

# GX RIO-2/HSL-2 and GX 12x channel adapters



REFERENCE  
86 A1 66EW 04



# ESCALA

## GX RIO-2/HSL-2 and GX 12x channel adapters

### Hardware

May 2009

BULL CEDOC  
357 AVENUE PATTON  
B.P.20845  
49008 ANGERS CEDEX 01  
FRANCE

REFERENCE  
86 A1 66EW 04

The following copyright notice protects this book under Copyright laws which prohibit such actions as, but not limited to, copying, distributing, modifying, and making derivative works.

Copyright © Bull SAS 2009

Printed in France

## **Trademarks and Acknowledgements**

We acknowledge the rights of the proprietors of the trademarks mentioned in this manual.

All brand names and software and hardware product names are subject to trademark and/or patent protection.

Quoting of brand and product names is for information purposes only and does not represent trademark misuse.

*The information in this document is subject to change without notice. Bull will not be liable for errors contained herein, or for incidental or consequential damages in connection with the use of this material.*



---

# Contents

<b>Safety notices</b> . . . . .	<b>vii</b>
<b>GX RIO-2/HSL-2 adapters and GX 12x channel adapters</b> . . . . .	<b>1</b>
<b>Chapter 1. What's new in GX RIO-2/HSL-2 adapters and GX 12x channel adapters.</b> . . . .	<b>3</b>
<b>Chapter 2. Replacing RIO/HSL or InfiniBand cables</b> . . . . .	<b>5</b>
<b>Chapter 3. 8234-EMA, 9117-MMA, or 9406-MMA GX RIO-2/HSL-2 adapters and GX 12x channel adapters.</b> . . . .	<b>7</b>
Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA with the HMC and power on . . . . .	7
Verifying and reserving slots for the GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA . . . . .	8
Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA with power off. . . . .	9
Removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8234-EMA, 9117-MMA, or 9406-MMA with power off . . . . .	10
Replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA with power off . . . . .	12
<b>Chapter 4. 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 GX RIO-2/HSL-2 adapters and GX 12x channel adapters.</b> . . . .	<b>15</b>
Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off . . . . .	15
Removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off . . . . .	20
Replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off . . . . .	23
<b>Common procedures</b> . . . . .	<b>27</b>
<b>Chapter 5. Before you begin</b> . . . . .	<b>29</b>
<b>Chapter 6. Managing the Advanced System Management Interface</b> . . . . .	<b>33</b>
Accessing the ASMI without an HMC . . . . .	33
Accessing the ASMI using a PC or notebook and Web browser . . . . .	33
Setting the IP address on your PC or notebook . . . . .	35
ASMI authority levels . . . . .	35
Changing ASMI passwords . . . . .	36
Configuring network interfaces . . . . .	37
Changing the time of day . . . . .	37
Accessing the ASMI using the HMC . . . . .	38
<b>Chapter 7. Service action log</b> . . . . .	<b>39</b>
Identifying a failing part on an AIX system or logical partition . . . . .	39
Locating a failing part on an AIX system or logical partition . . . . .	39
Activating the indicator light for the failing part . . . . .	40
Identifying a failing part on an IBM i system or logical partition . . . . .	40
Activating the failing-part indicator light . . . . .	40
Deactivating the failing-part indicator light . . . . .	41
Identifying a failing part on a Linux system or logical partition . . . . .	41
Locating a failing part on a Linux system or logical partition . . . . .	41
Finding the location code of a failing part in a Linux system or logical partition . . . . .	41

Activating the indicator light for the failing part . . . . .	41
Deactivating the failing-part indicator light . . . . .	41
Locating a failing part in a Virtual I/O Server system or logical partition. . . . .	42
Identifying a part using the Virtual I/O Server . . . . .	42
<b>Chapter 8. Starting or stopping the system or logical partition. . . . .</b>	<b>43</b>
Starting the system or logical partition . . . . .	43
Starting a system that is not managed by a Hardware Management Console . . . . .	43
Powering the system on and off . . . . .	45
Starting the system or logical partition using the Hardware Management Console. . . . .	47
Powering on a managed system . . . . .	47
Stopping a system or logical partition . . . . .	47
Stopping a system that is not managed by a Hardware Management Console . . . . .	47
Stopping a system or logical partition using the Hardware Management Console . . . . .	49
<b>Chapter 9. Disconnecting the SMP processor cable from a system. . . . .</b>	<b>51</b>
<b>Chapter 10. Reconnecting the SMP processor cable to a system. . . . .</b>	<b>55</b>
<b>Chapter 11. Removing and replacing expansion unit cover or door. . . . .</b>	<b>59</b>
Removing the front cover on the 7314-G30 or 5796 . . . . .	59
Installing the front cover on the 7314-G30 or 5796 . . . . .	59
Removing the front cover from a 7311-D11, 5791, or 5794 expansion unit . . . . .	60
Installing the front cover on a 7311-D11, 5791, or 5794 expansion unit . . . . .	60
Removing the front cover from a 7311-D20 expansion unit. . . . .	61
Installing the front cover on a 7311-D20 expansion unit. . . . .	61
<b>Chapter 12. Removing and Replacing Covers and Doors . . . . .</b>	<b>63</b>
Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	63
Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	63
Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	64
Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	65
Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	66
Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	67
Removing the door from the 8204-E8A or 9409-M50 . . . . .	68
Installing or replacing the door on the 8204-E8A or 9409-M50 . . . . .	68
Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	68
Installing the front cover on a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	69
Front cover for the 8234-EMA, 9117-MMA, or 9406-MMA . . . . .	70
Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA . . . . .	70
Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA . . . . .	71
<b>Chapter 13. Placing the rack-mounted system or expansion unit in the service position or operating position . . . . .</b>	<b>73</b>
Placing the rack-mounted system or expansion unit in the service position . . . . .	73
Placing the rack-mounted system or expansion unit in the operating position . . . . .	76
Placing a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the service position. . . . .	77
Placing the rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the operating position . . . . .	80
<b>Chapter 14. Viewing existing firmware levels . . . . .</b>	<b>83</b>
Using the HMC to view the existing firmware levels . . . . .	83
Using the ASMI to view the existing level of server firmware . . . . .	83
<b>Chapter 15. Installing a feature using the Hardware Management Console . . . . .</b>	<b>85</b>
Removing a part using the Hardware Management Console . . . . .	85
Exchanging a part using the Hardware Management Console . . . . .	85
<b>Chapter 16. Hardware Service Manager — Verify. . . . .</b>	<b>87</b>

Verifying an installed feature or replaced part on an AIX system or logical partition . . . . .	87
Using the HMC to perform a slow boot . . . . .	90
Using the control panel to collect reference codes and system information . . . . .	90
Changing service indicators . . . . .	91
Turning off the system attention indicator . . . . .	91
Verifying the presence of an installed part on an IBM i system or logical partition. . . . .	91
Deactivating the failing-part indicator light . . . . .	92
Verifying the installed part on a Linux system or logical partition . . . . .	92
Verifying an installed part using stand-alone diagnostics . . . . .	92
Running stand-alone diagnostics from a Network Installation Management server. . . . .	93
Verifying the presence of an installed part using Hardware Management Console . . . . .	96
Activating and deactivating LEDs . . . . .	96
Deactivating a system attention LED or partition LED . . . . .	97
Activating or deactivating identify LED . . . . .	97
Viewing serviceable events . . . . .	98
Verifying an installed feature or replaced part on a system or logical partition using Virtual I/O Server tools . . . . .	98
<b>Chapter 17. Accessing control panels for the 8204-E8A, 8203-E4A, 9407-M15, 9408-M25, or 9409-M50 . . . . .</b>	<b>103</b>
<b>Chapter 18. Replacing the 5802 I/O planar . . . . .</b>	<b>105</b>
<b>Chapter 19. Removing the 5802 I/O planar . . . . .</b>	<b>107</b>
<b>Chapter 20. Removing the 5802 enclosure management controller . . . . .</b>	<b>109</b>
<b>Chapter 21. Replacing the 5802 enclosure management controller . . . . .</b>	<b>111</b>
<b>Chapter 22. Converting a 8203-E4A, 9407-M15 or, 9408-M25 from a stand-alone to a rack-mounted system . . . . .</b>	<b>113</b>
Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	113
Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 . . . . .	114
Removing the covers and base plate. . . . .	115
Completing the conversion . . . . .	115
<b>Appendix. Notices . . . . .</b>	<b>127</b>
Trademarks . . . . .	128
Electronic emission notices . . . . .	128
Class A Notices. . . . .	128
Terms and conditions. . . . .	132



---

## Safety notices

Safety notices may be printed throughout this guide:

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

### World Trade safety information

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

### German safety information

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

### Laser safety information

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

#### Laser compliance

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

#### CAUTION:

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

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

(C026)

#### CAUTION:

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

#### CAUTION:

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

**CAUTION:**

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

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

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

The equipment is suitable for installation in the following:

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

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

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

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


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

---

## **GX RIO-2/HSL-2 adapters and GX 12x channel adapters**

Learn about removing, replacing, or installing GX remote input/output (RIO)-2/high-speed link (HSL)-2 adapters and GX 12x channel adapters.

### **Related information**

 Enclosures and expansion units





---

## Chapter 1. What's new in GX RIO-2/HSL-2 adapters and GX 12x channel adapters

Read about new or significantly changed information in GX RIO-2/HSL-2 adapters and GX 12x channel adapters since the previous update of this topic collection.

### December 2008

The following updates have been made to the content:

- Added information about adapter placement locations and restrictions for an 8204-E8A or 9409-M50 server

### November 2008

The following updates have been made to the content:

- Added information about installing, removing, and replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA server
- Added procedures for verifying and reserving slots for the GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA server
- Added information about installing cable retention brackets in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 server



---

## Chapter 2. Replacing RIO/HSL or InfiniBand cables

Learn how to replace RIO/HSL or InfiniBand® cables for GX RIO-2/HSL-2 adapters and GX 12x channel adapters.

This procedure describes the replacement of the cables concurrently. You do not need to power off the system or the expansion unit.

If you are replacing a cable between a system unit and an expansion unit, connect the expansion-unit end of the cable first. This will reduce the chances of the connection being lost to the system unit after the cable is reconnected.

**Attention:** When the RIO/HSL or InfiniBand cable is disconnected, it might result in the connection being lost between the units even after the cable is reconnected. This happens in rare cases depending on the state of the GX RIO-2/HSL-2 adapter or GX 12x channel adapter hardware at both ends of the cable when the cable is disconnected.

- If the system is managed by a Hardware Management Console (HMC), go to the HMC to cycle power to the affected unit.
- If the system is managed by AIX® or Linux® interfaces, fully power off the entire system.
- If the system is managed by the IBM i operating system, power off the units, reconnect the RIO/HSL or InfiniBand cable, and then power the units back on.

Complete the following steps for both ends of the cable that you are replacing:

1. Disconnect both ends of the cable. See the previous Attention notice.
2. Wait at least 30 seconds.

**Attention:** For copper cables, you must fully connect the cable and tighten the connector's screws, if present, within 30 seconds of when the cable makes contact with the port. If the connector screws are not tightened, the link will fail and you must disconnect and reconnect the cable again.

3. Connect both ends of the new cable.
4. Verify that the repair was made successfully. After replacing a failed cable, the messages B7006985 with 4 of 12003206 (RIO/HSL loop recovered) and B7006985 with 12003208 (RIO/HSL link recovered) are displayed.

Continue with any other service actions you need to perform.

### Related information

 Enclosures and expansion units



---

## Chapter 3. 8234-EMA, 9117-MMA, or 9406-MMA GX RIO-2/HSL-2 adapters and GX 12x channel adapters

Learn about installing, removing, or replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA server.

**Restriction:** The following exceptions apply when installing the GX RIO-2/HSL-2 adapters or GX 12x channel adapters in a single-drawer 9117-MMA system with a two-core processor card:

- Only one adapter is permitted in the enclosure.
- The adapter must be installed in slot P1-C8.

**Important:** Sufficient slots must be reserved to install the GX RIO-2/HSL-2 adapters or GX 12x channel adapters concurrently in an 8234-EMA server. For more information about verifying the number of reserved slots and reserving additional slots if needed, see “Verifying and reserving slots for the GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA” on page 8.

### Related information



Enclosures and expansion units

---

## Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA with the HMC and power on

Learn about installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA server with the Hardware Management Console (HMC) and system power on.

**Important:** Sufficient slots must be reserved to install the GX RIO-2/HSL-2 adapters or GX 12x channel adapters concurrently in an 8234-EMA server. For more information about verifying the number of reserved slots and reserving additional slots if needed, see “Verifying and reserving slots for the GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA” on page 8.

To install the adapter in a system that is managed by the HMC, complete the following steps:

1. Complete the prerequisite tasks described in Chapter 5, “Before you begin,” on page 29.
2. Disable the HMC call-home feature:
  - a. Open the **Manage Systems Call-Home** task from the **Service Management** work pane.
  - b. From the **Manage Systems Call-Home** window, select the system or systems for which you want to disable the call-home state.
  - c. Click **OK** when you have completed the task.
3. In the HMC, expand **Systems Management**. Then expand and click **Servers** in the left navigation pane.
4. In the upper-right pane titled **Contents of: Servers**, select the checkbox in the **Select** column for the target managed server that contains the GX adapter.
5. In the lower-right pane titled **Tasks: [server name]**, expand **Serviceability**, expand **Hardware**, and then click **Add FRU**.
6. In the **Add/Install/Remove Hardware - Add FRU, Select FRU Type** window, ensure that **Enclosure Type** selection is **System Unit, Model MMA**.
7. In the **Add/Install/Remove Hardware - Add FRU, Select FRU Type** window, click the **Select** radio button for the GX Bus Adapter. Click **Next**.
8. In the **Add/Install/Remove Hardware - Add FRU, Select Location**, click **Select** for the target plug location. Click **Add** to move the location to the **Pending Actions** list.

9. Under **Pending Actions**, select the checkbox for the adapter location. Click **Launch Procedure** to initiate the concurrent installation of the new adapter.
10. Follow the HMC procedures to install the adapter.
11. When the HMC procedure has completed, click **Cancel** on any open windows until they are all closed. The newly installed adapter is ready for use.
12. Check the error log to see that all serviceable events have been handled appropriately after the completion of this installation activity. To check the error log from the HMC, do the following:
  - a. Click **Service Management** in the Navigation pane.
  - b. In the right-hand pane, click **Manage Serviceable Events**.
  - c. In the **Manage Serviceable Events** window, select **Open** for the **Serviceable Event Status**, and select **ALL** for all other fields. Then click **OK**.
  - d. In the **Serviceable Event Overview** window, scan for any errors associated with the new unit installation:
    - If there are no errors, click **Cancel** on both windows to exit and return to the main **Service Management** view.
    - If there are errors, they must be corrected before continuing. Contact your next level of support.
13. Enable the HMC call-home feature:
  - a. Open the **Manage Systems Call-Home** task from the Service Management work pane.
  - b. From the **Manage Systems Call-Home** window, select the system or systems for which you want to enable the call-home state.
  - c. Click **OK** when you have completed the task.
14. Verify that the new resource is working correctly:
  - If the system is not already at **Partition Standby** status, start the server to **Partition Standby** by using either the HMC or Advanced System Management Interface (ASMI). The server runs tests as it powers on and as components report to the HMC.
  - Additional diagnostics can be run at this time, but are not generally required.

#### Related information



Enclosures and expansion units

## Verifying and reserving slots for the GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA

Learn how to verify the number of available slots or reserve additional slots for the installation of GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA server with power on.

**Important:** Reserving GX adapter slots requires an initial program load (IPL) of the target managed system to activate the slot reservations.

To verify and reserve slots for installing GX adapters, complete the following steps:

1. In the HMC navigation pane, select **Systems Management** → **Servers**.
2. In the **Contents of: Servers** pane, select the checkbox in the **Select** column for the target managed server.
3. Select **Tasks** → **Operations** → **Advanced Systems Management (ASM)**.
4. Click **OK** in the **Launch ASM Interface** window. Click **Accept** in any **Certificate signer not found** window that might appear.
5. Log in to the ASM panel.
6. Expand the **Concurrent Maintenance** list.
7. Select **RIO/HSL Adapter Slot Reservation**.

8. In the **Number of slots current reserved** field, determine if the number of slots reserved is equal to or greater than the number of GX adapters being installed. Are enough slots reserved?
  - **Yes:** Return to the instructions for installing the GX adapters described in “Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA with the HMC and power on” on page 7.
  - **No:** Continue with these instructions to reserve the necessary number of slots.
9. In the **Total number of slots to reserve** field, enter the number of GX adapter slots needed.
10. Click **Save Settings**. Activate the slot reservation changes by performing an IPL of the target managed system, and then return to the instructions for installing the GX adapters described in “Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA with the HMC and power on” on page 7.

---

## Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA with power off

Learn about installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA server with power off.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for installing an adapter. For instructions, see Chapter 15, “Installing a feature using the Hardware Management Console,” on page 85.

To install the adapter in a system that is not managed by the HMC, complete the following steps:

1. Complete the prerequisite tasks described in Chapter 5, “Before you begin,” on page 29.
2. Stop the system, as described in “Stopping a system or logical partition” on page 47.
3. Disconnect the power source from the system by unplugging the system.

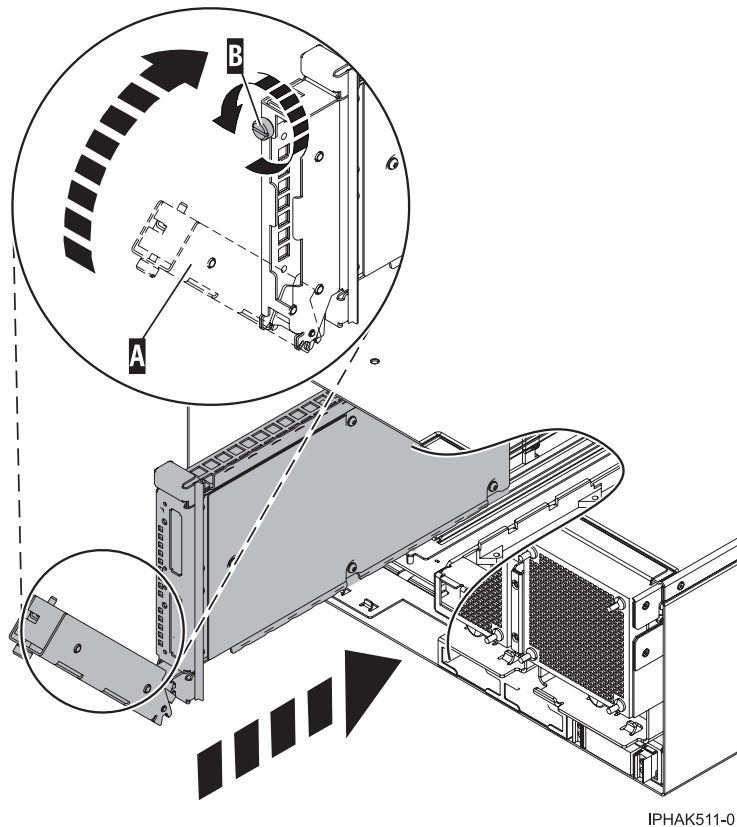
**Note:** This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been disconnected completely.

4. Open the back rack door.
5. Attach the wrist strap.

**Attention:**

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
  - When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.
6. If there is not an adapter in slot 7, install the new adapter there. If there is already an adapter in slot 7, install the new adapter in slot 6. If slot 6 contains a PCI adapter, relocate the PCI adapter to another slot. Then do the following steps, as applicable:
    - If you need to place a GX RIO-2/HSL-2 adapter and a GX 12x channel adapter in slots 6 and 7, place the GX 12x channel adapter in slot 7 to maximize the performance.
    - If you have a two-core system, install the adapter in slot 6. In two-core systems, slot 7 is not active and only one loop is supported.
    - For information about how to relocate a PCI adapter, see Managing PCI adapters.
  7. Align the adapter with the slot in the system.
  8. Slide the adapter into the system.

9. Push the handle (A) up and toward the system until the handle stops against the adapter.
10. Turn the thumbscrew (B) until tight.



IPHAK511-0

Figure 1. Adapter installed in the system unit

11. Reconnect all power and signal cables to their respective connectors.
12. Close the back rack door.
13. Start the system, as described in “Starting the system or logical partition” on page 43.
14. Verify that the new resource is working correctly, as described in Chapter 16, “Hardware Service Manager — Verify,” on page 87.

#### Related information



Managing PCI Adapters

## Removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8234-EMA, 9117-MMA, or 9406-MMA with power off

Learn about removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8234-EMA, 9117-MMA, or 9406-MMA server with power off.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing an adapter. For instructions, see “Removing a part using the Hardware Management Console” on page 85.

To remove the adapter on a system that is not managed by the HMC, complete the following steps:

1. Complete the prerequisite tasks described in Chapter 5, “Before you begin,” on page 29.
2. Identify the failing part, as described in Chapter 7, “Service action log,” on page 39.



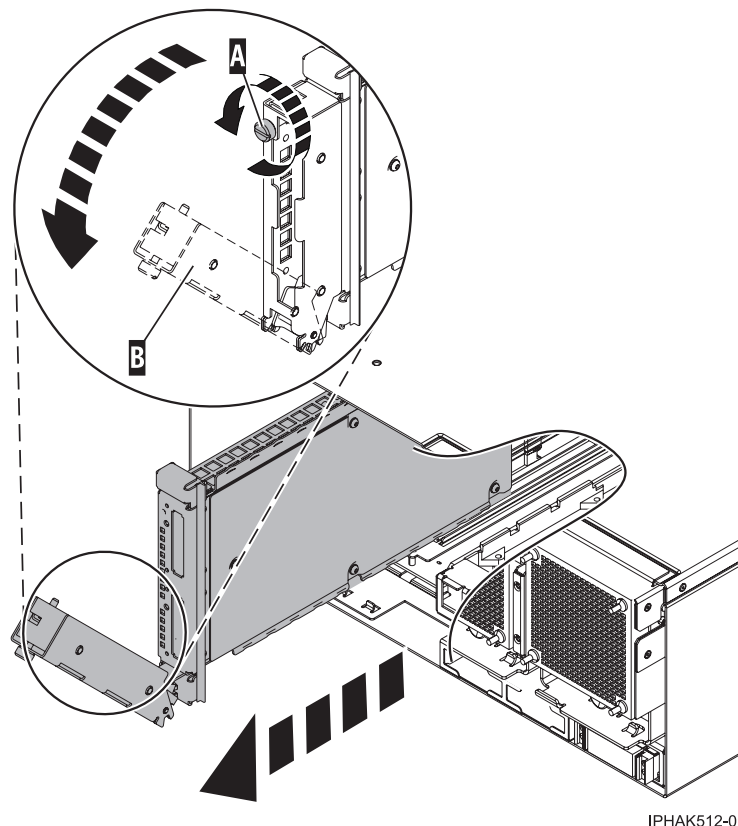
3. Stop the system, as described in “Stopping a system or logical partition” on page 47.
4. Disconnect the power source from the system by unplugging the system.

**Note:** This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been disconnected completely.

5. If necessary, disconnect any cables connected to the adapter at the back of the system.
6. Attach the wrist strap.

**Attention:**

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
  - When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.
7. Turn the thumbscrew (A), shown in Figure 2, until the adapter is loose.
  8. Pull the handle (B) down.
  9. Slide the adapter out of the system.



IPHAK512-0

Figure 2. Removal of the adapter.

For information about replacing a GX adapter, see “Replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA with power off” on page 12.

---

## Replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA with power off

Learn about replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8234-EMA, 9117-MMA, or 9406-MMA server with power off.

**Note:** Replacing this feature is a customer task. You can perform this task yourself, or contact a service provider to perform the task for you. You might be charged a fee by the service provider for this service.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing an adapter. For instructions, see “Exchanging a part using the Hardware Management Console” on page 85.

To replace the adapter on a system that is not managed by the HMC, complete the following steps:

1. Remove the adapter from the system unit. See “Removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8234-EMA, 9117-MMA, or 9406-MMA with power off” on page 10.

2. Attach the wrist strap.

**Attention:**

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
  - When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.
3. Align the adapter with the slot in the system.
  4. Slide the adapter into the system.
  5. Push the handle **(A)**, shown in Figure 3 on page 13, up and toward the system until the handle stops against the adapter.
  6. Turn the thumbscrew **(B)** until tight.

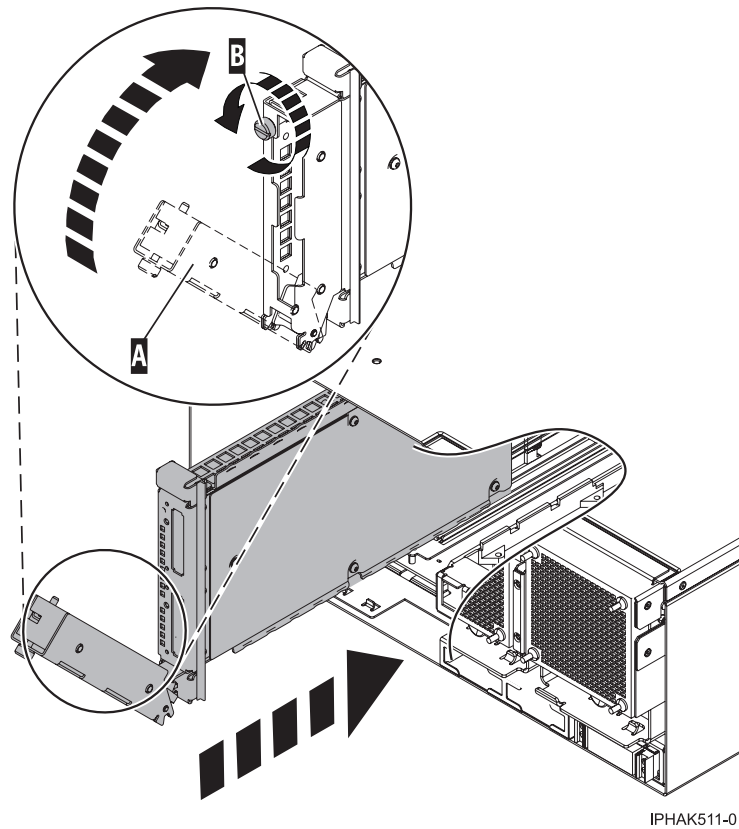


Figure 3. Adapter replacement in the system

7. Reconnect all power and signal cables to their respective connectors.
8. Close the back rack door.
9. Start the system, as described in “Starting the system or logical partition” on page 43.
10. Verify that the new resource is working correctly, as described in Chapter 16, “Hardware Service Manager — Verify,” on page 87.



---

## Chapter 4. 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 GX RIO-2/HSL-2 adapters and GX 12x channel adapters

Learn about installing, removing, and replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 server.

### Related information



Enclosures and expansion units

---

### Installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off

Learn about installing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 server with power off.

**Note:** Installing this feature is a customer task. You can perform this task yourself, or contact a service provider to perform the task for you. You might be charged a fee by the service provider for this service.

To install an adapter, complete the following steps:

1. Complete the prerequisite tasks described in Chapter 5, “Before you begin,” on page 29.
2. Stop the system, as described in “Stopping a system or logical partition” on page 47.
3. On a rack-mounted system unit, open the back rack door.
4. Disconnect the power source from the system by unplugging the system.

**Note:** This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

5. If necessary, disconnect any cables connected to the adapter at the back of the system.
6. If you are working on a rack-mounted system unit, place the system in the service position as described in “Placing a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 77.
7. Remove the access cover:
  - For a rack-mounted system unit, see “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 63
  - For a stand-alone system unit, see “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 64
8. Locate the appropriate slot in which to install the GX adapter:
  - For model 8203-E4A or 9408-M25 with processor feature code 5634, choose slot P1-C8 as shown in Figure 4 on page 16.

**Note:** If you are unsure about which processor feature you have, look at your system and refer to Figure 4 on page 16. If a processor is located in P1-P6#1 only, you have processor feature 5634. If processors are located in both P1-P6#1 and P1-P6#2, you have processor feature 5635.

- For model 8203-E4A or 9408-M25 with processor feature code 5635, choose slot P1-C6 for the first adapter as shown in Figure 5 on page 17. If you are installing a second adapter, choose slot P1-C1/P1-C8 as shown in Figure 4 on page 16.

**Restriction:** If you are installing an adapter in slot P1-C1/P1-C8 and that slot contains a PCI adapter, relocate the PCI adapter to another slot. For information about how to relocate a PCI adapter, see Managing PCI adapters.

- For model 8204-E8A or 9409-M50, if there is only one processor card in the system, choose slot P1-C8 as shown in Figure 6 on page 17. If two processor cards are installed, choose slot P1-C7 for the first GX adapter.

**Restriction:**

- Two GX adapters are supported only if there are two processor cards in the system.
- If you are installing a GX RIO-2/HSL-2 adapter and a 12x channel adapter, install the 12x channel adapter in slot P1-C7.
- For model 8204-E8A, any combination of feature code 5614 GX RIO-2/HSL-2 adapters and feature code 5608 and 5616 GX 12x channel adapters can be installed for a maximum of two GX adapters. To use the feature code 5608 adapter, the system must have two or more processor cards installed and the 5608 adapter must be installed in slot P1-C7.
- For model 9409-M50, any combination of feature code 5614 GX RIO-2/HSL-2 adapters and feature code 5616 GX 12x channel adapters can be installed, for a maximum of two GX adapters.

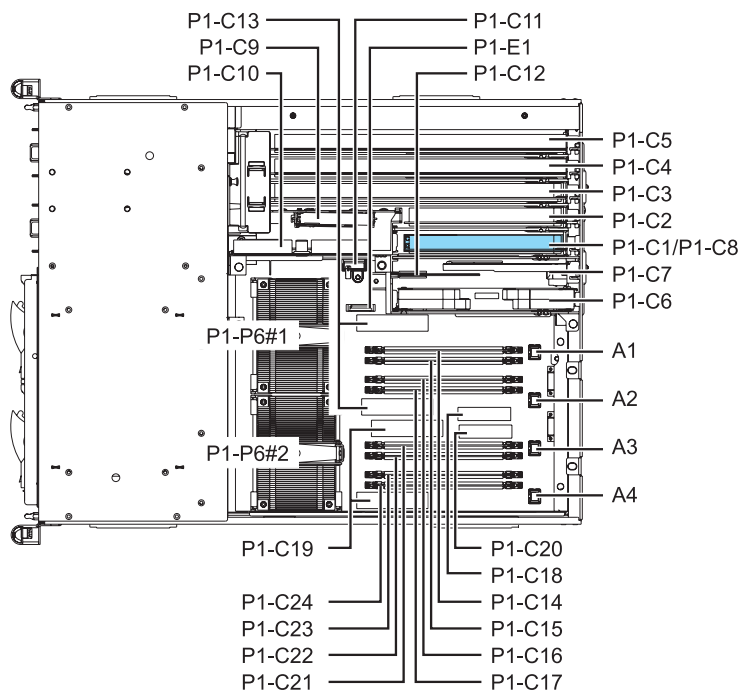


Figure 4. Top view of slot P1-C1/P1-C8 in model 8203-E4A or 9408-M25

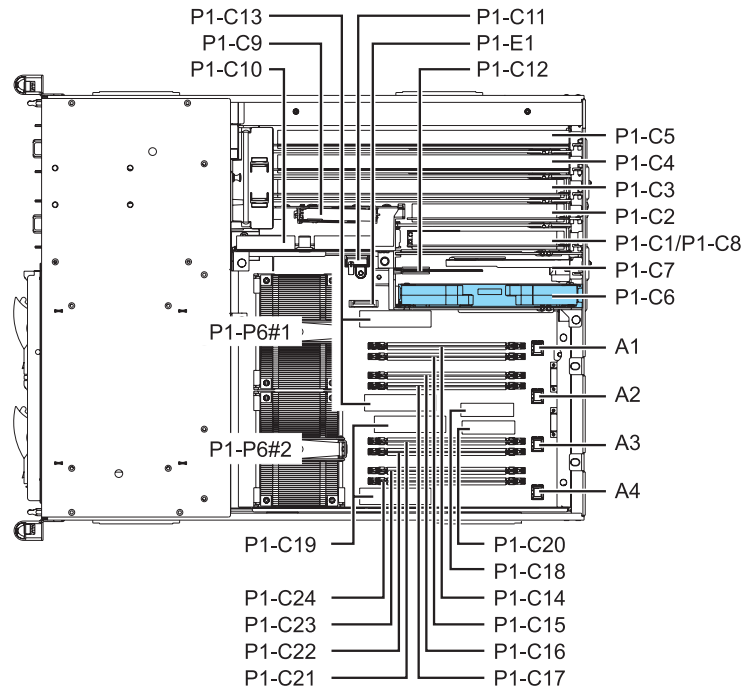


Figure 5. Top view of slot P1-C6 in model 8203-E4A or 9408-M25

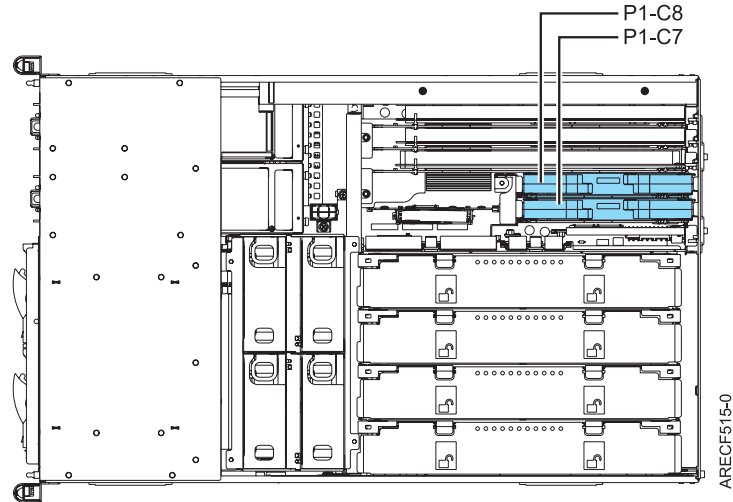


Figure 6. Top view of slots P1-C7 and P1-C8 in model 8204-E8A or 9409-M50

9. Attach the wrist strap.

**Attention:**

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
- When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.

10. If necessary, slide the retainers into the open position.
11. Carefully grasp the new adapter assembly by its top edge and align the adapter assembly with the slot and its connector on the system backplane.
12. Press the adapter assembly firmly into its connector.

**Attention:** When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.

13. Push down evenly on both of the blue locking latches (**A**) at the same time until the latches snap into place, indicating that the adapter assembly is seated correctly and locked into position. Slide the retainers (**B**) into the closed position.

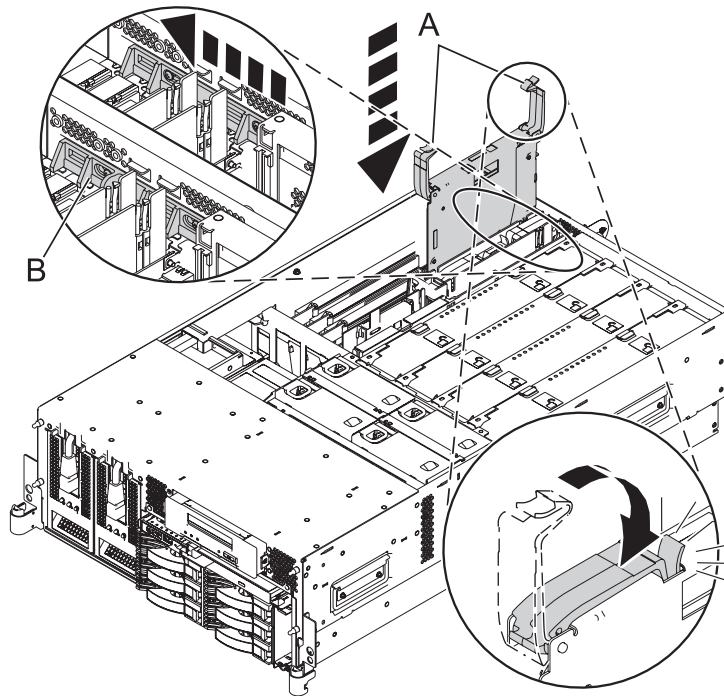


Figure 7. Adapter installation in a rack-mounted system (8204-E8A shown)



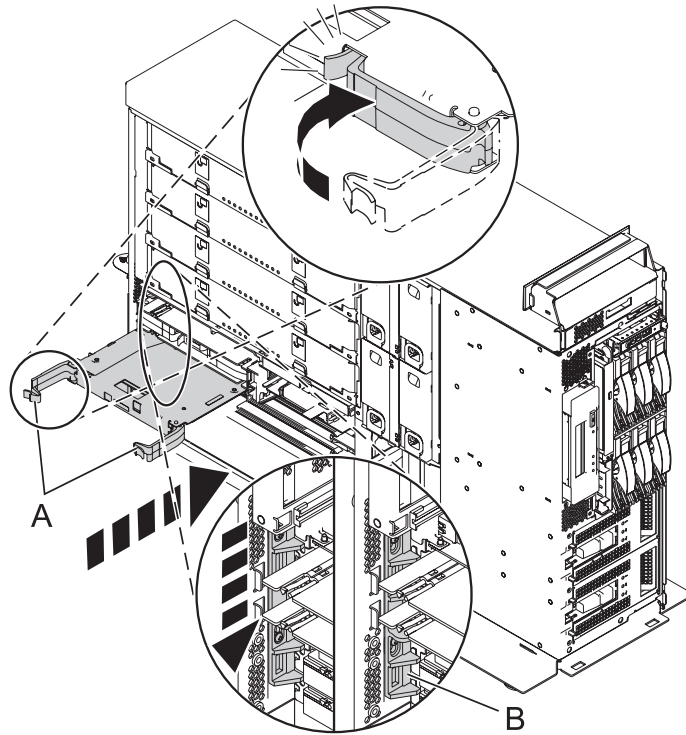


Figure 8. Adapter installation in a stand-alone system (8204-E8A shown)

14. Tilt the cable retention bracket (A), shown in Figure 9, to hook the tab at the top of the bracket into the slot in the assembly.

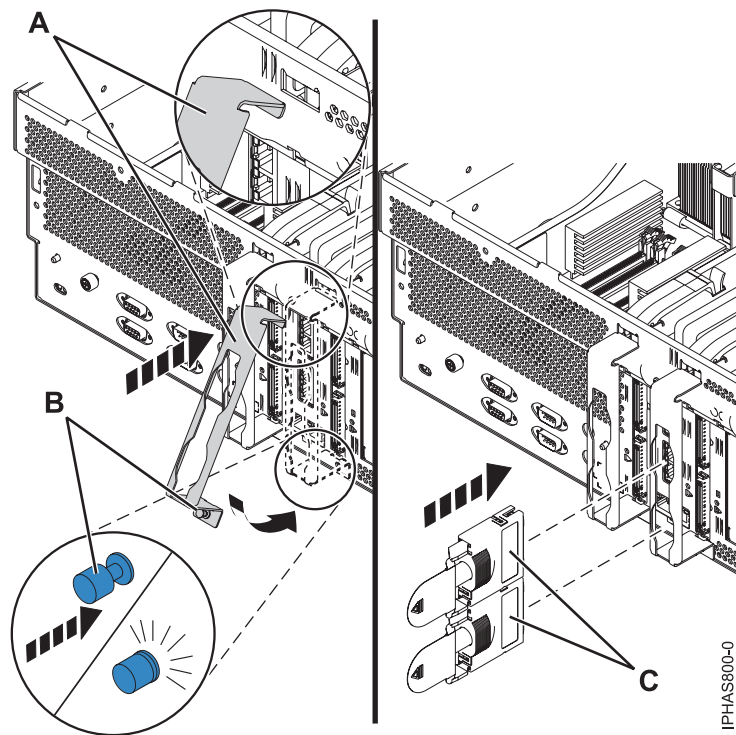


Figure 9. Cable retention bracket installation (8204-E8A shown)

15. Swing the cable retention bracket towards the chassis and push the bracket fastener (B) into the chassis opening to secure the bracket.
16. Replace the service access cover:
  - For a rack-mounted system unit, see “Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 63
  - For a stand-alone system unit, see “Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 65
17. If you are working on a rack-mounted system unit, ensure that the system cables are routed through the cable-management arm correctly.
18. If you are working on a rack-mounted system unit, place the system in the operating position as described in “Placing the rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the operating position” on page 80.
19. Reconnect all power and signal cables to their respective connectors. Ensure that the GX adapter cables (C), shown in Figure 9 on page 19, are routed through the appropriate cable retention brackets to prevent excessive cable movement.
20. Close the back rack door or the back system door.
21. Start the system, as described in “Starting the system or logical partition” on page 43.
22. Verify that the new resource is working correctly, as described in Chapter 16, “Hardware Service Manager — Verify,” on page 87.

#### Related information



Managing PCI Adapters

---

## Removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off

Learn about removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 server with power off.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing an adapter. For instructions, see “Removing a part using the Hardware Management Console” on page 85.

To remove the adapter from a system that is not managed by the HMC, complete the following steps:

1. Complete the prerequisite tasks described in Chapter 5, “Before you begin,” on page 29.
2. Stop the system, as described in “Stopping a system or logical partition” on page 47.
3. If you are working on a rack-mounted system unit, open the back rack door.
4. Disconnect the power source from the system by unplugging the system.

**Note:** This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

5. If necessary, disconnect any cables connected to the adapter at the back of the system.
6. If you are working on a rack-mounted system unit, place the system in the service position as described in “Placing a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 77.
7. Remove the access cover:
  - For a rack-mounted system unit, see “Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 63
  - For a stand-alone system unit, see “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 64
8. Attach the wrist strap.

**Attention:**

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
  - When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.
9. Remove the existing adapter assembly by sliding the retainers (A) into the open position. Unlatch the blue locking latches (B) on the adapter assembly by pushing them together and pulling them up into the open position, and then lift the adapter out of the system.

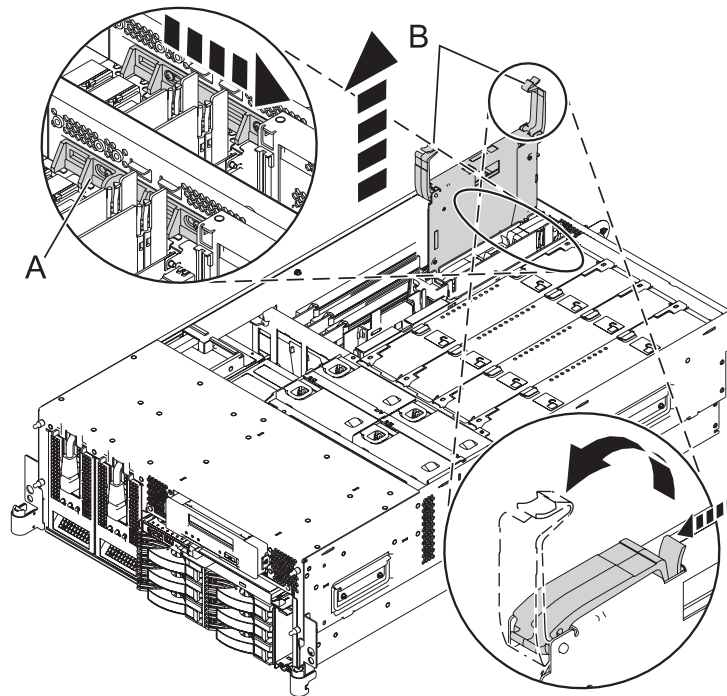


Figure 10. Adapter removal from a rack-mounted system (8204-E8A shown)

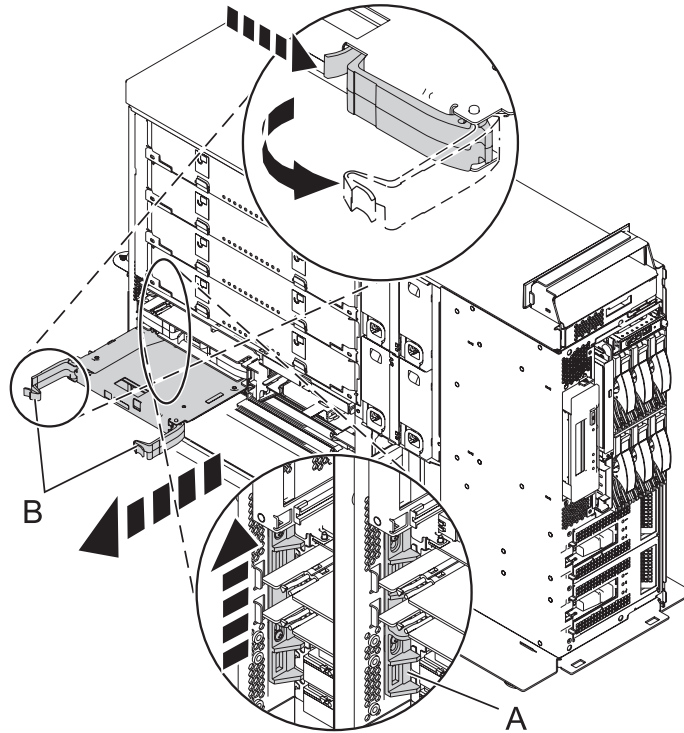


Figure 11. Adapter removal from a stand-alone system (8204-E8A shown)

10. Place an adapter or a filler panel in the expansion slot of the system unit for proper airflow and cooling:
  - To replace the adapter, see “Replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off” on page 23.
  - If you are not replacing the adapter, place a filler panel in the slot and continue with the next step.
11. Seal the expansion slot using an expansion slot cover.
12. Replace the service access cover:
  - For a rack-mounted system unit, see “Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 63
  - For a stand-alone system unit, see “Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 65
13. If you are working on a rack-mounted system unit, ensure that the system cables are routed correctly through the cable-management arm.
14. If you are working on a rack-mounted system unit, place the system in the operating position as described in “Placing the rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the operating position” on page 80.
15. Reconnect all power and signal cables to their respective connectors.
16. Close the back rack door or the back system door.
17. Start the system, as described in “Starting the system or logical partition” on page 43.
18. Verify that the new resource is working correctly, as described in Chapter 16, “Hardware Service Manager — Verify,” on page 87.

For information about replacing a GX adapter, see “Replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off” on page 23.

---

## Replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off

Learn about replacing GX RIO-2/HSL-2 adapters and GX 12x channel adapters in an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 server with power off.

**Note:** Replacing this feature is a customer task. You can perform this task yourself, or contact a service provider to perform the task for you. You might be charged a fee by the service provider for this service.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing an adapter. For instructions, see “Exchanging a part using the Hardware Management Console” on page 85.

To replace the adapter on a system that is not managed by the HMC, complete the following steps:

1. Remove the adapter from the system unit. See “Removing GX RIO-2/HSL-2 adapters and GX 12x channel adapters from an 8203-E4A, 8204-E8A, 9408-M25, or 9409-M50 with power off” on page 20.
2. Attach the wrist strap.

**Attention:**

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
  - When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.
3. Carefully grasp the new adapter assembly by its top edge, and align the adapter assembly with the slot and its connector on the system backplane.
  4. Press the adapter assembly firmly into its connector. When you install an adapter into the system, be sure that it is completely and correctly seated in its connector.
  5. Push down evenly on both of the blue locking latches (**A**) at the same time until the latches snap into place, indicating that the adapter assembly is seated correctly and locked into position. Slide the retainers (**B**) into the closed position.

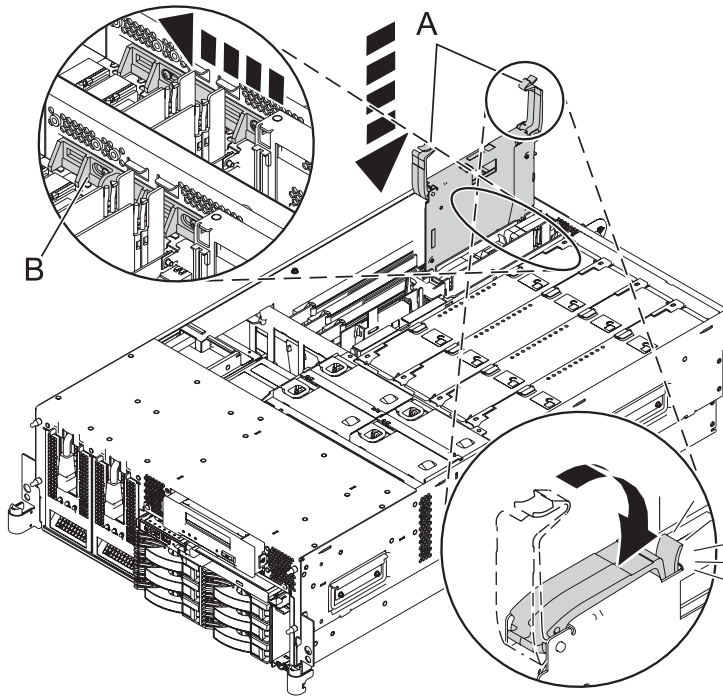


Figure 12. Adapter installation in a rack-mounted system (8204-E8A shown)

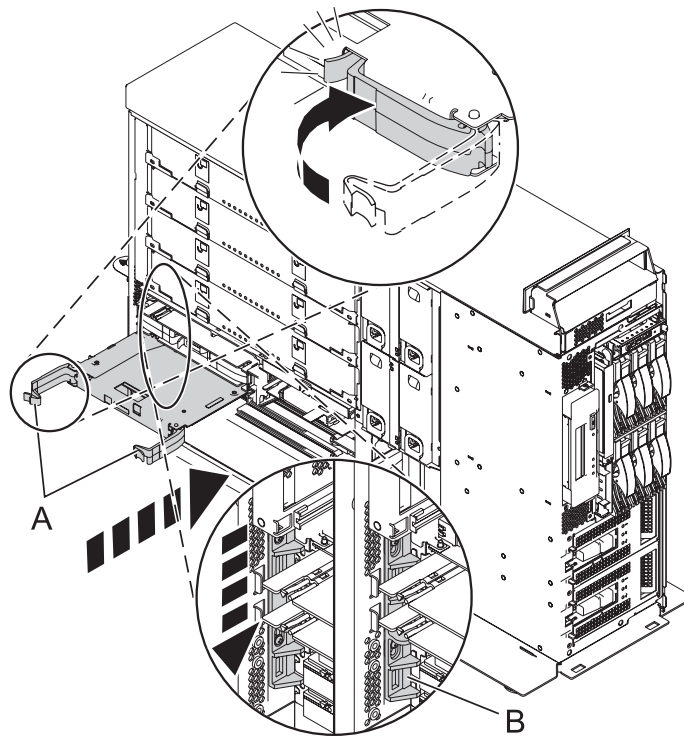


Figure 13. Adapter installation in a stand-alone system (8204-E8A shown)

6. Replace the service access cover:

- For a rack-mounted system unit, see “Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 63
  - For a stand-alone system unit, see “Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 65
7. If you are working on a rack-mounted system unit, ensure that the system cables are routed through the cable-management arm correctly.
  8. If you are working on a rack-mounted system unit, place the system in the operating position as described in “Placing the rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the operating position” on page 80.
  9. Reconnect all power and signal cables to their respective connectors.
  10. Close the back rack door or the back system door.
  11. Start the system, as described in “Starting the system or logical partition” on page 43.
  12. Verify that the new resource is working correctly, as described in Chapter 16, “Hardware Service Manager — Verify,” on page 87.







---

## **Common procedures**

This section contains all the common procedures related to installing, removing and replacing features.



---

## Chapter 5. Before you begin

Understand prerequisites for installing, removing, or replacing features and parts.

### DANGER

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

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

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

To Disconnect:

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

To Connect:

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

(D005)

### DANGER

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

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



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

#### CAUTION

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

(R001)

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.  
To do this, go to the following Web site: [http://www-912.ibm.com/e\\_dir/eServerPrereq.nsf](http://www-912.ibm.com/e_dir/eServerPrereq.nsf)
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.
6. If parts are incorrect, missing, or visibly damaged, do the following:
  - If you are replacing a part, contact your service provider or next level of support.
  - If you are installing a feature, contact one of the following service organizations:
    - Your service provider 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 Web site 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.



---

## Chapter 6. Managing the Advanced System Management Interface

The Advanced System Management Interface (ASMI) is the interface to the service processor that is required to perform general and administrator-level service tasks, such as reading service processor error logs, reading vital product data, setting up the service processor, and controlling the system power.

The ASMI might also be referred to as the service processor menus.

---

### Accessing the ASMI without an HMC

You can access the ASMI through a Web browser or an ASCII terminal.

### Accessing the ASMI using a PC or notebook and Web browser

If your system is not managed by a Hardware Management Console (HMC), you can connect a PC or notebook to the server to access the Advanced System Management Interface (ASMI). You will need to configure the Ethernet interface on the PC or notebook to communicate with the server.

The Web interface to the ASMI is available during all phases of system operation including the initial program load (IPL) and run time. The ASMI is used to perform general and administrator-level service tasks. These tasks include reading service processor error logs, reading vital product data, setting up the service processor, and controlling the system power.

The following instructions apply to systems that are *not* connected to an HMC. If you are managing the server using an HMC, you will access the ASMI using the HMC.

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

1. To attach the power cords, perform the following steps:
  - a. Connect your power cord or cords to the server.
  - b. Plug the power cord or cords into the power source.
  - c. Wait for the control panel to display 01. There will be a series of progress codes before 01 appears.

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

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

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

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

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

3. Connect an Ethernet cable from the PC or notebook to the Ethernet port labeled HMC1 on the back of the managed system. If HMC1 is occupied, connect an Ethernet cable from the PC or notebook to the Ethernet port labeled HMC2 on the back of the managed system.

**Important:** If you attach an Ethernet cable to the service processor before alternating current (ac) power is applied, the IP address shown in Table 1 might not be valid. If a cable is attached and not connected to anything, nothing will happen. The address could potentially change, if an Ethernet cable that is attached to a network is connected to that port, and the system is turned on. If you are unable to access the ASMI using a network connection, you must perform one of the following tasks:

- Attach an ASCII terminal to the service processor using a serial cable. For details, see Accessing the ASMI using an ASCII terminal.
  - Move the reset toggle switches on the service processor from their current position to the opposite position. To perform this task, you must remove and replace the service processor. For details, contact your next level of support.
4. Use Table 1 to help you determine and record the information you will need in order to set the service processor’s IP address on the PC or notebook. The Ethernet interface on the PC or notebook will need to be configured within the same subnet mask as the service processor so that they can communicate with each other. For example, if you connected your PC or notebook to HMC1, the IP address for your PC or notebook could be 169.254.2.100 and the subnet mask would be 255.255.255.0. Set the gateway IP address to the same IP address as the PC or notebook

*Table 1. Service processor network configuration information*

Service processor	Server connector	Subnet mask	IP address
Service processor A	HMC1	255.255.255.0	169.254.2.147
	HMC2	255.255.255.0	169.254.3.147
Service processor B (if installed)	HMC1	255.255.255.0	169.254.2.146
	HMC2	255.255.255.0	169.254.3.146

5. Set the IP address on your PC or notebook using the values from step 4. For details, see “Setting the IP address on your PC or notebook” on page 35.
6. To access the ASMI using a Web browser, perform the following steps:
- a. Use Table 1 to determine the IP address of the service processor Ethernet port that your PC or notebook is connected to.
  - b. Type the IP address in the Address field of your PC’s or notebook’s Web browser. For example, if you connected your PC or notebook to HMC1, type `https://169.254.2.147` in your PC’s or notebook’s Web browser.

**Note:** It might take up to two minutes for the ASMI login display to appear in the Web browser after the Ethernet cable is plugged into the service processor in step 3 on page 33. During this time, if you use control panel function 30 to view the service processor’s IP addresses, incomplete or inaccurate data will be displayed.

7. When the login display appears, enter one of the following default user IDs and passwords:

**Note:** If you are setting up a Virtual I/O Server, you will need to use the admin User ID and password.

*Table 2. Default user IDs and passwords for the Web interface*

User ID	Password
general	general
admin	admin

8. Change the default password when prompted. For information, see ASMI authority levels.
9. Choose from the following options:
- If you plan to connect your PC or notebook to your network, continue with step 10 on page 35.



- If you do not plan to connect your PC or notebook to your network, continue with step 11.
10. If you plan to connect your PC or notebook to your network, complete the following steps:
    - a. From the navigation area, expand **Network Services**.
    - b. Click **Network Configuration**.
    - c. If your PC or notebook is connected to HMC1, fill in the section labeled Network interface eth0. If your PC or notebook is connected to HMC2, fill in the section labeled Network interface eth1. Ensure that the following fields are filled in correctly.

Table 3. Fields and values for network configuration

Field	Value
Configure this interface?	Selected
Type of IP address	Static
Host name	Enter a new value.
Domain name	Enter a new value.
IP address	This is a set IP address obtained from the network administrator. <b>Note:</b> To verify you are using the correct IP address, perform a function 30 on the control panel to show the service processor IP address and port location.
Subnet mask	This is a set subnet mask obtained from the network administrator.

**Note:** For information about the other fields and values, refer to Configuring network interfaces.

- d. Click **Continue**.
  - e. Click **Save Settings**.
  - f. Disconnect your PC or notebook from the server.
  - g. Connect the server to your company network.
  - h. Go to any PC or notebook on your company network that is running Netscape 9.0.0.4, Microsoft Internet Explorer 7.0, Opera 9.24 or Mozilla Firefox 2.0.0.11, and type the following in the Address field of your browser:
 

```
https://host name.domain name
```

where *host name* and *domain name* are the host name and domain name you entered when completing step 10c.
  - i. Log in to the ASMI.
11. Change the time of the day on the server.
  12. If you were sent here from another procedure, return to that procedure now.

### Setting the IP address on your PC or notebook

To access the ASMI through a Web browser, you first need to set the IP address on your PC or notebook. The following procedures describe setting the IP address on PC and notebooks running the Microsoft® Windows® XP, 2000, and Vista, and Linux® operating systems.

### ASMI authority levels

Several authority levels are available for accessing the service processor menus by using the ASMI.

The following levels of access are supported:

#### General user

The menu options presented to the general user are a subset of the options available to the

administrator and authorized service provider. Users with general authority can view settings in the ASMI menus. The login ID is `general` and the default password is `general`.

### Administrator

The menu options presented to the administrator are a subset of the options available to the authorized service provider. Users with administrator authority can write to persistent storage, and view and change settings that affect the server's behavior. The first time a user logs into the ASMI after the server is installed, a new password must be selected. The login ID is `admin` and the default password is `admin`.

### Authorized service provider

This login gives the authorized service provider access to all functions that could be used to gather additional debug information from a failing system, such as viewing persistent storage, and clearing all deconfiguration errors. There are three authorized service provider login IDs: **celogin**, **celogin1**, and **celogin2**.

- **celogin** is the primary service provider account. It is enabled by default, and it can enable or disable the other two service provider IDs (**celogin1** and **celogin2**). The login ID is **celogin**; the password is generated dynamically and must be obtained by calling IBM technical support. **celogin** can be disabled by the **admin** user.
- **celogin1** and **celogin2** are disabled by default. If the IDs are enabled, a static password must be set for them. The default password for both IDs is **celogin**. The default password must be changed the first time the ID is enabled. The **admin** user can also disable and enable these login IDs.
- To reset the password for **celogin1** or **celogin2**, the **admin** user can disable, then re-enable the ID. As soon as the ID is re-enabled, the password must be changed.
- If enabled, **celogin**, **celogin1**, or **celogin2** can be used to reset the admin password, if necessary.

During the initial administrator and general user logins, the only menu option available is **Change Password**. In order to gain access to additional ASMI menus, you must change the administrator and general user default passwords. If you are an authorized service provider, you cannot change your password.

### Changing ASMI passwords:

Change the general user, administrator, and HMC access passwords.

You can change the general user, administrator, and HMC access passwords. If you are a general user, you can change only your own password. If you are an administrator, you can change your password and the passwords for general user accounts. If you are an authorized service provider, you can change your password, the passwords for general and administrator user accounts, and the HMC access password.

Passwords can be any combination of up to 64 alphanumeric characters. The default password for the general user ID is `general`, and the default password for the administrator ID is `admin`. After your initial login to the ASMI and after the reset toggle jumpers are moved, the general user and administrator passwords must be changed.

The HMC access password is usually set from the HMC during initial login. If you change this password using the ASMI, the change takes effect immediately.

To change a password, follow these steps:

**Note:** As a security measure, you are required to enter the current user's password into the **Current password for current user** field. This password is not the password for the user ID you want to change.

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.

2. In the navigation area, expand **Login Profile**.
3. Select **Change Password**.
4. Specify the required information, and click **Continue**.

## Configuring network interfaces

You can configure network interfaces on the system. The number and type of interfaces vary according to the specific needs of your system.

**Attention:** This operation can be performed when the system is powered on as well as powered off. Because network configuration changes occur immediately, existing network sessions, such as HMC connections, are stopped. If a firmware update is in progress, do not perform this operation. The new settings must be used to re-establish any network connections. Additional errors might also be logged if the system is powered on.

You can change the network configurations when the system is in any state.

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

- Administrator
- Authorized service provider

To configure network interfaces, do the following:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **Network Services**.
3. Select **Network Configuration**.

**Important:** If you are attempting to configure a network connection on a multi-drawer system, you must select the primary or secondary service processor, and then click **Continue**.

4. In the right pane, locate the interface that you want to change. Select the box corresponding to the **Configure this interface?** field of the identified interface. If this box is not selected, the corresponding field changes are ignored.
5. Select the **Type of IP address** from the following options:

**Static** The IP address, subnet mask, broadcast address, default gateway and first DNS server address must be entered. The second and third DNS server addresses are optional.

### Dynamic

No additional input is required.

6. Click **Continue**. The next screen allows you to verify the IP settings that have been entered.

**Attention:** If incorrect network configuration information is entered, you may not be able to use the ASMI after the changes are made. To remedy this situation, you must reset the service processor to the default settings by removing the service processor assembly from the server and moving the reset jumpers. Resetting the service processor also resets all user IDs and passwords to their default values.

**Note:** To reset network configuration settings to the default factory settings, click **Reset Network Configuration**.

7. Click **Save settings** to make the changes.

## Changing the time of day

You can display and change the system's current date and time. The date and time can only be changed when the system is powered off. The time is stored as UTC (Coordinated Universal Time), formerly expressed as Greenwich mean time (GMT).

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

- Administrator

- Authorized service provider

**Note:** You can change the time of day only when the system is powered off.

To change the time of day, do the following:

1. On the ASMI Welcome pane, specify your user ID and password, and click **Log In**.
2. In the navigation area, expand **System Configuration**.
3. Select **Time of Day**. If the system is powered off, the right pane displays a form that shows the current date (month, day, and year) and time (hours, minutes, seconds).
4. Change either the date value or the time value or both, and click **Save settings**.

## **Accessing the ASMI using the HMC**

Complete these steps to access the ASMI through the HMC interface.

To access the Advanced System Management Interface (ASMI) using the HMC, complete the following steps:

1. From the **System Management** tasks list, select **Operations**.
2. From the Operations task list, select **Advanced System Management (ASM)**.

---

## Chapter 7. Service action log

The service action log (SAL) is a subset of the product activity log.

To access the SAL, select the following options, in order, from a DST or SST menu:

- Start a service tool
- Hardware service manager
- Work with service action log

The SAL is a utility that scans the PAL and displays entries that require service representative action. It pulls out the relevant information from those entries and formats it to the display to show service information, such as failing resource names, field replaceable unit (FRU) part numbers, and FRU locations. If FRU part numbers and locations cannot be determined, the SAL display shows symbolic FRU names and isolation procedure names, which then correspond to problem analysis procedures for the service representative. The SAL runs before the operating system is operational.

A **shadow** log is maintained by Licensed Internal Code on the load source disk. The 128 K-byte shadow log contains a duplicate of the most recent or latest product activity log entries that occurred before IPL began and those entries that were logged since the beginning of IPL. The *Product activity log* option uses the shadow log when the system is operating in limited paging environment.

If product activity log initialization is not complete, only the shadow log is accessible to this option. Also, the *Product activity log* menu offers only a few specific product activity log options. The Main menu informs the user that log initialization has not completed, that all product activity log entries are not accessible, and to IPL the operating system to complete initialization. If initialization completes after the *Product activity log* option has been selected, the option must be selected again to make all product activity log options available for use and to generate reports that show all the log entries.

---

### Identifying a failing part on an AIX system or logical partition

Use these instructions to learn how to locate a failing part, and then activate the indicator light for that part on a system or logical partition running the AIX<sup>®</sup> operating system.

### Locating a failing part on an AIX system or logical partition

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

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 shown near the end of the entry.
9. Exit to the command line.

Use the location information for the failing part to activate the indicator light that identifies the failing part. “Activating the indicator light for the failing part” on page 40.

## Activating the indicator light for the failing part

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

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 failing part and press Enter.
6. Select **Commit**. This turns on the system attention and indicator light for the failing part.
7. Exit to the command line.

---

## Identifying a failing part on an IBM i system or logical partition

You can activate or deactivate the indicator light by using IBM i to assist in locating a failing part.

### Activating the failing-part indicator light

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 failing 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 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. 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 failing part's indicator light.

**Tip:** If the failing 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 failing part might be lit. In this case, use the location information to locate the actual failing part.

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

## Deactivating the failing-part indicator light

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. Select option 7 (Indicator off) to turn off the indicator light.
2. Select the **Acknowledge all errors** function at the bottom of the Service Action Log display, if all problems have been resolved.
3. Close the log entry by selecting option 8 (Close new entry) on the Service Action Log Report display.

---

## Identifying a failing part on 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.

### Locating a failing part on a Linux system or logical partition

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

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

To retrieve the location code of the failing part, if you do not know the location code, use the procedure in this topic.

To locate the failing part in a system or logical partition follow these 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.

### Activating the indicator light for the failing part

If you know the location code of the failing part, activate the indicator light to help you locate which part to replace.

To activate the indicator light, follow these 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 failing part.

## Deactivating the failing-part indicator light

After you complete a removal and replacement procedure, you must deactivate the failing-part indicator light.

To deactivate the indicator light, follow these steps:

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



---

## Locating a failing part in a Virtual I/O Server system or logical partition

You can use Virtual I/O Server (VIOS) tools, before activating the indicator light, to locate a part that is failing.

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 failing part to activate the indicator light that identifies the failing part. For instructions, see “Identifying a part using the Virtual I/O Server.”

## Identifying a part using the Virtual I/O Server

Use these instructions to turn on the indicator light to help you physically locate a part using the Virtual I/O Server (VIOS).

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**. Press Enter.
4. From the Task Selection menu, select **Identify and Attention Indicators**. 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 failing part.
7. Exit to the command line.



---

## Chapter 8. Starting or stopping the system or logical partition

Learn how to start or stop a system or logical partition to perform a service action or restart the system.

---

### Starting the system or logical partition

To start a system or logical partition after performing a service action or system upgrade, use this procedure.

#### Starting a system that is not managed by a Hardware Management Console

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

To start a system that is not managed by a Hardware Management Console (HMC), follow these steps:

1. On a rack-mounted system unit, open the front rack door, if necessary. On a stand-alone system unit, open the front door.
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-on light, as shown in the following figure, is slowly blinking.
  - The top of the display, as shown in the following figure, shows 01 V=F.

**Tip:** The system attention light, as shown in the following figure, does not appear on the control panel on the model 9117-MMA.

3. Press the power button (A), as shown in the following figure, on the control panel.

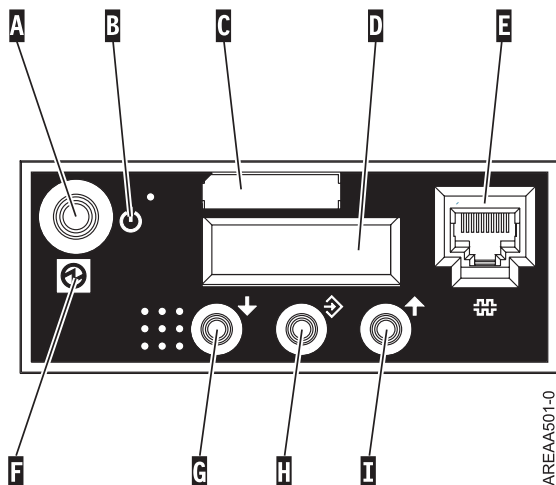


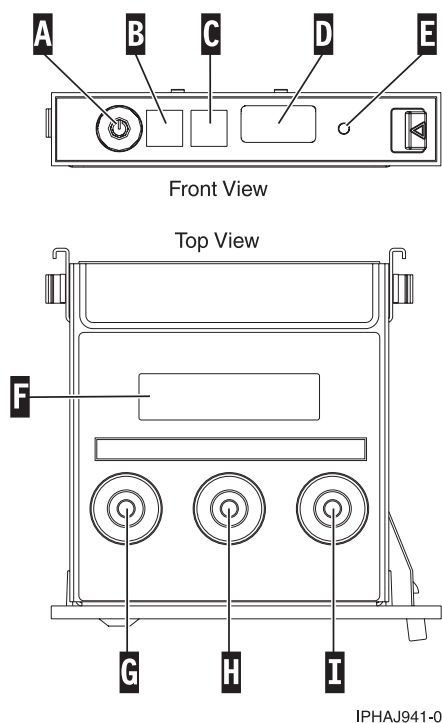
Figure 14. 570 control panel

- A: Power-on button
- B: On/off power symbol
- C: Serial number label
- D: Function/Data display

- **E:** System port (S1)
- **F:** Power LED
  - A blinking light indicates standby power to the unit.
  - A constant light indicates full system power to the unit.

**Note:** There is approximately a 30-second transition period from the time the power-on button is pressed to when the power LED goes from blinking to solid. During the transition period, you might observe the blinking intervals speed up.

- **G:** Decrement button
- **H:** Enter button
- **I:** Increment button



IPHAJ941-0

Figure 15. Control panel for the 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, and 9409-M50.

- **A:** Power-on button
- **B:** Power LED
  - A blinking light indicates standby power to the unit.
  - A constant light indicates full system power to the unit.

**Note:** There is approximately a 30-second transition period from the time the power-on button is pressed to when the power LED goes from blinking to solid. During the transition period, you might observe the blinking intervals speed up.

- **C:** Attention light
- **D:** USB port
- **E:** Pinhole reset button
- **F:** Function/Data display
- **G:** Decrement button
- **H:** Enter button

- **I**: Increment button
4. Observe the following after pressing the power button:
    - The power-on light begins to blink 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 blinking and remains on, indicating that system power is on.

**Tip:** If pressing the power button does not start the system, do the following steps to start the system using the Advanced System Management Interface (ASMI):

1. Set up access to the ASMI. For instructions, see Chapter 6, “Managing the Advanced System Management Interface,” on page 33.
2. Start the system using the ASMI. For instructions, see “Powering the system on and off.”

## Powering the system on and off

View and customize various initial program load (IPL) parameters.

You can start and shut down the system in addition to setting IPL options.

To perform these operations, your authority level must be one of the following:

- Administrator
- Authorized service provider

Several IPL options that you can set pertain to the server firmware. Firmware is an integral part of the server that is stored in *flash memory*, whose contents are preserved when the system is powered off. The firmware is code that automatically starts when the server is turned on. Its main purpose is to bring the server to a state where it is ready to operate, which means the server is ready to install or boot an operating system. Firmware also enables the handling of exception conditions in the hardware and provides extensions to the functions of the server hardware platform. You can view the server’s current firmware level on the Advanced System Management Interface (ASMI) Welcome pane.

This server has a permanent firmware boot side, or P side, and a temporary firmware boot side, or T side. When updating the firmware, install new levels of firmware on the temporary side first to test the compatibility with your applications. When the new level of firmware has been approved, copy it to the permanent side.

To view and change IPL settings, perform 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 **Power/Restart Control** and select **Power On/Off System**.
3. Set the following desired boot settings.

**Note:** On systems with the EM310\_xxx release of system firmware installed, *slow* and *fast* are the only two boot speeds available.

### System boot speed

Select the speed for the next boot:

**Slow** All IPL diagnostic tests are run, and the full memory test is run.

**Fast** Several IPL diagnostic test are skipped, and a shorter memory test is run.

**Note:** This is the default setting on systems with firmware EX310\_xxx or later installed.

**Hyper** This option is available only when hyperboot is enabled. The majority of the initial program load (IPL) diagnostics are skipped, and cached data is used for vital product data (VPD), system configuration, and main store data. Since there is minimal VPD verification that the hardware is the same as the previous boot, this speed setting should only be used if there have not been any hardware changes since the last system boot.

**Firmware boot side for next boot**

Select the side from which the firmware boots the next time: **Permanent** or **Temporary**. Test firmware updates by booting from the temporary side before being copied into the permanent side.

**System operating mode**

Select the operating mode: **Manual** or **Normal**. Manual mode overrides various automatic power-on functions, such as auto-power restart, and enables the power button.

**Boot to system server firmware**

Select the state for the server firmware: **Standby** or **Running**. When the server is in the server firmware standby state, logical partitions can be set up and activated.

**System power off policy**

Select the system power off policy. The system power off policy is a system parameter that controls the system's behavior when the last partition (or the only partition in the case of a system that is not managed by an HMC) is powered off.

**IBM i partition mode boot**

This option is available only when the system is not managed by an HMC. Select the IBM i partition mode for the next system boot.

**Default partition environment**

Select **Default** (valid only if the BR keyword is not S0), **AIX**, **IBM i**, or **Linux**.

**Notes:**

- If the default partition environment is changed from any other value to IBM i, the IBM i enable/disable setting is automatically changed to Enabled.
- If the default partition environment is changed from IBM i to any other value, the IBM i enable/disable setting is not affected.

**IBM i enable/disable**

Depending on the machine type and model of the system, this option may or may not appear on the ASMI power on/off menu. If it is displayed on the menu, you can enable or disable IBM i. When this option is set to disabled, an existing IBM i partition cannot be powered on, and a new IBM i partition cannot be created. The enable/disable setting takes effect on the next system IPL.

**Note:** If the IBM i field does not show Enabled or Disabled, but is blank, the setting is not initialized. If you try to click any of the radio buttons for the save settings options and the value is still not initialized, the ASMI will reject the request and instruct you to update the RB keyword in the system vital product data (VPD).

**Current® hyperboot mode state**

This setting is displayed if the hyperboot feature is activated for the system. The hyperboot mode states are: **Capable** and **Enabled**. When the mode state is changed to **Enabled**, the mode state initializes in the ASMI and displays **Capable** until the system is restarted. After the system has restarted the state changes to **Enabled**. Any time you restart the system in the enabled state, it starts in hyperboot mode.

4. Perform one of the following steps:

- Click **Save settings** to save the selected options. The power state does not change.

- Click **Save settings and power on/off**. All selected options are saved and the system turns on or off. The power-on option is available only if the system is powered off. The power-off option is available only if the system is powered on.
- Click **Save settings and continue server firmware boot** to save the selected options, and turn the server firmware on or off. This option is available only if the server firmware is in *standby* mode.

## Starting the system or logical partition using the Hardware Management Console

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

For instructions on working with the HMC, see *Managing the Hardware Management Console*. For instructions on starting a logical partition, see *Logical partitioning*. For instructions on starting the system, see *Powering on the managed system*.

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

### Powering on a managed system

Understand how to power on a managed system using the HMC.

You can use the HMC to power on a managed system and to monitor the power-on state.

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

- super administrator
- service representative
- operator
- product engineer

To power on a managed system, complete the following steps:

1. In the Navigation area, expand the **Systems Management** folder.
2. Click the **Servers** icon.
3. In the Contents area, select the managed system.
4. Select **Tasks**, then **Operations**, and then **Power On**.
5. Select the desired power-on mode and click **OK**.

---

## 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 a Hardware Management Console

You might need to stop the system to perform another task. Use these instructions to stop the system using the power button or Advanced System Management Interface.

Before you stop the system, follow these steps:

1. If an Integrated xSeries® Adapter (IXA) is present on the system, shut it down using IBM i options.
2. Ensure that all jobs are completed and end all applications.
3. Ensure that the operating system is stopped.

**Attention:** Failure to do so can result in the loss of data.

4. Record the IPL type and IPL mode from the control panel display to help you return the system to this state when the installation or replacement procedure is completed.

The following procedure describes how to stop a system that is not managed by a Hardware Management Console (HMC).

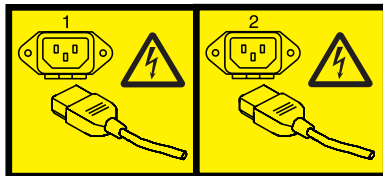
1. Log in to the system as a user with the authority to run the shutdown or pwrdownsys (Power Down System) command.
2. At the command line, enter one of the following commands:
  - If your system is running the AIX operating system, type **shutdown**.
  - If your system is running the Linux operating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

3. Set the power switches of any devices connected to the system to off.
4. Unplug any power cables that are attached to the unit from electrical outlets. Ensure that you unplug power cables from peripheral devices, such as printers and expansion units.

**Important:** The system might be equipped with a second power supply. Before continuing with this procedure, ensure that all power sources to the system have been completely disconnected.

(L003)



or



## Stopping a system or logical partition using the Hardware Management Console

You can use the Hardware Management Console (HMC) user interface to stop the system or a logical partition. Use the following steps to accomplish this task.

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:** If possible, shut down the running logical partitions on the managed system before powering 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.

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

- Super administrator
- Service representative
- Operator
- Product engineer

1. In the Navigation area, expand the **Systems Management** folder.
2. Click the **Servers** icon.
3. In the Contents area, select the managed system.
4. Select **Tasks**, then **Operations**, and then **Power Off**
5. Select the desired power-off mode and click **OK**.





---

## Chapter 9. Disconnecting the SMP processor cable from a system

You might need to disconnect this cable to add or remove memory or processors. Use the procedure in this section to accomplish this task.

### DANGER

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

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

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

#### To Disconnect:

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

#### To Connect:

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

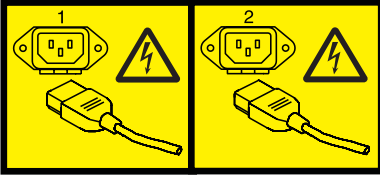
(D005)

To disconnect an SMP processor cable connection from a system, complete the following steps:

1. If necessary, open the front door of the rack.
2. Disconnect the power source from the system by unplugging the system.

**Note:** This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

(L003)



OR



3. Remove the front cover. For instructions, see “Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA” on page 70.
4. Remove the left edge of the trim kit on the system rack to expose the left edge of the SMP processor cable.

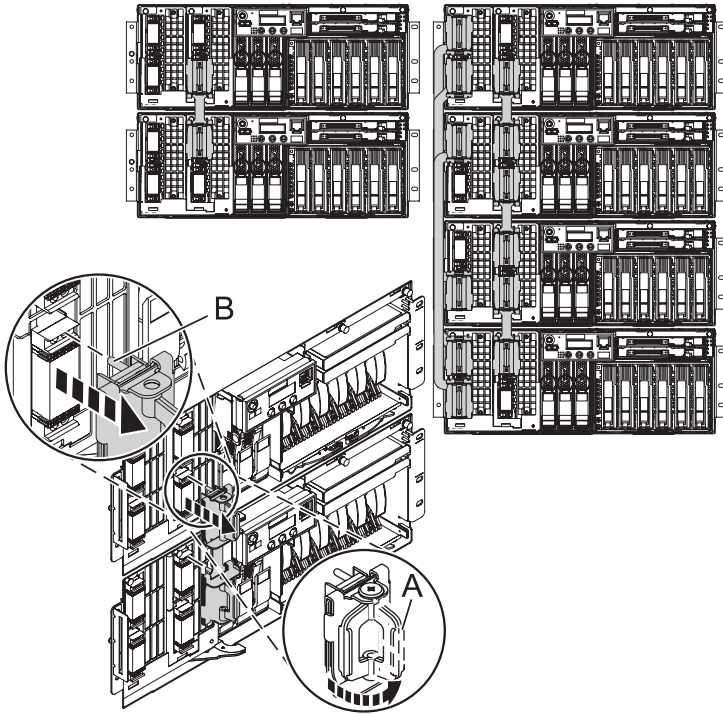
**Attention:**

Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge from damaging your hardware.

When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.

5. Unlatch the plastic fastener **(A)**, as shown in the following figure.
6. Lift the latch handle **(B)** until the connector is unseated.



7. Carefully pull the connector from the system.
8. When the guide pins are free, carefully pull the cable away from the system unit.



---

## Chapter 10. Reconnecting the SMP processor cable to a system

You might need to reconnect this cable after adding or removing memory or processors. Use the procedure in this section to accomplish this task.

### DANGER

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

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

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

#### To Disconnect:

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

#### To Connect:

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

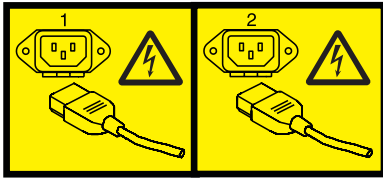
(D005)

To connect an SMP processor cable to a single system, complete the following steps:

1. Perform prerequisite tasks as described in Chapter 5, "Before you begin," on page 29.
2. Stop all system units. Refer to "Stopping a system or logical partition" on page 47.
3. If necessary, open the front rack door.
4. Disconnect the power source from the system by unplugging the system.

**Note:** This system can be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

(L003)



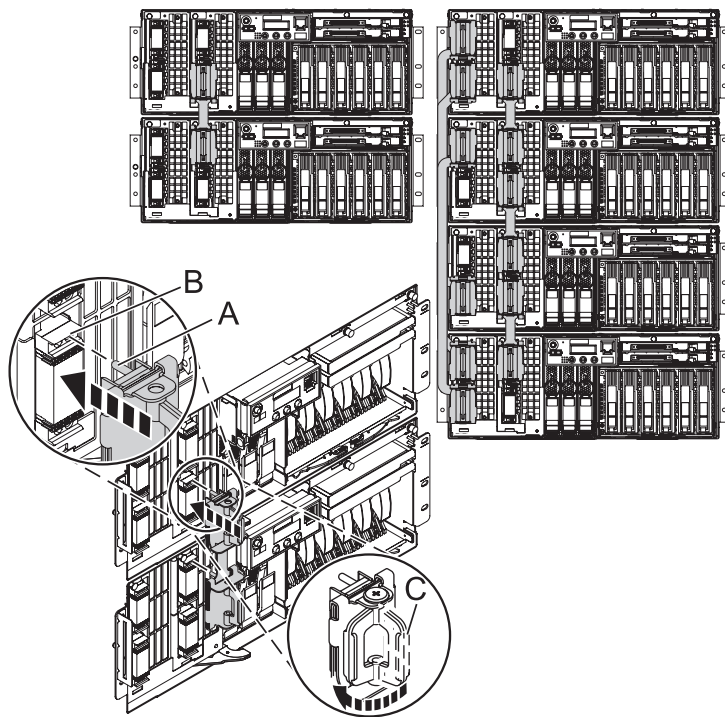
or



5. If necessary, remove the left edge of the trim kit on the system rack.

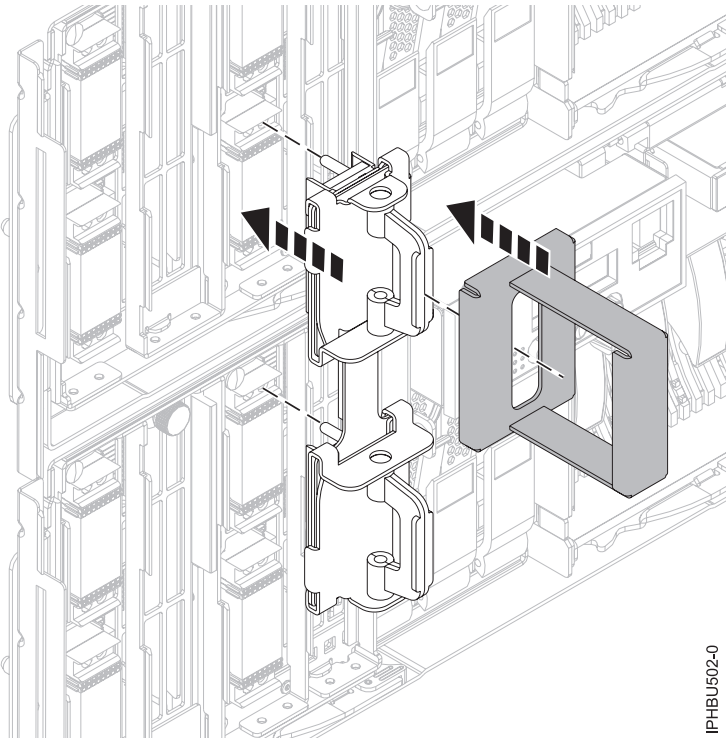
**Attention:**

- Attach a wrist strap to an unpainted metal surface of your hardware to prevent electrostatic discharge (ESD) from damaging your hardware.
  - When using a wrist strap, follow all electrical safety procedures. A wrist strap is 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 a 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.
6. Lift the latch handle (C) to the open position.



7. Align the guide pins (A) with the connector (B) on the system.
8. Carefully push the cable connector into the system connection.

**Note:** Evenly press the connector in place, using firm straight pressure on both the top and bottom of each cable-end. At the same time, press evenly at the top and bottom of each cable-end. Use the SMP tool to seat the cable as shown in the following figure.



IPHBU502-0

Figure 16. Using the SMP cable tool

9. Push the latch handle down to seat the pins.
10. Replace the left edge of the trim kit.
11. Install the front cover. For instructions, see “Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA” on page 71.
12. Close the front rack door.



---

## Chapter 11. Removing and replacing expansion unit cover or door

You might need to remove, replace, or install covers or doors on an expansion unit as a part of accessing components or performing a service action.

---

### Removing the front cover on the 7314-G30 or 5796

You might need to remove the front cover to perform service to the system.

To remove the front cover follow these steps.

1. Remove the two thumbscrews (**B**) located on the left and right of the cover.

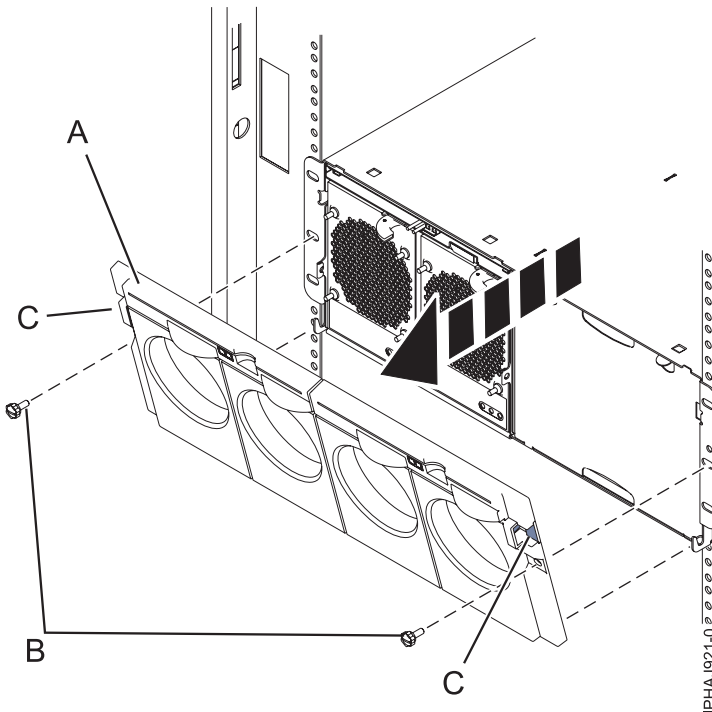


Figure 17. Remove the front cover for model 7314-G30 or 5796

2. Press in on the two latches (**C**) located left and right of the cover to release the cover.
3. Lift the cover (**A**) out and away from the chassis.

**Tip:** If an airflow block is present on an unpopulated side of the chassis do not remove it unless you are populating that side of the chassis.

---

### Installing the front cover on the 7314-G30 or 5796

Use this procedure to install the front cover after installing the system or performing a service action.

If you only have one side of the chassis populated, ensure that the airflow block is present on the unpopulated side.

1. Insert the posts on the bottom of the cover (A) into the hooks on the chassis of the enclosure.
2. Press in on the two latches (C) on the right and left of the front cover.

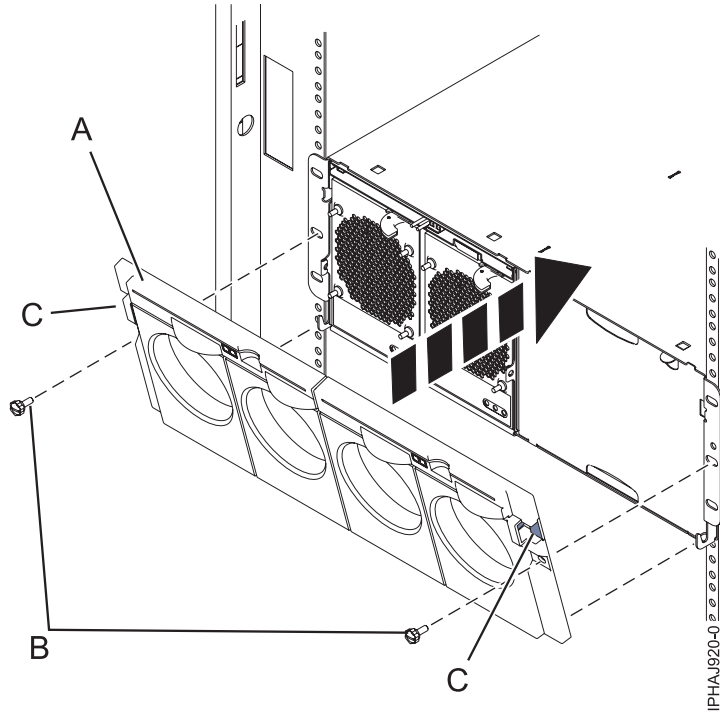


Figure 18. Front cover on a model 7314-G30 or 5796

3. Push the cover onto the chassis and release the latches. The cover should securely snap into place.
4. Replace the two thumbscrews (B) into the slots on the left and right of the front cover.

---

## Removing the front cover from a 7311-D11, 5791, or 5794 expansion unit

Use this procedure to remove the cover to access components or perform a service action.

To remove the front cover, follow these steps:

1. Open the rack front door, if necessary.
2. Press down on both release tabs and pivot the cover from the top forward.
3. Pull the cover out and away from the expansion unit.

---

## Installing the front cover on a 7311-D11, 5791, or 5794 expansion unit

Use this procedure to install the cover after accessing components or performing service.

To install the front cover, follow these steps:

1. Position the cover on the front of the expansion unit so that the pins on the cover line up with the slots on the front of the expansion unit.
2. Insert the tabs on the bottom of the cover into the slots at the front of the expansion unit.
3. Push the cover up and forward until the tabs on the top secure the cover in place.

---

## Removing the front cover from a 7311-D20 expansion unit

Use this procedure to remove the cover to access components or perform service.

To remove the expansion unit front cover, follow these steps:

1. If necessary, open the front rack door.
2. Remove the thumbs screws that are securing the covers to the rack.
3. Push both cover-release latches in the direction of the arrows to release the cover as shown in the following figure.

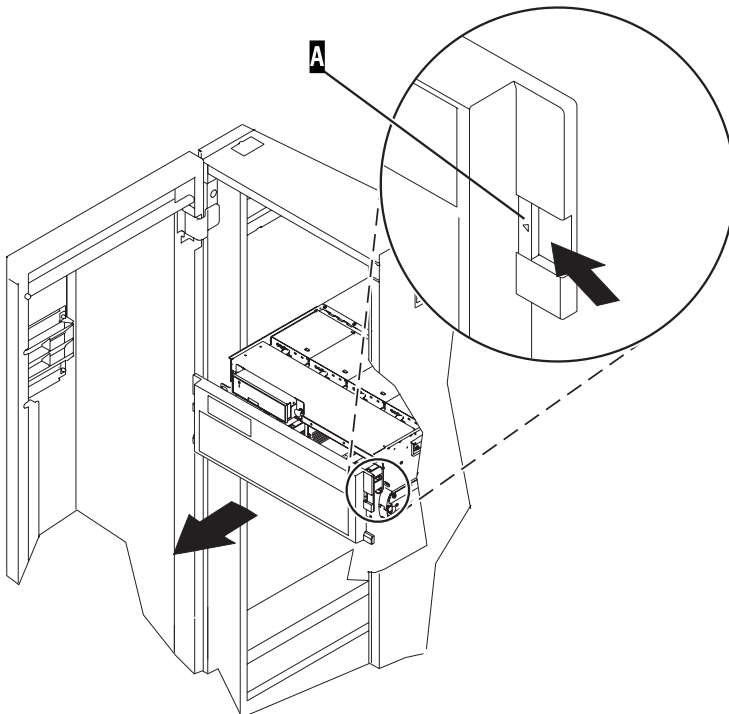


Figure 19. Removing the front cover

4. Pivot the cover from the bottom and swing the top of the cover out.
5. Pull the bottom of the cover up and then away from the expansion unit. This releases the two tabs located on the bottom of the cover.
6. Put the cover in a safe place.

---

## Installing the front cover on a 7311-D20 expansion unit

Use this procedure to install the cover after accessing components or performing service.

To install the expansion unit front cover, follow these steps:

1. If necessary, open the front rack door.
2. Insert the two tabs located on the bottom edge of the cover into their locking slots, located on the expansion unit frame.
3. Pivot the front cover up toward the top of the expansion unit frame.

4. Align the tabs to the matching slots located on the front of the expansion unit frame.
5. Gently push the tabs into the slots until the cover seats against the front of the expansion unit.
6. Install the thumbs screws to secure the covers to the rack.
7. Close the front rack door.

---

## Chapter 12. Removing and Replacing Covers and Doors

Use these instructions to remove, replace, or install covers to access components or perform service.

---

### Removing the service access cover from a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

1. Place the system into the service position. For instructions, see “Placing a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the service position” on page 77.
2. Loosen the two thumbscrews (**A**) located at the back of the cover.
3. Slide the cover (**B**) toward the back of the system unit. When the front of the service access cover clears the upper frame ledge, lift the cover up and off the system unit.

**Attention:** For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes could damage the system components.

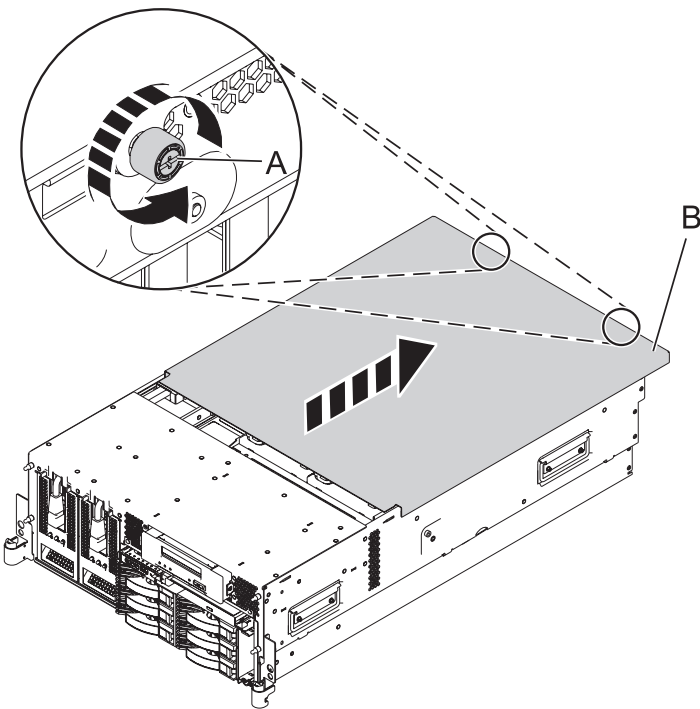


Figure 20. Remove the service access cover from a rack-mounted model

---

### Installing the service access cover on a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the service access cover after performing service or accessing internal components.

1. Place the service access cover (**A**) on the top of the system unit, approximately 25 mm (1 in.) from the front of the system unit.

2. Hold the service access cover against the system unit, and slide it toward the front of the system.  
The tabs on the service access cover slide beneath the upper chassis ledge, and the two thumbscrews align with the screw holes at the back of the system unit.

**Important:** Ensure that the fan LED cables do not get caught on the front edge of the service access cover as you move it forward.

3. Tighten the thumbscrews (**B**) located at the back of the cover.

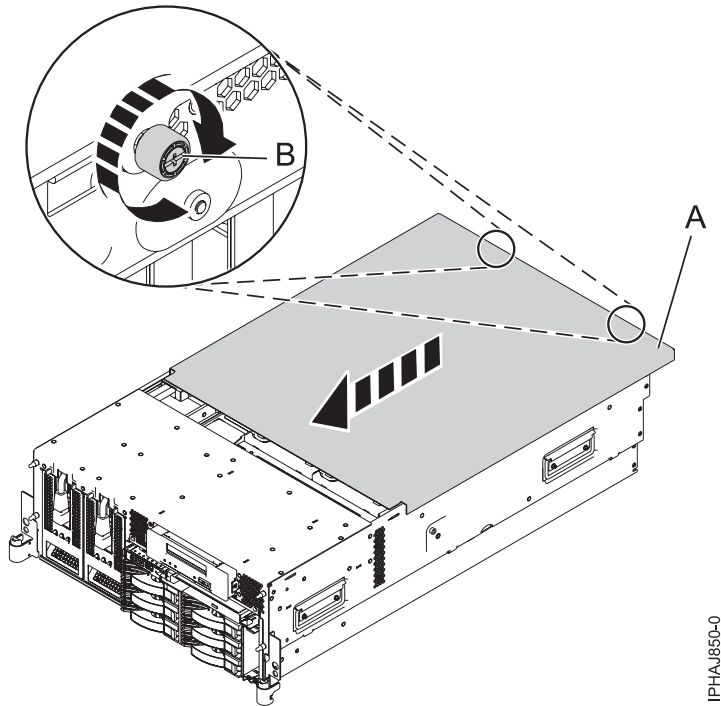


Figure 21. Install the service access cover on the rack-mounted model

## Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

To remove the service access cover from a stand-alone model, do the following steps:

1. Loosen the two thumbscrews (**A**) located at the back of the service access cover as shown in the following figure.
2. Slide the service access cover (**B**) toward the back of the system. When the front of the cover clears the front frame ledge, lift the cover off the system.

**Attention:** For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes might damage the system components.

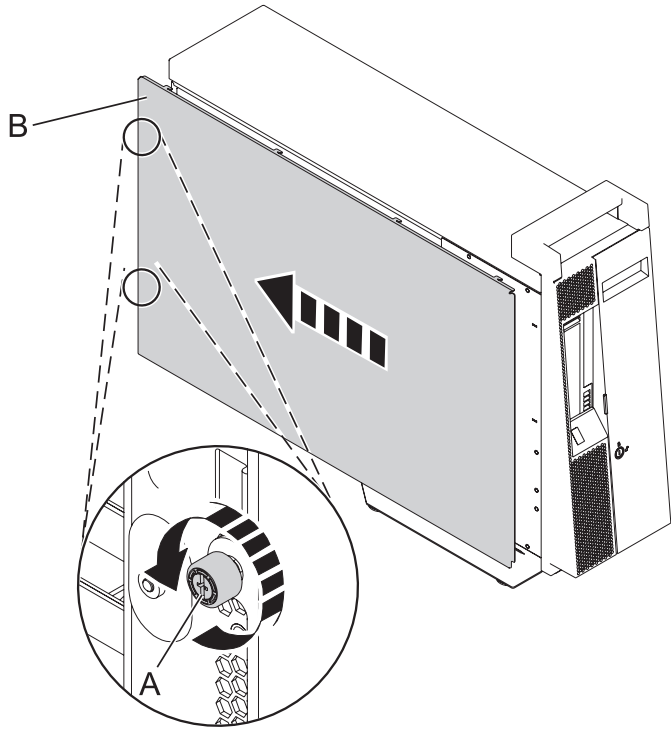


Figure 22. Removing the service access cover from the stand-alone model

---

### Installing the service access cover on a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the service access cover after performing service or accessing internal components.

1. Align the service access cover pins with the slots in the system. The flanges on the top and bottom of the cover wrap around the system frame.
2. Hold the service access cover against the system unit (A) and slide it toward the front of the system.
3. Tighten the two thumbscrews (B) located at the back of the cover.

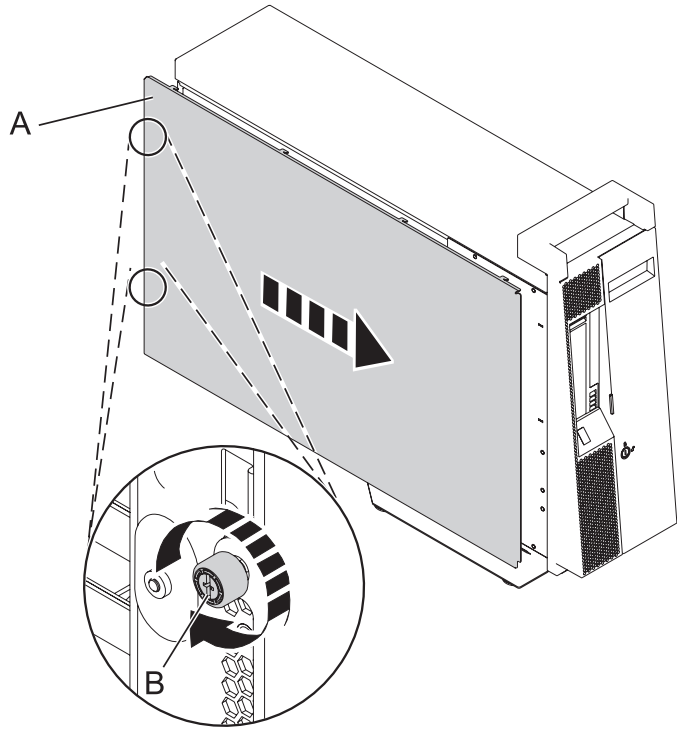


Figure 23. Installing the service access cover on a stand-alone model

---

## Removing the front cover from a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Remove the two thumbscrews (A) that secure the system to the rack (B) as shown in the following figure.
2. Push in the release latches (C) and pull the cover away from the system.



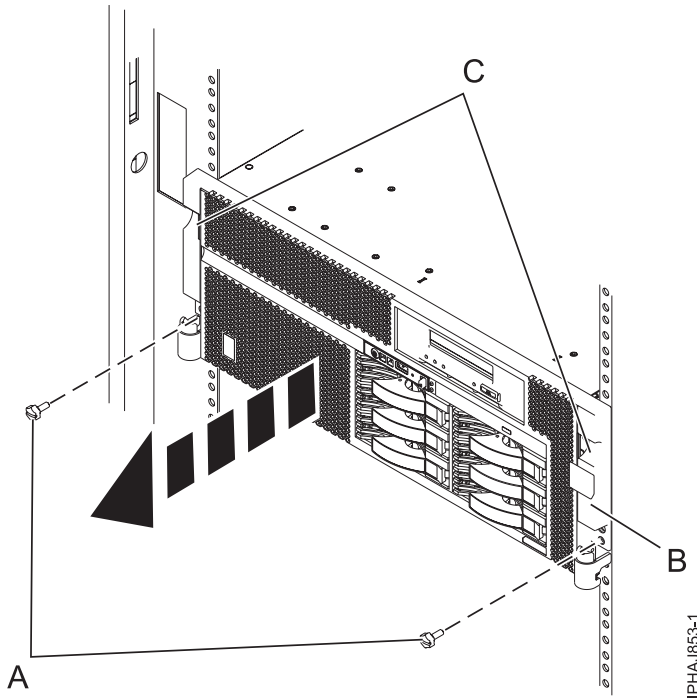


Figure 24. Removing the front cover from a rack-mounted model

---

## Installing the front cover on a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the cover after accessing components or performing service.

1. Push in the release latches **(B)** and push the cover onto the system.
2. Gently push the cover in until the two cover-release latches **(B)** are seated in their respective slots as shown in the following figure.
3. Replace the two thumbscrews **(C)** that secure the system to the rack **(A)**.

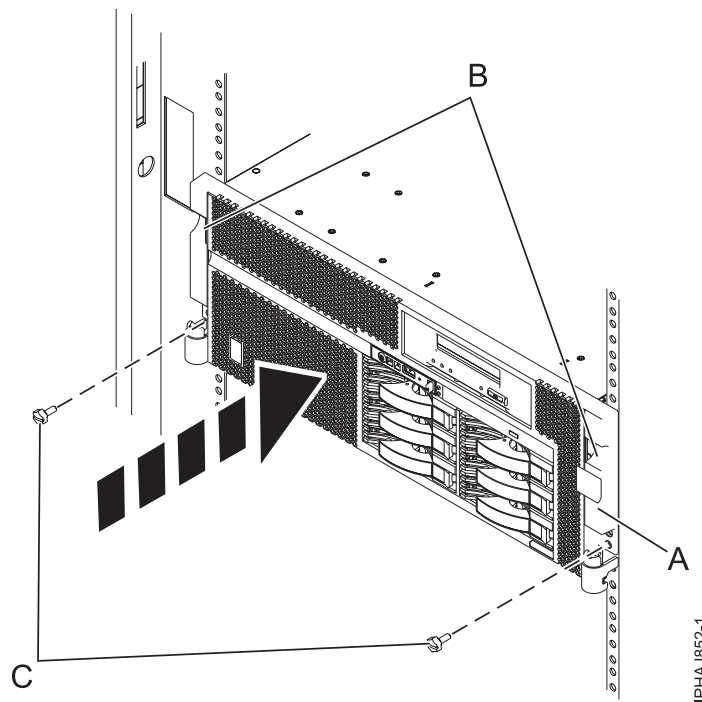


Figure 25. Installing the front cover on a rack-mounted model

---

## Removing the door from the 8204-E8A or 9409-M50

Use this procedure to remove the door to access components or perform service.

1. Open the front door by grasping the door handle and pulling the door out and away from the system unit.
2. To remove the door, press down on the top back edge of the door.
3. Gently swivel the top back edge of the door forward and out past the top of the system unit.
4. Lift the door up to release it from the lower retaining post.

---

## Installing or replacing the door on the 8204-E8A or 9409-M50

Use this procedure to install the door after accessing components or performing service.

1. Set the door on the lower retaining post.
2. Rotate the door toward the top of the system unit.
3. Press down on the lower back edge of the door, and seat the top post into its matching slot.
4. Close and secure the door.

---

## Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Open the door that covers the disk drives by unlocking and pulling the door open.
2. Press down on the cover-release tab (A) as shown in the following figure.

3. Pull the top of the cover (B) out and away from the system.

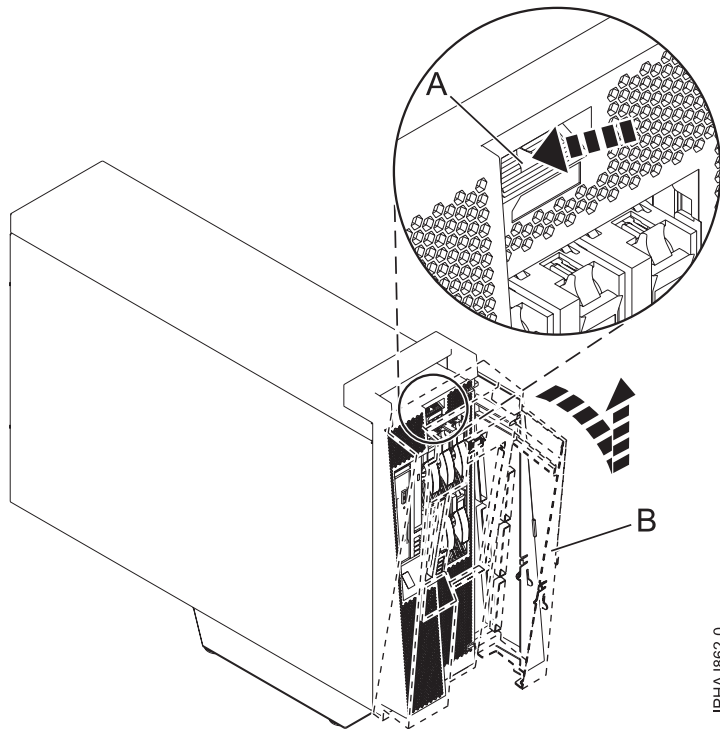


Figure 26. Remove the door from the model

4. Gently pull the cover up and off the base.

---

### Installing the front cover on a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to install the cover after accessing components or performing service.

1. Place the two lower cover-locking tabs into the retaining slots located on the base of the system unit as shown in the following figure.

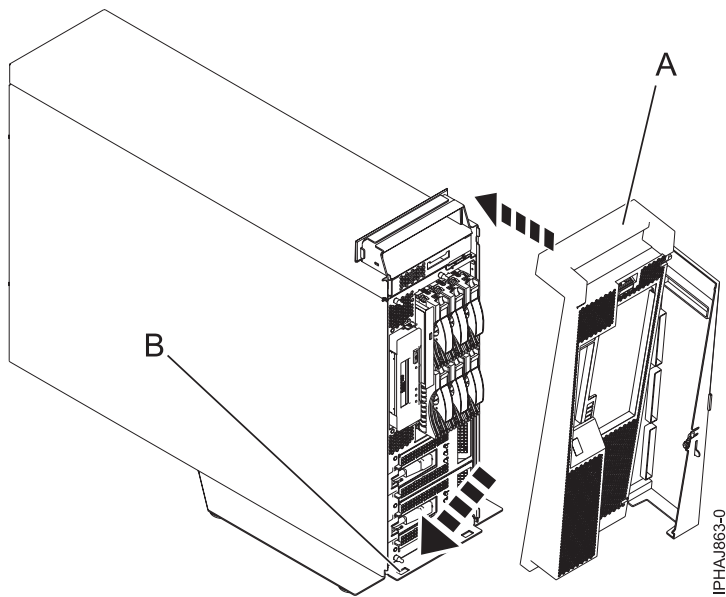


Figure 27. Replacing the cover on the model

2. Push the cover up toward the top of the system (A), ensuring that the aligning pins are aligned with their matching slots (B) located on the system.
3. Gently push the cover in until the cover-release tab snaps into place.
4. Close and secure the door.

---

## Front cover for the 8234-EMA, 9117-MMA, or 9406-MMA

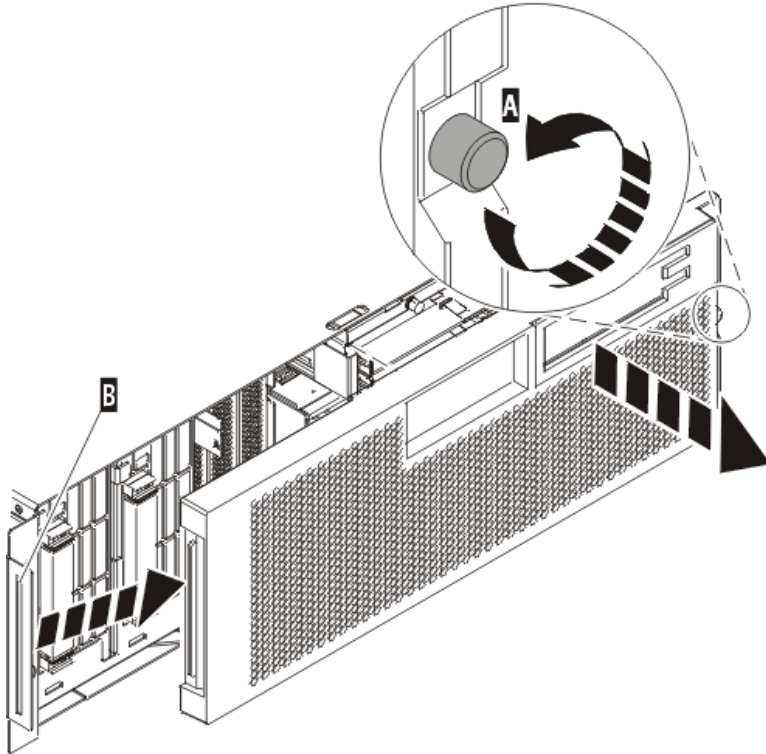
Use these procedures to remove and replace the cover to access components or perform service.

### Removing the front cover from the 8234-EMA, 9117-MMA, or 9406-MMA

Use this procedure to remove the cover to access components or perform service.

To remove the front cover follow these steps:

1. If necessary, open the front rack door.
2. Loosen the thumbscrew on the right side of the cover as shown in the following figure.



IPHA1F01-1

Figure 28. Removing the front cover

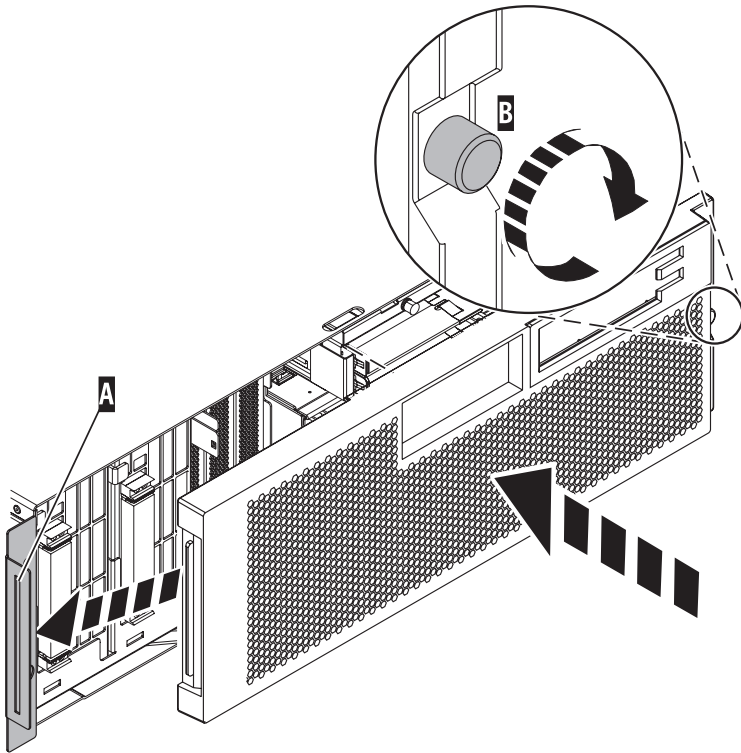
3. Slide the cover to the right, and remove it from the system unit.

### **Installing the front cover on the 8234-EMA, 9117-MMA, or 9406-MMA**

Use this procedure to install the cover after accessing components or performing service.

To install the front cover follow these steps:

1. Position the cover on the front of the system unit so that the tab on the left side of the cover is in the matching slot on the left side of the system unit as shown in the following figure.



IPHAJ500-1

Figure 29. Installing the front cover

2. Tighten the thumbscrew on the right side of the cover.
3. Close the front rack door.

---

## Chapter 13. Placing the rack-mounted system or expansion unit in the service position or operating position

Use these procedures to place a system or expansion unit into the service position or operating position to perform service or to gain access to internal components.

---

### Placing the rack-mounted system or expansion unit in the service position

Use this procedure to perform service or gain access to internal components by placing the rack-mounted system or expansion unit in the service position.

**Note:** Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

#### DANGER

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

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

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

#### To Disconnect:

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

#### To Connect:

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

(D005)

## DANGER

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

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



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

## CAUTION

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

(R001)

To place a rack-mounted system or expansion unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews (A) that secure the system or expansion unit (B) to the rack as shown in the following figure.



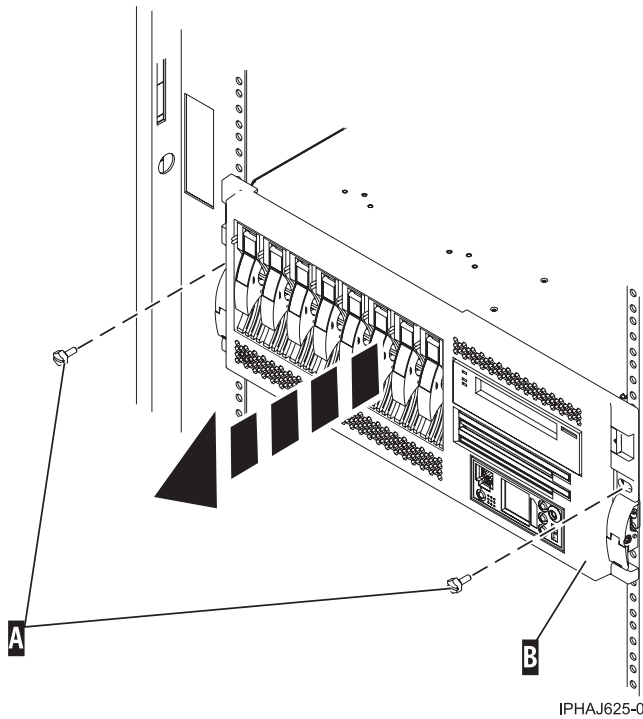


Figure 30. Removing the thumbscrews from the system and rack

3. Release the rack latches (A) on both the left and right sides as shown in the following figure.

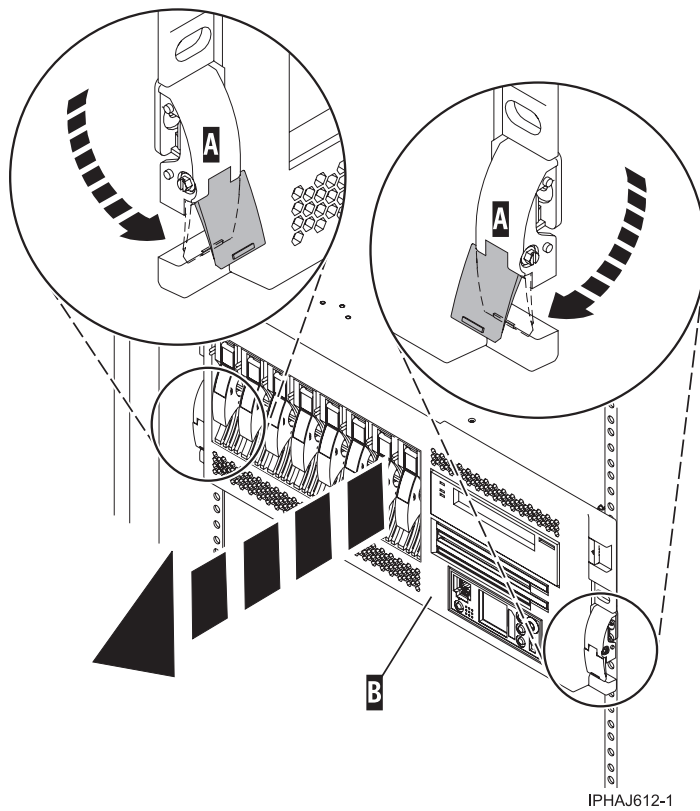


Figure 31. Releasing the rack latches

4. Read the following note, and then slowly pull the system or expansion unit out from the rack until the rails are fully extended and locked.

**Remember:**

- If the procedure you are performing requires you to unplug cables from the back of the system or expansion unit, do so before you pull the unit out from the rack.
- Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you pull the unit out from the rack.
- Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system or expansion unit from being pulled out too far.

---

## Placing the rack-mounted system or expansion unit in the operating position

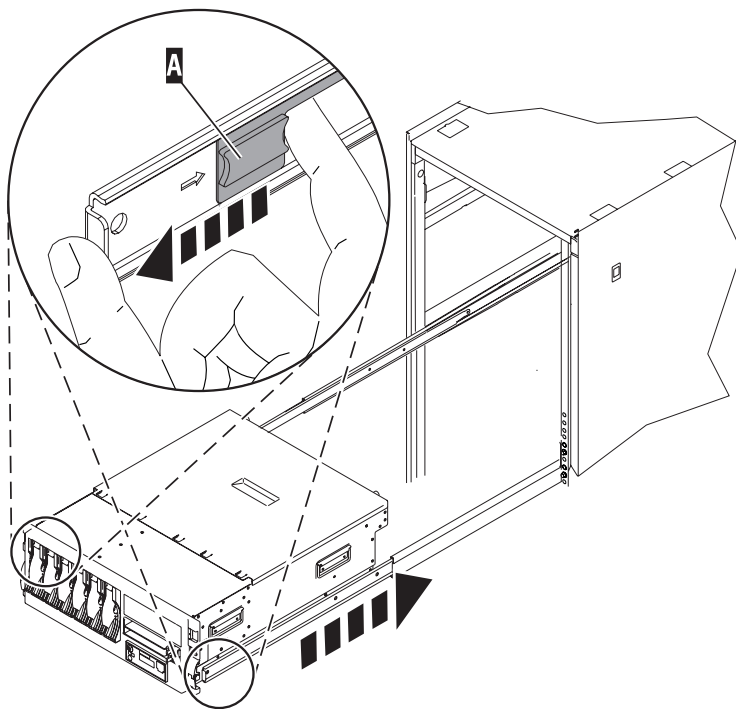
Use this procedure to place the rack-mounted system or expansion unit in the operating position to make the unit available for use.

**Tip:** Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

To place the rack-mounted system or expansion unit into the operating position, follow these steps:

1. Simultaneously release the blue rail safety latches (A), located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

**Note:** Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you push the unit back into the rack.



IPHBF509-1

Figure 32. Releasing the rail safety latches

2. Replace and tighten the two thumbscrews (C) that secure the system or expansion unit (A) to the rack as shown in the following figure.

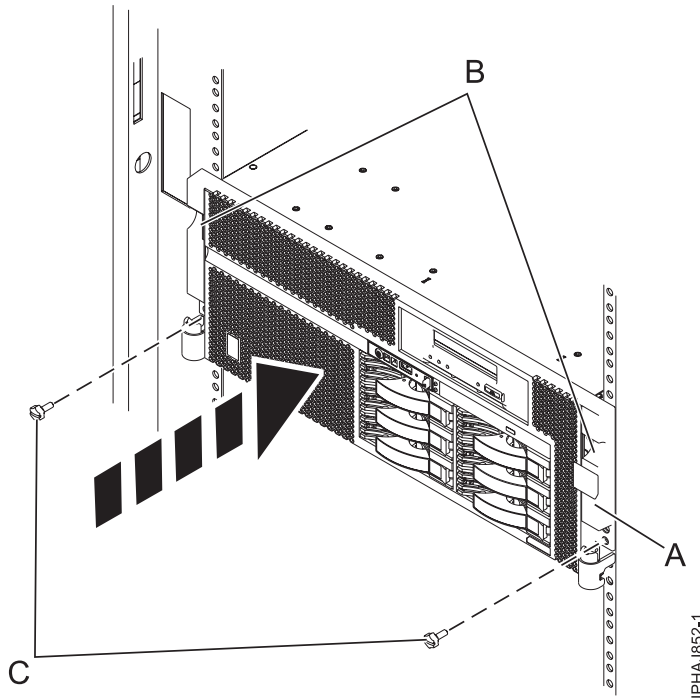


Figure 33. Pushing the system into the rack and attaching the thumbscrews

3. Close the front rack door.

---

## Placing a rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the service position

Use this procedure to perform service or gain access to internal components by placing the rack-mounted system or expansion unit in the service position.

**Note:** Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

## DANGER

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

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

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

To Disconnect:

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

To Connect:

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

(D005)

## DANGER

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

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



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

#### CAUTION

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

(R001)

To place the rack-mounted system or expansion unit into the service position, follow these steps:

1. If necessary, open the front rack door.
2. Remove the two thumbscrews (A) that secure the system unit to the rack as shown in the following figure.
3. Release the rack latches (B) on both the left and right sides as shown in the following figure.

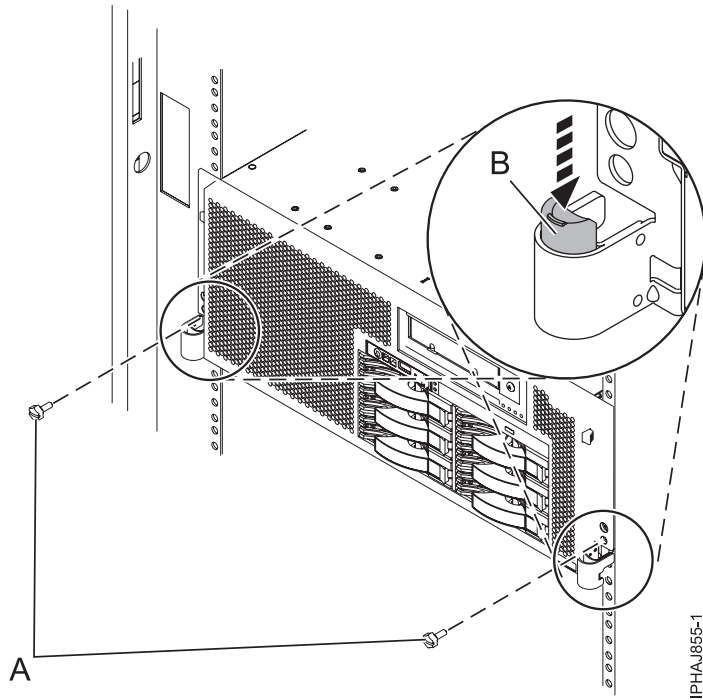


Figure 34. Releasing the rack latches

4. Read the following note, and then slowly pull the system or expansion unit out from the rack until the rails are fully extended and locked.

**Remember:**

- If the procedure you are performing requires you to unplug cables from the back of the system or expansion unit, do so before you pull the unit out from the rack.
- Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you pull the unit out from the rack.
- Ensure the rails are fully extended. When the rails are fully extended, the rail safety latches lock into place. This action prevents the system or expansion unit from being pulled out too far.

## Placing the rack-mounted 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 in the operating position

Use this procedure to place the rack-mounted system or expansion unit in the operating position to make the unit available for use.

To place the rack-mounted model into the operating position follow these steps:

**Tip:** Some of the figures in these procedures might not look exactly like the system or expansion unit that you have. However, the steps to perform the task are the same.

1. Simultaneously release the blue rail safety latches (**B**), located near the front of each rail, and push the system or expansion unit into the rack as shown in the following figure.

**Note:** Ensure that the cables at the rear of the system or expansion unit do not catch or bind as you push the unit back into the rack.

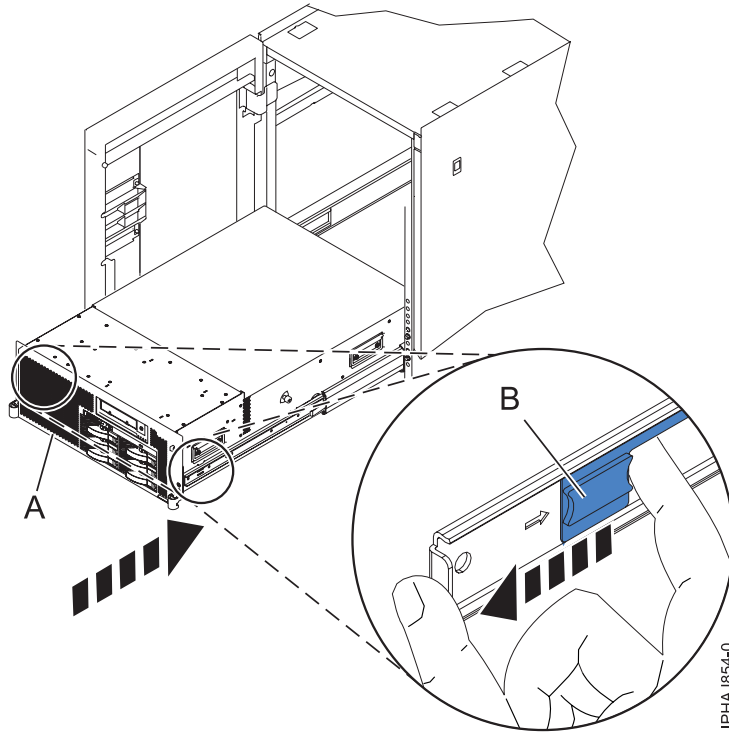


Figure 35. Releasing the rail safety latches

2. Replace and tighten the two thumbscrews (C) that secure the system or expansion unit (A) to the rack as shown in the following figure.

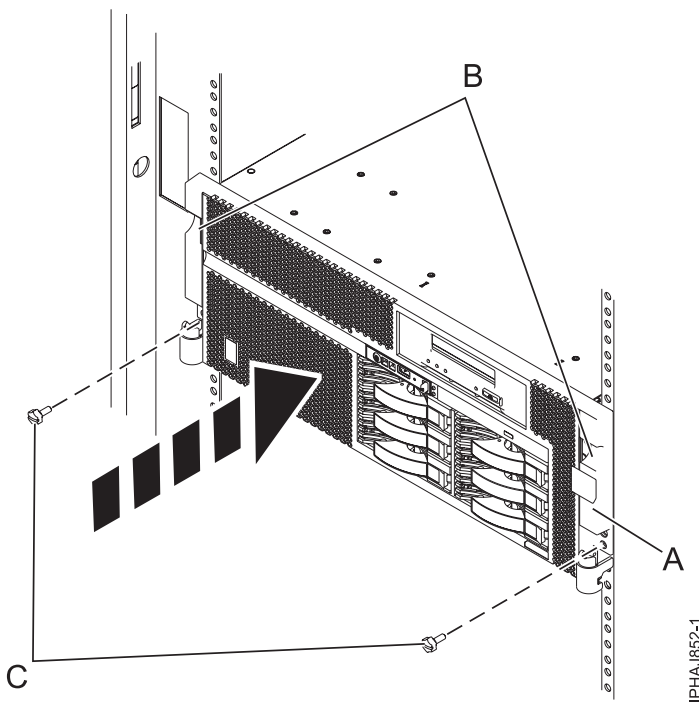


Figure 36. Replacing the thumbscrews

3. Close the front rack door.



---

## Chapter 14. Viewing existing firmware levels

Find out how to view the level of firmware that currently runs on your server.

You can view the current and backup levels of server firmware on the managed system.

---

### Using the HMC to view the existing firmware levels

Learn how to view the level of firmware that currently runs on your server using the HMC.

1. In the Navigation area, click **Updates**.
2. Ensure that the managed system Status is Power Off, Standby, or Operating.
3. Record the level that appears in the EC Number field. For example, 01EM310.

---

### Using the ASMI to view the existing level of server firmware

Find out how to use the ASMI to view the level of firmware that currently runs on your server.

On the ASMI Welcome pane, view the existing level of server firmware in the upper-right corner below the copyright statement, for example, 01EM310.



---

## Chapter 15. Installing a feature using the Hardware Management Console

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

To use the Hardware Management Console user interface to install a feature or part into a system or expansion unit that is managed by an HMC, follow these steps:

1. In the navigation area, expand **Systems Management** → **Servers**.
2. Select the managed system you will install the part in.
3. In the Tasks area expand **Serviceability** → **Hardware**.
4. Select **Add FRU** (field replaceable unit).
5. In the Add/Install/Remove Hardware window select the system or enclosure into which you are installing the feature.
6. Select the type of feature you are installing from the menu and click **Next**
7. Select the location code for where you will install the feature, and click **Add**.
8. After the FRU is placed in the **pending actions** category 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 using the Hardware Management Console

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

To use the Hardware Management Console user interface to remove a part in a system or expansion unit that is managed by an HMC, follow these steps:

1. In the navigation area, expand **Systems Management** → **Servers**.
2. Select the managed system from which you are removing a part.
3. In the Tasks area, expand **Serviceability** → **Hardware**.
4. Select **Remove FRU**.
5. In the Add/Install/Remove Hardware - Remove FRU, Select FRU Type window, select the system or enclosure from which you are removing the part.
6. Select the type of part you are removing from the menu and click **Next**.
7. Select the location of the part you are removing and click **Add**.
8. After the part is listed in the **Pending Actions** display click **Launch Procedure** and follow the instructions to remove the part.

**Note:** The HMC might open the information center instructions for removing the part. If so, follow those instructions to remove the part.

---

## Exchanging a part using the Hardware Management Console

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

If you are exchanging a part to repair a serviceable event follow those instructions. If you are exchanging a part as a part of any other procedure using HMC Version 7 or later use these steps:

1. In the navigation area, expand **Systems Management** → **Servers**.
2. Select the managed system in which you are exchanging a part.
3. In the Tasks area expand **Serviceability** → **Hardware**.
4. Select **Exchange FRU**.
5. In the Replace Hardware - Replace FRU, Select FRU Type window select the system or enclosure in which you will exchange a part from the list.
6. Select the type of part you will exchange from the menu and click **Next**.
7. Select the location code of the part you will exchange from the menu and click **Add**.
8. After the FRU is placed in the **pending actions** category click **Launch Procedure** and follow the instructions to exchange the feature.

**Note:** The HMC might open external instructions for replacing the part. If so, follow those instructions to replace the part.

---

## Chapter 16. Hardware Service Manager — Verify

Use the Hardware Service Manager to verify communications or devices.

To verify communications or devices on any System i<sup>®</sup> model using the Hardware Service Manager *Verify* option, perform the following procedure:

**Note:** Before running a verification test, ensure that the customer is not using the resource you want to test and that all communication jobs on the resource to be tested are ended.

1. From the Start a Service Tool display, select the *Hardware Service Manager* option.
2. From the Hardware Service Manager display, select the *Logical hardware resources* option.
3. From the Logical Hardware Resources display, select the *System bus resources* option.  
This display lists all the I/O processors.
4. Select the *Resources associated with IOP* option for the attached IOP in the list.
5. Select the *Verify* option for the communications, tape, optical storage unit, or File Server adapter that you want to test.
6. When the test completes, the system responds with either a Test is successful message or a Test failed message.

**This ends the procedure.**

### Notes:

1. Hardware units might perform automatic self-tests when they are powered on.
2. You can test some workstations by using the *Test Request* function key while the operating system Sign On display is shown.
3. See the specific device information for possible off-line tests that you can run.

---

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

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

To verify the operation of a newly installed feature or replacement part, select the appropriate procedure:

- Verify the installed feature using AIX
- Verifying the replaced part using AIX

Verify the installed feature using AIX:

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, do one of the following:
  - 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 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.

Verify the replacement part using AIX:

To verify the operation of a newly installed feature or replacement part, follow these 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:** If the system supports slow boot, set the system to perform a slow boot. For information, see "Using the HMC to perform a slow boot" on page 90.
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.

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 on page 90.

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 on page 90.

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” on page 91.

## Using the HMC to perform a slow boot

Learn how to perform a slow boot using the HMC.

In some cases, you need to perform a slow-mode boot in order to perform extended diagnostic testing.

**Note:** A slow-mode boot might yield a new reference code on the control panel, or new errors in the service processor error log. When the server reports a new error code, record it for use in subsequent steps.

1. Record any reference codes appearing on the control panel or HMC. For details, see Collecting reference codes and system information.
2. Shut down all logical partitions and the server.
3. In the navigation area, select **Systems Management** → **Servers**.
4. Select the server you want to perform a slow boot on.
5. In the **Tasks** portion of the content area, select **Properties**.
6. Click the **Power-On Parameters** tab.
7. Record the current boot setting in the Power-on speed override box.
8. Select **slow** in the Power-on speed override list.

**Note:** These settings will apply to all future boots. After you complete the service action, change the settings back to what you recorded in step 7.

9. Click **OK**.
10. After you are done, return to the step in the procedure that caused you to perform a slow boot. **This ends the procedure.**

## Using the control panel to collect reference codes and system information

When selected, functions 11 - 20 on the control panel display reference codes and system information.

**Note:** Ensure you have a printed copy of the appropriate problem reporting form to document the information you collect here.

To collect reference codes and system information using the control panel, perform the following steps:

1. On the control panel, press the increment button until function 11 is shown on the function/data display.
2. Press the middle button.
3. Record the data.
4. Repeat steps 1 - 3 for functions 12 - 20, until you have recorded the machine type, model, and serial number shown by function 20.

### Notes:

1. If 11 is shown in the function/data display on the control panel display, the numbers that follow are the reference codes.
2. If a number other than 11 is shown in the function/data display, the number might not indicate a problem with the system. These reference codes might indicate functions you select from the control panel display.



3. If you have a console with type and reference code columns on it, record the data under the type column as the first 4 characters of function 11 on the problem reporting form. If an A, B, C, or D is displayed as the first character in the type column, use the data in the reference code column as the last 4 characters of function 11.

## Changing service indicators

Turn off the system attention indicator, enable enclosure indicators, change indicators by location code, and perform an LED test on the control panel.

The service indicators alert you that the system requires attention or service. It also provides a method for identifying a field-replaceable unit (FRU) or a specific enclosure within the system.

A hierarchical relationship exists between FRU indicators and enclosure indicators. If any FRU indicator is in an *identify* state, then the corresponding enclosure indicator will change to an *identify* state automatically. You cannot turn off the enclosure indicator until all FRU indicators within that enclosure are in an *off* state.

## Turning off the system attention indicator

The system attention indicator provides a visual signal that the system as a whole requires attention or service.

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

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

- Administrator
- Authorized service provider

To turn off the system attention indicator, do the following:

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

---

## Verifying the presence of an installed part on 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 presence of an installed part follow these steps:

1. Deactivate the failing item indicator light. For instructions, see “Deactivating the failing-part indicator light” on page 41.
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.

## Deactivating the failing-part indicator light

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. Select option 7 (Indicator off) to turn off the indicator light.
2. Select the **Acknowledge all errors** function at the bottom of the Service Action Log display, if all problems have been resolved.
3. Close the log entry by selecting option 8 (Close new entry) on the Service Action Log Report display.

---

## Verifying the installed part on a Linux system or logical partition

If you have installed a new part, learn how to verify that the system recognizes the part.

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

---

## Verifying an installed part 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 a 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 has 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 Network Installation Management (NIM) server, see “Running stand-alone diagnostics from a Network Installation Management server” on page 93.

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 the boot device on the server or logical partition on which you are working, follow these steps:

- a. Access the ASMI. See “Accessing the ASMI without an HMC” on page 33 for information on using the ASMI.
  - b. On the ASMI main menu, click on **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**. As soon as the optical drive has power, insert the standalone 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 should be initiated 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.

## Running stand-alone diagnostics from a Network Installation Management server

If you have AIX installed but it cannot be started or you have Linux installed, you can run the diagnostics from a Network Installation Management (NIM) server.

**Note:** Only perform this procedure if you are directed to by another procedure or by your next level of support.

Diagnostics, which are available for systems and logical partitions running in the AIX or Linux environments, can help you perform hardware analysis. If a problem is found, you will receive a service request number (SRN) that can help identify the problem and determine a corrective action.

A client system connected to a network with a NIM server can boot stand-alone diagnostics from the NIM server if the client-specific settings on both the NIM server and client are correctly configured.

**Notes:**

- For NIM clients that have adapters that would typically require supplemental media to be installed when stand-alone diagnostics are run from CD, the support code for these adapters must be installed into the directory pointed to by the NIM SPOT from which you want to boot that client. Before running stand-alone diagnostics on these clients from the NIM server, the NIM server system administrator must ensure that support for these devices is installed on the server.
- All operations for configuring the NIM server require root user authority.
- If you replace the network adapter in the client, the network adapter hardware address settings for the client must be updated on the NIM server.
- Ensure that the **Cstate** for each stand-alone diagnostics client on the NIM server is kept in the *diagnostic boot has been enabled* state.
- On the client system, the NIM server network adapter should be put in the bootlist after the boot disk drive. This allows the system to boot in stand-alone diagnostics from the NIM server if there is a problem booting from the disk drive.

**Configuring the NIM server**

For information about performing the following tasks, refer to the "Performing advanced NIM configuration tasks" topic in the *AIX Installation and Migration* guide. The guide is available at <http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/insgdrf.pdf>.

- Registering a client on the NIM server
- Enabling a client to run diagnostics from the NIM server

To verify that the client system is registered on the NIM server and the diagnostic boot is enabled, run this command from the command prompt on the NIM server: `lsnim -a Cstate -z ClientName`. Refer to the following table for system responses.

**Note:** The *ClientName* is the name of the system on which you want to run stand-alone diagnostics.

*Table 4. Verification that the client system is registered on the NIM server and the diagnostic boot is enabled*

System response	Client status
#name:Cstate:ClientName:diagnostic boot has been enabled:	The client system is registered on the NIM server and enabled to run diagnostics from the NIM server.
#name:Cstate:ClientName:ready for a NIM operation: or #name:Cstate:ClientName:BOS installation has been enabled:	The client is registered on the NIM server but not enabled to run diagnostics from the NIM server. <b>Note:</b> If the client system is registered on the NIM server but Cstate has not been set, no data will be returned.
0042-053 lsnim: there is no NIM object named "ClientName"	The client is not registered on the NIM server.

**Configuring the client and running the stand-alone diagnostics from a NIM server**

Perform the following steps to run stand-alone diagnostics on a client from the NIM server:

1. Inform the system administrator and system users that the system unit might be shut down.
2. Stop all programs including the AIX or Linux operating system. If you need help, contact the system administrator.
3. Remove all tapes, diskettes, and CDs.
4. Choose from the following options:
  - If you are running stand-alone diagnostics in a full system partition profile, verify with the system administrator and system users that the system can shut down using the shutdown command. Then power down the system.
  - If you are running on a logical partition, make sure the CD drive is available to the partition used to run stand-alone diagnostics. Verify with the system administrator and system users using that partition that all applications on that partition must be stopped, and that the partition will be restarted. Stop all programs on that partition, including the operating system.
5. Choose from the following options:
  - If you are in a full system partition, power on the system to run stand-alone diagnostics.
  - If you are in a logical partition, restart the partition to run stand-alone diagnostics.
6. When the keyboard indicator is displayed (the word *keyboard* on an HMC virtual terminal window or the keyboard icon on a graphical display) type 1 to display the SMS menus.
7. Enter any requested passwords.
8. Select **Set Up Remote IPL** (initial program load).
9. Enter the client address, server address, gateway address, if applicable, and subnet mask. If there is no gateway between the NIM server and the client, set the gateway address to 0.0.0.0.

To determine if there is a gateway, either ask the system network administrator or compare the first three octets of the NIM server address and the client address. If they are the same, (for example, if the NIM server address is 9.3.126.16 and the client address is 9.3.126.42, the first three octets (9.3.126) are the same), then set the gateway address in the **remote IPL field** to 0.0.0.0.
10. If the NIM server is set up to allow pinging from the client system, use the ping test option in the remote IPL option to verify that the client system can ping the NIM server.
11. Under the ping test option, choose the network adapter that provides the attachment to the NIM server to do the ping operation. If the ping returns with an OK prompt, the client is prepared to boot from the NIM server. If ping returns with a FAILED prompt, the client cannot proceed with the NIM boot.

**Note:** If the ping fails, refer to the "Troubleshooting NIM" topic in the *AIX Installation and Migration* guide.
12. Return to the SMS main menu.
13. Select **Select Boot Options** → **Install or Boot a Device** → **Network**.
14. Record the current bootlist settings so that you can set the bootlist back to the original settings after running diagnostics from the NIM server.
15. Change the bootlist so the network adapter attached to the NIM is first in the bootlist.
16. Set the network parameters for the adapter from which you want to boot.
17. Exit completely from SMS. The system will start loading packets while doing a BOOTP operation from the network.
18. Follow the on-screen instructions.
  - If Diagnostic Operating Instructions Version *x.x.x* is displayed, stand-alone diagnostics have booted successfully. Continue with step 20 on page 96.
  - If the AIX login prompt displays, stand-alone diagnostics did not load. Continue with step 19.
19. If the diagnostics did not load, check the following items:
  - Ensure that the bootlist on the client is correct.

- Ensure that the **Cstate** on the NIM server is correct.
  - Verify that you do not have network problems that might be preventing you from connecting to the NIM server.
  - Verify the settings and the status of the network. If you continue to have problems, refer to the "Troubleshooting NIM" topic in the *AIX Installation and migration* guide.
20. After running diagnostics, restart the system and use SMS to change the IP settings and bootlist sequence back to the original settings.

---

## Verifying the presence of an installed part using Hardware Management Console

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 presence of an installed part, complete these steps:

1. At the HMC, examine the service action event log for any open service action events. See "Viewing serviceable events" on page 98 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 "Activating and deactivating LEDs." **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.

## Activating and deactivating LEDs

Use this procedure to activate or deactivate LEDs using Service Focal Point for the HMC.

Choose from the following:

- "Deactivating a system attention LED or partition LED" on page 97
- "Activating or deactivating identify LED" on page 97



## Deactivating a system attention LED or partition LED

You can deactivate a system attention LED or a logical partition LED. For example, you might determine that a problem is not a high priority and decide to repair the problem at a later time. However, you want to be alerted if another problem occurs, so you must deactivate the system attention LED so that it can be activated again if another problem occurs.

1. In the navigation area, open **Systems Management**.
2. Open **Servers** and select the appropriate system.
3. In the content area, check the box for the appropriate Partition.
4. Select **Tasks**, then **Operations**, and then **Manage Attention LED**.
5. Select the appropriate Partition.
6. Select **Deactivate System Attention LED** from the **Action** menu. 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 activate the system attention LED.
7. Select one of the logical partitions in the lower table, and select **Deactivate partition LED** from the **Partition Operations** menu. A confirmation window is displayed that provides the following information:
  - A verification that the logical partition LED was deactivated.
  - An indication that there still might be open problems within the logical partition.
  - An indication that you cannot activate the logical partition LED.

## Activating or deactivating identify LED

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

You can activate or deactivate the following types of identify LEDs:

- **Identify LED for an enclosure**If you want to add an adapter to a specific drawer (enclosure), you need to know the machine type, model, and serial number (MTMS) of the drawer. To determine whether you have the correct MTMS for the drawer that needs the new adapter, you can activate the LED for a drawer and verify that the MTMS corresponds to the drawer that requires the new adapter.
- **Identify LED for a FRU associated with a specified enclosure**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), and then physically check to see where you should hook up the cable. This is especially useful when you have several adapters with open ports.

To activate or deactivate an identify LED for an enclosure or FRU, follow these steps:

1. In the navigation area, open **Systems Management**.
2. Select **Servers**.
3. In the content area, check the box for the appropriate System.
4. Select **Tasks**, then **Operations**, then **LED Status**, and then **Identify LED**.
5. To activate or deactivate an identify LED for an enclosure, select an enclosure from the table, and click either **Activate LED** or **Deactivate LED**. The associated LED is either turned on or off.
6. To activate or deactivate an identify LED for a FRU, select an enclosure from the table, select **Selected** → **List FRUs**.
7. Select one or more FRUs from the table, and click either **Activate LED** or **Deactivate LED**. The associated LED is either turned on or off.

## Viewing serviceable events

Use this procedure to view a serviceable event, including details, comments, and service history.

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. In the navigation area, select **Service Management**.
2. Select **Manage Serviceable Events**.
3. 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 perform actions on the serviceable events.
4. 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.
5. Select the error for which you want to view comments and history, and follow these steps:
  - a. Select **Actions** → **View Comments**.
  - b. When you are finished viewing the comments, click **Close**.
  - c. Select **Actions** → **View Service History**. The Service History window opens, showing service history associated with the selected error.
  - d. When you are finished viewing the service history, click **Close**.
6. When you are finished, click **Cancel** twice to close the Serviceable Event Details window and the Serviceable Event Overview window.

---

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

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

To verify the operation of a newly installed feature or replacement part, select the appropriate procedure:

- Verify the installed feature using VIOS
- Verifying the replaced part using VIOS

Verify the installed feature using VIOS:

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:
  - 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 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 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.

Verify the replacement part using VIOS:

To verify the operation of a newly installed feature or replacement part, follow these steps:

1. Did you replace the part 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.
2. Is the system powered off?
  - No:** Go to step 4.
  - Yes:** If the system supports slow boot, set the system to perform a slow boot. For information, see "Using the HMC to perform a slow boot" on page 90.
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
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 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 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

**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 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**. 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 on page 101.

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 one of the following for instructions: “Changing service indicators” on page 91



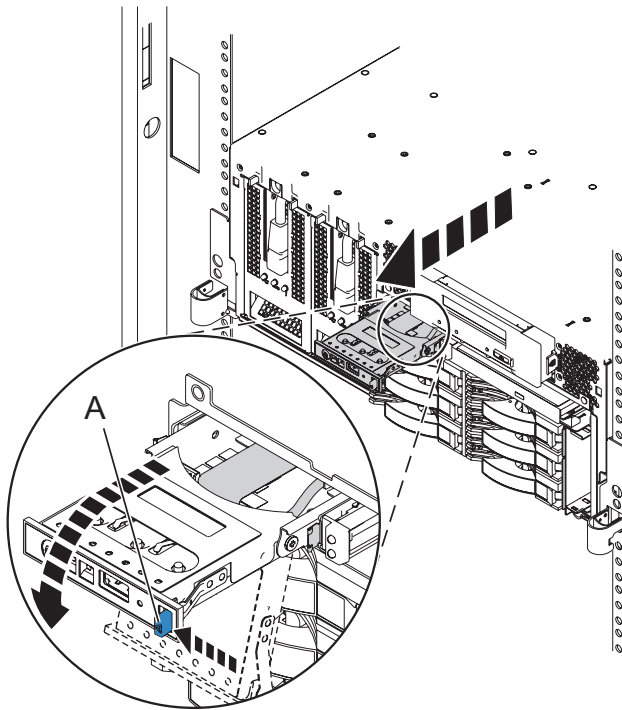
---

## Chapter 17. Accessing control panels for the 8204-E8A, 8203-E4A, 9407-M15, 9408-M25, or 9409-M50

Only part of the control panel is visible from the front of the serve. You might want to gain access to all of the control panel's features, including the display.

To access all of the control panel's features, complete the following steps:

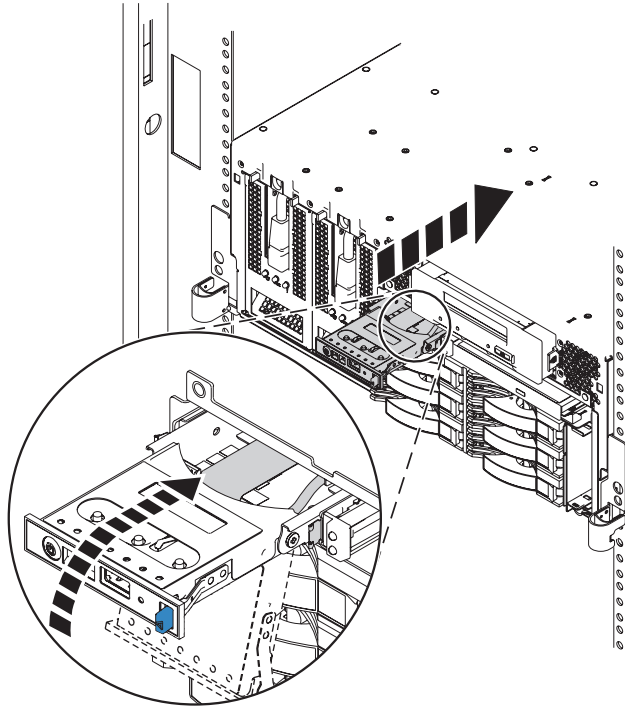
1. Press inward on the spring-loaded tab (A) located on the right side of the control panel so that it pops out slightly, as shown in the following figure.



IPHAJ870-0

Figure 37. Opening the control panel

2. Pull the control panel out, toward the front of the system, until it can be pivoted downward on its hinge.
3. To move the control panel back into the device enclosure, lift the control panel up to align it with the opening and push it into place until you feel the tab lock, as shown in the following figure.



IPHAJ871-0

Figure 38. Placing the control panel back into the enclosure

---

## Chapter 18. Replacing the 5802 I/O planar

If you removed the I/O planar as a part of another procedure, you might need to use the procedure in this section to replace the planar.

To remove the I/O planar, see Chapter 19, “Removing the 5802 I/O planar,” on page 107.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing the I/O planar in the server. For instructions, see “Exchanging a part using the Hardware Management Console” on page 85.

If you do not have an HMC, complete the following steps to replace the I/O planar:

1. Perform the prerequisite tasks as described in Chapter 5, “Before you begin,” on page 29.
2. Carefully lift and align the I/O planar with the slot at the back of the expansion unit.
3. Insert the I/O planar firmly into the server, as shown in the following figure.
4. Secure the I/O planar with the locking tabs (A) as shown in the following figure.

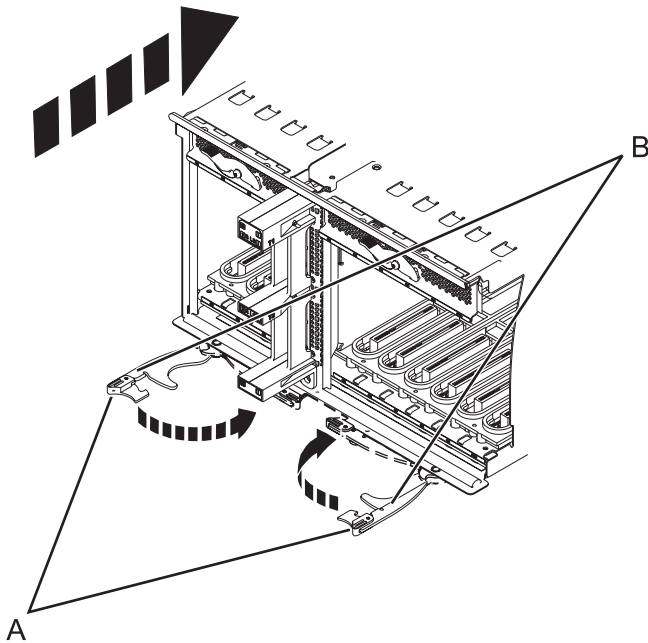


Figure 39. Install the I/O planar on a rack mounted model

If you are replacing the I/O planar as a part of another procedure, return to that procedure now.

If you are replacing the I/O planar to repair a failed unit, you can now reinstall the adapters and resume operation. For instructions, see Model 5802 and 5877 expansion units, PCI adapters, and cassettes.





---

## Chapter 19. Removing the 5802 I/O planar

Use the procedure in this section to remove the I/O planar from the expansion unit.

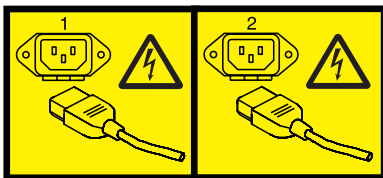
If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing the I/O planar from the server. For instructions, see “Exchanging a part using the Hardware Management Console” on page 85.

If you do not have an HMC, complete the following steps to remove the I/O planar:

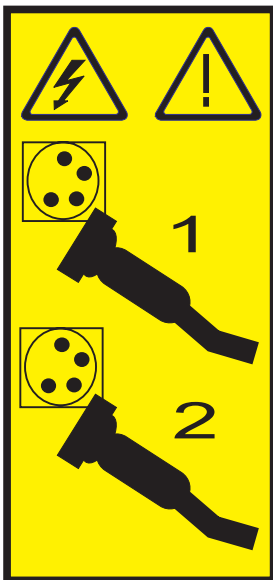
1. Perform the prerequisite tasks described in Chapter 5, “Before you begin,” on page 29.
2. Do one of the following steps as appropriate:
  - If you are removing the I/O planar for a system upgrade or as part of another procedure, continue to step 3.
  - If you are removing the I/O planar because of a system failure, use the service action log to help identify the failing part. See Chapter 7, “Service action log,” on page 39.
3. Stop the system. For instructions, see “Stopping a system or logical partition” on page 47.
4. Disconnect the power source from the system by unplugging the system.

**Note:** This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

(L003)



or



5. Disconnect the cables from the back of the I/O planar.

6. If you need to replace the I/O planar because of an upgrade or system failure, remove the adapters from the I/O planar. For instructions, see Model 5802 and 5877 expansion units, PCI adapters, and cassettes.
7. Squeeze the release latches (**A**) and pull the levers (**B**) out away from the system, as shown in the following figure.

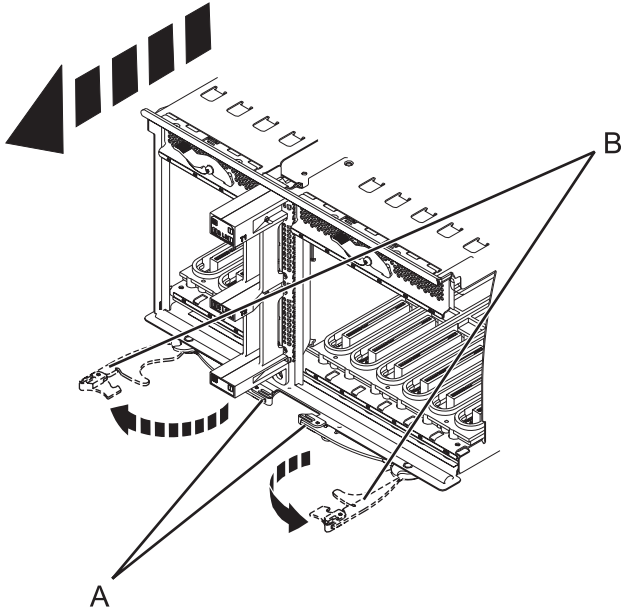


Figure 40. Removing the I/O planar

8. Slide the planar out of the system.

---

## Chapter 20. Removing the 5802 enclosure management controller

You might need to remove the enclosure management controller from the server to complete a repair or as a part of another service procedure.

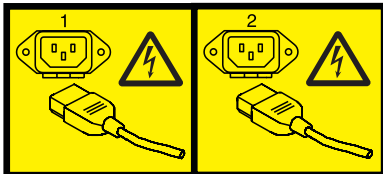
If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing the enclosure management controller from the server. For instructions, see “Exchanging a part using the Hardware Management Console” on page 85.

If you do not have an HMC, complete the following steps to remove the enclosure management controller:

1. Perform the prerequisite tasks as described in Chapter 5, “Before you begin,” on page 29.
2. Complete one of the following choices as appropriate:
  - If you are removing the enclosure management controller for a system upgrade or as part of another procedure, continue to the next step.
  - If you are removing the enclosure management controller because of a system failure, use the service action log to help identify the failing part. For instructions, see Chapter 7, “Service action log,” on page 39.
3. Stop the system. For instructions, see “Stopping a system or logical partition” on page 47.
4. Disconnect the power source from the system by unplugging the system.

**Note:** This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

(L003)



or



5. Disconnect and label the cables from the enclosure management controller.
6. Squeeze in on the latch **(B)** and pull the lever **(A)** away from the system as shown in the following figure.

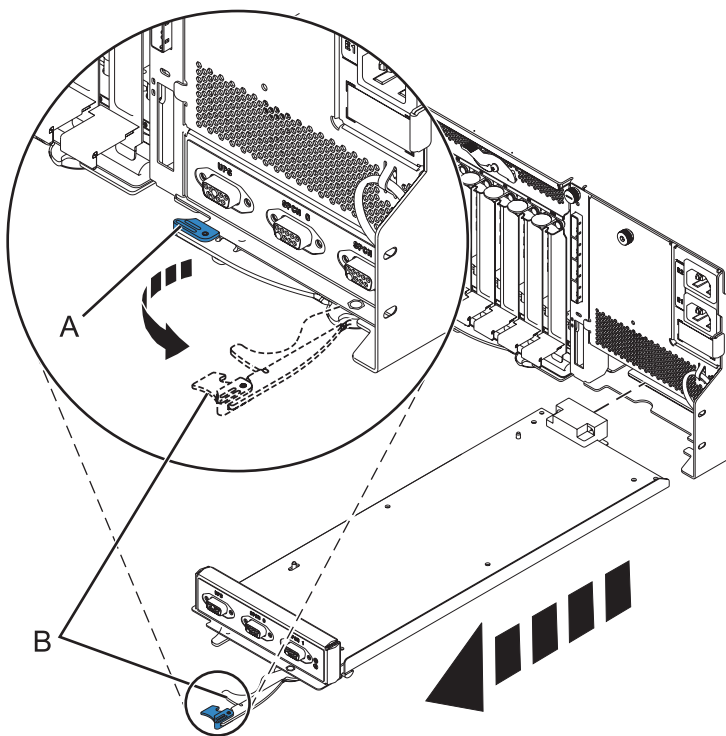


Figure 41. Removing the enclosure management controller from the system

7. Pull the enclosure management controller out of the system.
  - If you removed the enclosure management controller as a part of another procedure, continue with that procedure.
  - To replace the enclosure management controller or install a new controller, see Chapter 21, “Replacing the 5802 enclosure management controller,” on page 111.

---

## Chapter 21. Replacing the 5802 enclosure management controller

If you removed the enclosure management controller as part of another procedure, use the procedure in this section to replace the enclosure management controller.

To remove the enclosure management controller, see Chapter 20, “Removing the 5802 enclosure management controller,” on page 109.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for replacing the enclosure management controller in the server. For instructions, see “Exchanging a part using the Hardware Management Console” on page 85.

If you do not have an HMC, complete the following steps to replace the enclosure management controller:

1. Perform the prerequisite tasks as described in Chapter 5, “Before you begin,” on page 29.
2. Carefully slide the enclosure management controller into the system and close the latch (A) as shown in the following figure.

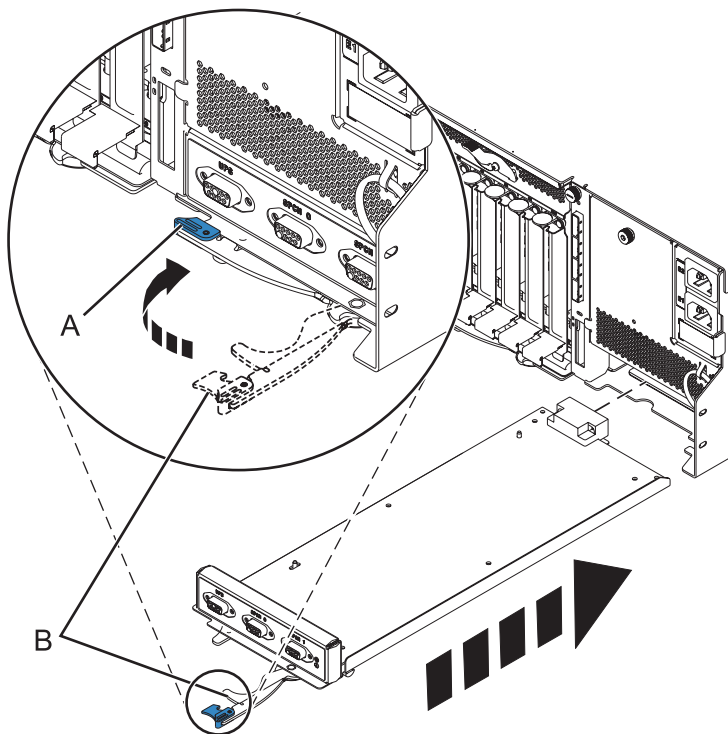


Figure 42. Replacing the enclosure management controller

3. Start the system. For instructions see, “Starting the system or logical partition” on page 43.
4. Verify the installed part. For instructions, see Chapter 16, “Hardware Service Manager — Verify,” on page 87.



---

## Chapter 22. Converting a 8203-E4A, 9407-M15 or, 9408-M25 from a stand-alone to a rack-mounted system

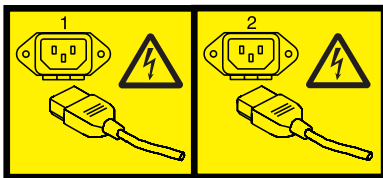
Use these procedures to convert a stand-alone system to a rack-mounted system.

Perform the prerequisite tasks as described in Chapter 5, "Before you begin," on page 29.

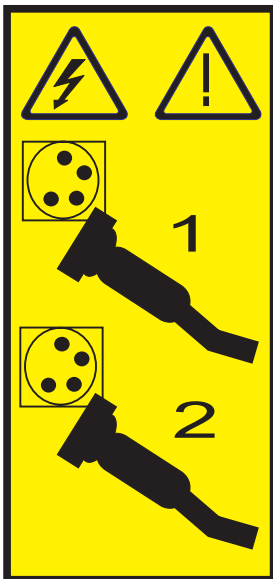
1. Stop the system. For instructions, see "Stopping a system or logical partition" on page 47.
2. Disconnect the power source from the system by unplugging the system.

**Note:** This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.

(L003)



or



---

### Removing the front cover from the stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the cover to access components or perform service.

1. Open the door that covers the disk drives by unlocking and pulling the door open.
2. Press down on the cover-release tab (A) as shown in the following figure.
3. Pull the top of the cover (B) out and away from the system.

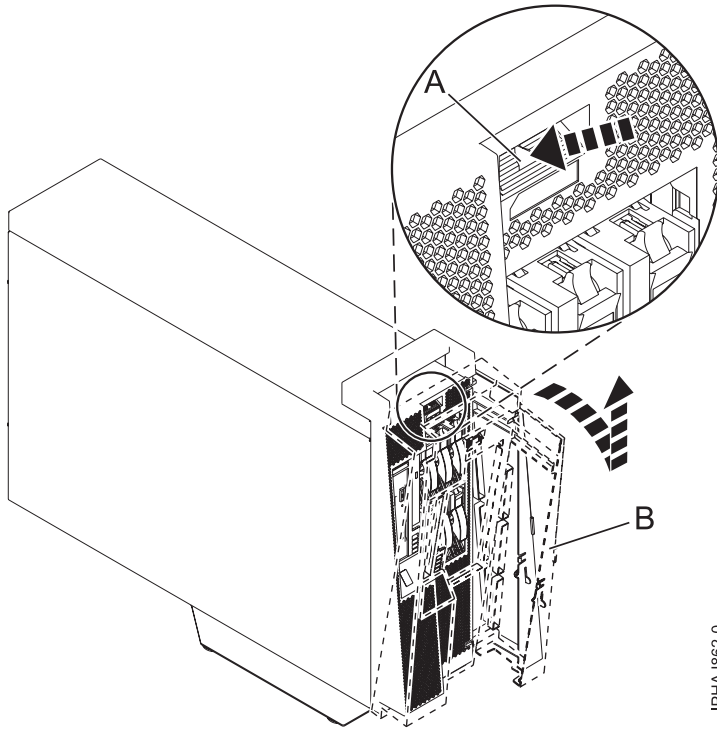


Figure 43. Remove the door from the model

4. Gently pull the cover up and off the base.

---

### Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50

Use this procedure to remove the service access cover to perform service or to gain access to internal components.

To remove the service access cover from a stand-alone model, do the following steps:

1. Loosen the two thumbscrews (**A**) located at the back of the service access cover as shown in the following figure.
2. Slide the service access cover (**B**) toward the back of the system. When the front of the cover clears the front frame ledge, lift the cover off the system.

**Attention:** For proper cooling and airflow, install the cover before starting the system. Operating the system without the cover for more than 30 minutes might damage the system components.



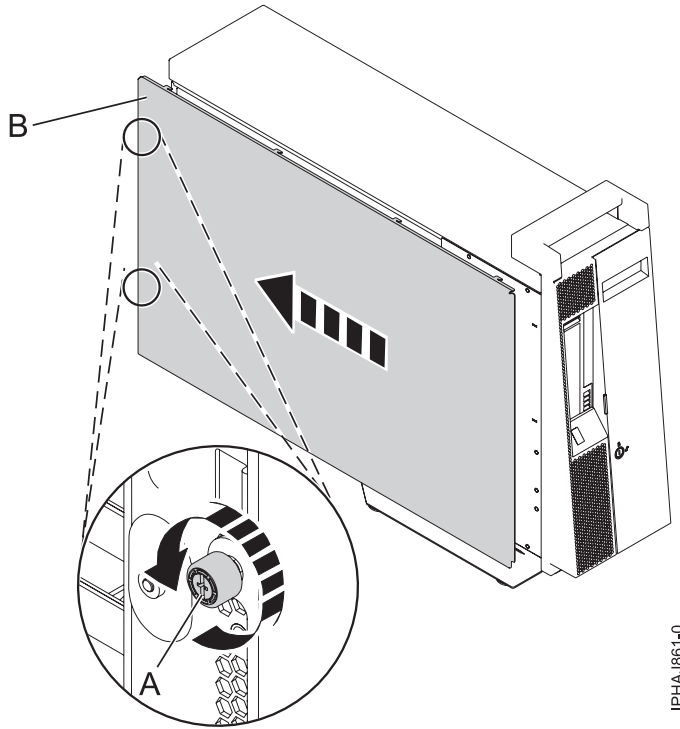


Figure 44. Removing the service access cover from the stand-alone model

---

## Removing the covers and base plate

To convert the model to a rack-mounted model or to ship the system, you must remove the covers and base plate.

1. Remove the plastic insert on the back of the handle by pushing a flat-head screwdriver into the slot in the middle of the metal handle and pulling the plastic insert out from the same side.
2. Pull the cover back from the rear of the system, then pull the side panel out slightly, and lift the cover up and away from the system.
3. Remove the handle from the system by removing the four screws and lifting the handle away from the system.
4. Rotate the system until the base plate is facing up.
 

**Attention:** Be careful when you turn the system as it is heavy and system damage can occur if it is dropped. Additionally, ensure the system is standing on a flat, secure surface so that it does not tip and fall when removing the base plate.
5. Remove the four screws from the bottom of the base, and lift the base away from the system.
6. Place the system down flat with the exposed side facing up.
7. Attach the four lift handles by placing them into the indented spaces and securing them with the two screws.
8. Place the system on a safe surface to complete the conversion, or packing process.

---

## Completing the conversion

You must remove and replace several other parts to complete the conversion from a stand-alone to a rack-mounted system. Some of the figures in this section represent the rack-mounted version; however, the procedures are the same for the stand-alone model.

1. Unlock the control panel by pressing release button (A), and then pull it out of the system as shown in the following figures. Remove the control panel by pressing the locking tabs (C) located on either side of the panel, grasping the edges of the panel, and pulling it out of its bay.

**Attention:** Disconnect the control-panel signal cable (B) from the back of the control panel.

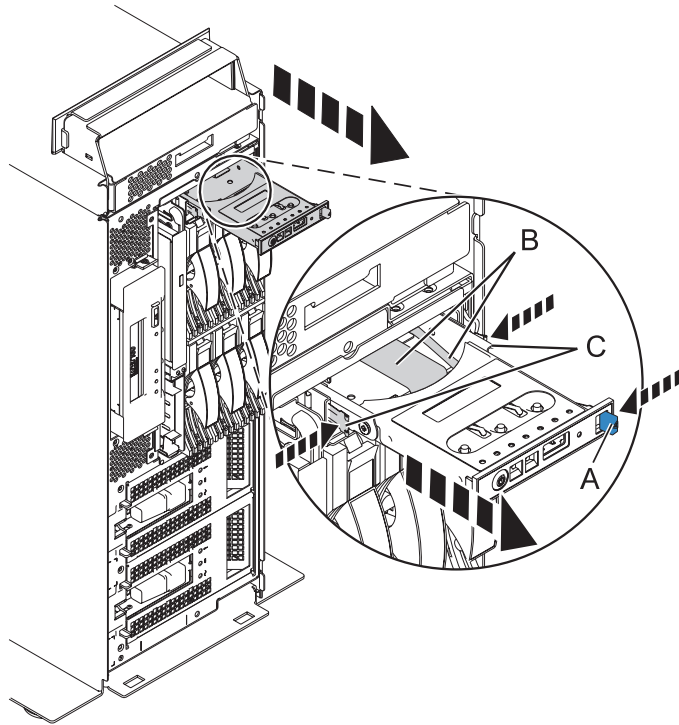


Figure 45. Removing the control panel from a stand-alone system

2. Press the retaining tab (A) away from the Slimline media device, until it unseats the device as shown in the following figure.

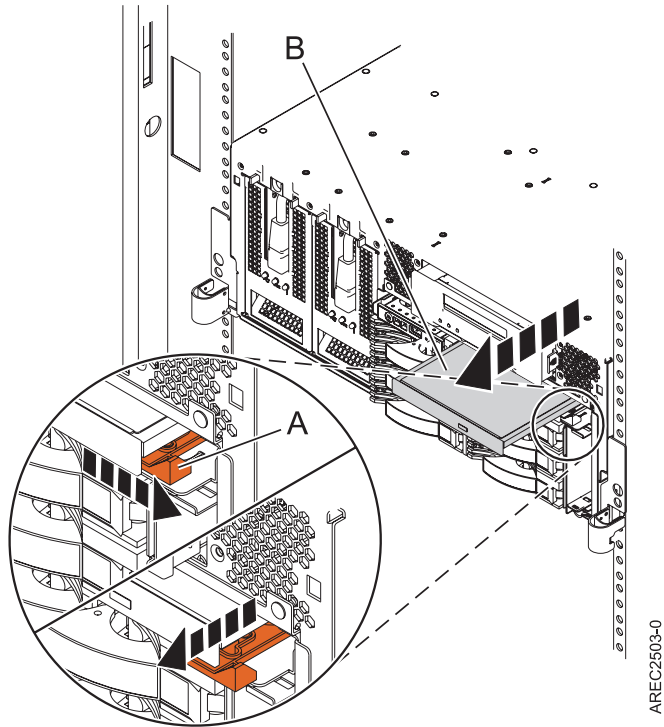


Figure 46. Removing the Slimline media device

3. Pull the Slimline media device **(B)** away from the system.
4. Remove the service access cover. For instructions, see “Removing the service access cover from a stand-alone 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50” on page 64.
5. Remove the fans or the airflow cover by doing one of the following steps:
  - a. Remove the airflow cover **(B)** by lifting each of the four tabs **(A)** to release the cover and lifting the cover from the system, as shown in the following figure.

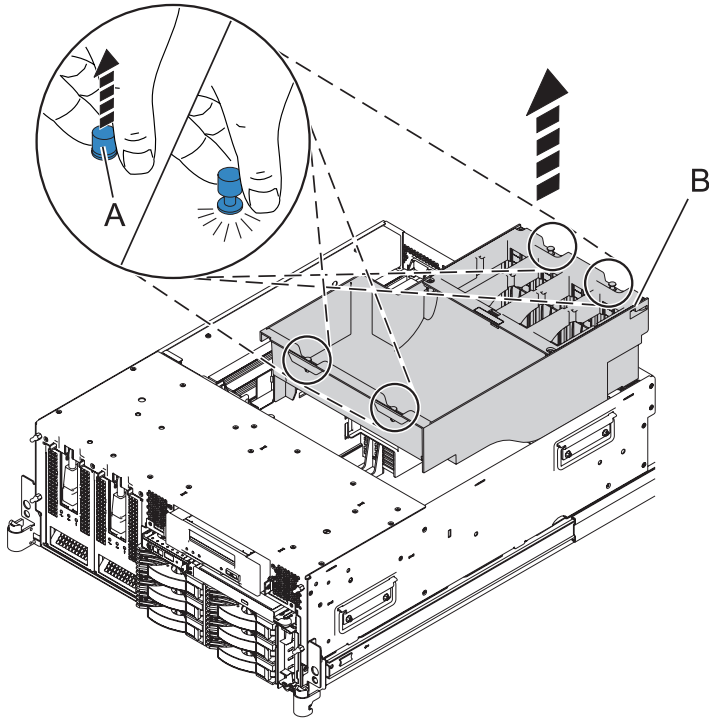


Figure 47. Removing the airflow cover

6. Disconnect the cables from the back of the disk drive backplane, as shown in the following figure.

**Note:** Ensure that you have disconnected all cables from the backplane. Some of the cables might not be shown in the following figure.

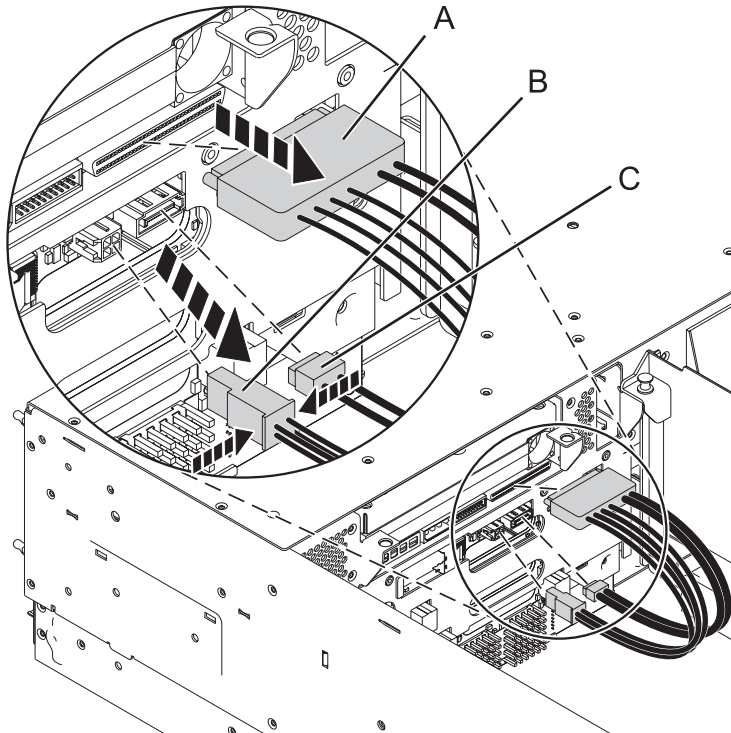


Figure 48. Removing media device cables

7. Remove the disk drives from the backplane.

**CAUTION:**

**If you remove a backplane that is populated with disk drives, the backplane will be heavy. Ensure that you can safely complete the procedure.**

- a. Lift the lever (A) to unseat the disk drive.
- b. Place one hand under the disk drive and carefully pull the drive out of the system as shown in the following figure.

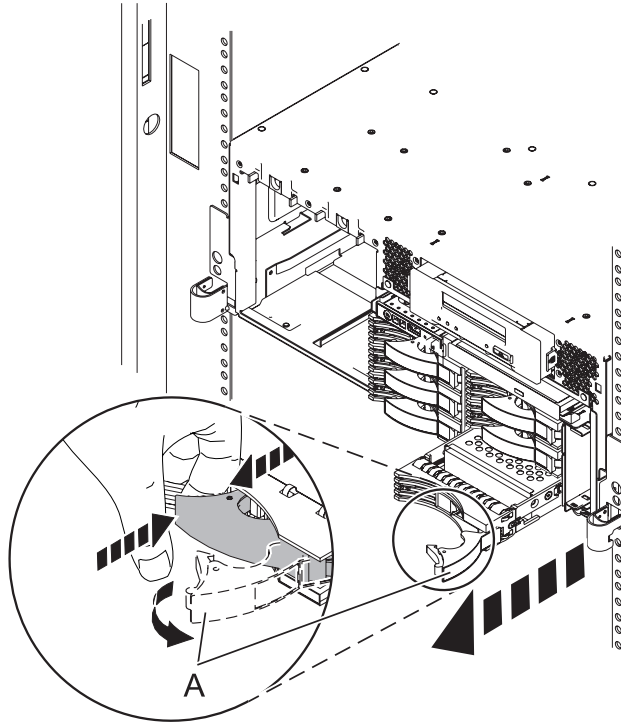


Figure 49. Remove disk drives

8. Unlock the disk drive backplane by pulling the handles open from the center of the backplane, as shown in the following figure.
9. Pull the backplane out of the server, as shown in the following figures.

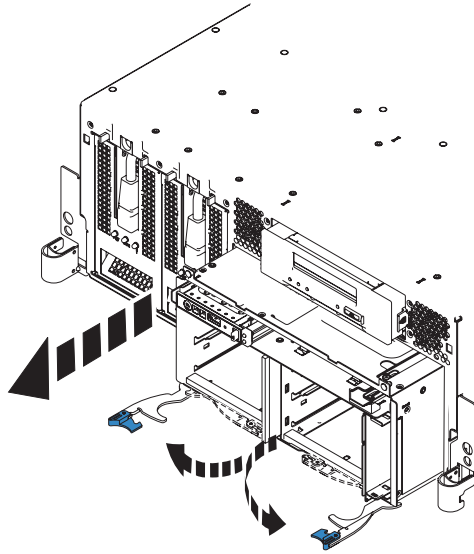


Figure 50. Removing the populated disk drive backplane

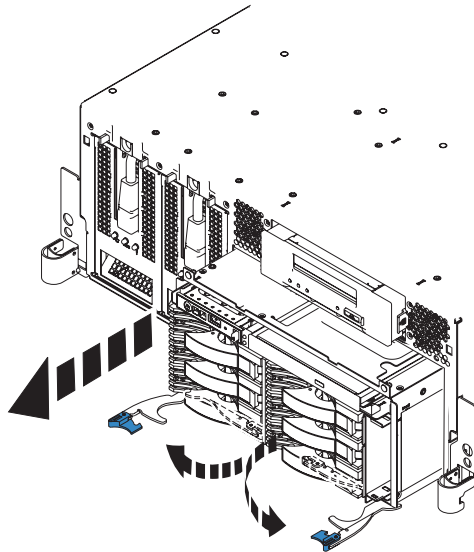
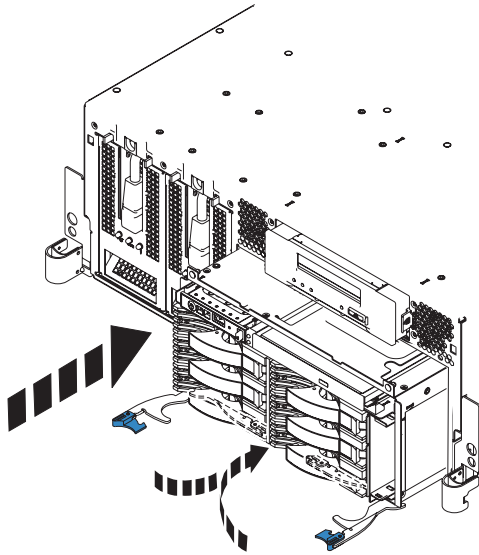


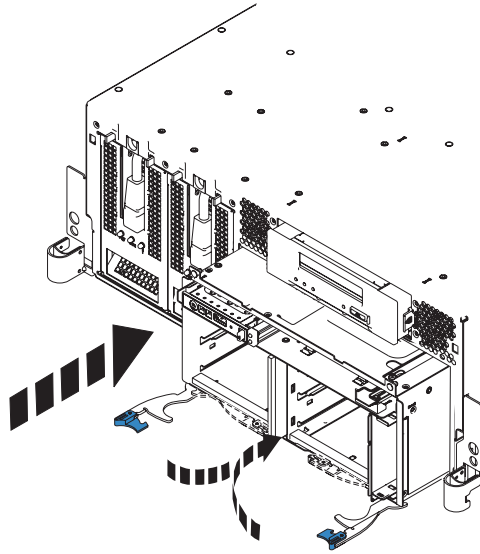
Figure 51. Removing the unpopulated disk drive backplane

10. Remove the control signal cable from the old backplane and install it in the new backplane, then return to these instructions. For instructions see Removing and replacing the 8203-E4A, 8204-E8A, 9407-M15, 9408-M25, or 9409-M50 control-panel signal cable.
11. Carefully align the backplane with the slot in the server.
12. Insert the backplane firmly into the server, as shown in the following figures.
13. Secure the backplane with the locking tabs.



*Figure 52. Installing the populated disk drive backplane on a rack-mounted model*





*Figure 53. Installing the unpopulated disk drive backplane on a rack-mounted model*

14. Install the control panel, if you have not already done so, by doing the following steps:
  - a. Carefully slide the control panel into the control panel bay until you feel the locking tabs lock in place.

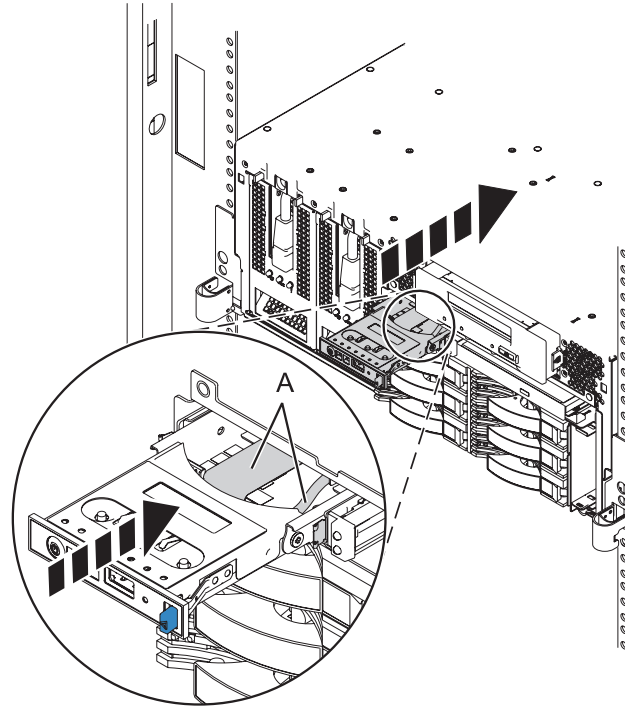


Figure 54. Replacing the control panel in a rack-mounted system

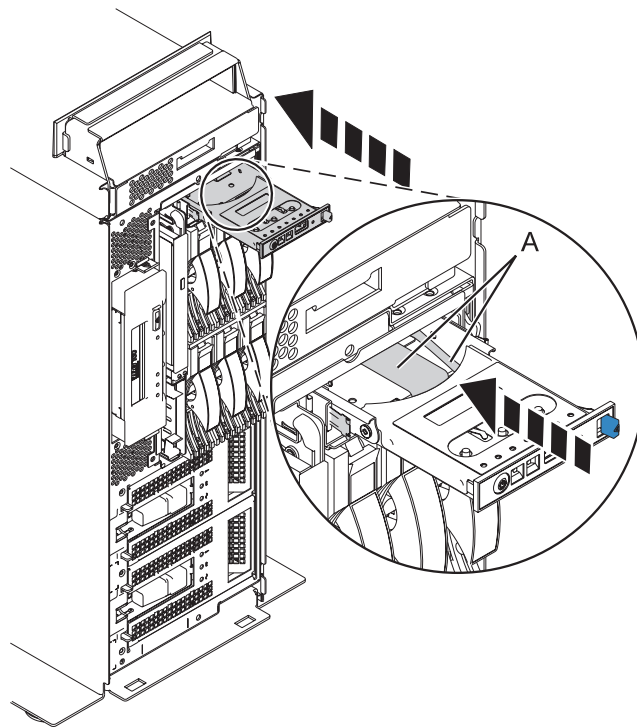


Figure 55. Replacing the control panel in a stand-alone system

15. Align the media device with the Slimline media bay, and support the bottom of the device as you slide it halfway into the system.

16. While holding the plastic retaining tab (B), push the device (A) fully into the system, as shown in the following figure.

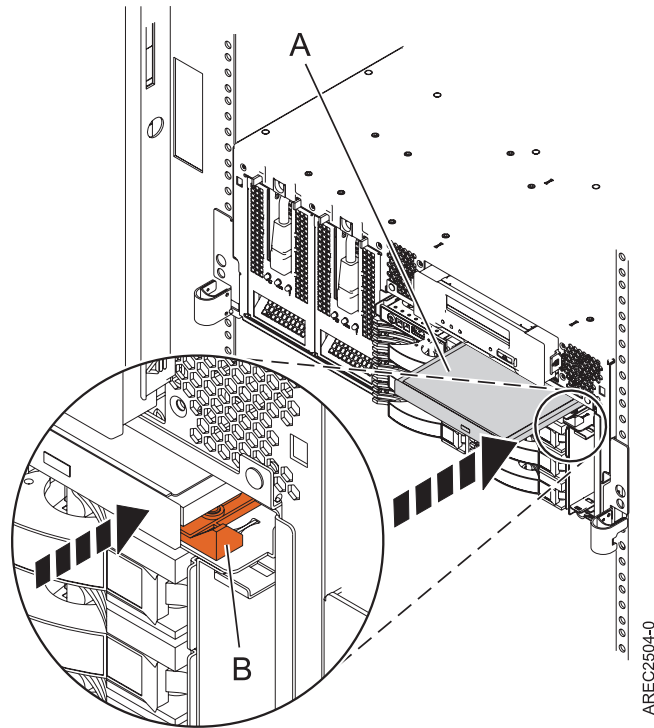


Figure 56. Installing the Slimline media-device

17. Attach the four front-cover mounting pins into the open holes at the edges of the front of the system. Use the wrench that is provided to tighten the mounting pins.

The conversion is now complete. Install the converted system into the rack. For instructions see, Road map to installing the IBM Power 520 Express™.



---

## Appendix. Notices

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

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

The manufacturer may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to the manufacturer.

**The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:** THIS INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. The manufacturer may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to Web sites not owned by the manufacturer are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this product and use of those Web sites is at your own risk.

The manufacturer may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning products not produced by this manufacturer was obtained from the suppliers of those products, their published announcements or other publicly available sources. This manufacturer has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to products not produced by this manufacturer. Questions on the capabilities of products not produced by this manufacturer should be addressed to the suppliers of those products.

All statements regarding the manufacturer's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The manufacturer's prices shown are the manufacturer's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information in softcopy, the photographs and color illustrations may not appear.

The drawings and specifications contained herein shall not be reproduced in whole or in part without the written permission of the manufacturer.

The manufacturer has prepared this information for use with the specific machines indicated. The manufacturer makes no representations that it is suitable for any other purpose.

The manufacturer's computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check the manufacturer's support websites for updated information and fixes applicable to the system and related software.

---

## Trademarks

IBM, the IBM logo, and [ibm.com](http://www.ibm.com)<sup>®</sup> are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at Copyright and trademark information at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

INFINIBAND, InfiniBand Trade Association, and the INFINIBAND design marks are trademarks and/or service marks of the INFINIBAND Trade Association.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

---

## Electronic emission notices

### Class A Notices

The following Class A statements apply to the IBM servers that contain the POWER6 processor.

### Federal Communications Commission (FCC) statement

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment

generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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

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

### **Industry Canada Compliance Statement**

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

### **Avis de conformité à la réglementation d'Industrie Canada**

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

### **European Community Compliance Statement**

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

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

European Community contact:  
IBM Technical Regulations  
Pascalstr. 100, Stuttgart, Germany 70569  
Tele: 0049 (0)711 785 1176  
Fax: 0049 (0)711 785 1283  
E-mail: tjahn@de.ibm.com

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

### **VCCI Statement - Japan**

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス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。

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

This product is a Class A Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

### **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

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

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

## Germany Compliance Statement

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

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

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der IBM gesteckt/eingebaut werden.

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

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

### Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

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

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

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

Verantwortlich für die Konformitätserklärung nach des EMVG ist die IBM Deutschland GmbH, 70548 Stuttgart.

Generelle Informationen:

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

## Electromagnetic Interference (EMI) Statement - Russia

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

---

### Terms and conditions

Permissions for the use of these publications is granted subject to the following terms and conditions.

**Personal Use:** You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative works of these publications, or any portion thereof, without the express consent of the manufacturer.

**Commercial Use:** You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of the manufacturer.

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any data, software or other intellectual property contained therein.

The manufacturer reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by the manufacturer, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

THE MANUFACTURER MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THESE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.



BULL CEDOC  
357 AVENUE PATTON  
B.P.20845  
49008 ANGERS CEDEX 01  
FRANCE

REFERENCE  
86 A1 66EW 04