

Power Systems

*Control panel for the 8247-42L,  
8286-41A, or 8286-42A*

**IBM**



Power Systems

*Control panel for the 8247-42L,  
8286-41A, or 8286-42A*

**IBM**

**Note**

Before using this information and the product it supports, read the information in “Safety notices” on page vii, “Notices” on page 75, 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:

- If IBM supplied the power cord(s), 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.
  - For AC power, disconnect all power cords from their AC power source.
  - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.

- For racks with AC power, 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.
- For racks with a DC power distribution panel (PDP), connect the customer's DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- 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.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.
- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.

**DANGER:**

- 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. For AC power, remove the power cords from the outlets.
3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
4. Remove the signal cables from the connectors.
5. 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. For AC power, attach the power cords to the outlets.
5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
6. Turn on the devices.

Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching. (D005)

**(R001 part 1 of 2):**

**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. In addition, do not lean on rack mounted devices and do not use them to stabilize your body position (for example, when working from a ladder).



- Each rack cabinet might have more than one power cord.
  - For AC powered racks, be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
  - For racks with a DC power distribution panel (PDP), turn off the circuit breaker that controls the power to the system unit(s), or disconnect the customer's DC power source, 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.

**(R001 part 2 of 2):**

**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.

**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 (compliance ID RACK-001 or 22U (compliance ID RR001) and above.
  - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
  - Ensure that there are little-to-no empty U-levels between devices installed in the rack cabinet below the 32U (compliance ID RACK-001 or 22U (compliance ID RR001) level, unless the received configuration specifically allowed it.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- If the rack cabinet you are relocating was supplied with removable outriggers they must be reinstalled before the cabinet is relocated.
- 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)



**DANGER:** Rack-mounted devices are not to be used as shelves or work spaces. (L002)

(L003)



or



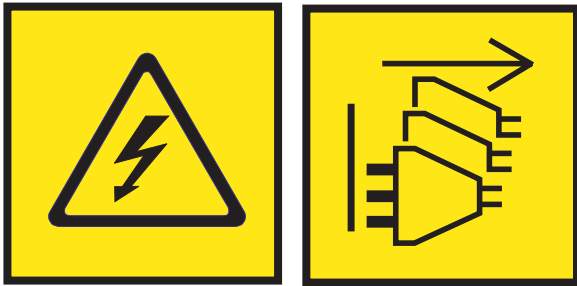
or



or



or



**DANGER:** Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

(L007)



**CAUTION:** A hot surface nearby. (L007)

(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. Although shining light into one end and looking into the other end of a disconnected optical fiber to verify the continuity of optic fibers may not injure the eye, this procedure is potentially dangerous. Therefore, verifying the continuity of optical fibers by shining light into one end and looking at the other end is not recommended. To verify continuity of a fiber optic cable, use an optical light source and power meter. (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)

## CAUTION:

Regarding IBM provided VENDOR LIFT TOOL:

- Operation of LIFT TOOL by authorized personnel only.
- LIFT TOOL intended for use to assist, lift, install, remove units (load) up into rack elevations. It is not to be used loaded transporting over major ramps nor as a replacement for such designated tools like pallet jacks, walkies, fork trucks and such related relocation practices. When this is not practicable, specially trained persons or services must be used (for instance, riggers or movers).
- Read and completely understand the contents of LIFT TOOL operator's manual before using. Failure to read, understand, obey safety rules, and follow instructions may result in property damage and/or personal injury. If there are questions, contact the vendor's service and support. Local paper manual must remain with machine in provided storage sleeve area. Latest revision manual available on vendor's web site.
- Test verify stabilizer brake function before each use. Do not over-force moving or rolling the LIFT TOOL with stabilizer brake engaged.
- Do not move LIFT TOOL while platform is raised, except for minor positioning.
- Do not exceed rated load capacity. See LOAD CAPACITY CHART regarding maximum loads at center versus edge of extended platform.
- Only raise load if properly centered on platform. Do not place more than 200 lb (91 kg) on edge of sliding platform shelf also considering the load's center of mass/gravity (CoG).
- Do not corner load the platform tilt riser accessory option. Secure platform riser tilt option to main shelf in all four (4x) locations with provided hardware only, prior to use. Load objects are designed to slide on/off smooth platforms without appreciable force, so take care not to push or lean. Keep riser tilt option flat at all times except for final minor adjustment when needed.
- Do not stand under overhanging load.
- Do not use on uneven surface, incline or decline (major ramps).
- Do not stack loads.
- Do not operate while under the influence of drugs or alcohol.
- Do not support ladder against LIFT TOOL.
- Tipping hazard. Do not push or lean against load with raised platform.
- Do not use as a personnel lifting platform or step. No riders.
- Do not stand on any part of lift. Not a step.
- Do not climb on mast.
- Do not operate a damaged or malfunctioning LIFT TOOL machine.
- Crush and pinch point hazard below platform. Only lower load in areas clear of personnel and obstructions. Keep hands and feet clear during operation.
- No Forks. Never lift or move bare LIFT TOOL MACHINE with pallet truck, jack or fork lift.
- Mast extends higher than platform. Be aware of ceiling height, cable trays, sprinklers, lights, and other overhead objects.
- Do not leave LIFT TOOL machine unattended with an elevated load.
- Watch and keep hands, fingers, and clothing clear when equipment is in motion.
- Turn Winch with hand power only. If winch handle cannot be cranked easily with one hand, it is probably over-loaded. Do not continue to turn winch past top or bottom of platform travel. Excessive unwinding will detach handle and damage cable. Always hold handle when lowering, unwinding. Always assure self that winch is holding load before releasing winch handle.
- A winch accident could cause serious injury. Not for moving humans. Make certain clicking sound is heard as the equipment is being raised. Be sure winch is locked in position before releasing handle. Read instruction page before operating this winch. Never allow winch to unwind freely. Freewheeling will cause uneven cable wrapping around winch drum, damage cable, and may cause serious injury. (C048)

## **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 metalically 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 metalically 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.

The dc-powered system is intended to be installed in a common bonding network (CBN) as described in GR-1089-CORE.



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## Control panel for the 8247-42L, 8286-41A, or 8286-42A

You can remove or replace the control panel (operator panel) for the IBM Power® System S824L (8247-42L), IBM Power System S814 (8286-41A), and the IBM Power System S824 (8286-42A) servers.

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### Removing and replacing the control panel in the 8247-42L, 8286-41A, or 8286-42A with the system power on

Learn how to remove and replace a control panel with the system power on.

If your system is managed by the Hardware Management Console (HMC), use the HMC to repair a part in the system. For instructions, see “Repairing a part by using the HMC” on page 59.

If you do not have an HMC, complete the following steps to prepare the system to remove and replace a control panel:

1. “Preparing the system to remove and replace the control panel with the system power on.”
2. “Removing the control panel from the 8247-42L, 8286-41A, or 8286-42A with the system power on” on page 2.
3. “Replacing the 8247-42L, 8286-41A, or 8286-42A control panel with the system power on” on page 3.
4. “Preparing the system for operation” on page 5.

### Preparing the system to remove and replace the control panel with the system power on

Learn how to prepare the system to remove and replace the control panel.

To prepare the system to remove and replace the control panel, complete the following steps:

1. Identify the part and the system that you will be working on. For instructions, see “Identifying a part” on page 16.
2. Complete the prerequisite tasks. For instructions, see “Before you begin” on page 13.
3. Access the Advanced System Management Interface (ASMI).  
**Attention:** Do not reset the service processor, or power off and power on the system, during this procedure.
4. In the navigation area, click **Concurrent maintenance > Control panel**.
5. In the Preparing the control panel window, select **Remove** and then click **Continue**.
6. Choose the control panel location and click **Save Settings**. If the operation was successful, the window displays Operation completed successfully.
7. Remove the front cover. For instructions, see “Removing the front cover” on page 30.
8. Attach the electrostatic discharge (ESD) wrist strap. The ESD wrist strap must be connected to an unpainted metal surface until the service procedure is completed, and if applicable, until the service access cover is replaced.

**Attention:**

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds. If at any point in this service process you move away from the system, it is important to once again discharge yourself by touching an unpainted metal surface for at least 5 seconds before you continue with the service process.

## Removing the control panel from the 8247-42L, 8286-41A, or 8286-42A with the system power on

You can remove the control panel from the server with the system power on.

To remove the control panel with the system power on, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is connected to an unpainted metal surface. If not, do so now.
2. Press on the terracotta tab and then slide the control panel straight out of the slot. See the following figures depending on the type of your system.

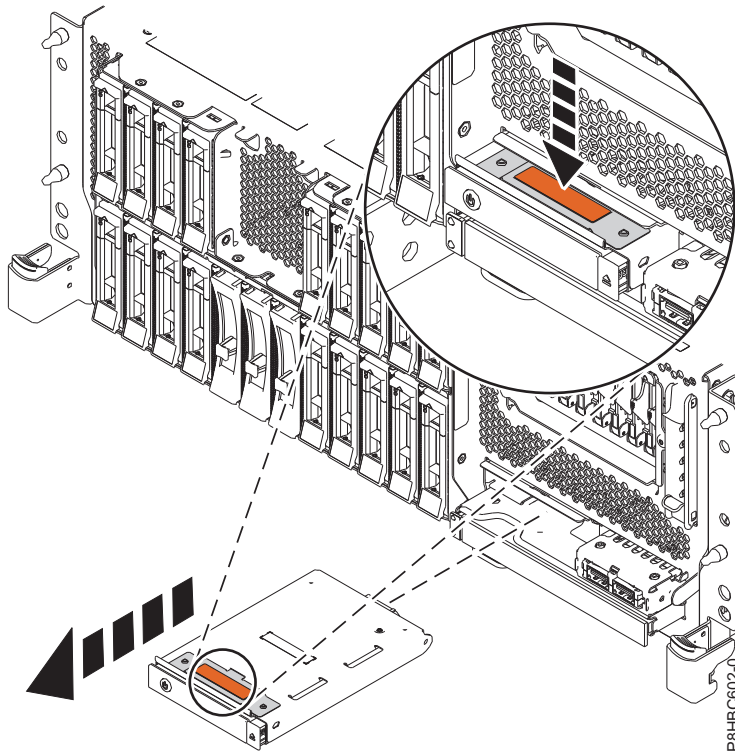


Figure 1. Removing a control panel from a rack-mounted system

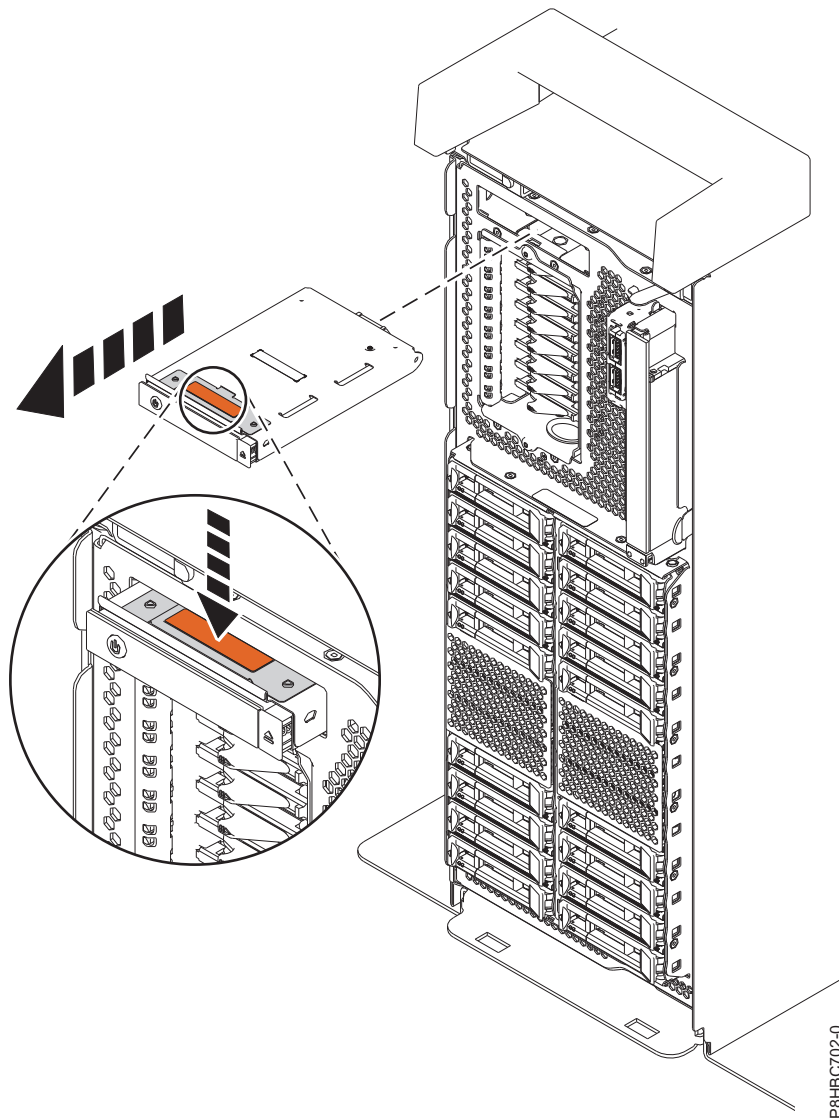


Figure 2. Removing a control panel from a stand-alone system

3. If you are removing the control panel as part of another procedure, return to that procedure now.

**Related information:**

[Managing the Advanced System Management Interface](#)

**Replacing the 8247-42L, 8286-41A, or 8286-42A control panel with the system power on**

To replace the control panel with the system power turned on, complete the steps in this procedure.

To replace the control panel, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is connected to an unpainted metal surface. If not, do so now.
2. If necessary, remove the new control panel from its packaging.
3. Align the control panel with the control panel slot.
4. Slide the control panel into the slot, and press on the terracotta tab to lock it in place.

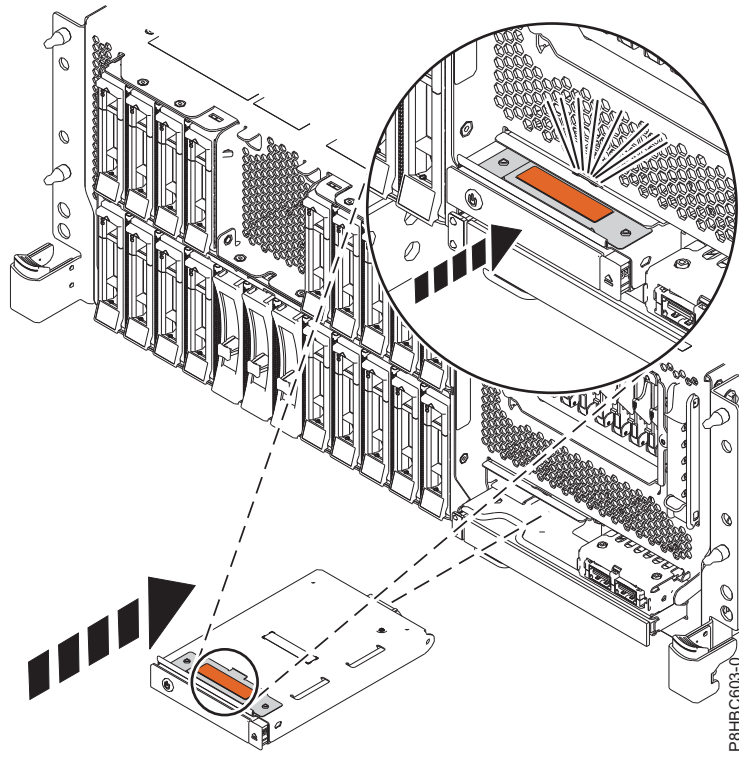


Figure 3. Replacing the control panel in a rack-mounted system

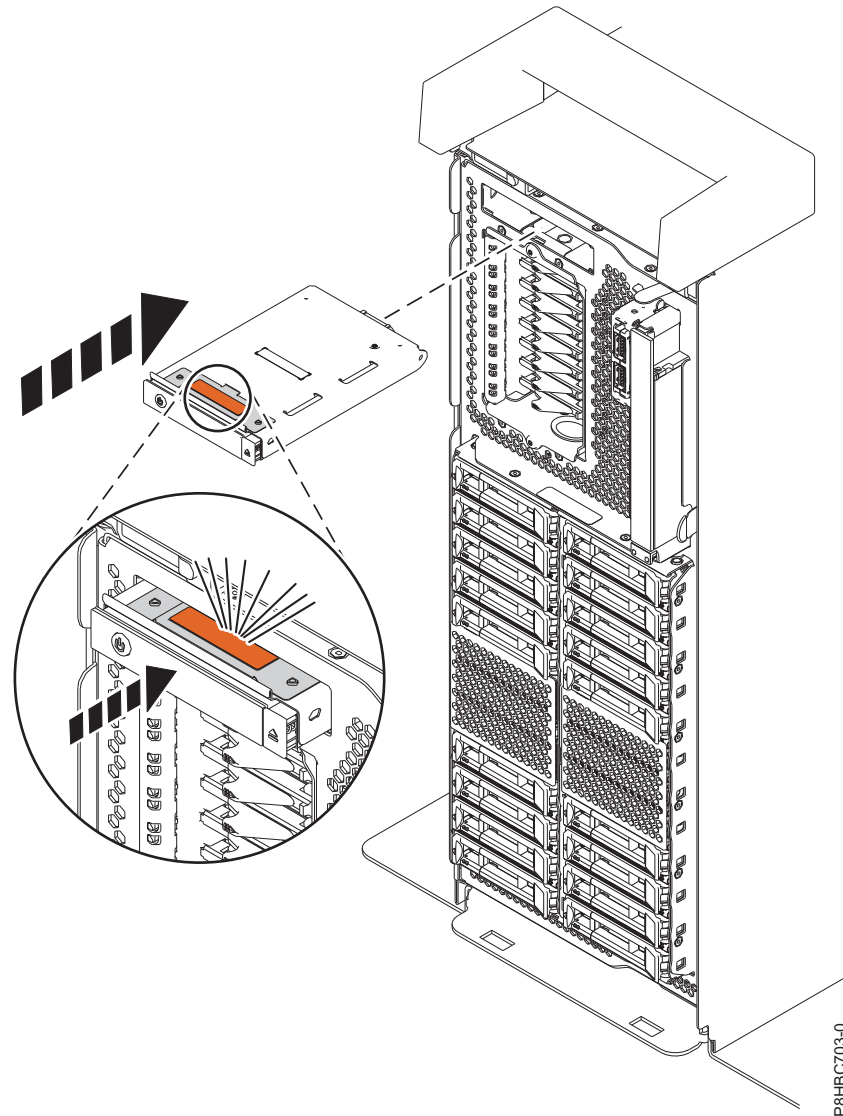


Figure 4. Replacing the control panel for a stand-alone system

5. If you are replacing the control panel as part of another procedure, return to that procedure now.

## Preparing the system for operation

Learn how to prepare the system for operation after you remove and replace the control panel.

To prepare the system for operation, complete the following steps:

1. Access the Advanced System Management Interface (ASMI).  
**Attention:** Do not reset the service processor, or power off and power on the system, during this procedure.
2. In the navigation area, click **Concurrent maintenance > Control panel**.
3. In the Preparing the control panel window, select **Install** and click **Continue**.
4. Choose the control panel location and click **Save Settings**. If the operation was successful, the window displays Operation completed successfully.

**Note:** If a ball or dot appears in the control panel function display (A), toggle between function 02 and function 01 until the ball or dot disappears.

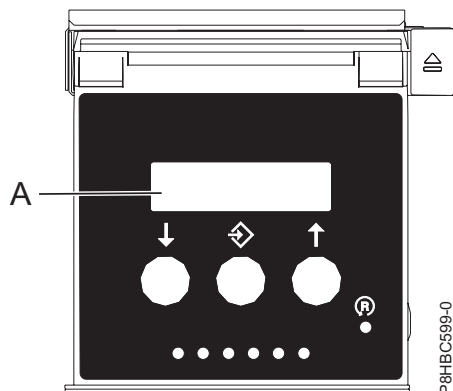


Figure 5. Control panel function display

5. Replace the front cover. For instructions, see “Installing the front cover” on page 36.
6. Verify whether the control panel is operational by checking the progress codes.

---

## Removing and replacing the control panel in the 8247-42L, 8286-41A, or 8286-42A with the system power off

Learn how to remove and replace the control panel with the system power turned off.

If your system is managed by the Hardware Management Console (HMC), use the HMC to repair a part in the system. For instructions, see “Repairing a part by using the HMC” on page 59.

If you do not have an HMC, complete the following steps to prepare the system to remove and replace a control panel:

1. “Preparing the system to remove and replace the control panel with the system power off.”
2. “Removing the control panel from the 8247-42L, 8286-41A, or 8286-42A with the system power off” on page 8.
3. “Replacing the control panel in the 8247-42L, 8286-41A, or 8286-42A with the system power off” on page 10.
4. “Preparing the system for operation” on page 12.

## Preparing the system to remove and replace the control panel with the system power off

Learn how to prepare the system to remove and replace the control panel with the system power turned off.

To prepare a system to remove and replace the control panel with the system power off, complete the following steps:

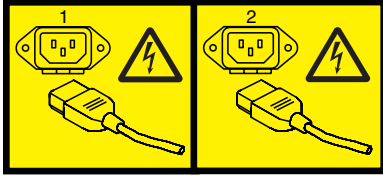
1. Identify the part and the system that you will be working on. For instructions, see “Identifying a part” on page 16.
2. Complete the prerequisite tasks. For instructions, see “Before you begin” on page 13.
3. Stop the system or logical partition. For instructions, see “Stopping a system or logical partition” on page 27.
4. Remove the front cover. For instructions, see “Removing the front cover” on page 30.



5. Disconnect the power source from the system by unplugging the system. For instructions, see "Disconnecting the power cords from the system" on page 52.

**Note:** The system might be equipped with redundant power supply. Before you continue with this procedure, ensure that all power to your system is disconnected.

(L003)



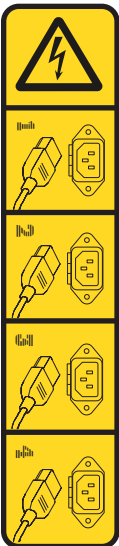
or



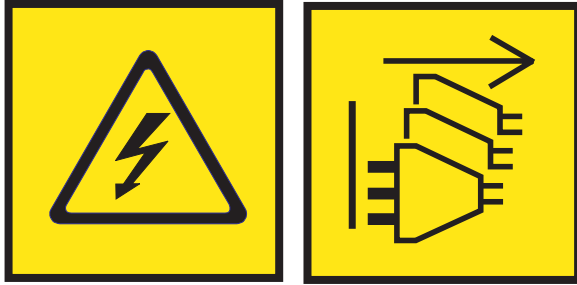
or



or



or



**DANGER:** Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

6. Attach the electrostatic discharge (ESD) wrist strap. The ESD wrist strap must be connected to an unpainted metal surface until the service procedure is completed, and if applicable, until the service access cover is replaced.

**Attention:**

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds. If at any point in this service process you move away from the system, it is important to once again discharge yourself by touching an unpainted metal surface for at least 5 seconds before you continue with the service process.

## **Removing the control panel from the 8247-42L, 8286-41A, or 8286-42A with the system power off**

To remove the control panel with the system power turned off, complete the steps in this procedure.

To remove the control panel, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is connected to an unpainted metal surface. If not, do so now.
2. Press the terracotta tab and then slide the control panel straight out of the slot Refer to the figure that illustrates your system.

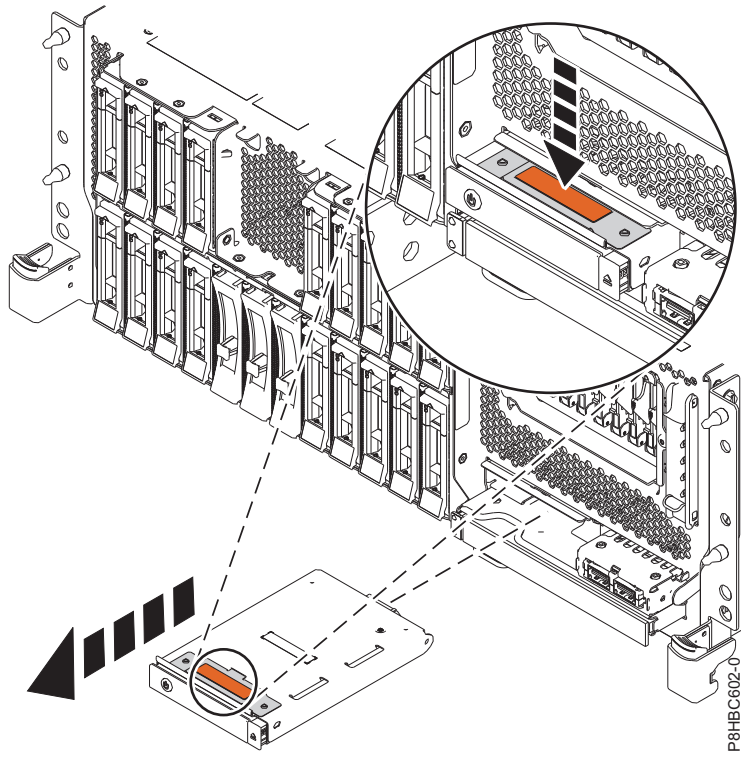


Figure 6. Removing a control panel from a rack-mounted system

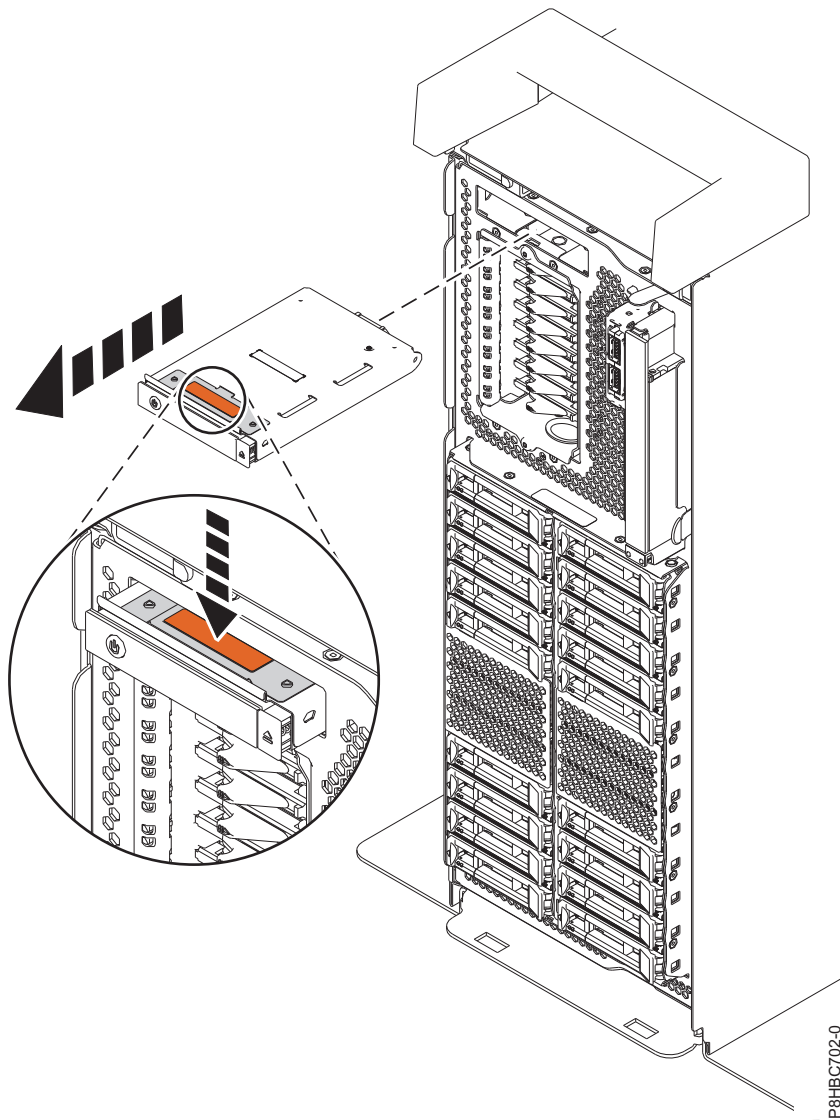


Figure 7. Removing a control panel from a stand-alone system

3. If you are removing the control panel as part of another procedure, return to that procedure now.

## Replacing the control panel in the 8247-42L, 8286-41A, or 8286-42A with the system power off

To replace the control panel with the system power turned off, complete the steps in this procedure.

To replace the control panel, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is connected to an unpainted metal surface. If not, do so now.
2. If necessary, remove the new control panel from its packaging.
3. Align the control panel with the control panel slot.
4. Slide the control panel into the slot, and press on the terracotta tab to lock it in place.

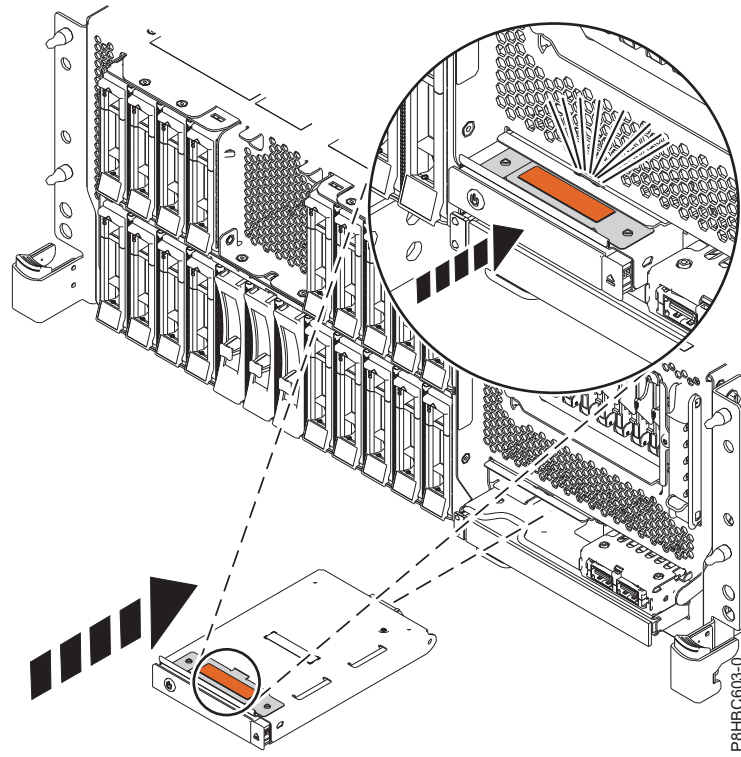


Figure 8. Replacing the control panel in a rack-mounted system

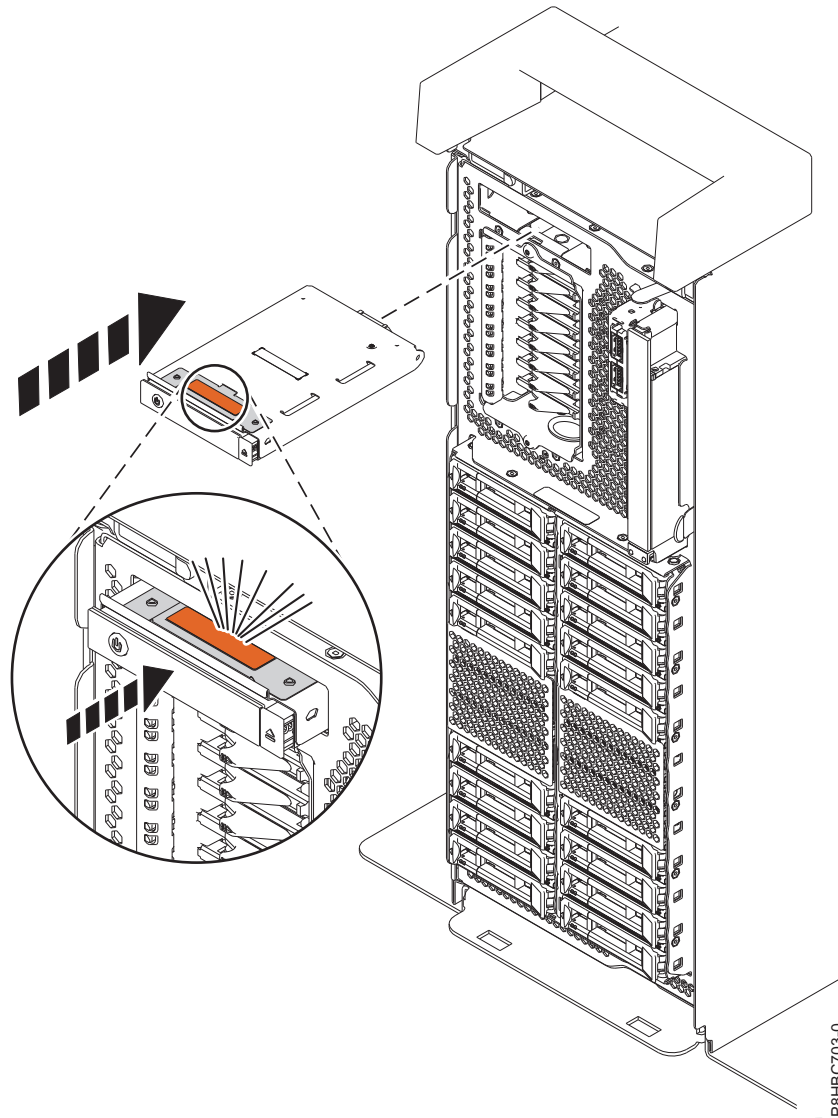


Figure 9. Replacing the control panel for a stand-alone system

5. If you are replacing the control panel as part of another procedure, return to that procedure now.

## Preparing the system for operation

Learn how to prepare the system for operation after you remove and replace the control panel with the system power turned off.

To prepare the system for operation, complete the following steps:

1. Replace the front cover. For instructions, see “Installing the front cover” on page 36.
2. Reconnect the power cords to the system. For instructions, see “Connecting the power cords to the system” on page 55.
3. Start the system or logical partition. For instructions, see “Starting the system or logical partition” on page 24.
4. Verify whether the control panel is operational by checking the progress codes.

---

## Common procedures for removing or replacing the control panel

This section contains all the common procedures that are related to removing and replacing the control panel.

---

### Before you begin

Observe these precautions when you are installing, removing, or replacing features and parts.

These precautions are intended to create a safe environment to service your system and do not provide steps for servicing your system. The installation, removal, and replacement procedures provide the step-by-step processes required to service your system.

**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:

- If IBM supplied the power cord(s), 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.
  - For AC power, disconnect all power cords from their AC power source.
  - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.
  - For racks with AC power, 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.
  - For racks with a DC power distribution panel (PDP), connect the customer's DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- 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.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.
- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.

**DANGER:**

- 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. For AC power, remove the power cords from the outlets.
3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
4. Remove the signal cables from the connectors.
5. 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. For AC power, attach the power cords to the outlets.
5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
6. Turn on the devices.

Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching. (D005)

**(R001 part 1 of 2):**

**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. In addition, do not lean on rack mounted devices and do not use them to stabilize your body position (for example, when working from a ladder).



- Each rack cabinet might have more than one power cord.
  - For AC powered racks, be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
  - For racks with a DC power distribution panel (PDP), turn off the circuit breaker that controls the power to the system unit(s), or disconnect the customer's DC power source, 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.

**(R001 part 2 of 2):**

**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.

Before you begin a replacement or installation procedure, perform these tasks:

1. If you are installing a new feature, ensure that you have the software required to support the new feature. See IBM Prerequisite.
2. If you are performing an installation or replacement procedure that might put your data at risk, ensure, wherever possible, that you have a current backup of your system or logical partition (including operating systems, licensed programs, and data).
3. Review the installation or replacement procedure for the feature or part.
4. Note the significance of color on your system.

Blue or terra-cotta on a part of the hardware indicates a touch point where you can grip the hardware to remove it from or install it in the system, open or close a latch, and so on. Terra-cotta might also indicate that the part can be removed and replaced with the system or logical partition power on.

5. Ensure that you have access to a medium flat-blade screwdriver, a Phillips screwdriver, and a pair of scissors.
6. If parts are incorrect, missing, or visibly damaged, do the following:
  - If you are replacing a part, contact the provider of your parts or next level of support.
  - If you are installing a feature, contact one of the following service organizations:
    - The provider of your parts or next level of support.
    - In the United States, the IBM Rochester Manufacturing Automated Information Line (R-MAIL) at 1-800-300-8751.

In countries and regions outside of the United States, use the following website to locate your service and support telephone numbers:

<http://www.ibm.com/planetwide>

7. If you encounter difficulties during the installation, contact your service provider, your IBM reseller, or your next level of support.
8. If you are installing new hardware in a logical partition, you need to understand and plan for the implications of partitioning your system. For information, see Logical Partitioning.

## Identifying a part

Learn how to identify the system or enclosure that contains a failing part, the location code and light-emitting diode (LED) status for a part, and how to activate and deactivate the identify part LED.

**Note:** If you are using PowerKVM, you must use the ASMI procedures to identify a part or enclosure.

*Table 1. Tasks to identify a part*

What you want to do	See the following information
Determine which server or enclosure contains the part	"Identifying the enclosure or server that contains the part"
Find the location of the part and determine whether the part has an identifying LED	"Finding the part location code and LED support status" on page 18
Turn on an identifying LED for a part	
If you are using PowerKVM:	"Identifying a part by using the ASMI" on page 22
If your system is in the runtime state:	"Identifying a part by using the operating system or VIOS" on page 19
If your system is in the standby power state:	"Identifying a part by using the ASMI" on page 22
If you have an HMC:	"Identifying a part by using the HMC" on page 23
Turn off an identify LED	"Deactivating an identify LED" on page 68
Turn off a check log indicator	"Deactivating a check log indicator (system information indicator) by using the ASMI" on page 71

## Identifying the enclosure or server that contains the part

Learn how to determine which server or enclosure has the part you want to replace.

### Enabling enclosure or server indicators with the ASMI

Find out how to enable enclosure or server indicators by using the Advanced System Management Interface (ASMI).

To perform this operation, you must have one of the following authority levels:

- Administrator
- Authorized service provider

To enable the enclosure or server indicator states, complete the following steps:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Configuration > Service Indicators > Enclosure Indicators**. A list of enclosures is displayed.
3. Select the enclosure and click **Continue**. A list of location codes is displayed. Alternatively, you can click **Indicators by Location Code** and type the location code in the **Location code** field.
4. In the **Identify indicator status** field, select **Identify**.
5. To save the changes made to the state of an indicator, click **Save settings**.

### Control panel LEDs

Use this information as a guide to the control panel LEDs and buttons.

Use Figure 10 on page 17 with the control panel LED descriptions to understand the system status that is indicated by the control panel.

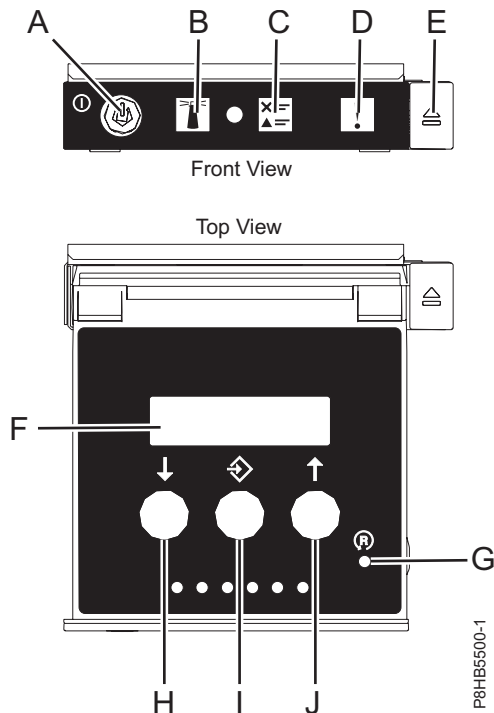


Figure 10. Control panel LEDs

#### Control panel LEDs and descriptions:

- **A:** Power-on button
  - A constant light indicates full system power to the unit.
  - A flashing light indicates standby power to the unit.
  - There is approximately a 30-second transition period from the time the power-on button is pressed to when the power LED goes from flashing to solid. During the transition period, the LED might flash faster.
- **B:** Enclosure identify light
  - A constant light indicates the identify state, which is used to identify a part.
  - No light indicates that the system is operating normally.
- **C:** Check log light
  - No light indicates that the system is operating normally.
  - Light on indicates that the system requires attention.
- **D:** Enclosure fault light
  - A constant light indicates a fault in the system unit.
  - No light indicates that the system is operating normally.
- **E:** Eject button
- **F:** Function/Data display
- **G:** Pinhole reset button
- **H:** Decrement button
- **I:** Enter button
- **J:** Increment button

#### Activating an identify LED for an enclosure or server by using the HMC


Learn how to activate an identify LED for an enclosure or server by using the Hardware Management Console (HMC).

The system provides several LEDs that help identify various components in the system, such as enclosures or field-replaceable units (FRUs). For this reason, they are called *identify LEDs*.

If you want to add a part to a specific enclosure or server, you need to know the machine type, model, and serial number (MTMS) of the enclosure or server. To determine whether you have the correct MTMS for the enclosure or server that needs the new part, you can activate the LED for an enclosure or server and verify that the MTMS corresponds to the enclosure or server that requires the new part.

1. Choose one of the following navigation options depending on the interface type of the HMC:
  - If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
    - a. In the navigation area, click **Systems Management > Servers**.
    - b. In the content pane, select the server.
    - c. Click **Tasks > Operations > LED Status > Identify LED**. The Identify LED, Select Enclosure window is displayed.
  - If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps:



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
  - b. Click the server name for which you want to activate the identify LED.
  - c. Click **System Actions > Attention LED > Identify Attention LED**. The Identify Attention LED, Select Enclosure window is displayed.
2. To activate an identify LED for an enclosure or server, select an enclosure or server and then click **Activate LED**. The associated LED is turned on.

## Finding the part location code and LED support status

You can use location codes for the server you are working with to find the part location code and whether there is Identify LED support.

To find the location code and to determine if there is identify LED support, complete the following steps:

1. Select the server you are working on to see the location codes:
  - 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8284-21A, or 8284-22A locations ([http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs\\_83x\\_8rx\\_loccodes.htm](http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs_83x_8rx_loccodes.htm))
  - 8247-42L, 8286-41A, or 8286-42A locations ([http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs\\_82x\\_84x\\_loccodes.htm](http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs_82x_84x_loccodes.htm))
  - 8408-44E or 8408-E8E locations([http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs\\_85x\\_loccodes.htm](http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs_85x_loccodes.htm))
  - 9080-MHE, 9080-MME, 9119-MHE, or 9119-MME locations([http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs\\_87x\\_88x\\_loccodes.htm](http://www.ibm.com/support/knowledgecenter/POWER8/p8ecs/p8ecs_87x_88x_loccodes.htm))
2. Record the location code.
3. Refer to the field replaceable unit (FRU) location table, Identify LED column to see if the word **Yes** (there is an identify LED) or **No** (there is not an identify LED) appears.
4. Select from the following options:
  - If the part has an identify LED, refer to the applicable procedure:
    - If you are using IBM PowerKVM, see “Identifying a part by using the ASMI” on page 22.
    - If your system is at runtime state, see “Identifying a part by using the operating system or VIOS” on page 19.
    - If your system is at standby power state, see “Identifying a part by using the ASMI” on page 22.
  - If the part does not have an identify LED, see Identifying the enclosure or server that contains the part.

## Identifying a part by using the operating system or VIOS

Learn how to use AIX®, IBM i, Linux, or the Virtual I/O Server (VIOS) to identify a part.

For IBM Power Systems™ that contain the POWER8® processor, the identify LEDs can be used to identify or verify the location of a part that you intend to install, remove, or replace. The identify function (flashing the amber LED) corresponds to the location code you are going to work with.

When you are removing a part, first verify whether you are working on the correct part by using the identify function in the management console or other user interface. When you remove a part by using the Hardware Management Console (HMC), the identify function is activated and deactivated automatically at the correct times.

The identify function causes the amber LED to flash. When you turn off the identify function, the LED returns to the state it was previously. For parts that have a blue service button, the identify function sets LED information for the service button so that when the button is pressed, the correct LEDs on that part flash.

**Note:** Use the enclosure locate LED to identify the enclosure that is being serviced. Then, confirm and verify the location of the FRU (to be serviced) in the enclosure by checking the active identify indicator (flashing LED) for the selected FRU. For some FRUs, you might need to remove the service access cover to be able to see the identify indicators.

### Identifying a part in an AIX system or logical partition

Use these instructions to learn how to locate a part, activate the indicator light for the part, and deactivate the indicator light for the part on a system or logical partition running the AIX operating system.

#### Finding the location code for a part in an AIX system or logical partition:

You might need to use AIX tools, before activating the indicator light, to locate a part.

To configure the AIX system to locate a part, complete the following steps:

1. Log in as root user or celogin-.
2. At the command line, type `diag` and press Enter.
3. From the Function Selection menu, select **Task Selection** and press Enter.
4. Select **Display Previous Diagnostic Results** and press Enter.
5. From the Display Previous Diagnostic Results display, select **Display Diagnostic Log Summary**. The Display Diagnostic Log display shows a chronological list of events.
6. Look in the **T** column for the most recent **S** entry. Select this row in the table and press Enter.
7. Select **Commit**. The details of this log entry are shown.
8. Record the location information and the SRN value that is shown near the end of the entry.
9. Exit to the command line.

Use the location information for the part to activate the indicator light that identifies the part. See “Activating the indicator light for a part by using AIX diagnostics.”

#### Activating the indicator light for a part by using AIX diagnostics:

Use these instructions to help physically identify the location of a part you are servicing.

To activate the indicator light for a part, complete the following steps:

1. Log in as root user.
2. At the command line, type `diag` and press Enter.

3. From the **Function Selection** menu, select **Task Selection** and press Enter.
4. From the **Task Selection** menu, select **Identify and Attention Indicators** and press Enter.
5. From the list of lights, select the location code for the part and press Enter.
6. Select **Commit**. This turns on the system attention and indicator light for the part.

**Important:** A flashing amber LED indicates the location of the part and a solid amber LED indicates that the part is failing.

7. Exit to the command line.

## Identifying a part in an IBM i system or logical partition

You can activate or deactivate the indicator light to locate a part in an IBM i system or logical partition.

### Finding the location code and activating the indicator light for a part by using the IBM i operating system:

You can search the service action log for an entry that matches the time, reference code, or resource of a problem, and then activate the indicator light for a part.

1. Sign on to an IBM i session, **with at least service level authority**.
2. On the command line of the session, type `strsst` and press Enter.

**Note:** If you cannot get to the System Service Tools (SST) display, use function 21 from the control panel. Alternatively, if the system is managed by a Hardware Management Console (HMC), use the Service Focal Point utilities to get to the Dedicated Service Tools (DST) display.

3. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and press Enter.

**Remember:** The service tools password is case sensitive.

4. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
5. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
6. Select **Work with service action log** from the Hardware Service Manager display and press Enter.
7. On the Select Timeframe display, change the **From: Date and Time** field to a date and time prior to when the problem occurred.
8. Search for an entry that matches one or more conditions of the problem:
  - System reference code
  - Resource
  - Date and time
  - Failing item list
9. Select option 2 (Display failing item information) to display the service action log entry.
10. Select option 2 (Display details) to display location information for the failing part to be replaced. The information displayed in the date and time fields is the date and time for the first occurrence of the specific system reference code for the resource displayed during the time range selected.
11. If location information is available, select option 6 (Indicator on) to turn on the indicator light for the part.

**Tip:** If the part does not contain a physical indicator light, a higher-level indicator light is activated. For example, the indicator light for the backplane or unit that contains the part might be lit. In this case, use the location information to locate the actual part.

12. Look for the enclosure indicator light to locate the enclosure that contains the part.

**Important:** A flashing amber LED indicates the location of the part and a solid amber LED indicates that the part is failing.

## Identifying a part in a Linux system or logical partition

If the service aids have been installed on a system or logical partition, you can activate or deactivate the indicator lights to locate a part or complete a service action.


### Finding the location code of a part in a Linux system or logical partition:

Use this procedure to retrieve the location code of the part to perform service operations.

To find the location code of a part in a Linux system or logical partition, complete the following steps:

1. Log in as root user.
2. At the command line, type `grep diagela /var/log/platform` and press Enter.
3. Look for the most recent entry that contains a system reference code (SRC).
4. Record the location information.

#### Related information:

 Service and productivity tools for PowerLinux servers from IBM  
IBM provides hardware diagnostic aids and productivity tools, and installation aids for Linux operating systems on IBM Power Systems servers.

### Activating the indicator light for a part by using the Linux operating system:


If you know the location code of a part, activate the indicator light to help locate the part the while performing service operations.

To activate the indicator light, complete the following steps:

1. Log in as root user.
2. At the command line, type `/usr/sbin/usysident -s identify -l location_code` and press Enter.
3. Look for the system attention light to identify the enclosure that contains the part.

**Important:** A flashing amber LED indicates the location of the part and a solid amber LED indicates that the part is failing.

#### Related information:

 Service and productivity tools for Linux on Power servers  
IBM provides hardware diagnostic aids and productivity tools, and installation aids for Linux operating systems on IBM Power Systems servers.

## Identifying a part in a VIOS system or logical partition

Learn how to find the location code and identify a part by using the Virtual I/O Server (VIOS) tools.

### Finding the location code of a part in a VIOS system or logical partition:

You can use Virtual I/O Server (VIOS) tools to find the location code of a part before you activate the indicator light.

To configure the Virtual I/O Server system for identifying a part, complete the following steps:

1. Log in as root user or `celogin-`.
2. At the command line, type `diagmenu` and press Enter.
3. From the **Function Selection** menu, select **Task Selection** and press Enter.
4. Select **Display Previous Diagnostic Results** and press Enter.
5. From the **Display Previous Diagnostic Results** display, select **Display Diagnostic Log Summary**. A **Display Diagnostic Log** display appears. This display contains a chronological list of events.
6. Look in the **T** column for the most recent **S** entry. Select this row in the table and press Enter.

7. Choose **Commit**. The details of this log entry are shown.
8. Record the location information and the SRN value shown near the end of the entry.
9. Exit to the command line.

Use the location information for the part to activate the indicator light that identifies the part. For instructions, see “Activating the indicator light for a part by using the VIOS tools.”

### **Activating the indicator light for a part by using the VIOS tools:**

You can use Virtual I/O Server (VIOS) tools to activate the indicator light to physically locate a part.

To turn on the indicator light for identifying a part, complete the following steps:

1. Log in as root user.
2. At the command line, type `diagmenu` and press Enter.
3. From the **Function Selection** menu, select **Task Selection** and press Enter.
4. From the **Task Selection** menu, select **Identify and Attention Indicators** and press Enter.
5. From the list of lights, select the location code for the failing part and press Enter.
6. Select **Commit**. This turns on the system attention and indicator light for the part.

**Important:** A flashing amber LED indicates the location of the part and a solid amber LED indicates that the part is failing.

7. Exit to the command line.

## **Identifying a part by using the ASMI**

Learn how to activate or deactivate amber identify indicator light-emitting diodes (LEDs) by using the Advanced System Management Interface (ASMI).

You can access the ASMI by using a web browser. For more information, see [Accessing the Advanced System Management Interface by using a web browser \(http://www.ibm.com/support/knowledgecenter/POWER8/p8ect/pxect\\_browser.htm\)](http://www.ibm.com/support/knowledgecenter/POWER8/p8ect/pxect_browser.htm).

For IBM Power Systems that contain the POWER8 processor, the identify LEDs can be used to identify or verify the location of a part that you intend to install, remove, or replace. The identify function (flashing the amber LED) corresponds to the location code you are going to work with.

You can set the identify LED to flash and to stop flashing by using the ASMI.

**Note:** You can use the ASMI to turn on and turn off the identify indicators except for the adapters, disk drives, solid-state drives, and media devices.

### **Activating the identify LED by using the ASMI when you know the location code**

Learn how to activate the identify LED by using the Advanced System Management Interface (ASMI) when you know the location code.

You can specify the location code of any indicator to view or modify its current state. If you provide the wrong location code, the ASMI attempts to go to the next higher level of the location code.

The next level is the base-level location code for that field replaceable unit (FRU). For example, a user types the location code for the FRU located on the second memory module slot of the third enclosure in the system. If the location code for the second memory module slot is incorrect (the FRU does not exist at this location), an attempt to set the indicator for the third enclosure is initiated. This process continues until a FRU is located or no other level is available.



To complete this operation, your authority level must be one of the following levels:

- Administrator
- Authorized service provider

To change the current state of an indicator, complete the following steps:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Configuration > Service Indicators > Indicators by Location code**.
3. In the **Location code** field, type the location code of the FRU and click **Continue**.
4. From the **Identify indicator status** list, select **Identify**.
5. Click **Save settings**.

### **Activating the identify LED by using the ASMI when you do not know the location code**

Learn how to activate the identify LED by using the Advanced System Management Interface (ASMI) when you do not know the location code.

You can turn on the identify indicators in each enclosure.

To complete this operation, your authority level must be one of the following levels:

- Administrator
- Authorized service provider

To enable the enclosure indicator states, complete the following steps:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Configuration > Service Indicators > Enclosure Indicators**. All servers and enclosures managed by the ASMI will display.
3. Select the server or enclosure with the part that needs to be replaced and click **Continue**. The location code identifiers are listed.
4. Select the location code identifier and select **Identify**.
5. To save the changes made to the state of one or more FRU indicators, click **Save settings**.


### **Identifying a part by using the HMC**

You can use the following procedures to activate light-emitting diodes (LEDs) by using the Hardware Management Console (HMC).

You can use the identify LED for a FRU associated with a specified enclosure to help you identify a part. For example, if you want to hook up a cable to a specific I/O adapter, you can activate the LED for the adapter, which is a field replaceable unit (FRU). Then, you can physically check to see where you should hook up the cable. This action is especially useful when you have several adapters with open ports.

1. Choose one of the following navigation options depending on the interface type of the HMC:
  - If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
    - a. In the navigation area, click **Systems Management > Servers**.
    - b. Select the server that you are working on.
    - c. In the **Tasks** menu, click **Operations > LED status > Identify LED**. The **Identify LED, Select Enclosure** window is displayed.
  - If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps.



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
  - b. Click the system name for which you want to activate the attention LED.
  - c. In the navigation area, click **System Actions > Attention LED > Identify Attention LED**. The Identify LED, Select Enclosure window is displayed.
2. To activate an identify LED for the enclosure, select an enclosure and then click **Activate LED**. The associated LED is turned on and is flashing.
  3. To activate an identify LED for one or more FRUs in the enclosure, complete the following steps:
    - a. Select an enclosure and then click **List FRUs**.
    - b. Select the FRUs for which you want to activate the identify LED and click **Activate LED**. The associated LED is turned on and is flashing.

---

## Starting the system or logical partition

Learn how to start a system or logical partition after performing a service action or system upgrade.

### Starting a system that is not managed by an HMC

You can use the power button or the Advanced System Management Interface (ASMI) to start a system that is not managed by a Hardware Management Console (HMC).

### Starting a system by using the control panel

You can use the power button on the control panel to start a system that is not managed by a Hardware Management Console (HMC).

To start a system by using the control panel, complete the following steps:

1. Open the front rack door, if necessary.
2. Before you press the power button on the control panel, ensure that power is connected to the system unit as follows:
  - All system power cables are connected to a power source.
  - The power LED, as shown in the following figure, is slowly flashing.
  - The top of the display, as shown in the following figure, shows 01 V=F.
3. Press the power button (**A**), as shown in the following figure, on the control panel.

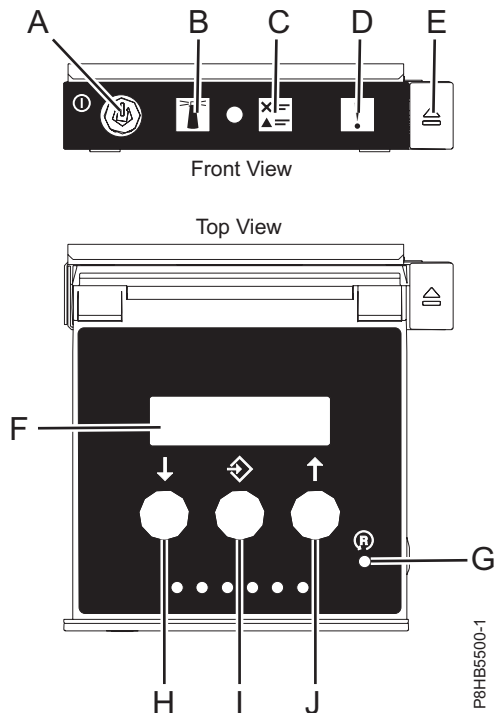


Figure 11. Control panel

- **A:** Power-on button
    - A constant light indicates full system power to the unit.
    - A flashing light indicates standby power to the unit.
    - There is approximately a 30-second transition period from the time the power-on button is pressed to when the power LED goes from flashing to solid. During the transition period, the LED might flash faster.
  - **B:** Enclosure identify light
    - A constant light indicates the identify state, which is used to identify a part.
    - No light indicates that the system is operating normally.
  - **C:** System information light
    - No light indicates that the system is operating normally.
    - Light on indicates that the system requires attention.
  - **D:** Enclosure fault roll-up light
    - A constant light indicates a fault in the enclosure.
    - No light indicates that the system is operating normally.
  - **E:** Eject button
  - **F:** Function/Data display
  - **G:** Pinhole reset button
  - **H:** Decrement button
  - **I:** Enter button
  - **J:** Increment button
4. Observe the following aspects after pressing the power button:
- The power-on light begins to flash faster.
  - The system cooling fans are activated after approximately 30 seconds and begin to accelerate to operating speed.

- Progress indicators, also referred to as checkpoints, appear on the control panel display while the system is being started. The power-on light on the control panel stops flashing and remains on, indicating that the system power is on.

**Tip:** If pressing the power button does not start the system, then contact your next level of support or your service provider.

### Starting a system by using the ASMI

You can use the Advanced System Management Interface (ASMI) to start a system that is not managed by a Hardware Management Console (HMC).

To start a system by using the ASMI, complete the following steps:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, click **Power/Restart Control > Power On/Off System**. The power state of the system is displayed.
3. Specify the settings as required and click **Save setting and power on**.

### Starting a system or logical partition by using the HMC

You can use the Hardware Management Console (HMC) to start the system or logical partition after the required cables are installed and the power cables are connected to a power source.

### Starting a system or logical partition by using the HMC Classic or HMC Enhanced interface

Learn how to start a system or logical partition by using the HMC Classic or HMC Enhanced interface.

To start the system by using the HMC Classic or HMC Enhanced interface, complete the following steps:


1. Verify that the logical partition start policy is set to **User-Initiated** by completing the following steps:
  - a. In the navigation area, expand **Systems Management > Servers**.
  - b. In the content pane, select the managed system.
  - c. In the Tasks area, click **Properties**.
  - d. Click the **Power-On Parameters** tab. Ensure that the **Partition start policy** field is set to **User-Initiated**.
2. Power on the managed system by completing the following steps:
  - a. In the navigation area, expand **Systems Management > Servers**.
  - b. In the content pane, select the managed system.
  - c. Click **Operations > Power on**.
  - d. Select the power-on option and click **OK**.

### Starting a system or logical partition by using the HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface

Learn how to start a system or logical partition by using the HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface.


To start a system or logical partition by using the HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps:

1. To power on the managed system, complete the following steps:


- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
- b. Select the system that you want to power on.
- c. In the content pane, click **Actions > View All Actions > Power On**.

- d. Click **OK**.
2. To activate a logical partition, complete the following steps:




- a. In the navigation area, click the **Resources** icon  , and then click **All Partitions**.
  - b. Click the logical partition name that you want to activate.
  - c. In the navigation area, click **Partition Actions > Operations > Activate**.
  - d. Click **OK**.
3. To activate a logical partition for a specific system, complete the following steps:



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
  - b. Click the system name in which you want to activate the logical partition.
  - c. Select logical partitions that you want to activate.
  - d. In the content pane, click **Actions > Activate**.
  - e. Click **OK**.
4. To verify that the logical partition start policy is set to **User-Initiated**, complete the following steps:



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
- b. Click the system name to view details.
- c. In the navigation area, click **Properties > Other Properties**.
- d. Click the **Power-On Parameters** tab. Ensure that the **Partition start policy** field is set to **User-Initiated**.

## Starting an IBM PowerKVM system

You can use the Intelligent Platform Management Interface (IPMI) to start an IBM PowerKVM system.

To start an IBM PowerKVM system, run the `ipmitool -I lanplus -H FSP IP -P ipmipassword chassis power on` command from a remote system.

---

## Stopping a system or logical partition

Learn how to stop a system or logical partition as a part of a system upgrade or service action.

**Attention:** Using either the power-on button on the control panel or entering commands at the Hardware Management Console (HMC) to stop the system can cause unpredictable results in the data files. Also, the next time you start the system, it might take longer if all applications are not ended before stopping the system.

To stop the system or logical partition, select the appropriate procedure.

## Stopping a system that is not managed by an HMC

You might need to stop the system to complete another task. If your system is not managed by the Hardware Management Console (HMC), use these instructions to stop the system by using the power button or the Advanced System Management Interface (ASMI).

Before you stop the system, follow these steps:

1. Ensure that all jobs are completed and end all applications.
2. If a Virtual I/O Server (VIOS) logical partition is running, ensure that all clients are shut down or that the clients have access to their devices by using an alternative method.

## Stopping a system by using the control panel

You might need to stop the system to complete another task. If your system is not managed by the Hardware Management Console (HMC), use these instructions to stop the system by using the power button.

The following procedure describes how to stop a system that is not managed by the HMC.

1. Log in to the host partition as a user with the authority to run the **shutdown** or **pwrdownsys** (Power Down System) command.
2. At the command line, enter one of the following commands:
  - If your system is running the AIX operating system, type **shutdown**.
  - If your system is running the Linux operating system, type **shutdown -h now**.
  - If your system is running the IBM i operating system, type **PWRDOWNSYS**. If your system is partitioned, use the **PWRDOWNSYS** command to power down each of the secondary partitions. Then, use the **PWRDOWNSYS** command to power down the primary partition.

The command stops the operating system. The system power turns off, the power-on light begins to slowly flash, and the system goes into a standby state.

3. Record the IPL type and the IPL mode from the control panel display to help you return the system to this state when the installation or replacement procedure is completed.
4. Set the power switches of any devices that are connected to the system to off.

## Stopping a system by using the ASMI

You might need to stop the system to complete another task. If your system is not managed by the Hardware Management Console (HMC), use these instructions to stop the system by using the Advanced System Management Interface (ASMI).

To stop a system by using the ASMI, complete the following steps:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, click **Power/Restart Control > Power On/Off System**. The power state of the system is displayed.
3. Specify the settings as required and click **Save setting and power off**.

## Stopping a system by using the HMC

You can use the Hardware Management Console (HMC) to stop the system or logical partition.

By default, the managed system is set to power off automatically when you shut down the last running logical partition on the managed system. If you set the managed system properties on the HMC so that the managed system does not power off automatically, you must use this procedure to power off your managed system.

**Attention:** Ensure that you shut down the running logical partitions on the managed system before you power off the managed system. Powering off the managed system without shutting down the logical partitions first causes the logical partitions to shut down abnormally and can cause data loss. If you use a Virtual I/O Server (VIOS) logical partition, ensure that all clients are shut down or that the clients have access to their devices by using an alternative method.

To power off a managed system, you must be a member of one of the following roles:

- Super administrator
- Service representative

- Operator
- Product engineer

**Note:** If you are a product engineer, verify that the customer has shut down all active partitions and has powered off the managed system. Continue with the procedure only after the status of the server changes to **Power Off**.

## Stopping a system by using the HMC Classic or HMC Enhanced interface

Learn how to stop a system by using the HMC Classic or HMC Enhanced interface.

To stop the system or logical partition by using the HMC Classic or HMC Enhanced interface, complete the following steps:

1. In the navigation area, click **Systems Management > Servers**.
2. In the content pane, select the managed system.
3. In the Tasks area, click **Operations > Power Off**.
4. Select the appropriate power-off mode and click **OK**.

**Related information:**

 Shutting down and restarting logical partitions


## Stopping a system by using the HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface

Learn how to stop a system by using the HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface.


To stop the system or logical partition by using the HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps:

1. You must deactivate all the active logical partitions before powering off the system. To deactivate logical partitions for a specific system, complete the following steps:



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
  - b. Click the system name for which you want to deactivate partitions.
  - c. Select the logical partitions that you want to deactivate.
  - d. In the content pane, click **Actions > Deactivate**.
  - e. Click **OK**.
2. To power off the system, complete the following steps:



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
- b. Select the system that you want to power off.
- c. In the content pane, click **Actions > View All Actions > Power Off**.
- d. Click **OK**.

## Stopping an IBM PowerKVM system

You can use the Intelligent Platform Management Interface (IPMI) to stop an IBM PowerKVM system.

To stop an IBM PowerKVM system, complete the following steps:

1. Log in to the host as a root user or with sudo authority.
2. To power off each of the guests, complete the following steps.

- a. To obtain a list of all guests, type **virsh list**.
- b. For each guest in the list, type **virsh shutdown** *domain name* or type **virsh shutdown** *domain ID*.

**Note:**

Type **virsh list** to verify whether all the guests are powered off. If any guest is not powered off, type **virsh destroy** *domain name* or type **virsh destroy** *domain ID* to power off the guest.

3. Run the **ipmitool -I lanplus -H FSP IP -P ipmipassword chassis power off** command from a remote system.

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## Removing and replacing covers on the 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system

Use these instructions to remove and replace the covers for a 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system so that you can access the hardware parts or perform service.

### Removing the front cover

Use these instructions to remove the front cover from a 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system so that you can access the hardware parts or perform service.

### Removing the front cover from a rack-mounted 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8284-21A, or 8284-22A system

Use this procedure to remove the cover from a rack-mounted system so that you can access the components or perform service.

To remove the front cover, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the two shipping screws (A) (if present) that secure the system to the rack.

**Note:** Replacing the shipping screws is optional but should be done in geographic areas that are prone to seismic activity.

3. Pull the cover away from the system. The cover has an indentation where you can hold onto it more easily.



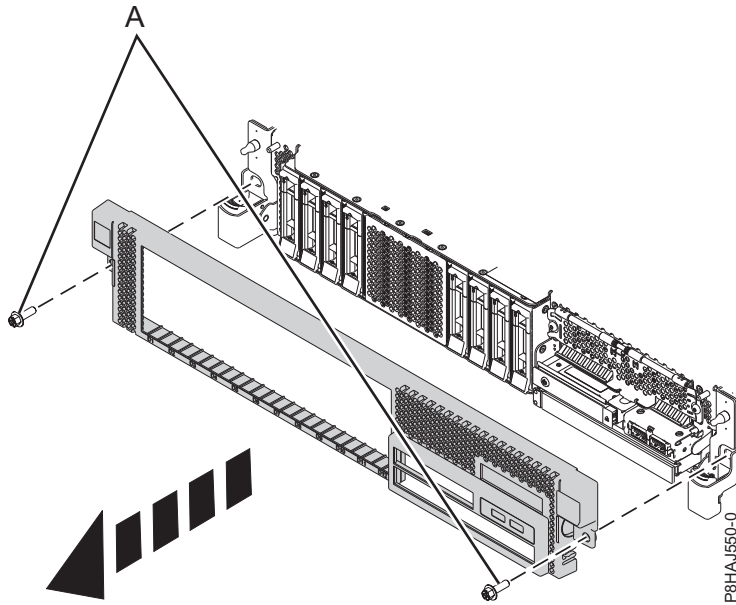


Figure 12. Removing the front cover

### Removing the front cover from a rack-mounted 8247-42L, 8286-41A, or 8286-42A system

Use this procedure to remove the cover from a rack-mounted system so that you can access the components or perform service.

To remove the front cover, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Remove the two shipping screws (**A**) (if present) that secure the system to the rack.

**Note:** Replacing the shipping screws is optional but should be done in geographic areas that are prone to seismic activity.

3. Pull the cover away from the system. The cover has an indentation where you can hold onto it more easily.

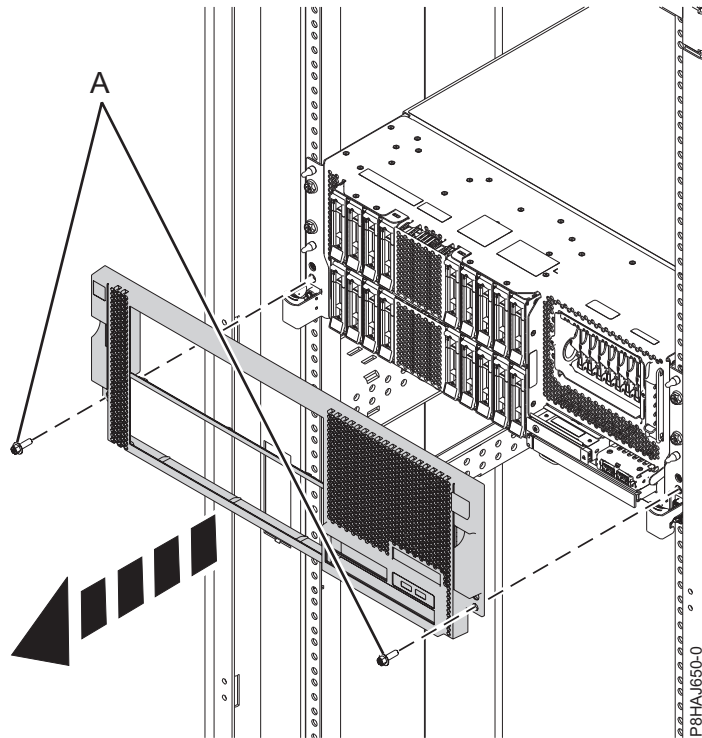


Figure 13. Removing the front cover

### Removing the front cover from a stand-alone 8286-41A system

Use this procedure to remove the cover from a stand-alone 8286-41A system so that you can access components or perform service.

To remove the front cover, complete the following steps:

1. Open the front door.
2. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
3. Pull the blue tab **(A)** to open the bezel door.
4. Push the blue latch **(B)** located above the USB ports, in the direction shown on the latch and then pull the front cover away from the system.

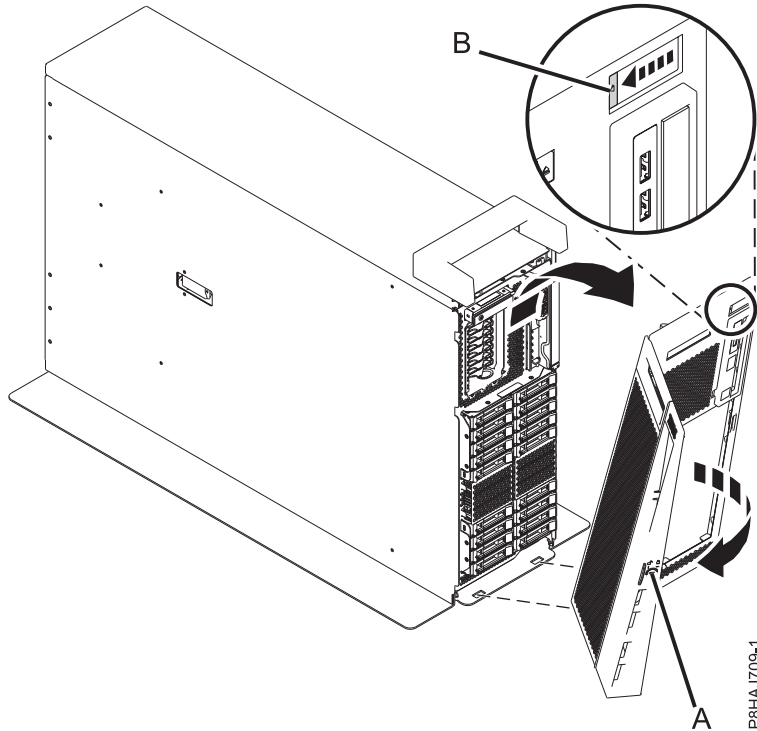


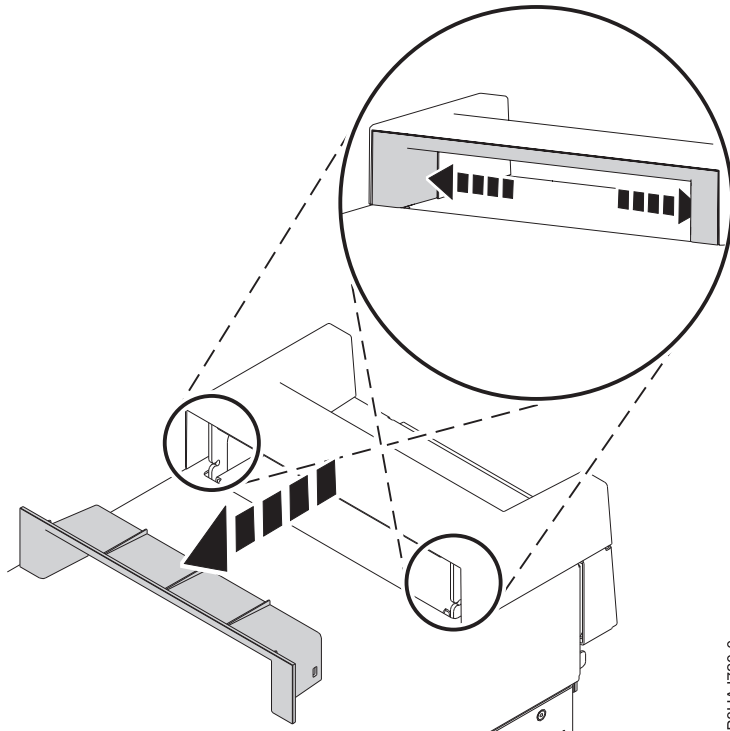
Figure 14. Removing the front cover

### Removing the side cover from a stand-alone 8286-41A system with an internal RDX docking station

Use this procedure to remove the side cover from a stand-alone 8286-41A system with an internal RDX docking station so that you can access components or perform service.

To remove the side cover, complete the following steps:

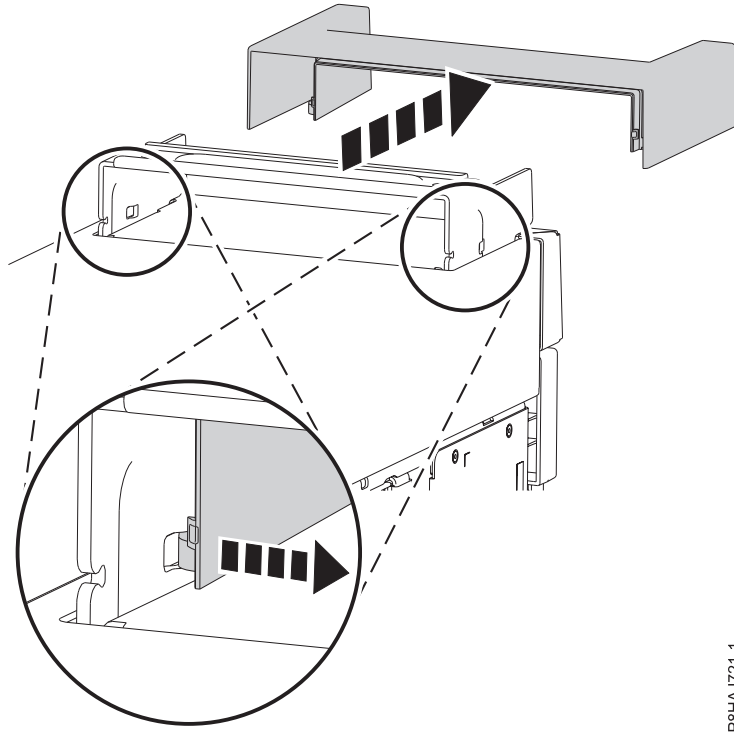
1. Remove the plastic piece within the interior of the handle cover by pushing the latches on the inside firmly and sliding it out. See Figure 15 on page 34.



P8HAJ720-0

Figure 15. Removing the piece within the handle cover on an 8286-41A stand-alone system

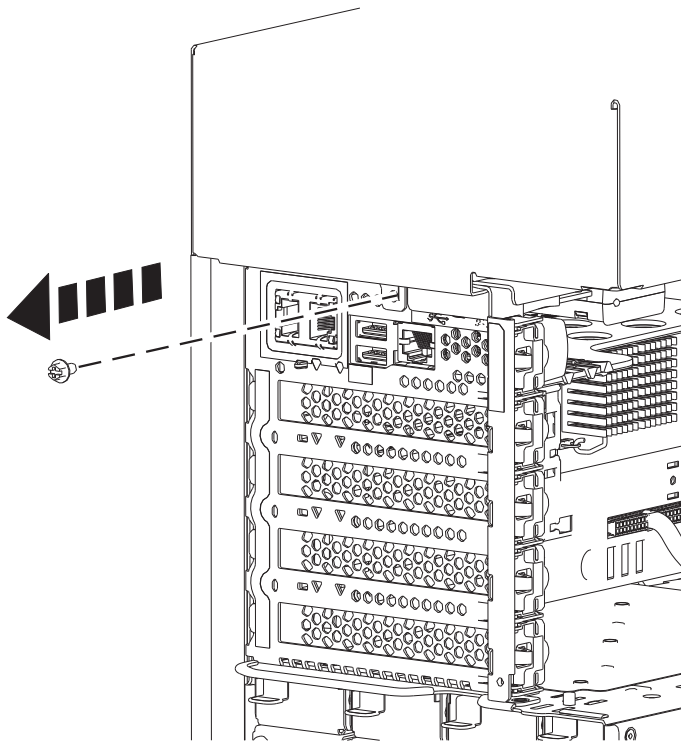
2. Pry the inner tabs that are found on the handle cover's sides to the center to disengage the side latches.
3. Remove the handle cover by sliding it toward the front of the system then lifting upwards. See Figure 16 on page 35.



P8HAJ721-1

Figure 16. Removing the handle cover from an 8286-41A stand-alone system

4. Remove the rear screw from the side cover by using a Phillips screwdriver as shown in Figure 17.



P8HAJ724-0

Figure 17. Removing the screw from the 8286-41A side cover

5. Slide the side cover off of the system in the direction that is shown in Figure 18 on page 36.

**Note:** The side cover has cover tabs that lock it into place.

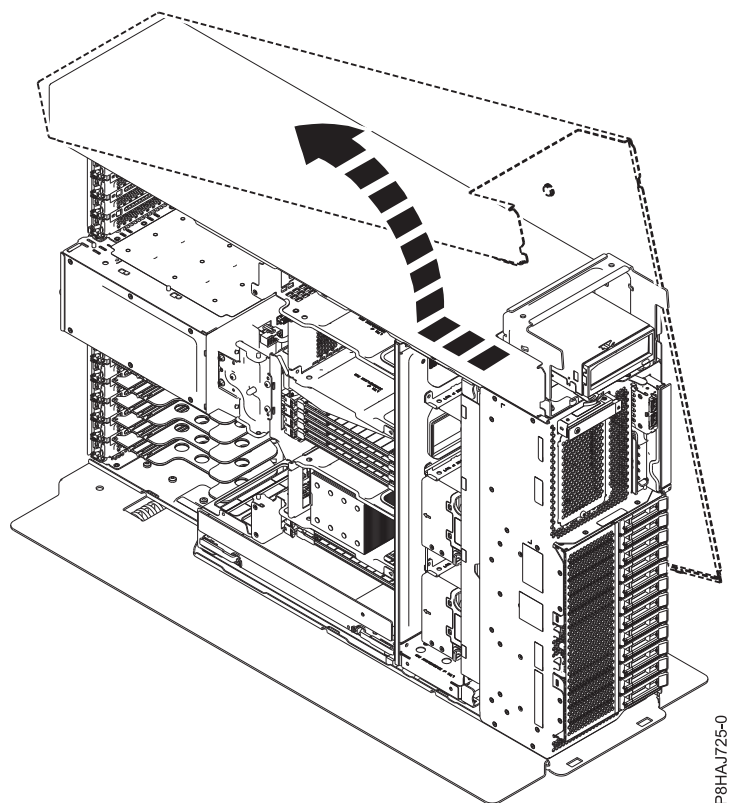


Figure 18. Removing the 8286-41A side cover

## Installing the front cover

Use this procedure to install the front cover on a 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system.

### Installing the front cover on a rack-mounted 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8284-21A, or 8284-22A system

Use this procedure to install the front cover on a rack-mounted 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8284-21A, or 8284-22A system.

To install the front cover, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Slide the cover onto the system.
3. Close the release latches by pushing in the direction shown in Figure 19 on page 37. The cover snaps into place and has an indentation where you can hold onto it more easily.
4. Replace the shipping screws (A).

**Note:** Replacing the shipping screws is optional but should be done in geographic areas that are prone to seismic activity.

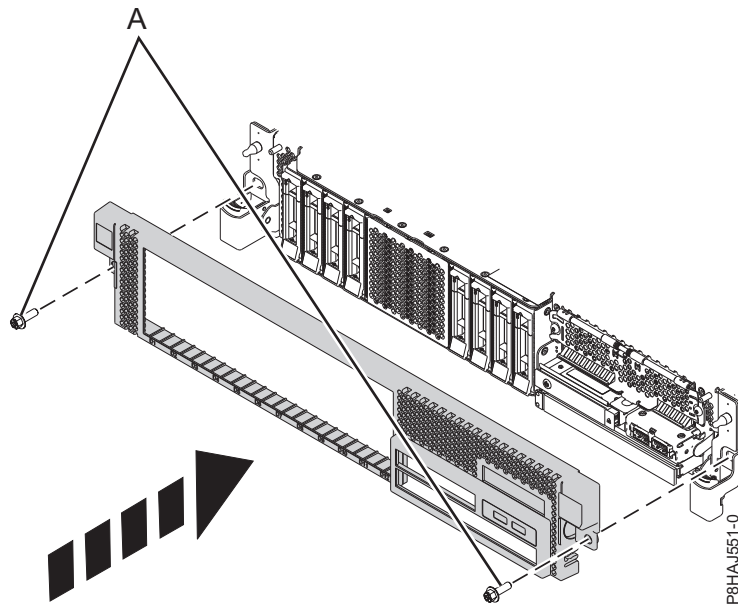


Figure 19. Installing the front cover

### Installing the front cover on a rack-mounted 8247-42L, 8286-41A, or 8286-42A system

Use this procedure to install the front cover on a rack-mounted 8247-42L, 8286-41A, or 8286-42A system.

To install the front cover, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Push the cover onto the system.
3. Gently push the cover in until the cover clips (**A**) are seated in their respective mounting posts as shown in the following figure. The cover snaps into place and has an indentation where you can hold onto it more easily.
4. Replace the shipping screws (**B**).

**Note:** Replacing the shipping screws is optional but should be done in geographic areas that are prone to seismic activity.

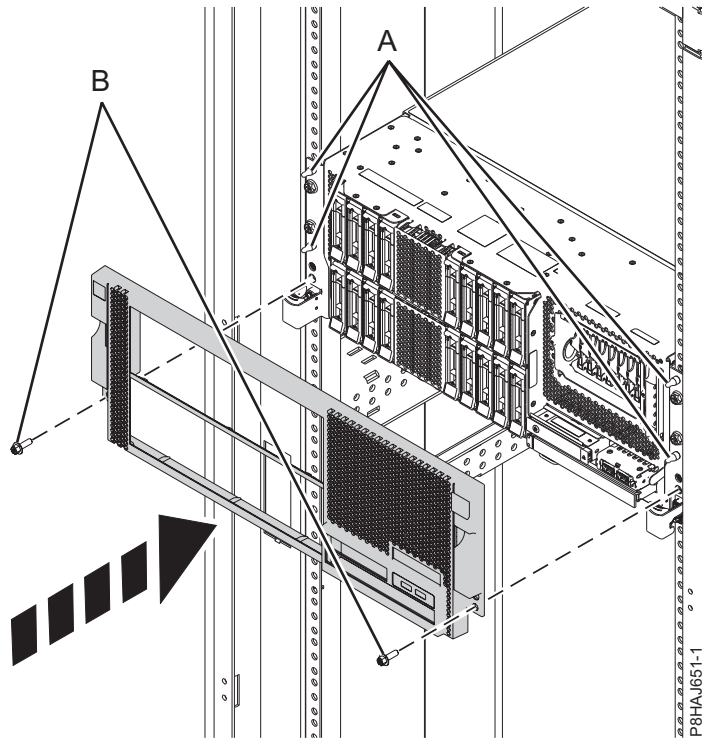


Figure 20. Installing the front cover

### Installing the front cover and front door on a stand-alone 8286-41A system

Use this procedure to install the front cover and front door on a stand-alone 8286-41A system to access components or perform service.

To install the front cover and front door, complete the following steps.

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Align the cover until the two cover tabs (A) are seated into the slots on the base plate (B), as shown in the following figure.



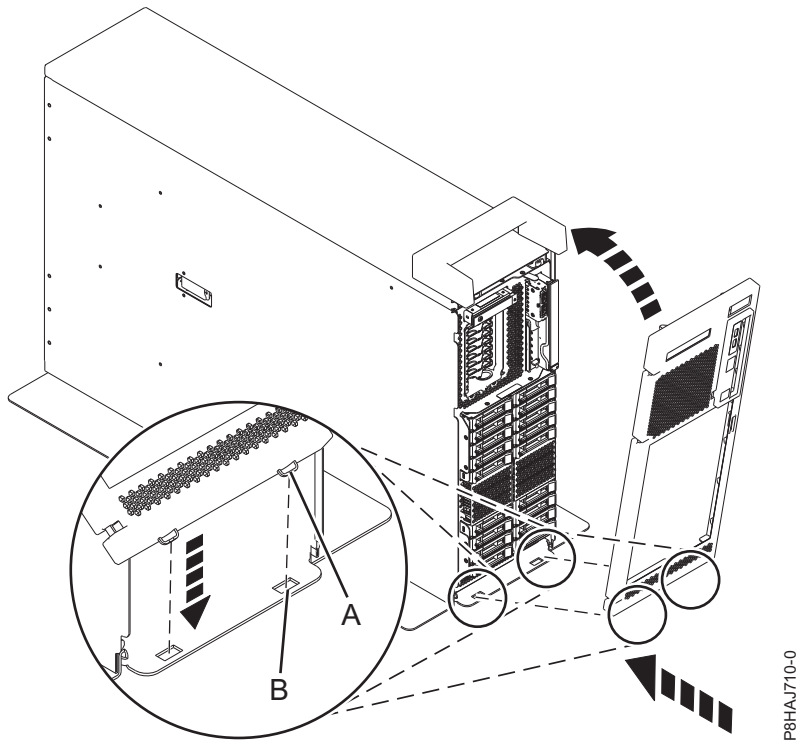


Figure 21. Installing the front cover

3. Rotate the cover up and towards the system until the release latch is seated into its respective slot.
4. Hold the front door at an approximate 120 degree angle to the system as shown in the following figure. Engage the latches. The cover has an indentation where you can hold onto it more easily.

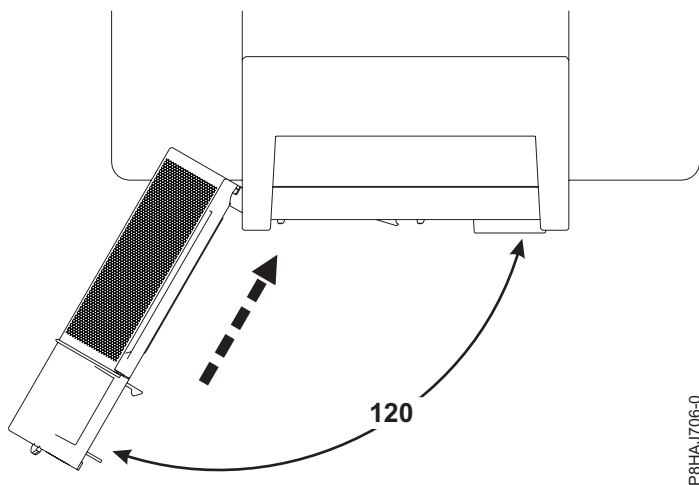


Figure 22. Rotating the front cover

### Installing the side cover on a stand-alone 8286-41A system with an internal RDX docking station

Use this procedure to install the side cover on a stand-alone 8286-41A system to access components or perform service.

To install the side cover, complete the following steps.

1. Secure the handle cover to the internal RDX docking station (FC EUA3) by sliding it toward the rear of the system. See Figure 23.

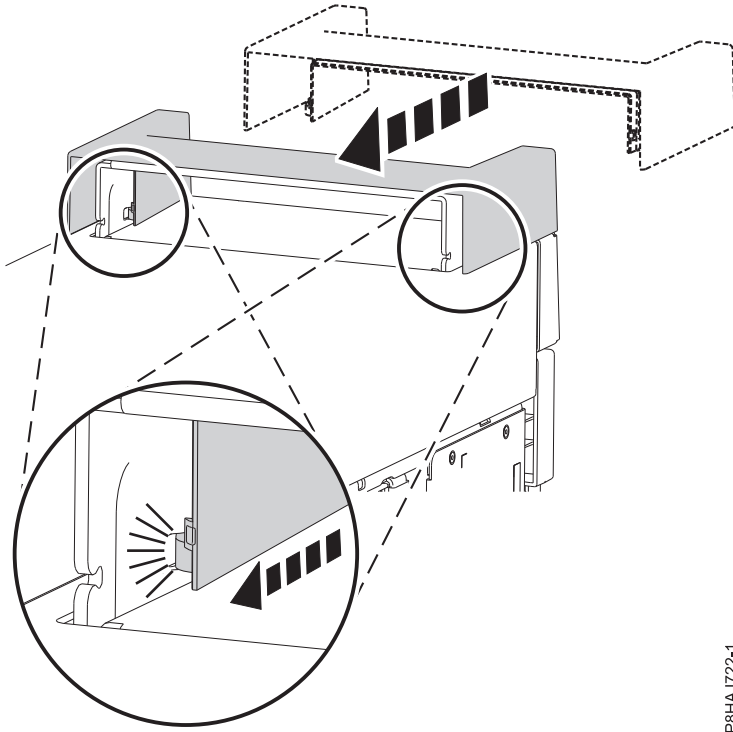


Figure 23. Securing the handle cover in an 8286-41A stand-alone system

2. Insert the piece within the handle cover by pushing it firmly into the handle cover as shown in Figure 24.

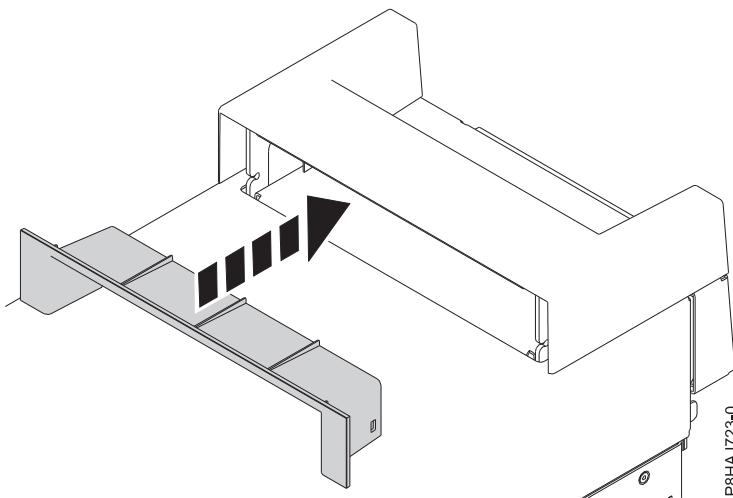


Figure 24. Inserting the piece within the handle cover on an 8286-41A stand-alone system

3. Place the side cover down over the 8286-41A system.
4. Slide the side cover into place until secured onto the system as shown in the following figure.

**Note:** Ensure that the side cover tabs are aligned properly.

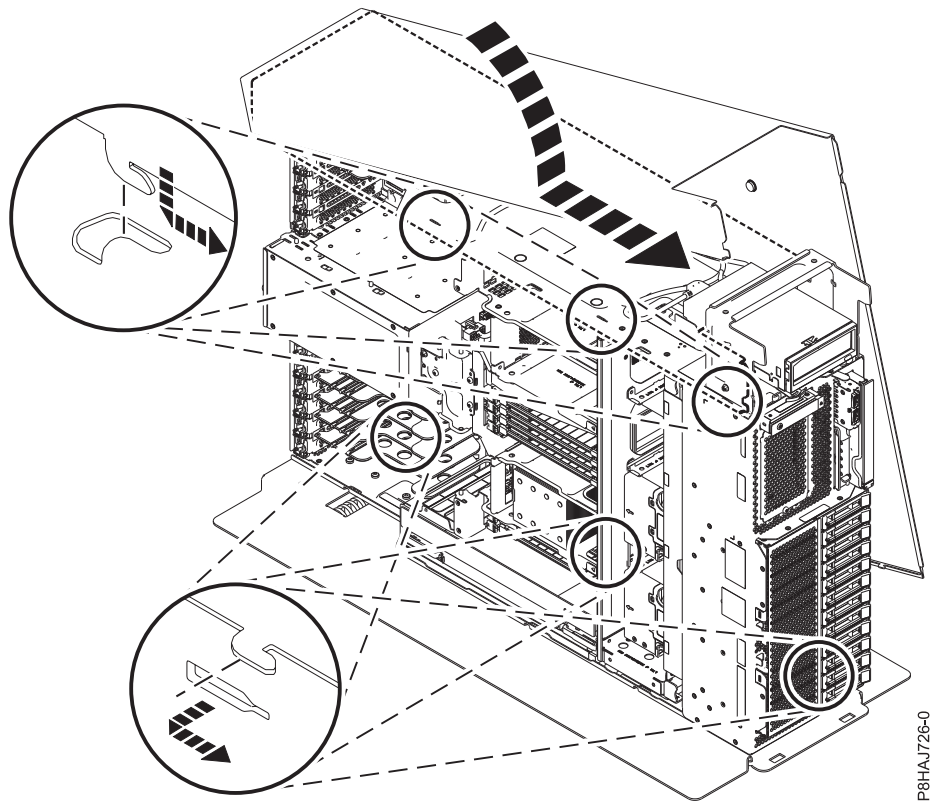


Figure 25. Installing the 8286-41A side cover

5. Install the side cover rear screw with a Phillips screwdriver as shown in Figure 26 on page 42.

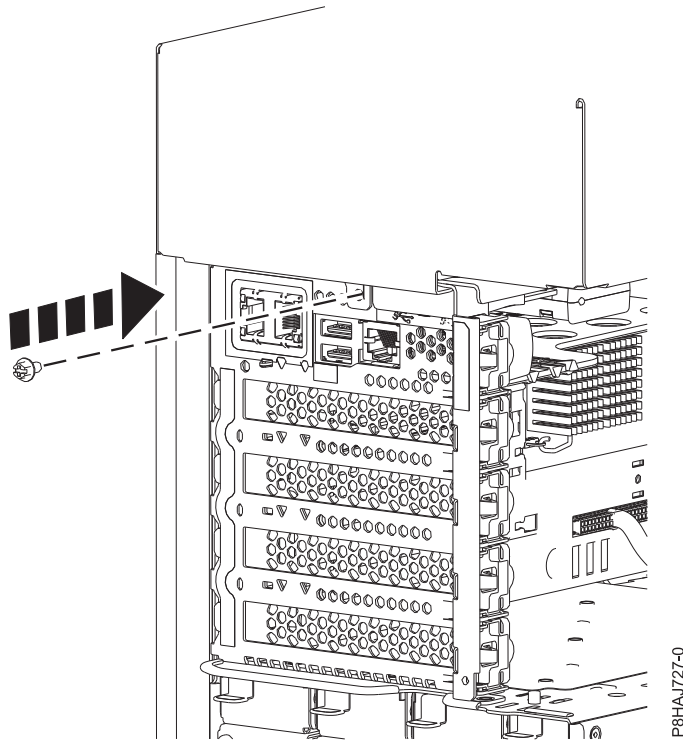


Figure 26. Installing the 8286-41A side cover screw

## Removing the service access cover from a 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system

Use this procedure to remove the service access cover.

## Removing the service access cover from a rack-mounted 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system

Use this procedure to remove the service access cover from a rack-mounted 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system.

**Attention:** Operating the system without the cover for more than 30 minutes might damage the system components.

To remove the service access cover from a rack-mounted system, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Release the latch by pushing the release latch (A) in the direction shown.
3. Slide the cover (B) off the system unit. When the front of the service access cover has cleared the upper frame ledge, lift the cover up and off the system unit.

**Attention:** For proper cooling and airflow, replace the cover before turning on the system.

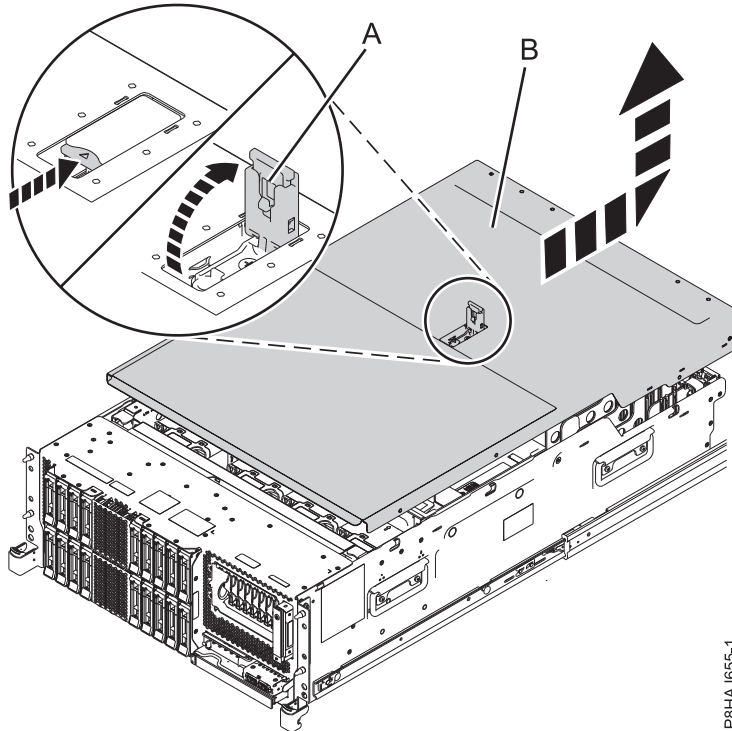


Figure 27. Removing the service access cover

### Removing the service access cover from a stand-alone 8286-41A system

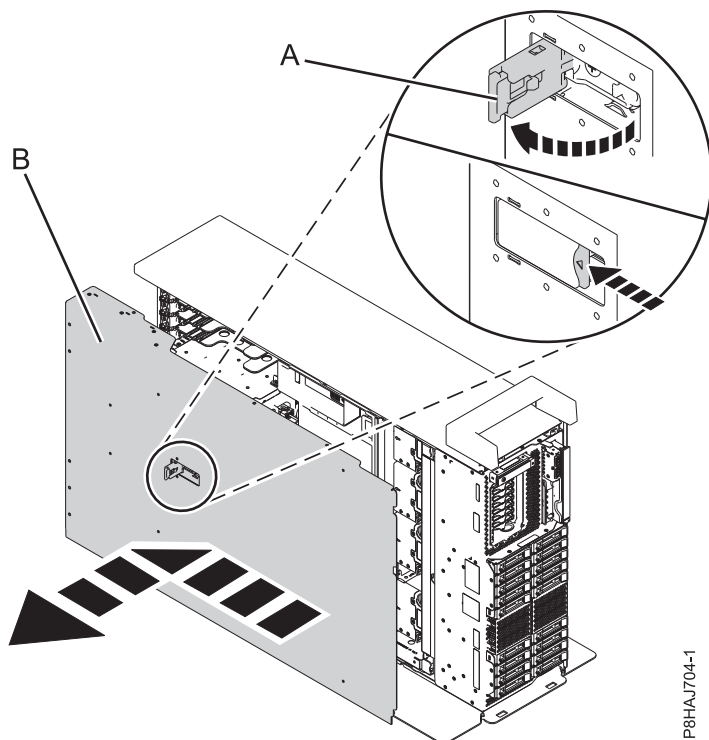
Use this procedure to remove the service access cover from a stand-alone 8286-41A system.

**Attention:** The system must be powered off before removing the top cover. Operating the system without the cover for more than 30 minutes might damage the system components.

To remove the service access cover from a stand-alone system, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Release the latch by pushing the release latch (A) in the direction shown.
3. Slide the cover (B) off the system unit. When the front of the service access cover has cleared the upper frame ledge, lift the cover up and off the system unit.

**Attention:** For proper cooling and airflow, replace the cover before turning on the system.



P8HAJ704-1

Figure 28. Removing the service access cover

### Installing the service access cover on a 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system

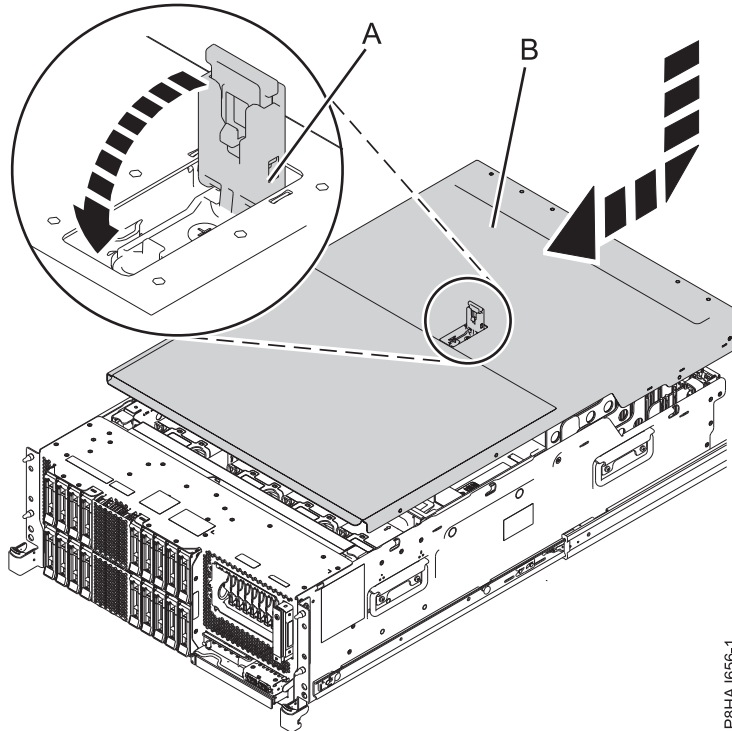
Use this procedure to install the service access cover.

### Installing the service access cover on a rack-mounted 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system

Use this procedure to install the service access cover on a rack-mounted 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system.

To install the service access cover on a rack-mounted system, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Slide the cover (B) on to the system unit.
3. Close the latch release (A) by pushing it in the direction shown.



P8HAJ656-1

Figure 29. Installing the service access cover

### Installing the service access cover on a stand-alone 8286-41A system

Use this procedure to install the service access cover on a stand-alone 8286-41A system.

To install the service access cover on a stand-alone system, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Slide the cover (**B**) on to the system unit.
3. Close the latch release (**A**) by pushing it in the direction shown.

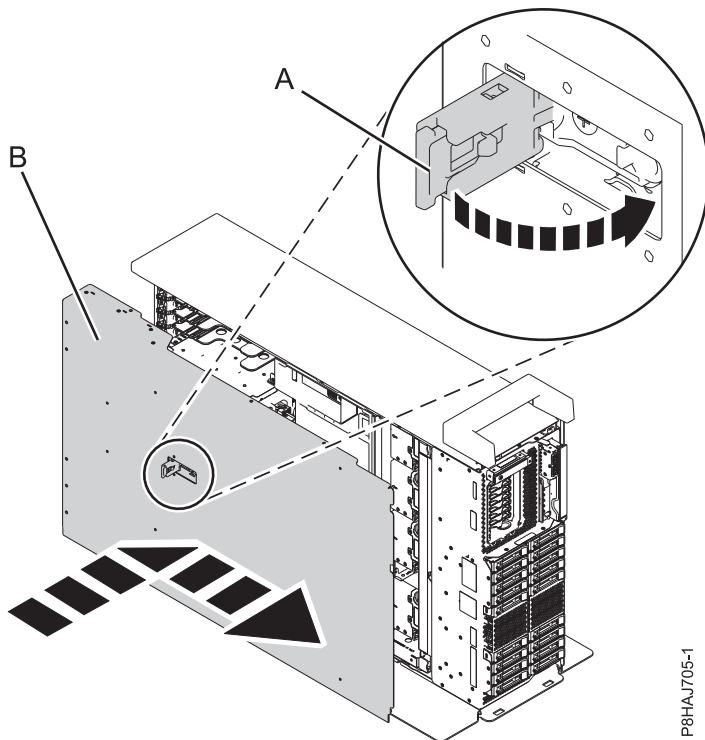


Figure 30. Installing the service access cover

## Air baffle

Use this procedure to open, close, remove, and replace the air baffle in an 8247-42L, 8286-41A, or 8286-42A system.

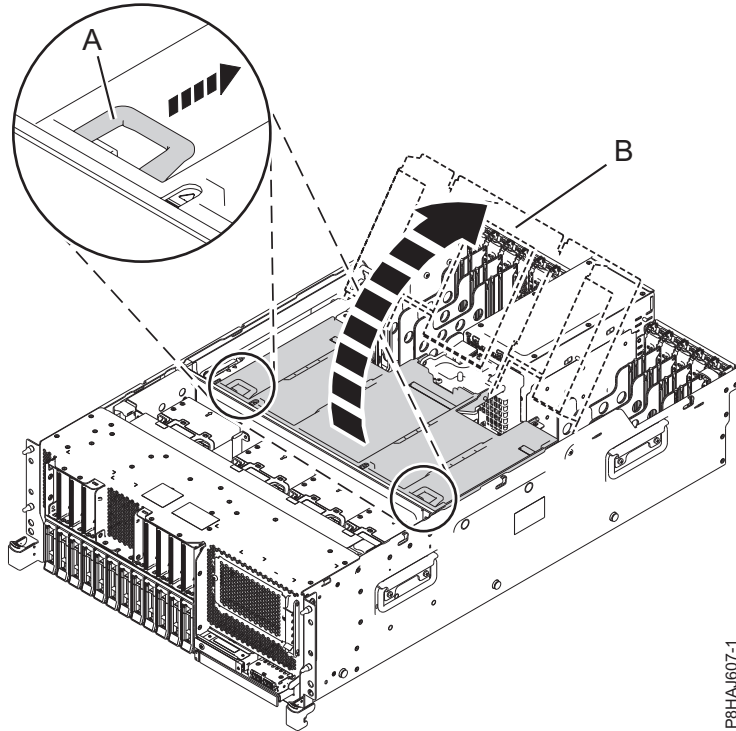
### Opening the air baffle on an 8247-42L, 8286-41A, or 8286-42A system

Use this procedure to open the air baffle on an 8247-42L, 8286-41A, or 8286-42A system.

To open the air baffle, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Pull the latches (A) to disengage the air baffle from the chassis.
3. Lift the air baffle (B) up to open it.





P8HAJ607-1

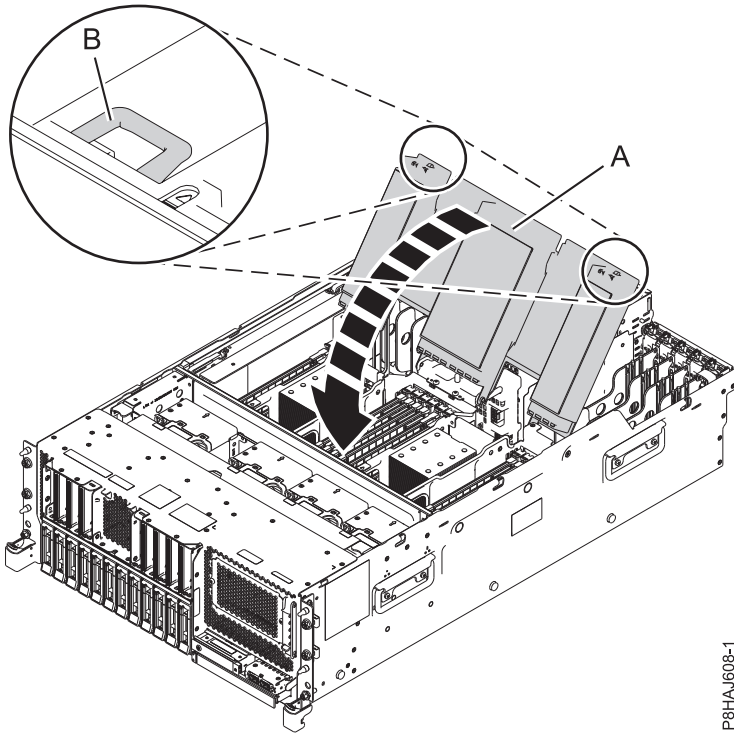
Figure 31. Opening the air baffle

### Closing the air baffle on an 8247-42L, 8286-41A, or 8286-42A system

Use this procedure to close the air baffle on an 8247-42L, 8286-41A, or 8286-42A system.

To close the air baffle, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Push down the air baffle (**B**) toward the chassis.
3. Press the side latches (**A**) to latch the air baffle to the chassis.



P8HAJ608-1

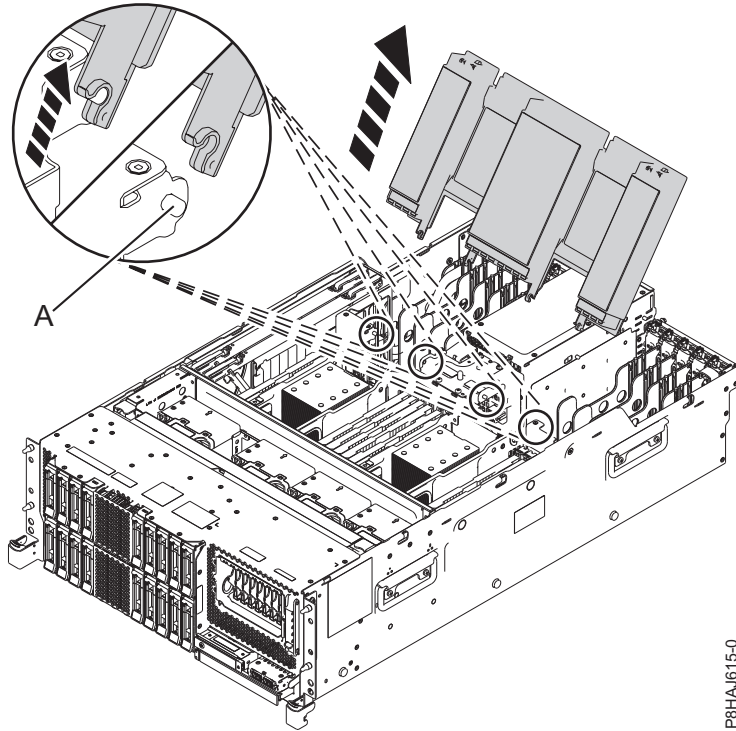
Figure 32. Closing the air baffle

### Removing the air baffle from an 8247-42L, 8286-41A, or 8286-42A system

Use this procedure to remove the air baffle from an 8247-42L, 8286-41A, or 8286-42A system.

To remove the air baffle, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Pull the air baffle to disengage it from the chassis clasp (A).
3. Lift the air baffle up to remove it.



P8HAJ615-0

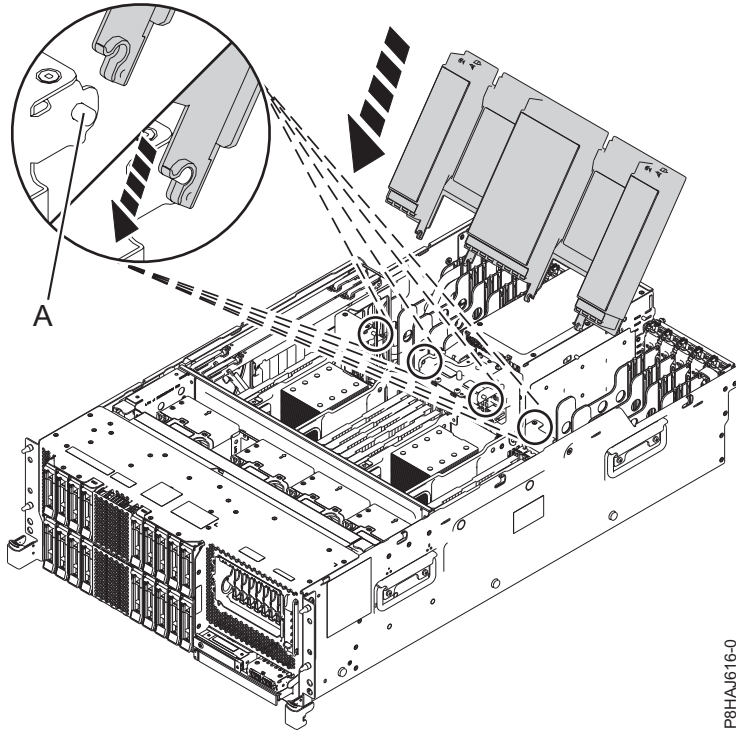
Figure 33. Removing the air baffle

### Replacing the air baffle on an 8247-42L, 8286-41A, or 8286-42A system

Use this procedure to replace the air baffle on an 8247-42L, 8286-41A, or 8286-42A system.

To replace the air baffle, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Push the air baffle toward the chassis.
3. Fix the air baffle to the chassis by pushing the clasp onto the chassis (**A**) until it locks into place.



P8HAJ616-0

Figure 34. Replacing the air baffle

## Service and operating positions for the 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A system

Use these procedures to place 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8247-42L, 8284-21A, 8284-22A, 8286-41A, or 8286-42A server into the service or operating position.

### Placing the rack-mounted system into the service position

Use this procedure to place the rack-mounted system into the service position.

#### Notes:

- When placing the system into the service position, it is essential that all stability plates are firmly in position to prevent the rack from toppling. Ensure that only one system unit is in the service position at a time.
- Ensure that the cables at the rear of the system unit do not catch or bind as you pull the system unit forward in the rack.
- When the rails are fully extended, the rail safety latches lock into place. This action prevents the system from being pulled out too far.

To place a rack-mounted system into the service position, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. If you have not already done so, remove the front cover of the system. For instructions, see “Removing the front cover” on page 30.
3. Remove the front screws (A) that secure the system unit to the rack.

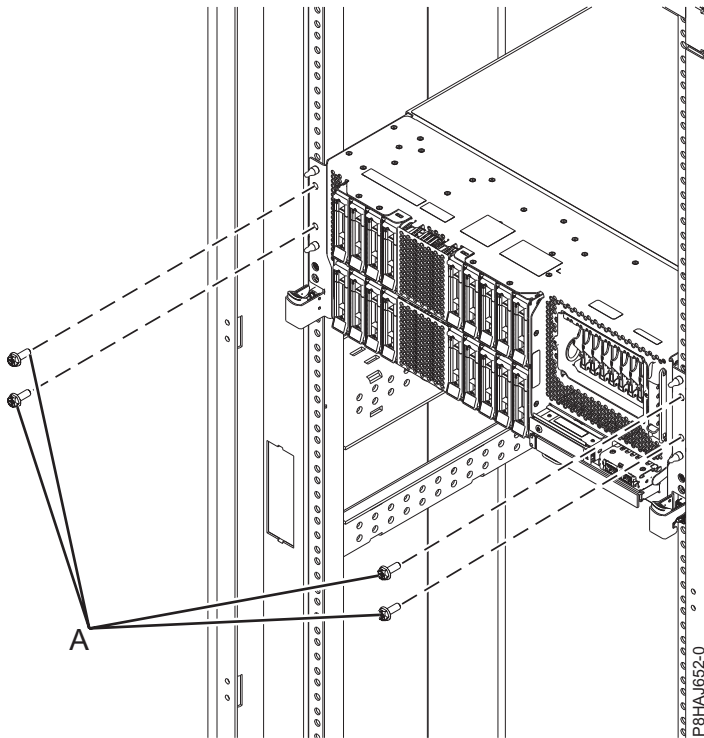


Figure 35. Removing the front screws

4. Release the side latches (**B**) and pull the latches to slide out the Central Electronics Complex (CEC) assembly.

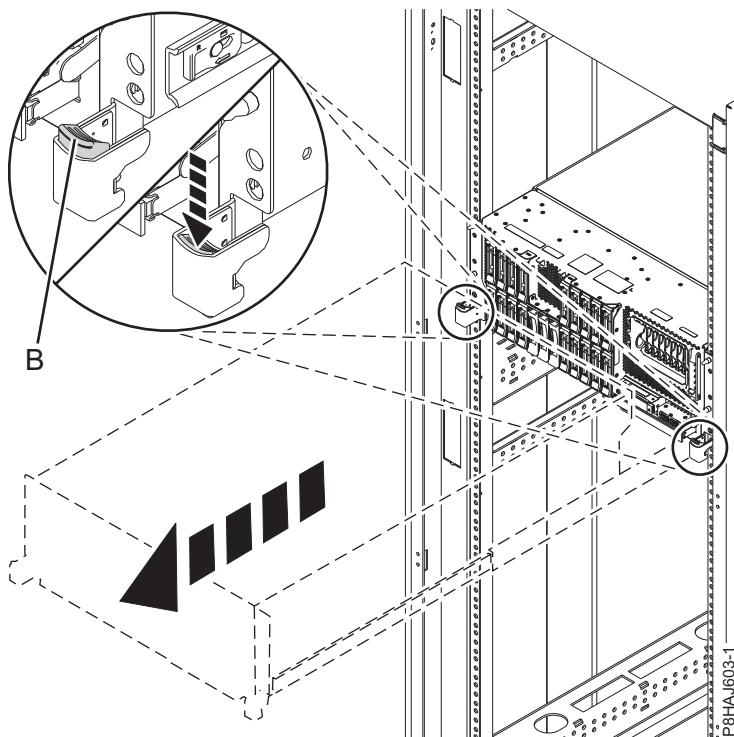


Figure 36. Releasing the side latches

## Placing the rack-mounted system into the operating position

Use this procedure to place the rack-mounted system into the operating position.

When you place the system in the operating position, ensure that the cables at the rear of the system do not catch or bind as you push the system unit back into the rack.

To place a rack-mounted system in the operating position, complete the following steps:

1. Ensure that you have the electrostatic discharge (ESD) wrist strap attached. If not, attach it now.
2. Unlock the blue rail safety latches (**A**) by lifting them upward.
3. Push the system unit (**B**) back into the rack until both system unit release latches lock into position.

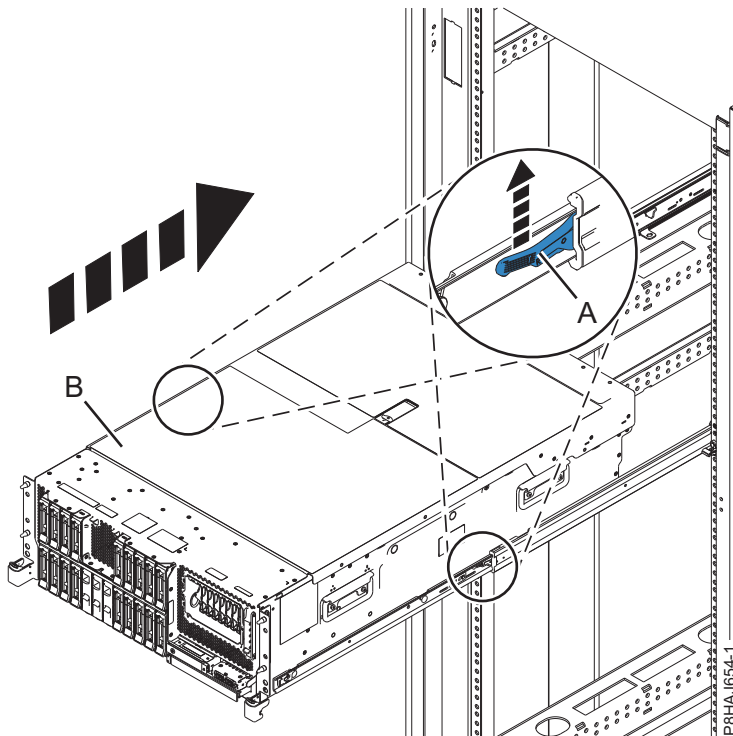


Figure 37. Placing the system into the operating position

4. Secure the server to the rack by using shipping screws.
5. If you have not already done so, replace the front cover. For instructions, see “Installing the front cover” on page 36.

---

## Disconnecting the power cords from the system

Use this procedure to disconnect the power cords from the system.

To disconnect the power cords from the system, complete the following steps:

1. Open the rear rack door on the system unit that you are servicing.
2. Identify the system unit that you are servicing in the rack.
3. Disconnect the power cords (**B**) from the system unit. See Figure 41 on page 54, Figure 42 on page 54, or Figure 43 on page 55 or depending on the type of your system.

### Notes:

- This system might be equipped with two or more power supplies. If the removing and replacing procedures require the power to be off, then ensure that all the power sources to the system have been completely disconnected.
- The power cord is fastened to the system using the hook-and-loop fastener (A). If you are placing the system in a service position after disconnecting the power cords, then ensure that you unstrap the fastener.

Figure 38 shows the supported alternate current (AC) and high voltage direct current (HVDC) connectors. Figure 39 and Figure 40 show the supported connectors and power distribution unit (PDU) for 8408-44E.

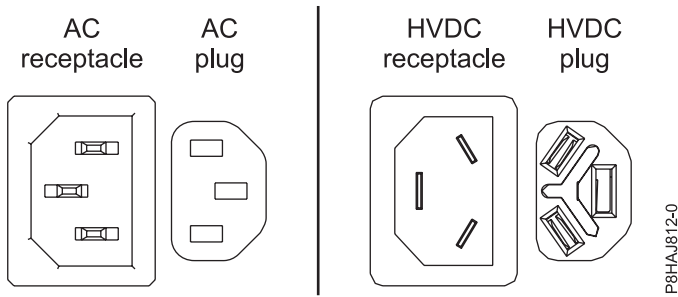


Figure 38. AC and HVDC connectors

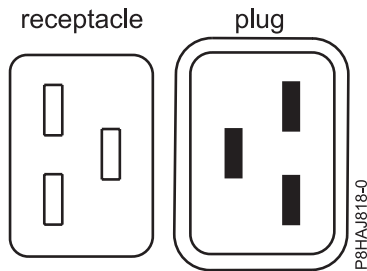


Figure 39. Connectors for the 8408-44E system

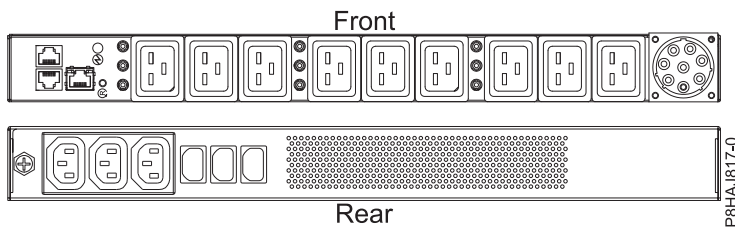


Figure 40. PDU for the 8408-44E system

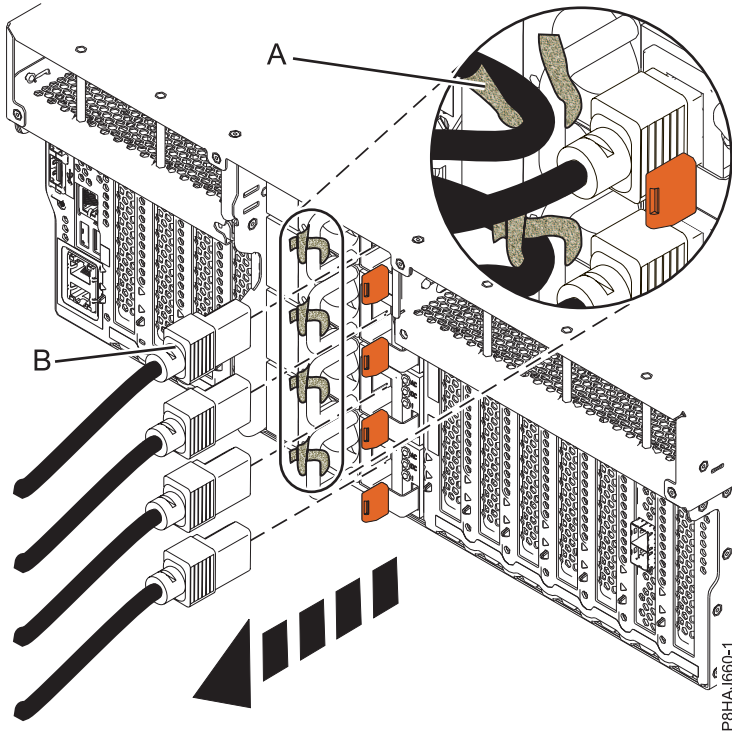


Figure 41. Removing the power cords from an 8247-42L, 8286-41A, or 8286-42A system

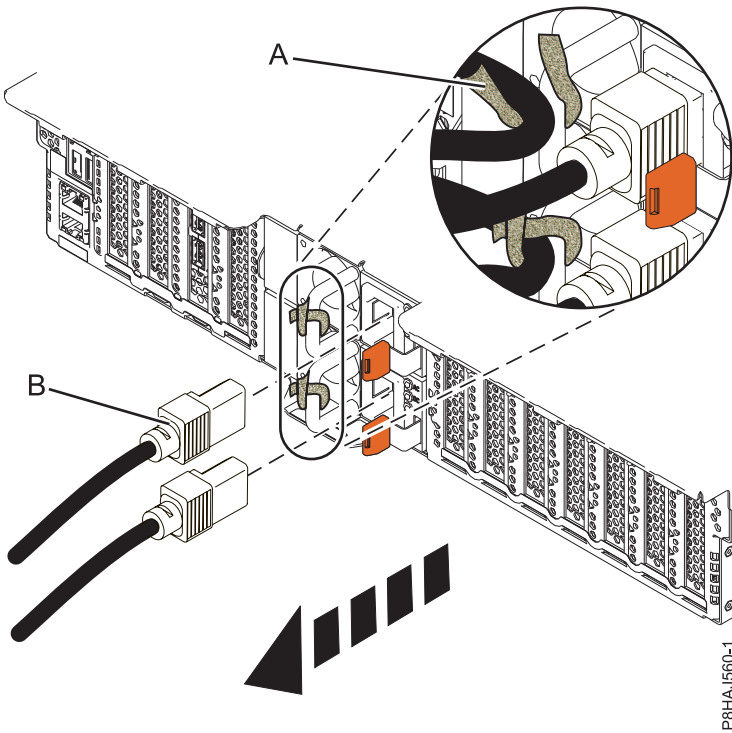


Figure 42. Removing the power cords from an 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8284-21A, or 8284-22A system



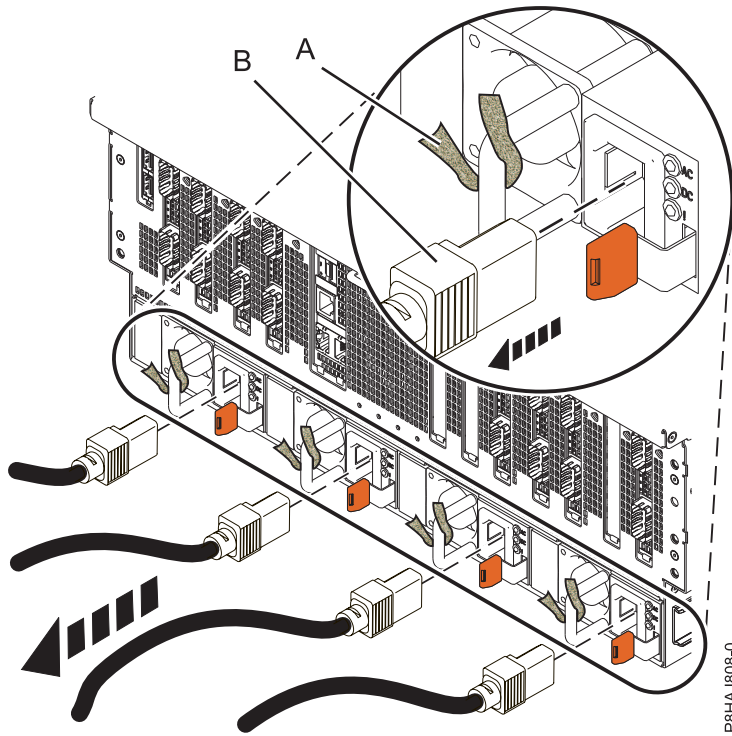


Figure 43. Removing the power cords from an 8408-44E or 8408-E8E system

## Connecting the power cords to the system

Use this procedure to connect the power cords to the system.

To connect the power cords to the system, complete the following steps:

1. Open the rear rack door on the system unit that you are servicing.
2. Reconnect the power cords (A) to the system unit. See Figure 47 on page 56, Figure 48 on page 57, or Figure 49 on page 57 depending on the type of your system. Figure 44 shows the supported alternate current (AC) and high voltage direct current (HVDC) connectors. Figure 45 on page 56 and Figure 46 on page 56 show the supported connectors and power distribution unit (PDU) for 8408-44E.

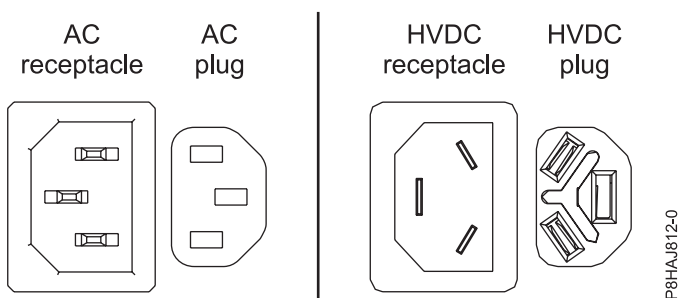


Figure 44. AC and HVDC connectors

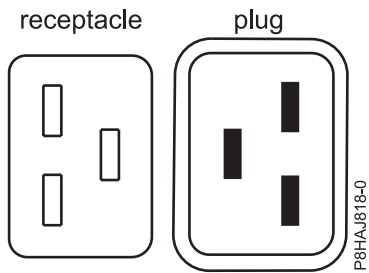


Figure 45. Connectors for the 8408-44E system

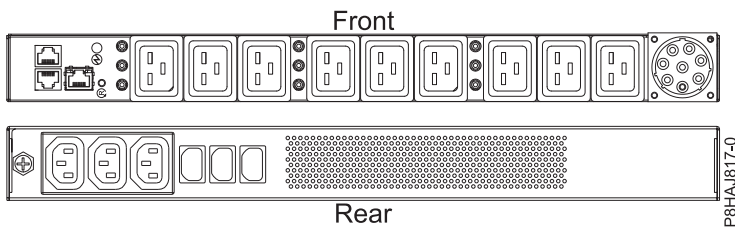


Figure 46. PDU for the 8408-44E system

3. Fasten the power cords to the system using the hook-and-loop fasteners **(B)**.

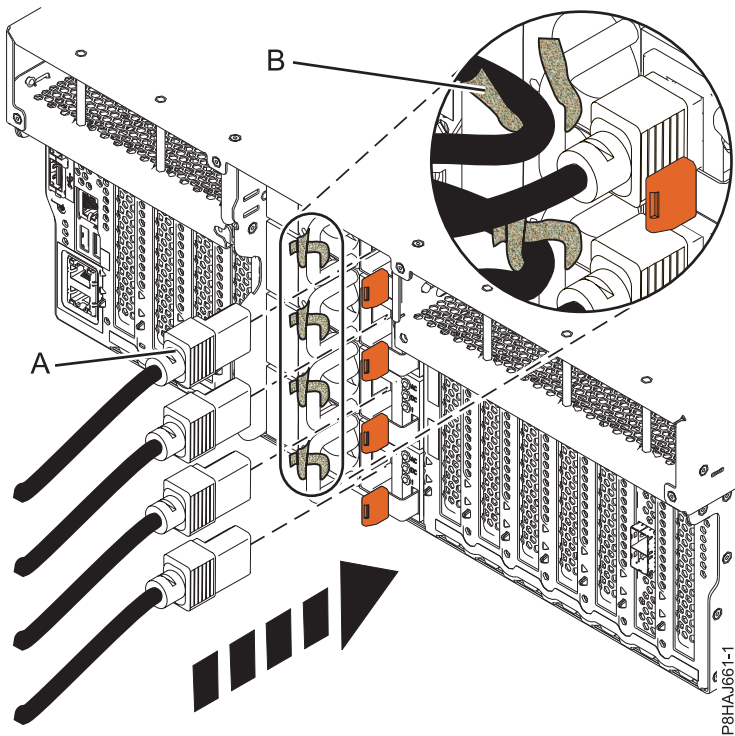


Figure 47. Connecting the power cords to an 8247-42L, 8286-41A, or 8286-42A system

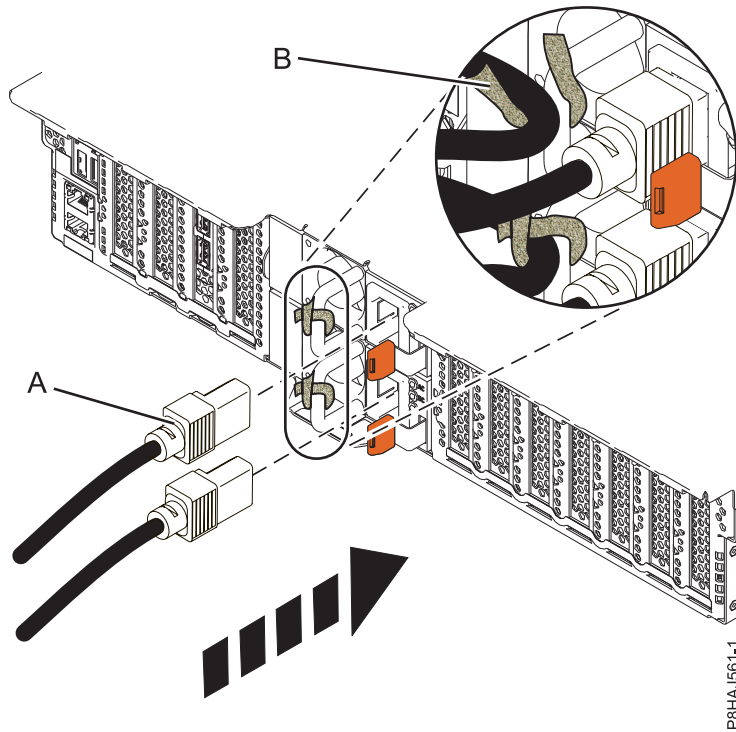


Figure 48. Connecting the power cords to a 5148-21L, 5148-22L, 8247-21L, 8247-22L, 8284-21A, or 8284-22A system

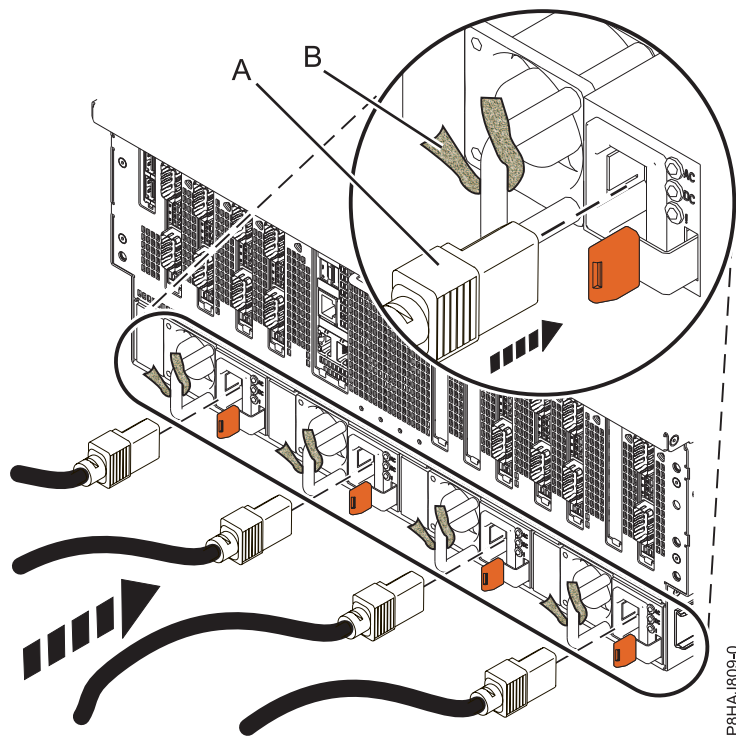


Figure 49. Connecting the power cords to an 8408-44E or 8408-E8E system

4. Close the rack door at the rear of the system.

---

## Installing a part by using the HMC

You can use the Hardware Management Console (HMC) to perform many service actions, including the installation of a new feature or part.

To install a feature or part into a system or an expansion unit by using the HMC, complete the following steps:


1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):

- If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
  - a. In the navigation area, expand **Systems Management > Servers**.
  - b. Select the managed system for which you want to install a part.

**Note:** If your part is in a miscellaneous equipment specification (MES), continue with step 1c. If your part is contained in the install that is done by the system services representative (SSR) or in a ship group, go to step 1h.

- c. In the Tasks area, expand **Serviceability > Hardware > MES Tasks > Open MES**.
  - d. Click **Add MES Order Number**.
  - e. Enter the number, and click **OK**.
  - f. Click the newly created order number, and click **Next**. The details of the order number are displayed.
  - g. Click **Cancel** to close the window.
  - h. In the Tasks area, expand **Serviceability > Hardware > MES Tasks**.
- If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps:



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
  - b. Click the system name for which you want to install the part.
  - c. In the navigation area, click **Serviceability**.
2. In the Serviceability window, click **Add FRU** (field replaceable unit).
  3. In the Add/Install/Remove Hardware-Add FRU, Select FRU Type window, select the system or enclosure into which you are installing the feature.
  4. Select the type of feature you are installing, and click **Next**.
  5. Select the location code where you will install the feature, and click **Add**.
  6. After the part is listed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to install the feature.

**Note:** The HMC might open external instructions for installing the feature. If so, follow those instructions to install the feature.

---

## Removing a part by using the HMC


Learn how to remove a part by using the Hardware Management Console (HMC).

To remove a part in a system or an expansion unit by using the HMC, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the HMC:
  - If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
    - a. In the navigation area, expand **Systems Management > Servers**.

- b. Select the managed system from which you are removing a part.
- c. In the Tasks area, expand **Serviceability** > **Hardware** > **MES Tasks** > **Remove FRU**.
- If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps:



- a. In the navigation area, click the **Resources** icon , and then click **All Systems**.
  - b. Click the system name for which you want to remove a part.
  - c. In the navigation area, click **Serviceability**.
  - d. In the Serviceability window, click **Remove FRU**.
2. In the Add/Install/Remove Hardware - Remove FRU, Select FRU Type window, select the system or enclosure from which you are removing the part.
  3. Select the type of part that you are removing, and click **Next**.
  4. Select the location of the part that you are removing, and click **Add**.
  5. After the part is listed in the **Pending Actions** section, click **Launch Procedure** and follow the instructions to remove the part.

**Note:** The HMC might display the IBM Knowledge Center instructions for removing the part. If so, follow those instructions to remove the part.


---

## Repairing a part by using the HMC

You can use the Hardware Management Console (HMC) to complete many service actions, including repairing a field-replaceable unit (FRU) or part.

1. Choose one of the following navigation options depending on the interface type of the Hardware Management Console (HMC):
  - If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
    - a. In the navigation area, expand **Systems Management** > **Servers**.
    - b. Select the managed system for which you want to repair a part.
    - c. In the Tasks area, expand **Serviceability** > **Manage Serviceable Events**.
  - If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following step:



- a. In the navigation area, click the **Resources** icon , and then click **All Systems**.
  - b. Click the system name for which you want to remove a part.
  - c. In the navigation area, click **Serviceability**.
  - d. In the Serviceability window, click **Serviceable Events Manager**.
- Note:** You can also access **Serviceable Events Manager** option from the **Actions** list after selecting the system.
2. In the Manage Serviceable Events window, specify the event criteria, error criteria, and FRU criteria. If you do not want the results to be filtered, select **ALL**.
  3. Click **OK**. The Manage Serviceable Events - Serviceable Event Overview window displays all of the events that match your criteria. The information that is displayed in the compact table view includes the following details:
    - Problem number
    - PMH number

- Reference code - click the Reference code to display a description of the problem reported and actions that can be taken to fix the problem.
- Status of the problem
- Last reported time of the problem
- Failing MTMS of the problem

**Note:** The full table view includes more detailed information, including reporting MTMS, first reported time, and serviceable event text.

4. Select a serviceable event and use the **Selected** drop-down menu to select **Repair**.
5. Follow the instructions to repair the part.

**Note:** The HMC might open IBM Knowledge Center instructions for repairing the part. If so, follow those instructions to repair the part.

## Verifying the installed part

You can verify a newly installed or replaced part on your system, logical partition, or expansion unit by using the operating system, stand-alone diagnostics, or the Hardware Management Console (HMC).

### Verifying a part by using the operating system or VIOS

If you installed a new feature or replaced a part, you might want to use the tools in the operating system or Virtual I/O Server (VIOS) to verify that the feature or part is recognized by the system or logical partition.

### Verifying an installed feature or replaced part by using an AIX system or logical partition

If you installed feature or replaced a part, you might want to use the tools in the AIX operating system to verify that the feature or part is recognized by the system or logical partition.

#### Verifying an installed feature by using the AIX operating system:

If you installed feature or replaced a part, you might want to use the tools in the AIX operating system to verify that the feature or part is recognized by the system or logical partition.

To verify the installed feature by using the AIX operating system, complete the following steps:

1. Log in as root user.
2. At the command line, type `diag` and press Enter.
3. Select **Advanced Diagnostics Routines** and press Enter.
4. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.
5. When the **Advanced Diagnostic Selection** menu appears, select one of the following options:
  - To test a single resource, select the resource that you installed from the list of resources and press Enter.
  - To test all the resources available to the operating system, select **All Resources** and press Enter.
6. Select **Commit**, and wait until the diagnostic programs run to completion, responding to any prompts that appear.
7. Did the diagnostics run to completion and display the message `No trouble was found`?
  - **No:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection. Review the installation procedures to ensure that the new feature is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system is running in logical partitioning (LPAR) mode, note the logical partition in which you installed the feature. Contact your service provider for assistance.

- **Yes:** The new device is installed correctly. Exit the diagnostic programs and return the system to normal operations.

### Verifying a replaced part by using the AIX operating system:

If you replaced a part, you might want to use the tools in the AIX operating system to verify that the part is recognized by the system or logical partition.

To verify the operation of a replacement part, complete the following steps:

1. Did you use either the AIX operating system or the online diagnostics service aid concurrent (hot-swap) service to replace the part?
  - No:** Go to step 2.
  - Yes:** Go to step 5.
2. Is the system powered off?
  - No:** Go to step 4.
  - Yes:** Continue with the next step.
3. Start the system and wait until the AIX operating system login prompt is displayed or until apparent system activity on the operator panel or display has stopped.
 

Did the AIX login prompt display?

  - **No:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection. Review the procedures for the part that you replaced to ensure that the new part is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system does not start or you have no login prompt, see: Problems with loading and starting the operating system.
 

If the system is partitioned, note the logical partition in which you replaced the part. Contact your service provider for assistance.
  - **Yes:** Go to step 4.
4. At the command prompt, type `diag -a` and press Enter to check for missing resources. If you see a command prompt, go to step 5.
 

If the **Diagnostic selection** menu is shown with **M** appearing next to any resource, follow these steps:

  - a. Select the resource and press Enter.
  - b. Select **Commit**.
  - c. Follow any instructions that are shown.
  - d. If the *Do you want to review the previously displayed error?* message is shown, select **Yes** and press Enter.
  - e. If an SRN is shown, suspect a loose card or connection. If no obvious problem is shown, record the SRN and contact your service provider for assistance.
  - f. If no SRN is shown, go to step 5.
5. Test the part by doing the following steps:
  - a. At the command line, type `diag` and press Enter.
  - b. From the **Function Selection** menu, select **Advanced Diagnostics Routines** and press Enter.
  - c. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.
  - d. Select **All Resources**, or select the diagnostics for the individual part to test only the part you replaced and any devices that are attached to the part you replaced and press Enter.
 

Did the **Resource Repair Action** menu appear?

    - No:** Go to step 6.
    - Yes:** Go to step 7 on page 62.
6. Did the *Testing Complete, No trouble was found* message appear?

- **No:** There is still a problem. Contact your service provider. **This ends the procedure.**
- **Yes:** Select **Log Repair Action**, if not previously logged, from the **Task Selection** menu to update the AIX error log. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action is not displayed on the resource list, select **sysplanar0** and press Enter.

**Tip:** This action changes the indicator light for the part from the fault state to the normal state.

Go to step 9.

7. Select the resource for the replaced part from the **Resource Repair Action** menu. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the AIX error log to indicate that a system-detectable part has been replaced.

**Note:** On systems with an indicator light for the failing part, this action changes the indicator light to the normal state.

- a. Select the resource that has been replaced from the **Resource Repair Action** menu. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the resource list, select **sysplanar0** and press Enter.
- b. Select **Commit** after you make your selections. Did another **Resource Repair Action** display appear?

**No:** If the **No Trouble Found** display appears, go to step 9

**Yes:** Go to step 8.

8. Select the parent or child of the resource for the replaced part from the **Resource Repair Action** menu if necessary. When a test is run on a resource in system verification mode, and that resource has an entry in the AIX error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the AIX error log to indicate that a system-detectable part has been replaced.

**Note:** This action changes the indicator light for the part from the fault state to the normal state.

- a. From the **Resource Repair Action** menu, select the parent or child of the resource that has been replaced. If the repair action was to reseat a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the resource list, select **sysplanar0** and press Enter.
- b. Select **Commit** after you make your selections.
- c. If the **No Trouble Found** display appears, go to step 9.

9. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the values they had prior to servicing the system.

10. Did you do any hot-plug procedures before doing this procedure?

**No:** Go to step 11.

**Yes:** Go to step 12.

11. Start the operating system, with the system or logical partition in normal mode. Were you able to start the operating system?

**No:** Contact your service provider. **This ends the procedure.**

**Yes:** Go to step 12.

12. Are the indicator lights still on?

- **No. This ends the procedure.**
- **Yes.** Turn off the lights. See the following for instructions: Changing service indicators (<http://www.ibm.com/support/knowledgecenter/POWER8/p8hby/serviceindicators.htm>).



## Verifying the installed part by using an IBM i system or logical partition

If you have installed a new feature or part, verify that the system recognizes the feature or part by using the IBM i system service tools.

To verify the installed part, complete the following steps:

1. Deactivate the failing item indicator light. For instructions, see “Deactivating the indicator light by using the IBM i operating system” on page 69.
2. Sign on **with at least service level authority**.
3. On the command line of the IBM i session, type `strsst` and press Enter.

**Note:** If you cannot get to the System Service Tools display, use function 21 from the control panel. Alternatively, if the system is managed by Hardware Management Console (HMC), use the Service Focal Point Utilities to get to the Dedicated Service Tools (DST) display.

4. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and press Enter.

**Note:** The service tools password is case-sensitive.

5. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
6. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
7. Select **Logical hardware resources (buses, IOPs, controllers)** from the Hardware Service Manager display and press Enter. This option allows you to display and work with logical resources. Logical hardware resources are the functional resources of the system used by the operating system.

With the Logical Hardware Resources display, you can show logical hardware resource status or information, and associated packaging hardware resources. Use the online Help information to better understand specific functions, fields, or symbols.

## Verifying an installed part by using a Linux system or logical partition

Learn how to verify that the system recognizes a new or replacement part.

To verify the newly installed or replaced part, continue with “Verifying an installed part by using stand-alone diagnostics.”

### Verifying an installed part by using stand-alone diagnostics

If you have installed or replaced a part, verify that the system recognizes the new part. You can use stand-alone diagnostics to verify an installed part in an AIX or Linux system, expansion unit, or logical partition.

- If this server is directly attached to another server or attached to a network, ensure communications with the other servers have stopped.
- The stand-alone diagnostics require use of all of the logical partition resources. No other activity can be running on the logical partition.
- The stand-alone diagnostics require access to the system console.

You access these diagnostics from a CD-ROM or from the Network Installation Management (NIM) server. This procedure describes how to use the diagnostics from a CD-ROM. For information on running diagnostics from the NIM server, see Running stand-alone diagnostics from a Network Installation Management server.

To use stand-alone diagnostics, follow these steps:

1. Stop all jobs and applications and then stop the operating system on the system or logical partition.
2. Remove all tapes, diskettes, and CD-ROM.

3. Turn off the system unit power. The next step boots the server or logical partition from the stand-alone diagnostics CD-ROM. If the optical drive is not available as a boot device on the server or logical partition on which you are working, follow these steps:
  - a. Access the ASMI. For information on using the ASMI, see *Managing the Advanced System Management Interface*.
  - b. On the ASMI main menu, click **Power/Restart Control**.
  - c. Click **Power On/Off System**.
  - d. Select the **Service mode boot from default boot list** option in the AIX or Linux logical partition mode boot drop-down menu.
  - e. Click **Save settings and power on**. When the optical drive is powered on, insert the stand-alone diagnostic CD-ROM.
  - f. Go to step 5.
4. Turn on the system unit power and immediately insert the diagnostics CD-ROM into the optical drive.
5. After the **keyboard** POST indicator displays on the system console and before the last POST indicator (**speaker**) displays, press the numeric 5 key on the system console to indicate that a service mode boot must be initiated by using the default-service mode boot list.
6. Enter any requested password.
7. At the **Diagnostic Operating Instructions** display, press Enter.

**Tip:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection.

**Note:** If you received an SRN or any other reference code when you attempted to start the system, contact your service provider for assistance.

8. If the terminal type is requested, select the **Initialize Terminal** option on the Function Selection menu to initialize the operating system.
9. From the Function Selection menu, select **Advanced Diagnostics Routines** and press Enter.
10. From the Diagnostic Mode Selection menu, select **System Verification** and press Enter.
11. When the Advanced Diagnostic Selection menu appears, select **All Resources**, or test only the part you replaced, and any devices that are attached to the part you replaced, by selecting the diagnostics for the individual part and press Enter.
12. Did the Testing Complete, No trouble was found message appear?
  - **No:** There is still a problem. Contact your service provider.
  - **Yes:** Go to step 13.
13. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the value they had prior to servicing the system.
14. If the indicator lights are still on, follow these steps:
  - a. Select **Identify and Attention Indicators** from the Task Selection menu to turn off the system attention and indicator lights and press Enter.
  - b. Select **Set System Attention Indicator to NORMAL** and press Enter.
  - c. Select **Set All Identify Indicators to NORMAL** and press Enter.
  - d. Choose **Commit**.

**Note:** This changes the system attention and identify indicators from the *Fault* state to the *Normal* state.

- e. Exit to the command line.

## Verifying an installed part or replaced part on a system or logical partition by using Virtual I/O Server tools

If you installed or replaced a part, you might want to use the tools in Virtual I/O Server (VIOS) to verify that the part is recognized by the system or logical partition.

### Verifying an installed part by using VIOS:

You can verify the operation of an installed part by using the VIOS.

To verify an installed part, complete the following steps:

1. Log in as root user.
2. At the command line, type `diagmenu` and press Enter.
3. Select **Advanced Diagnostics Routines** and press Enter.
4. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.
5. When the **Advanced Diagnostic Selection** menu appears, do one of the following steps:
  - To test a single resource, select the resource that you just installed from the list of resources and press Enter.
  - To test all the resources available to the operating system, select **All Resources** and press Enter.
6. Select **Commit**, and wait until the diagnostic programs run to completion, responding to any prompts that appear.
7. Did the diagnostics run to completion and display the message `No trouble was found`?
  - **No:** If a service request number (SRN) or other reference code is displayed, suspect a loose adapter or cable connection. Review the installation procedures to ensure that the new part is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system is running in LPAR mode, note the logical partition in which you installed the part. Contact your service provider for assistance.
  - **Yes:** The new device is installed correctly. Exit the diagnostic programs and return the system to normal operations.

### Verify the replacement part by using VIOS:

You can verify the operation of a replacement part by using the VIOS.

To verify the operation of a replacement part, complete the following steps:

1. Did you replace the part by using either VIOS or the online diagnostics service aid's concurrent (hot-swap) service operation?
  - **No:** Go to step 2.
  - **Yes:** Go to step 5 on page 66.
2. Is the system powered off?
  - **No:** Go to step 4 on page 66.
  - **Yes:** Go to step 3.
3. Start the system and wait until the VIOS operating system login prompt displays or until apparent system activity on the operator panel or display has stopped. Did the VIOS login prompt display?
  - **No:** If an SRN or other reference code is displayed, suspect a loose adapter or cable connection. Review the procedures for the part that you replaced to ensure that the new part is installed correctly. If you cannot correct the problem, collect all SRNs or any other reference code information that you see. If the system does not start or you have no login prompt, see *Problems with loading and starting the operating system*.  
If the system is partitioned, note the logical partition in which you replaced the part. Contact your service provider for assistance.
  - **Yes:** Go to step 4 on page 66.

4. At the command prompt, type `diag -a` and press Enter to check for missing resources. If you see a command prompt, go to step 5.

If the **Diagnostic selection** menu is shown with **M** appearing next to any resource, follow these steps:

- a. Select the resource and press Enter.
  - b. Select **Commit**.
  - c. Follow any instructions that are shown.
  - d. If a *Do you want to review the previously displayed error?* message is shown, select **Yes** and press Enter.
  - e. If an SRN is shown, suspect a loose card or connection. If no obvious problem is shown, record the SRN and contact your service provider for assistance.
  - f. If no SRN is shown, go to 5.
5. Test the part by doing the following:
    - a. At the command line, type `diagmenu` and press Enter.
    - b. From the **Function Selection** menu, select **Advanced Diagnostics Routines** and press Enter.
    - c. From the **Diagnostic Mode Selection** menu, select **System Verification** and press Enter.
    - d. Select **All Resources**, or select the diagnostics for the individual part to test only the part you replaced, and any devices that are attached to the part you replaced and press Enter.  
Did the **Resource Repair Action** menu appear?
      - **No:** Go to step 6.
      - **Yes:** Go to step 7.
  6. Did the *Testing Complete, No trouble was found* message appear?
    - **No:** There is still a problem. Contact your service provider. **This ends the procedure.**
    - **Yes:** Select **Log Repair Action**, if not previously logged, from the **Task Selection** menu to update the error log. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action is not displayed on the Resource List, select `sysplanar0` and press Enter.  
  
**Tip:** This action changes the indicator light for the part from the fault state to the normal state. Go to step 9 on page 67.
  7. Select the resource for the replaced part from the **Resource Repair Action** menu. When a test is run on a resource in system verification mode, and that resource has an entry in the error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the error log to indicate that a system-detectable part has been replaced. On systems with a indicator light for the failing part, this changes the indicator light to the normal state.
    - a. Select the resource that has been replaced from the **Resource Repair Action** menu. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the Resource List, select `sysplanar0`. Press Enter.
    - b. Select **Commit** after you make your selections. Did another **Resource Repair Action** display appear?
      - **No:** If the **No Trouble Found** display appears, go to step 9 on page 67.
      - **Yes:** Go to step 8.
  8. Select the parent or child of the resource for the replaced part from the **Resource Repair Action** menu if necessary. When a test is run on a resource in system verification mode, and that resource has an entry in the error log, if the test on the resource was successful, the **Resource Repair Action** menu appears. Complete the following steps to update the error log to indicate that a system-detectable part has been replaced. This changes the indicator light for the part from the fault state to the normal state.

- a. From the **Resource Repair Action** menu, select the parent or child of the resource that has been replaced. If the repair action was to reseal a cable or adapter, select the resource associated with that repair action. If the resource associated with your action does not appear on the Resource List, select **sysplanar0**. Press Enter.
- b. Select **Commit** after you make your selections.
  - a. If the **No Trouble Found** display appears, go to step 9.
9. If you changed the service processor or network settings, as instructed in previous procedures, restore the settings to the values they had prior to servicing the system.
10. Did you do any hot-plug procedures before doing this procedure?
  - **No:** Go to step 11.
  - **Yes:** Go to step 12.
11. Start the operating system, with the system or logical partition in normal mode. Were you able to start the operating system?
  - **No:** Contact your service provider. **This ends the procedure.**
  - **Yes:** Go to step 12.
12. Are the indicator lights still on?
  - **No:** This ends the procedure.
  - **Yes.** Turn off the lights. For instructions, see Changing service indicators.

## Verifying the installed part by using the HMC

If you have installed or replaced a part, use the Hardware Management Console (HMC) to update your HMC records after you have completed a service action on your server. If you have reference codes, symptoms, or location codes that you used during the service action, locate the records for use during this procedure.

To verify the installed part, complete the following steps:

1. At the HMC, examine the service action event log for any open service action events. See “Viewing serviceable events by using the HMC” on page 68 for details.
2. Are there any service action events that are open?
  - No:** If the system attention LED is still on, use the HMC to turn off the LED. See “Deactivating LEDs by using the HMC” on page 71. **This ends the procedure.**
  - Yes:** Continue with the next step.
3. Record the list of open service action events.
4. Examine the details of the open service action event. Is the error code associated with this service action event the same as you gathered earlier.
  - **No:** Select one of the following options:
    - Review the other serviceable events, find one that does match, and continue with the next step.
    - If the log does not match what you had gathered earlier, contact your service provider.
  - **Yes:** Continue with the next step.
5. Select and highlight the service action event from the Error Associated With This Serviceable Event window.
6. Click **Close Event**.
7. Add comments for the serviceable event. Include any unique additional information. Click **OK**.
8. Did you replace, add, or modify a field replaceable unit (FRU) of the open service action event?
  - **No:** Select the **No FRU Replaced for this Serviceable Event** option, and click **OK** to close the service action event.
  - **Yes:** Perform the following steps:
    - a. From the FRU list, select a FRU that you need to update.

- b. Double-click the FRU and update the FRU information.
  - c. Click **OK** to close the service action event.
9. If you continue to have problems, contact your service provider.

## Viewing serviceable events by using the HMC

Use this procedure to view a serviceable event, including details, comments, and service history by using the Hardware Management Console (HMC).


To view serviceable events and other information about the events, you must be a member of one of the following roles:

- Super administrator
- Service representative
- Operator
- Product engineer
- Viewer

To view serviceable events, follow these steps:

1. Choose one of the following navigation options depending on the interface type of the HMC:
  - If you are using the HMC Classic or HMC Enhanced interface, in the navigation area, click **Service Management > Manage Serviceable Events**.
  - If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, in the



navigation area, click the **Serviceability** icon , and then click **Serviceable Events Manager**.

2. Select the criteria for the serviceable events that you want to view, and click **OK**. The Serviceable Event Overview window opens. The list shows all serviceable events that match your selection criteria. You can use the menu options to complete actions on the serviceable events.
3. Select a line in the Serviceable Event Overview window, and select **Selected > View Details**. The Serviceable Event Details window opens, showing detailed information about the serviceable event. The upper table shows information, such as problem number and reference code. The lower table shows the field replaceable units (FRUs) associated with this event.
4. Select the error for which you want to view comments and history, and follow these steps:
  - a. Click **Actions > View Comments**.
  - b. When you are finished viewing the comments, click **Close**.
  - c. Click **Actions > View Service History**. The Service History window opens, showing service history that is associated with the selected error.
  - d. When you are finished viewing the service history, click **Close**.
5. When you are finished, click **Cancel** twice to close the Serviceable Event Details window and the Serviceable Event Overview window.

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## Deactivating an identify LED

Learn how to deactivate an identifying LED for a part or enclosure.

## Deactivating a system attention LED by using the operating system or VIOS tools

You can use the AIX, IBM i, or Linux operating system, or the Virtual I/O Server (VIOS) tools to deactivate a system attention LED.

## Deactivating the indicator light for a part by using AIX diagnostics

Use this procedure to turn off any indicator light that you turned on as a part of a service action.

To deactivate the indicator light, complete the following steps:

1. Log in as root user.
2. At the command line, type `diag` and press Enter.
3. From the **Function Selection** menu, select **Task Selection** and press Enter.
4. From the **Task Selection** menu, select **Identify and Attention Indicators** and press Enter.
5. From the list of lights, select the location code for the part and press Enter. When a light is activated for a part, an I character precedes the location code.
6. Select **Commit**.
7. Exit to the command line.

## Deactivating the indicator light by using the IBM i operating system

Use this procedure to turn off any indicator light that you turned on as a part of a service action.

To deactivate the indicator light, follow these steps:

1. Sign on to an IBM i session, **with at least service level authority**.
2. On the command line of the session, type `strsst` and press Enter.

**Note:** If you cannot get to the System Service Tools display, use function 21 from the control panel. Alternatively, if the system is managed by a Hardware Management Console (HMC), use the Service Focal Point utilities to get to the Dedicated Service Tools (DST) display.

3. Type your service tools user ID and service tools password on the System Service Tools (SST) Sign On display and press Enter.

**Remember:** The service tools password is case-sensitive.

4. Select **Start a service tool** from the System Service Tools (SST) display and press Enter.
5. Select **Hardware service manager** from the Start a Service Tool display and press Enter.
6. Select **Work with service action log** from the Hardware Service Manager display and press Enter.
7. On the Select Timeframe display, change the **From: Date and Time** field to a date and time prior to when the problem occurred.
8. Search for an entry that matches one or more conditions of the problem:
  - System reference code
  - Resource
  - Date and time
  - Failing item list
9. Select option 2 (Display failing item information) to display the service action log entry.
10. Select option 2 (Display details) to display location information for the failing part to be replaced. The information displayed in the date and time fields is the date and time for the first occurrence of the specific system reference code for the resource displayed during the time range selected.
11. Select option 7 (Indicator off) to turn off the indicator light.
12. Select the **Acknowledge all errors** function at the bottom of the Service Action Log display, if all problems have been resolved.
13. Close the log entry by selecting option 8 (Close new entry) on the Service Action Log Report display.

## Deactivating the indicator light by using the Linux operating system

After you complete a removal and replacement procedure, you can deactivate the indicator light.

To deactivate the indicator light, complete the following steps:

1. Log in as root user.
2. At the command line, type `/usr/sbin/usysident -s normal -l location_code` and press Enter.

#### Related information:

 Service and productivity tools for Linux on Power servers

IBM provides hardware diagnostic aids and productivity tools, and installation aids for Linux operating systems on IBM Power Systems servers.

## Deactivating the indicator light for a part by using the VIOS tools

Use this procedure to turn off any indicator light that you turned on as a part of a service action.

To deactivate the indicator light, complete the following steps:

1. Log in as root user.
2. At the command line, type `diagmenu` and press Enter.
3. From the **Function Selection** menu, select **Task Selection** and press Enter.
4. From the **Task Selection** menu, select **Identify and Attention Indicators** and press Enter.
5. From the list of lights, select the location code for the part and press Enter. When a light is activated for a part, an I character precedes the location code.
6. Select **Commit**.
7. Exit to the command line.

## Deactivating a system attention LED by using the ASMI

You can use the Advanced System Management Interface (ASMI) to deactivate a system attention LED.

### Deactivating the identify LED by using the ASMI when you know the location code

Learn how to deactivate the identify LED by using the Advanced System Management Interface (ASMI) when you know the location code.

You can specify the location code of any indicator to view or modify its current state. If you provide the wrong location code, the ASMI attempts to go to the next higher level of the location code.

The next level is the base-level location code for that field replaceable unit (FRU). For example, a user types the location code for the FRU located on the second memory module slot of the third enclosure in the system. If the location code for the second memory module slot is incorrect (the FRU does not exist at this location), an attempt to set the indicator for the third enclosure is initiated. This process continues until a FRU is located or no other level is available.

To complete this operation, your authority level must be one of the following levels:

- Administrator
- Authorized service provider

To change the current state of an indicator, complete the following steps:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Configuration > Service Indicators > Indicators by Location code**.
3. In the **Location code** field, type the location code of the FRU and click **Continue**.
4. From the **Identify indicator status** list, select **Off**.
5. Click **Save settings**.



## Deactivating the identify LED by using the ASMI when you do not know the location code

Learn how to deactivate the identify LED by using the Advanced System Management Interface (ASMI) when you do not know the location code.

You can turn off the identify indicators in each enclosure.

To complete this operation, your authority level must be one of the following levels:

- Administrator
- Authorized service provider

To disable the enclosure indicator states, complete the following steps:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Configuration > Service Indicators > Enclosure Indicators**. All servers and enclosures managed by the ASMI will display.
3. Select the server or enclosure with the part that needs to be replaced and click **Continue**. The location code identifiers are listed.
4. Select the location code identifier and select **Off**.
5. To save the changes made to the state of one or more FRU indicators, click **Save settings**.

## Deactivating a check log indicator (system information indicator) by using the ASMI

You can deactivate a check log indicator (system information indicator) or logical partition check log indicator by using the ASMI.

The check log indicator provides a visual signal that the system as a whole requires attention or service. Each system has a single check log indicator. When an event occurs that either needs your intervention or that of service and support, the check log indicator lights continuously. The check log indicator is turned on when an entry is made in the service processor error log. The error entry is transmitted to the system error log and to the operating system error log.

To complete this operation, your authority level must be one of the following levels:

- Administrator
- Authorized service provider

To turn off the check log indicator, do the following steps:

1. In the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Configuration > Service Indicators > System Information Indicator**.
3. In the right pane, click **Turn off system information indicator**. If the attempt is unsuccessful, an error message is displayed.

## Deactivating LEDs by using the HMC

Use this procedure to deactivate LEDs by using the Hardware Management Console (HMC).

### Deactivating a system attention LED or partition LED by using the HMC


Use this procedure to deactivate a system attention LED or partition LED by using the Hardware Management Console (HMC).

To deactivate an LED by using the HMC, complete the following steps:

Choose one of the following navigation options depending on the interface type of the HMC:

- If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
  1. In the navigation area, click **Systems Management > Servers**.
  2. In the content pane, select the system.
  3. From the **Tasks** menu, click **Operations > LED Status**.
  4. Click **Identify LED**. The Identify LED window opens. The selected system and its LED state are displayed in the upper part of the window. The logical partition and its LED state are displayed in the lower part of the window. From the Identify LED window, you can deactivate both the system attention LED and the logical partition LED.
  5. Click **Deactivate Attention LED**. A confirmation window is displayed that provides the following information:
    - A verification that the system attention LED was deactivated.
    - An indication that there still might be open problems within the system.
    - An indication that you cannot deactivate the system attention LED.
  6. Select one of the logical partitions in the lower table, and click **Deactivate partition LED**. A confirmation window is displayed that provides the following information:
    - A verification that the logical partition attention LED was deactivated.
    - An indication that there still might be open problems within the logical partition.
    - An indication that you cannot deactivate the logical partition attention LED.
- If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps:



1. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
2. Click the server name for which you want to deactivate the attention LED.
3. In the navigation area, click **System Actions > Attention LED**.
4. Click **Turn Attention LED Off**. A confirmation window that provides the following information is displayed.
  - A verification that the system attention LED was deactivated.
  - An indication that there still might be open problems within the system.
5. Click **OK**.


## Deactivating an identify LED for a FRU by using the HMC

Learn how to deactivate an identify LED by using the Hardware Management Console (HMC).

To deactivate an identify LED for a FRU by using the HMC, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the HMC:
  - If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
    - a. In the navigation area, click **Systems Management > Servers**.
    - b. In the content pane, select the system.
    - c. Click **Tasks > Operations > LED Status > Identify LED**. The Identify LED, Select Enclosure window is displayed.
  - If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps.



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
- b. To view the actions for that server, click the name of the required server.

- c. In the navigation area, click **System Actions > Attention LED > Identify Attention LED**. The Identify LED, Select Enclosure window is displayed.
2. To deactivate an identify LED for a FRU, select an enclosure from the table, and then click **Selected > List FRUs**.
3. Select one or more FRUs from the table, and click **Deactivate LED**. The associated LED is turned off.


### Deactivating an identify LED for an enclosure by using the HMC

Learn how to deactivate an identify LED by using the Hardware Management Console (HMC).

To deactivate an identify LED for an enclosure by using the HMC, complete the following steps:

1. Choose one of the following navigation options depending on the interface type of the HMC:
  - If you are using an HMC Classic or HMC Enhanced interface, complete the following steps:
    - a. In the navigation area, click **Systems Management > Servers**.
    - b. In the content pane, select the system.
    - c. Click **Tasks > Operations > LED Status > Identify LED**.
  - If you are using an HMC Enhanced + Tech Preview (Pre-GA) or HMC Enhanced+ interface, complete the following steps.



- a. In the navigation area, click the **Resources** icon  , and then click **All Systems**.
- b. To view the actions for that server, click the name of the required server.
- c. In the navigation area, click **System Actions > Attention LED > Identify Attention LED**.
2. To deactivate an identify LED for an enclosure, select an enclosure from the table, and click **Deactivate LED**. The associated LED is turned off.



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This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

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## Accessibility features for IBM Power Systems servers

Accessibility features assist users who have a disability, such as restricted mobility or limited vision, to use information technology content successfully.

### Overview

The IBM Power Systems servers include the following major accessibility features:

- Keyboard-only operation
- Operations that use a screen reader

The IBM Power Systems servers use the latest W3C Standard, WAI-ARIA 1.0 ([www.w3.org/TR/wai-aria/](http://www.w3.org/TR/wai-aria/)), to ensure compliance with US Section 508 ([www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards](http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards)) and Web Content Accessibility Guidelines (WCAG) 2.0 ([www.w3.org/TR/WCAG20/](http://www.w3.org/TR/WCAG20/)). To take advantage of accessibility features, use the latest release of your screen reader and the latest web browser that is supported by the IBM Power Systems servers.

The IBM Power Systems servers online product documentation in IBM Knowledge Center is enabled for accessibility. The accessibility features of IBM Knowledge Center are described in the Accessibility section of the IBM Knowledge Center help ([www.ibm.com/support/knowledgcenter/doc/kc\\_help.html#accessibility](http://www.ibm.com/support/knowledgcenter/doc/kc_help.html#accessibility)).

## Keyboard navigation

This product uses standard navigation keys.

## Interface information

The IBM Power Systems servers user interfaces do not have content that flashes 2 - 55 times per second.

The IBM Power Systems servers web user interface relies on cascading style sheets to render content properly and to provide a usable experience. The application provides an equivalent way for low-vision users to use system display settings, including high-contrast mode. You can control font size by using the device or web browser settings.

The IBM Power Systems servers web user interface includes WAI-ARIA navigational landmarks that you can use to quickly navigate to functional areas in the application.

## Vendor software

The IBM Power Systems servers include certain vendor software that is not covered under the IBM license agreement. IBM makes no representation about the accessibility features of these products. Contact the vendor for accessibility information about its products.

## Related accessibility information

In addition to standard IBM help desk and support websites, IBM has a TTY telephone service for use by deaf or hard of hearing customers to access sales and support services:

TTY service  
800-IBM-3383 (800-426-3383)  
(within North America)

For more information about the commitment that IBM has to accessibility, see IBM Accessibility ([www.ibm.com/able](http://www.ibm.com/able)).

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## Electronic emission notices

When attaching a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices supplied with the monitor.

## Class A Notices

The following Class A statements apply to the IBM servers that contain the POWER8 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

CAN ICES-3 (A)/NMB-3(A)

## European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2014/30/EU 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.

European Community contact:  
IBM Deutschland GmbH  
Technical Regulations, Abteilung M456  
IBM-Allee 1, 71139 Ehningen, Germany  
Tel: +49 800 225 5426  
email: [halloibm@de.ibm.com](mailto:halloibm@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.

### Japan Electronics and Information Technology Industries Association Statement

This statement explains the Japan JIS C 61000-3-2 product wattage compliance.

(一社) 電子情報技術産業協会 高調波電流抑制対策実施  
要領に基づく定格入力電力値： Knowledge Centerの各製品の  
仕様ページ参照

This statement explains the Japan Electronics and Information Technology Industries Association (JEITA) statement for products less than or equal to 20 A per phase.

高調波電流規格 JIS C 61000-3-2 適合品

This statement explains the JEITA statement for products greater than 20 A, single phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。

- 回路分類：6（単相、PFC回路付）
- 換算係数：0

This statement explains the JEITA statement for products greater than 20 A per phase, three-phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。

- 回路分類 : 5 (3相、PFC回路付)
- 換算係数 : 0

**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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## **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 2014/30/EU zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 / EN 55032 Klasse A ein.

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"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 2014/30/EU in der Bundesrepublik Deutschland.

### **Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC Richtlinie 2014/30/EU) 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 Relations Europe, Abteilung M456  
IBM-Allee 1, 71139 Ehningen, Germany  
Tel: +49 (0) 800 225 5426  
email: HalloIBM@de.ibm.com

Generelle Informationen:

**Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 / EN 55032 Klasse A.**

## **Electromagnetic Interference (EMI) Statement - Russia**

**ВНИМАНИЕ!** Настоящее изделие относится к классу А.  
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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**

CAN ICES-3 (B)/NMB-3(B)

### **European Community Compliance Statement**

This product is in conformity with the protection requirements of EU Council Directive 2014/30/EU 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.

European Community contact:  
IBM Deutschland GmbH  
Technical Regulations, Abteilung M456  
IBM-Allee 1, 71139 Ehningen, Germany  
Tel: +49 800 225 5426  
email: halloibm@de.ibm.com

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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

## Japan Electronics and Information Technology Industries Association Statement

This statement explains the Japan JIS C 61000-3-2 product wattage compliance.

(一社) 電子情報技術産業協会 高調波電流抑制対策実施  
要領に基づく定格入力電力値 : Knowledge Centerの各製品の  
仕様ページ参照

This statement explains the Japan Electronics and Information Technology Industries Association (JEITA) statement for products less than or equal to 20 A per phase.

高調波電流規格 JIS C 61000-3-2 適合品

This statement explains the JEITA statement for products greater than 20 A, single phase.

高調波電流規格 JIS C 61000-3-2 準用品

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- 回路分類 : 6 (単相、PFC回路付)
- 換算係数 : 0

This statement explains the JEITA statement for products greater than 20 A per phase, three-phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。

- 回路分類 : 5 (3相、PFC回路付)
- 換算係数 : 0

### 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

### Germany Compliance Statement

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

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022/ EN 55032 Klasse B ein.

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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 2014/30/EU in der Bundesrepublik Deutschland.

**Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC Richtlinie 2014/30/EU) für Geräte der Klasse B**

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