
3. Select **Network and Sharing Center**.
4. Select **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 you recorded in the Accessing the ASMI using a Web browser procedure.
10. Click **OK** → **Close** → **Close**.

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 the system is turned on. If you are unable to access the ASMI using a network connection, you must perform one of the following tasks:

- Attach an ASCII terminal to the service processor using a serial cable. For details, see “Cabling the server with an ASCII terminal” on page 14.
- 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.

Completing server setup

The tasks for completing the server setup depend on whether you have a Hardware Management Console (HMC). Learn more about the tasks you must perform to complete your managed system installation.

If you have an HMC, use it to perform the following tasks:

1. Update the time of day on the managed system using the Advanced System Management Interface (ASMI).
2. Check the firmware level on the managed system.
3. If required, update the managed system firmware levels.
4. Power on the managed system.
5. Create partitions or deploy an imported system plan.
6. Install an operating system, if it is not already installed.

For detailed instructions about how to perform these tasks, see “Completing server setup if you have an HMC.”

If you do not have an HMC, perform the following tasks:

1. Check the firmware level on the managed system and update the time of day using ASMI.
2. Power on the managed system.
3. Install and update an operating system (if it is not already installed).
4. Update system firmware, if required.

For detailed instructions about how to perform these tasks, see “Completing server setup if you do not have an HMC” on page 23.

Completing server setup if you have an HMC

You must perform these tasks to complete server setup with a Hardware Management Console (HMC).

To manage POWER7 systems, the HMC must be at Version 7.7.2 or later.

To complete server setup with an HMC, do the following steps:

1. Plug in the power cords. Wait for the system to display **Pending Authentication - Password Updates Required**.
2. Change the managed system passwords. To change the managed system passwords, do the following steps:
 - a. In the navigation area, expand **Systems Management > Servers**.
 - b. In the contents area, select the managed system.
 - c. In the operations area, select **Update passwords**.
3. Update the time of day on the managed system using the Advanced System Management Interface (ASMI).

To set up and access the ASMI, do 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. Select **Launch Advanced System Management (ASM)**.

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

- a. On the ASMI Welcome pane, specify your admin user ID and password, and click **Log In**.
- b. In the navigation area, expand **System Configuration**.
- c. Select **Time of Day**. The right pane displays a form that shows the current date (month, day, and year) and time (hours, minutes, seconds).
- d. Change the date value, the time value, or both, and click **Save settings**.

4. Check the firmware level on the managed system.

To check the firmware level on the managed system, in the navigation area, select **Updates**. Firmware information is displayed in the contents area.

5. Compare your installed firmware level with available firmware levels. If required, update your firmware levels.

- a. Compare your installed firmware level with available firmware levels. From a computer or server with an Internet connection, go to <http://www.ibm.com/eserver/support/fixes>.
- b. If required, update your managed system firmware levels. In the navigation area, select **Updates**.
- c. In the contents area, select your managed system.
- d. Select **Change Licensed Internal Code for the current release**.

6. Power on your managed system using the correct Power-On Parameter. To power on your managed system by using the HMC, do the following steps:

- a. View your managed system's properties and verify that the logical partition Start policy is set to **User-Initiated**. To verify that the logical partition Start policy is set to **User-Initiated**, do the following:

- 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. To power on the managed system, do the following:

- 1) In the navigation area, expand **Systems Management > Servers**.
- 2) In the contents area, select the managed system.
- 3) Select **Operations > Power On**.
- 4) Select a power on option and click **OK**.

7. Create partitions or deploy an imported system plan.

For instructions about creating partitions, see Partitioning with the HMC (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hat/iphblparwithhmcp6.htm>).

For instructions about deploying system plans, see Deploying a system plan by using an HMC (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hc6/iphc6deploysysplanp6.htm>).

8. Install an operating system and update the operating system.

For instructions to install the AIX operating system, see Installing AIX (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/ipha8/iphayinstallaix.htm>).

For instructions to install IBM i, go to Installing IBM i (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/ipha8/iphaxinstallos400.htm>).

For instructions to install the Linux operating system, see Installing Linux on Power Systems servers (http://publib.boulder.ibm.com/infocenter/lxinfo/v3r0m0/topic/liaae/lcon_installing_linux_on_system_p5.htm).

For instructions to install the VIOS operating system, see Installing VIOS (<http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hch/iphchinstallvios.htm>).

Completing server setup if you do not have an HMC

You must perform these tasks to complete server setup without a Hardware Management Console (HMC).

1. Plug in the power cords, if you have not already done so.
2. To check the firmware level on the managed system and to update the time of day, do the following steps:
 - a. Access the Advanced System Management Interface (ASMI). For more information, see [Accessing the ASMI without an HMC \(http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hby/connect_asmi.htm\)](http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hby/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. Select **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. See [Power on \(http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hby/poweronoff.htm\)](http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hby/poweronoff.htm).
4. To start a system that is not managed by an HMC or ASMI, do the following steps:
 - a. Open the front door of the managed system.
 - b. Press the power button on the control panel.
5. Install an operating system and update the operating system, if required.

For instructions to install the AIX operating system, see [Installing AIX \(http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/ipha8/iphayinstallaix.htm\)](http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/ipha8/iphayinstallaix.htm).

For instructions to install IBM i, see [Installing IBM i \(http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/ipha8/iphaxinstallos400.htm\)](http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/ipha8/iphaxinstallos400.htm).

For instructions to install the Linux operating system, see [Installing Linux on Power Systems servers \(http://publib.boulder.ibm.com/infocenter/lxinfor/v3r0m0/topic/liaae/lcon_installing_linux_on_system_p5.htm\)](http://publib.boulder.ibm.com/infocenter/lxinfor/v3r0m0/topic/liaae/lcon_installing_linux_on_system_p5.htm).

For instructions to install the VIOS operating system, see [Installing VIOS \(http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hch/iphchinstallvios.htm\)](http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7hch/iphchinstallvios.htm).
6. 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 an HMC \(http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7ha5/fix_firm_no_hmc_aix.htm\)](http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7ha5/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 \(http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7ha5/fix_virtual_firm_ivm.htm\)](http://publib.boulder.ibm.com/infocenter/systems/scope/hw/topic/p7ha5/fix_virtual_firm_ivm.htm).

Notices

This information was developed for products and services offered in the U.S.A.

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Electronic emission notices

Class A Notices

The following Class A statements apply to the IBM servers that contain the POWER7 processor and its features unless designated as electromagnetic compatibility (EMC) Class B in the feature information.

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this

equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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

Industry Canada Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

European Community contact:
IBM Deutschland GmbH
Technical Regulations, Department M456
IBM-Allee 1, 71139 Ehningen, Germany
Tele: +49 7032 15-2937
e-mail: tjahn@de.ibm.com

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

VCCI Statement - Japan

この装置は、クラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

The following is a summary of the VCCI Japanese statement in the box above:

This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

**Japanese Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)**

高調波ガイドライン適合品

**Japanese Electronics and Information Technology Industries Association (JEITA)
Confirmed Harmonics Guideline with Modifications (products greater than 20 A per phase)**

高調波ガイドライン準用品

Electromagnetic Interference (EMI) Statement - People's Republic of China

声 明

此为 A 级产品,在生活环境中,
该产品可能会造成无线电干扰。
在这种情况下,可能需要用户对其
干扰采取切实可行的措施。

Declaration: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical action.

Electromagnetic Interference (EMI) Statement - Taiwan

警告使用者：

這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

The following is a summary of the EMI Taiwan statement above.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

IBM Taiwan Contact Information:

台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

Electromagnetic Interference (EMI) Statement - Korea

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Please note that this equipment has obtained EMC registration for commercial use. In the event that it has been mistakenly sold or purchased, please exchange it for equipment certified for home use.

Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

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EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

"Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen."

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

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

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Regulations, Abteilung M456
IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 7032 15-2937
e-mail: tjahn@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

Electromagnetic Interference (EMI) Statement - Russia

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать
радиопомехи, для снижения которых необходимы
дополнительные меры

Class B Notices

The following Class B statements apply to features designated as electromagnetic compatibility (EMC) Class B in the feature installation information.

Federal Communications Commission (FCC) statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM-authorized dealers. IBM is not responsible for any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate this equipment.

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

Industry Canada Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication equipment.

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取扱説明書に従って正しい取り扱いをして下さい。 VCCI-B

Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)

高調波ガイドライン適合品

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台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

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Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse B EU-Richtlinie zur Elektromagnetischen Verträglichkeit

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Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse B

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

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

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Regulations, Abteilung M456

IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 7032 15-2937
e-mail: tjahn@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse B.

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